

Court File No.: CV-25-00000750-0000

**ONTARIO
SUPERIOR COURT OF JUSTICE**

BETWEEN:

THE REGIONAL MUNICIPALITY OF WATERLOO

Applicants

- and -

PERSONS UNKNOWN AND TO BE ASCERTAINED

Respondents

SUPPLEMENTAL RESPONDING APPLICATION RECORD

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Court File No. CV-25-00000750-0000

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SUPERIOR COURT OF JUSTICE**

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TAB 1

Court File No. CV-25-00000750-0000

**ONTARIO
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B E T W E E N:

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Applicant

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AFFIDAVIT OF LEE ANN HUNDT

I, Lee Ann Hundt, of the City of Kitchener, in the Province of Ontario, AFFIRM AND SAY:

1. I have personal knowledge with respect to the facts set out below, except where stated otherwise. Where the information is not based on my personal knowledge, it is based upon information provided by others which I believe to be credible and true.

Background Working with Indigenous People in Waterloo Region

2. I am a status, First Nations woman from Sagamok First Nations. I am a 60's Scoop Survivor and a Generational Residential School Survivor (my Grandmother attended). I was adopted off reserve when I was 5 years old and placed in a non-Indigenous home a thousand

kilometres away from my family and my culture. I spent 10 years with the adopted family before I went into Foster Care. I have lived experience with homelessness. Due to placements that I was not happy with, I preferred to live on the streets. I would try to stay at friends' places, in their cars, stairwells, banks and abandoned locations that I felt safe in. Often, I was in dangerous situations. I was hungry, depressed and self-medicating.

3. I reconnected with my natural family when I got pregnant and subsequently, with my culture when I was 17 years old. A few years later, in 1994 - 1997 I moved to Sudbury and went to Cambrian College in Sudbury Ontario. I took the Native Child and Family Worker Program, which is the equivalent to the Social Service Worker Program. When I completed this program, I moved back down South and I have been living in Kitchener, supporting Indigenous people since 1998.
4. I started working in the community in 1999 with Service Canada in an Indigenous Restorative Justice Program, finding alternatives for conflict and dispute resolution in the Region of Waterloo. In 2003, I started working at Anishnabeg Outreach Employment & Training Inc. I started as the Administrative Assistant and worked my way up to Employment Counsellor, and then the Manager of the organization.
5. During my employment with Anishnabeg Outreach, I attended programming and obtained certification to run Indigenous specific Pre-Employment Programming as a licenced facilitator (2006) and over the course of 4 years, I completed my Certificate in Aboriginal Community Development from George Brown College (2011-2015).

6. I have been working in social services since 1998. Here are some of my roles:

- a) Restorative Justice and Conflict Resolution Worker with Monica House and White Owl Native Ancestry (1998-99)
- b) Administrative Assistant – Anishnabeg Outreach Employment & Training Inc. (2003-2004)
- c) Employment Counsellor (Employment Ontario Rep) Anishnabeg Outreach (2004-2007)
- d) Employment Counsellor (Ontario Federation of Indian Friendship Centres Rep) Anishnabeg Outreach (2007-2017)
- e) Manager (Employment Ontario Rep) Anishnabeg Outreach (2012-2017)
- f) Executive Director of KW Urban Native Wigwam Project (2019-2024)
- g) Winter Warming Centre Lead for Porchlight Counselling & Addiction Services (January 2025 - Present)
- h) Property Manager at Thresholds Homes and Supports (May 2025 – Present)
- i) Board Member relating to Housing and/or Indigenous People:
 - i. Habitat for Humanity (2023 – Present)
 - ii. Conestoga College – Social Service Worker Program Advisory Committee (2012 – Present)
 - iii. ONPHA: The Ontario Non-Profit Housing Association (2019 – 2024)
 - iv. The Healing of the Seven Generations (2016 – 2024)
 - v. Family & Children’s Services: Indigenous Leaders Circle (2014 – 2024)
 - vi. KW Urban Native Wigwam Project (2013 – 2019)

7. In my roles above – I have worked with most local Indigenous Organizations in the Region, including:
- a. Anishnabeg Outreach Employment & Training Inc.
 - b. The Healing of the Seven Generations
 - c. Crow Shield Lodge
 - d. Southwest Ontario Aboriginal Health Access Centre
 - e. White Owl Native Ancestry
 - f. Conestoga College
 - g. Wilfrid Laurier University
 - h. University of Waterloo
8. I sit on many advisory committees, informing and consulting on Indigenous best practices and policy. I have also sat on many Boards of Directors relating to housing and Indigenous issues. I am extremely familiar with the issue of Indigenous homelessness and the complexities of serving the Indigenous homeless population, including significant barriers to accessing housing.

Overrepresentation of Indigenous People in the Homelessness Population

9. Indigenous people make up only 2% of the population, yet they experience homelessness at increased rates compared to many other populations in Canada and are overrepresented within encampments. Attached hereto and marked as **Exhibit “A”** is 2021 Statistics Canada Data about Indigenous peoples in Ontario. See also the Region of Waterloo’s 2024

Point in Time Count findings where 17% of those surveyed identified as Indigenous, attached hereto and marked as **Exhibit “B”** There is an overrepresentation of Indigenous people experiencing chronic homelessness.

10. Additionally, this number is likely underreported. In my 26 years of working in this community, I have seen the errors in the numbers being collected and reported across the Region. According to many Indigenous people, there is no clear advantages to identifying as Indigenous. Historically, Indigenous people were negatively impacted by that admission. In the school systems, they were considered to have a learning disability right from the beginning. In the child welfare system, there were more apprehensions/investigations on that admission with no more cause than that they were Indigenous. In the justice system they were automatically too broken to rehabilitate and likely to reoffend. In the health system, they were red flagged as dependant on substances and alcohol, without evidence or diagnoses. If you identified as Indigenous, you were most likely to get a social worker visit than anyone else.

11. The definition of chronic homelessness, also does not capture the lived realities of Indigenous people. The definition of chronic homelessness is more than 6 months of the year, they are unhoused.¹ In many cases, Indigenous people are supported by each other in various ways. They can usually find someone in the community that will allow them to couch surf or camp out for small lengths of time. When they are truthful with this

¹ Navigating Complexity Together A Roadmap to Functional Zero by 2023, The Plan to End Chronic Homelessness, https://hdp-ca-prod-app-wr-engage-files.s3.ca-central-1.amazonaws.com/8717/3751/5659/e2ab214d23f14d3ec25657d3de07dc38_Appendix_A_-_Final_PECH_Report.2024.pdf

information, they are not considered ‘chronically homeless’ and therefore ineligible to receive supports because they don’t meet the criteria required to be considered homeless.

12. Another thing that affects the numbers/count of Indigenous people is if they do not have a status card, it is expired, or they cannot actually prove it with an approved identification method, they will not self-identify. So many of our community know they are Indigenous and cannot prove it. It is safer to not identify than to be questioned or scrutinized.

Barriers to Accessing Emergency Shelter

13. In my experiences, I can identify the following barriers to accessing emergency and transitional housing:
- a) Indigenous people often have to prove who they are, and some cannot in order to access immediate supports.
 - b) All the shelters in this Region are run by mainstream organizations. There are little to no culturally sensitive and appropriate connections to Indigenous specific supports, programs or services.
 - c) There are no emergency shelters that provides exclusive supports or specific spaces for Indigenous people in the Region.
 - d) There are not many Indigenous people working in these settings. There is no one like them to connect to for support and understanding.
 - e) Often assumptions are made about who they are as a person, based on their race or cultural beliefs.

- f) There is often no accommodations made for cultural practices, access to land or staffing that understands their unique challenges as an Indigenous person and are not trauma informed.
 - g) I have been in the room when someone visibly Indigenous enters the shelter and it is assumed that violence will occur.
 - h) Lack of cultural safety or culturally appropriate services.
 - i) Time is needed to build trust with Indigenous people. (With all people) but especially with temporary housing options and the shelter system. There are many start and end pilots that are tested out with Indigenous people but never result in permanent solutions. The disappointment and let down of this is very discouraging, and results in ongoing distrust.
14. The Region receives funding dollars for the Indigenous people. They are often determined by the stats they gather, so the funding is never enough to support the actual numbers and needs of the community.
15. The Federal Housing Advocate emphasizes the need to uphold Indigenous peoples' inherent right to housing, aligning with the United Nations Declaration on the Rights of Indigenous Peoples (UNDRIP). This includes prioritizing culturally appropriate, safe, and affordable housing, especially for those experiencing homelessness and living in encampments. The Advocate calls for increased federal investment in Indigenous-led housing solutions, emphasizing self-determination and community-specific needs.

KW Urban Native Wigwam Project

16. In and around 2023, I joined the Board of Directors for KW Urban Native Wigwam Project (KWUNWP). Eventually I stepped down from that Board of Directors to apply for the Executive Director position at KWUNWP, a position I held for six years.
17. KWUNWP provides safe, secure, rent geared-to-income housing and affordable housing for Native people and their families in Waterloo Region. When I started at KWUNWP they had only had 41 units and one staff. During my six years of employment at KWUNWP, I increased the portfolio to 150 units and 25 staff members. The units increased to 41 rent geared-to-income units, 32 affordable units, 32 transitional beds (Urban Native Transitional Housing Program), and 45 portable subsidies in locations not owned by KWUNWP. Attached hereto and marked as **Exhibit “C”** is a news article dated August 9, 2023 titled “First Indigenous temporary housing site coming to the region”.
18. Additionally, KKWUNWP had funding for social media support, an outreach person – working in the encampments, and was beginning an Indigenous Home Day Care Program, which would have held spots for up to 50 children to be supported to increase school and employment opportunities to the Indigenous community.
19. The Urban Native Transitional Housing (“UNTH”) Program was a service focused on providing a holistic view in looking at physical, mental, spiritual and emotional wellness of residents. Residents were supported towards success with the view to permanent long-term housing.

Closure of the Urban Native Transitional Housing Program

20. My employment with KWUNWP ended on November 1, 2024. Not long after, the Urban Native Transitional Housing (“UNTH”) Program was cancelled and 19 staff are terminated, and the outreach and child care supports are gone. Attached hereto and marked as **Exhibit “D”** is a news article dated January 17, 2025 titled “Waterloo Indigenous-led transitional housing program being put on pause” and **Exhibit “E”** is another news article dated March 31, 2025 titled “Program pause in Waterloo, Ont. leaves Indigenous people experiencing homelessness in limbo”.
21. The closure of the UNTH administered by KWUNWP on April 1, 2025 meant that 33 people were left without a place to live. 19 staff positions were terminated and these staff faced their own housing and financial crisis. 33 beds were no longer available for those that needed it and the cultural supports in place were discontinued. I do not know why this program ended, but it was unnecessary and has resulted in so much harm in the Indigenous community, leaving people with uncertainty and no support.
22. Many of the residents at the UNTH were moved to a newly built property in Cambridge run by KWUNWP (27 Cambridge St., Cambridge, ON). This was an apartment building with no additional supports onsite. Residents of the transitional housing program that were deemed ‘not ready for independent living’ remained as we continued to work with community partners to find suitable, affordable and sustainable housing. The staff were told in November that they were not to move anyone new into the building and were to find housing for the remaining transitional housing residents before the end of March 2025 when the doors would close and all the staff positions would end.

23. The remaining UNTH tenants were not found permanent housing, they were placed in motels with funding provided by the Region. There is no other Indigenous transitional housing program available now. Attached hereto and marked as **Exhibit “F”** is download of the Emergency Shelters and Transitional Housing website hosted by the Region.
24. The UNTH program had a weekly Narcotics Anonymous program, weekly doctor visits, regular food security programs, life skills programming, mental health workers, cultural supports, addictions workers, healing and wellness workers, housing support staff, relief workers, overnight staff and 100% Indigenous staff and residents. These supports are essential because there are higher rates of experiences with addiction and mental health conditions amongst the Indigenous population. Attached hereto and marked as **Exhibit “G”** is an excerpt from the Mental Health Commission of Canada.
25. There was a cultural space, a unit specifically for people in recovery that were substance free. There was walking programs, connection to land, ceremonies, drumming circles, sharing circles and staff/peer support. We had a community outreach person working in the encampments and shelters. We had people that had years of experience in the community and had levels of trust already established. We even had a UNTH Drum. Residents sat at this drum, practised weekly and were asked to attend community events. Community members that wanted them at these events paid for this.
26. The residents were feeling like they were building community and a place to belong. We had some doing work experience programs, paid and volunteer. All Indigenous led,

culturally safe, trauma informed, and led by a group of people that had become family. Trusted, reliable and responsive.

27. Since it has closed, there is nothing in the community to replicate these support services. I have seen many people return to substances (staff included). I have seen many returns to the street. I have seen them in the Warming Centres and know they have frequented the encampments in the Region including at 100 Victoria St. I have watched people getting cases built against them to be evicted and destroyed from the very places they were set up in to fail. I have seen them on the corners, asking for change. I have seen their pictures in the news, as they return to crime and violence.

Loss of Indigenous Specific Outreach Services

28. The Indigenous outreach worker at KWUNWP role was also cancelled. This means that there are no more supports for the encampments and shelters offered by KWUNWP. The Indigenous outreach worker at KWUNWP was supporting hundreds of folks in the community, at the Encampments in Kitchener, Cambridge and surrounding areas. They were attending meetings and sitting on committees, bringing forward the needs of the Indigenous community and providing culturally relevant and trauma informed support. They were navigating the service available through Indigenous and non-Indigenous organizations. They provided a trusting face and a passion for advocating for everyone that they worked with.

29. There remains only two Indigenous housing specific staff at KWUNWP to support the entire Indigenous community in Waterloo Region with housing supports. There is no one working with the Indigenous homeless population.
30. The KWUNWP Outreach Worker carried sacred medicines and was able to support clients in accessing things that connected them to their community, including events and programs being offered by agencies and the Region. Linking people with housing and mental health supports. Visible and meeting people in their environment, we were able to gain trust and bring people together.
31. The outreach worker did not force interactions; they just started to be present in their environments. We showed them that day after day, they could rely on us to be there. When they needed us, we were there. This is how you build trust with a population of people that are overrepresented in the negative systems out there.
32. Showing up and advocating when things are not right. It is usually written off as unsuccessful because the time to build trust is not taken seriously. It takes a while to be in their spaces and be trusted to approach. It takes a long time for Indigenous clients to believe that you mean no harm and that your only goal is to make life easier for them. Not everyone wanted to be saved, yet. Not everyone wanted housing, yet. They wanted to be heard.

33. We dress like they do. We carry things that they can see and relate to. We know what they mean and can engage in discussions and knowledge sharing. We can teach what we know and learn from them too. Valuable connections are different for many nations.

Unaware of Any Consultation with Residents of the Encampment

34. I am well connected with many local Indigenous organizations and I have no knowledge of any consultation with Indigenous communities/organizations or any Indigenous encampment residents related to the impacts of the 100 Victoria St. Encampment By-law or their pending displacement. There are virtually no culturally appropriate services available for these residents who are now facing eviction. Although the Region has listed several steps they have taken to minimize the impact of clearing the Encampment, there are no references to consulting with Indigenous communities or governments. Attached hereto and marked as **Exhibit “H”** a posting from the Region of Waterloo website titled “Kitchener Central Transit Hub Moves Forward”.

Systemic Barriers to Housing

35. Here are systemic barriers that contribute to the disproportionate impact on Indigenous persons:
- a) Racism from landlords, shelters, or service providers.
 - b) Issues with motels or other temporary housing.
 - c) Cultural insensitivities around how they look and dress (Long hair, tattoos, etc.).

36. Indigenous persons are often more vulnerable to eviction or displacement from encampments because they have a different connection to the land and the people around them. They do not quickly trust and that can lead to behaviour and aggressions that are often misunderstood and criminalized.
37. Indigenous people often come from poor living conditions and so the way they live or how they see their surroundings is different. Asking for help is hard to do when you are usually met with a negative outcome or shame. Often complaints are not expressed, as this draws attention that they do not want. Or they've experienced eviction in the past because they held a previous landlord accountable. They don't report issues with their living arrangements and often have larger issues because of it but fear repercussions if they ask for improvement.
38. Indigenous people have been removed, displaced and treated like they have no rights or claims to their homes. Historically, there has been attempts made to eradicate and erase Indigenous people. Drawing attention to yourself was met with discipline and often forced to act different to fit in 'better'. This is often why Indigenous people do not report or advocate for ourselves or others.
39. When an Indigenous person is evicted or removed from where they live, there is a trauma response that they may not even know or understand. The sense of loss is often devastating and creates a sense of violation that is familiar yet not fully understood. Their ability to support themselves or their family is taken away.

40. I was renovicted less than 2 years ago. I lived in my place since 1999. I was angry. I was filled with shame because I felt like I failed my family. I was worried that people would think it was because I was a bad tenant. That I did not pay my rent and was a bad person. I was then faced with the need to have great credit, first and last months rent and even more to secure a place. I was a single mother, and most thought there should be a dual parent family living in the units – like that made it more stable for them to rent to you. I felt the judgement. I was ashamed of my identity for the first time in a very long time. I had to stop myself several times and ask myself why I needed to dress up extra to view a unit, make sure I wasn't wearing beaded earrings and stuff.
41. Developing plans for housing with Indigenous people comes with much of the same concerns. Based on previous experience, they know they have to change their appearance. We often come to the city from the reserve with no credit score or even housing experience. If you always get turned down for something, you shy away from putting yourself in that situation again. Sometimes it is easier to stay in the tent, stay in bad relationships, get into bad relationships – just to have a place to stay.
42. Indigenous people helping Indigenous people is missing in housing. For all the committees and meetings I attend for housing, rarely is there anyone else in the room but me that can speak to the Indigenous Housing needs. Consultation is not enough to prescribe what Indigenous people need. You have to employ them, support them, and also, hold them accountable. Truth and Reconciliation works both ways and everyone has a part to play in the success. Indigenous people need to be a part of the housing, programs and services for Indigenous people.

AFFIRMED remotely by Lee Ann Hundt)
at the City of Kitchener, in the Province)
of Ontario, before me at the City of Kitchener)
in the Province of Ontario on August 7, 2025 I)
accordance with O. Reg. 431/20.)



Ashley Schuitema, A Commissioner of
Oaths (LSO # 68257G)



LEE ANN HUNDT

THIS IS **EXHIBIT "A"** REFERRED TO
IN THE AFFIDAVIT OF LEE ANN HUNDT
SWORN REMOTELY AT THE
CITY OF KITCHENER BEFORE ME AT THE REGION OF WATERLOO
DURING A ZOOM VIDEOCONFERENCE
IN ACCORDANCE WITH O.REG. 431/20,
ADMINISTERING OATH OR DECLARATION REMOTELY
THIS 15TH DAY OF AUGUST, 2025



ASHLEY SCHUITEMA
A Commissioner, etc.,
Province of Ontario,
While a Barrister and Solicitor.
LSO # 68257G



Statistics
Canada

Statistique
Canada

[Home](#) > [Census of Population](#) > [Data products, 2021 Census](#) > [Focus on Geography Series](#) > [Ontario](#)

Focus on Geography Series, 2021 Census of Population

Ontario, Province

Map

Data quality

Feedback

Topic:

Indigenous peoples

Geographic name:

Ontario (Province)

Submit

2.9%

In 2021, there were 406,590 Indigenous people in Ontario, making up 2.9% of the population.

61.7%

The majority of the Indigenous population reported a single Indigenous identity—either First Nations, Métis or Inuk (Inuit). Of the Indigenous population in Ontario, 61.7% (251,025) were First Nations people, 33.1% (134,615) were Métis, and 1.1% (4,310) were Inuit.

60.4%

Within the First Nations population, 60.4% (151,555) had Registered or Treaty Indian status, as defined under the *Indian Act*. The other 39.6% (99,475) of the First Nations population did not have Registered or Treaty Indian status.

7,120

In addition to those who reported a single Indigenous identity, 7,120 people reported more than one Indigenous identity and 9,515 were defined as having an Indigenous identity that was not included elsewhere.

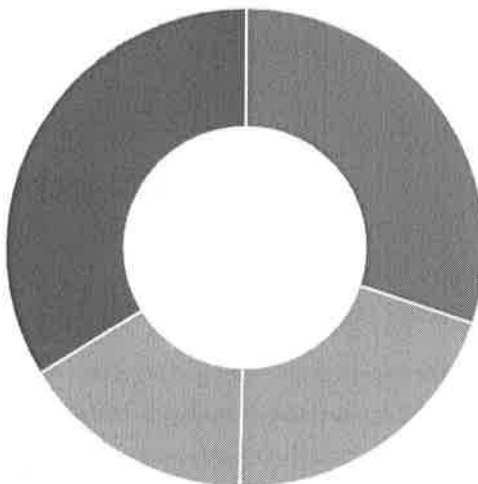
Total population by Indigenous identity and Registered or Treaty Indian status, Ontario, 2021

Indigenous identity	Number	Percent (%)
Total – Population by Indigenous identity	14,031,755	100.0
Indigenous identity	406,590	2.9
Single Indigenous responses	389,955	2.8
First Nations (North American Indian)	251,025	1.8
First Nations (Registered or Treaty Indian)	151,555	1.1
First Nations (not a Registered or Treaty Indian)	99,475	0.7
Métis	134,615	1.0
Inuk (Inuit)	4,310	0.0

Indigenous identity	Number	Percent (%)
Multiple Indigenous responses	7,120	0.1
Indigenous responses not included elsewhere	9,515	0.1
Non-Indigenous identity	13,625,165	97.1

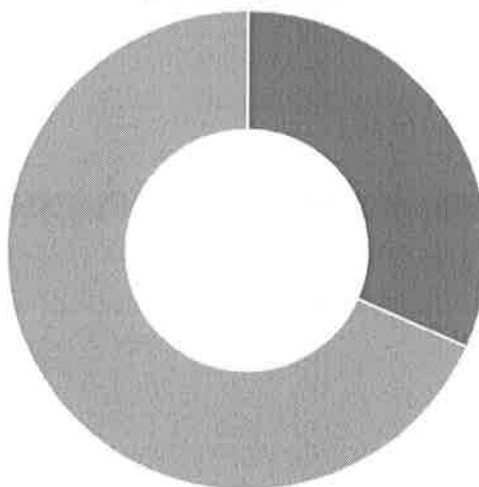
Distribution of the Indigenous population by population centre size, Ontario, 2021

■ Rural ■ Small population centre ■ Medium population centre ■ Large population centre



Distribution of the First Nations population with Registered or Treaty Indian status by residence on or off reserve, Ontario, 2021

■ On reserve ■ Off reserve



Younger
22.3%

In general, the Indigenous population in Ontario is younger than the non-Indigenous population.

Indigenous children aged 14 and under represented 22.3% of the total Indigenous population, while non-Indigenous children aged 14 and under accounted for 15.8% of the non-Indigenous population.

35.3

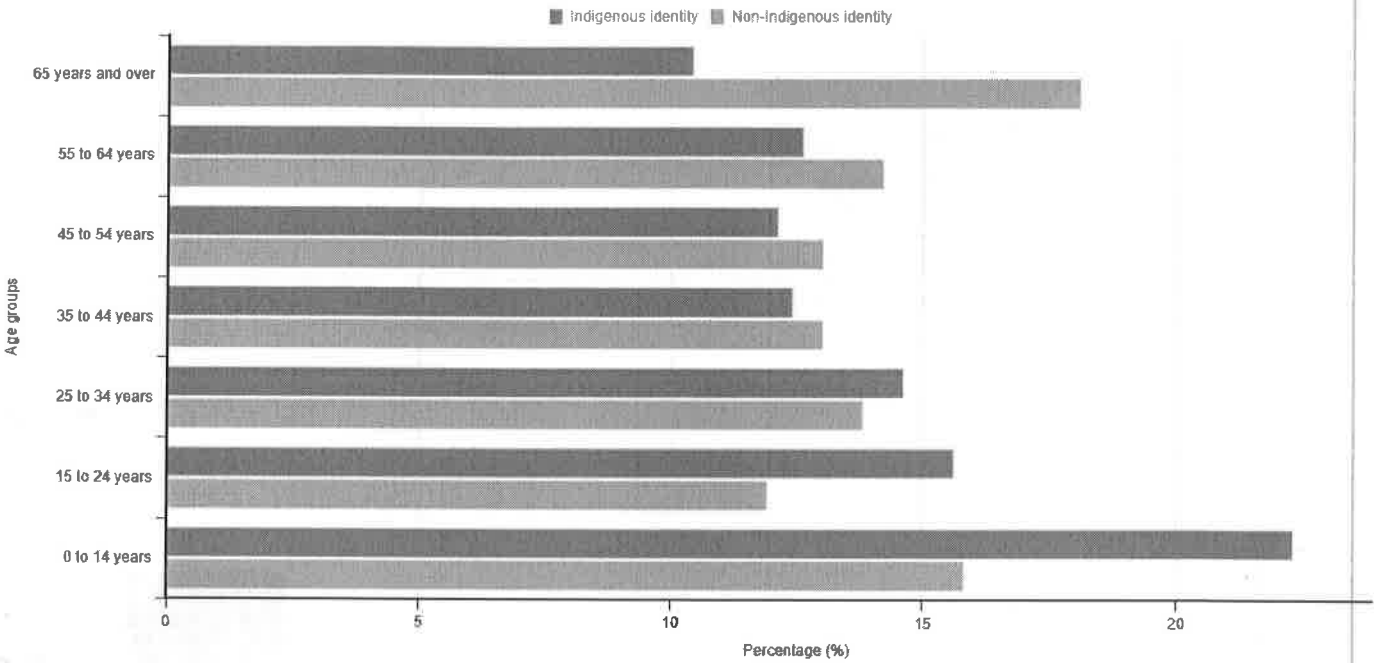
The average age of the Indigenous population in Ontario was 35.3 years, compared with 41.6 years for the non-Indigenous population.

33.9

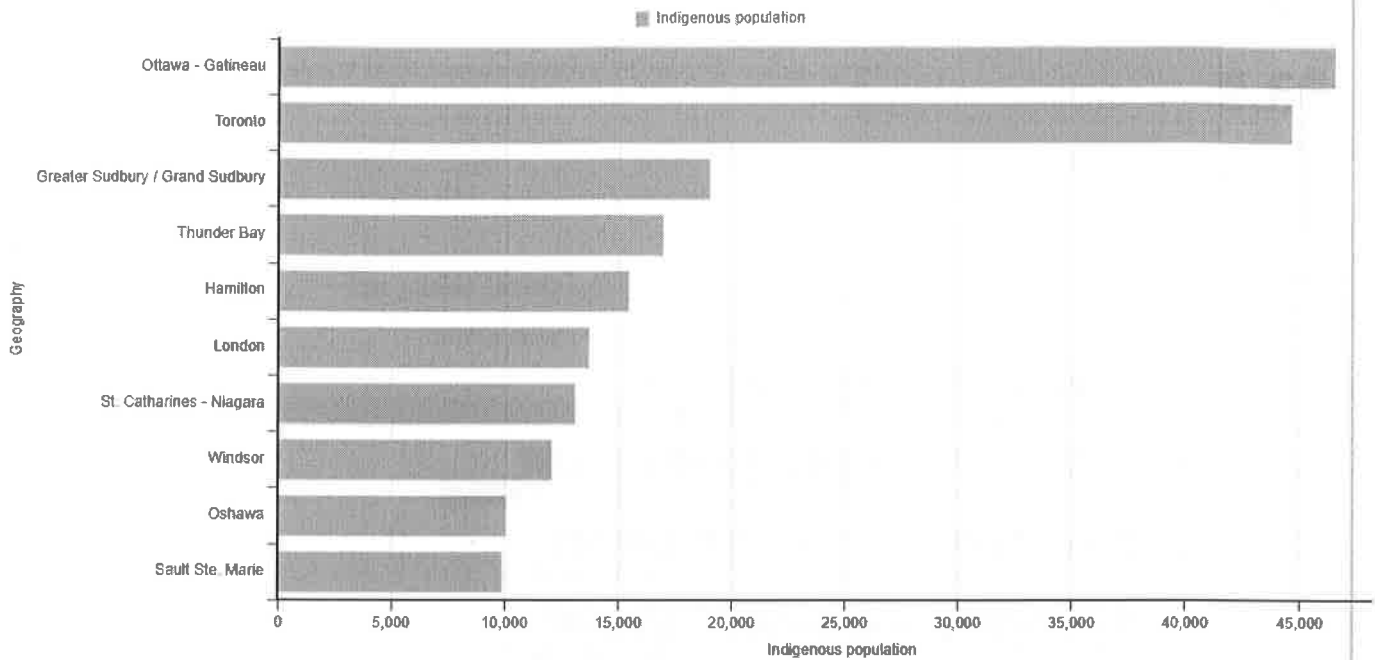
The average age was 33.9 years for First Nations people; it was 38 years for Métis; and it was 31.2 years for Inuit.



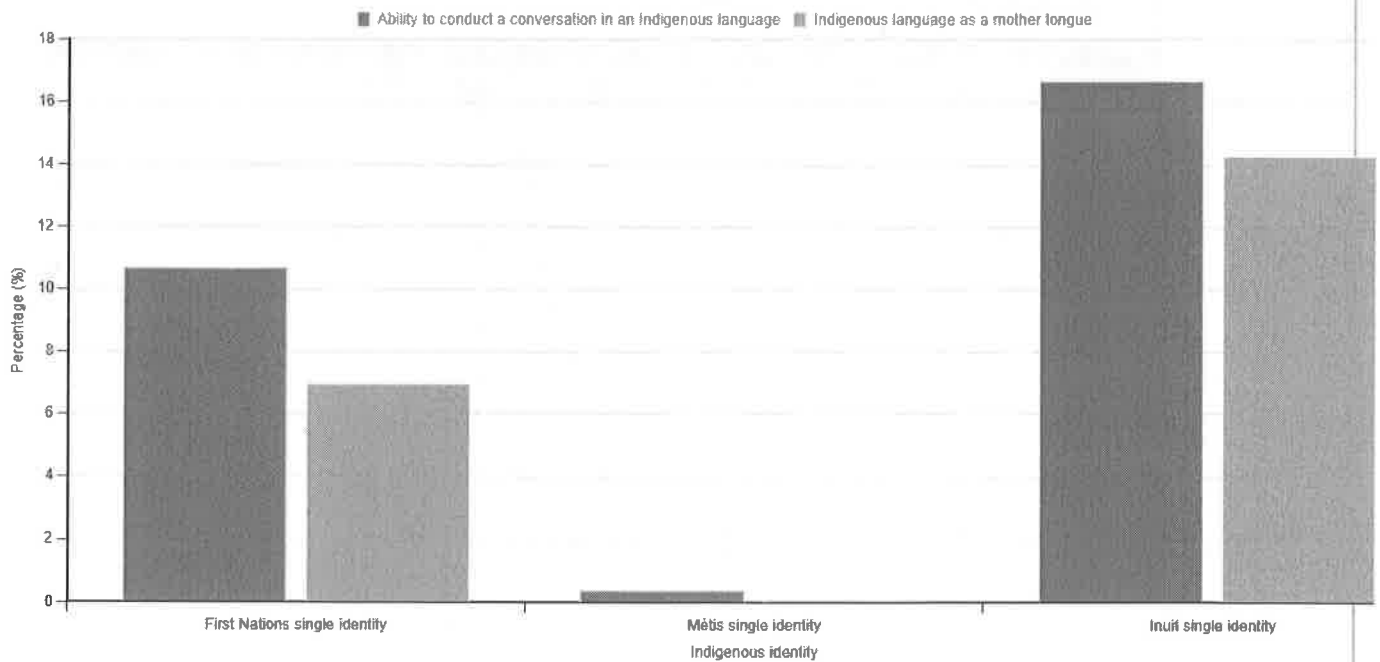
Age distribution by Indigenous identity, Ontario, 2021

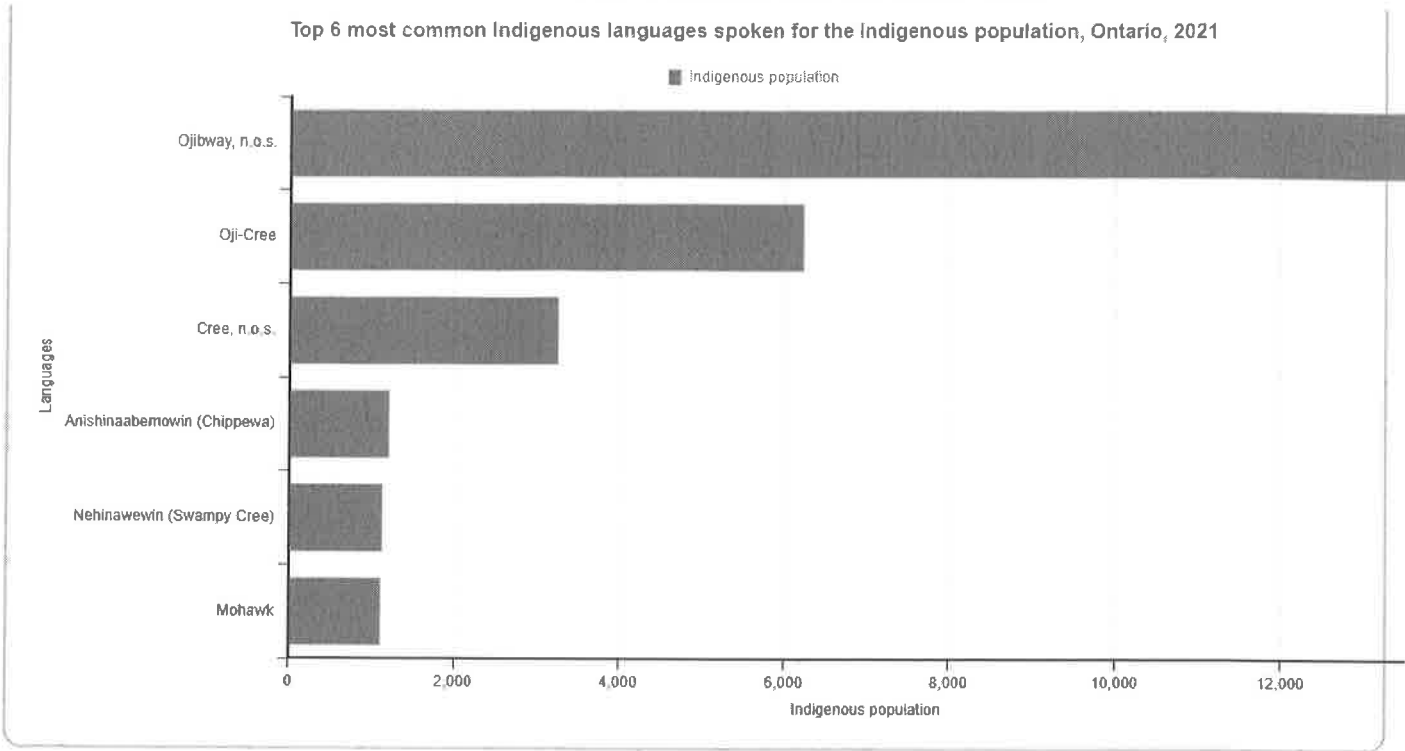


Top 10 census metropolitan areas and census agglomerations by Indigenous population, Ontario, 2021



Selected Indigenous language indicators for First Nations people, Métis and Inuit, Ontario, 2021





← Previous topic

↑

Next topic →

Symbols:

- ... not applicable
- .. not available for a specific reference period
- r revised
- E use with caution
- x suppressed to meet the confidentiality requirements of the *Statistics Act*

Source: Statistics Canada. 2021 Census of Population.

Date modified:
2022-12-16

THIS IS **EXHIBIT "B"** REFERRED TO
IN THE AFFIDAVIT OF LEE ANN HUNDT
SWORN REMOTELY AT THE
CITY OF KITCHENER BEFORE ME AT THE REGION OF WATERLOO
DURING A ZOOM VIDEOCONFERENCE
IN ACCORDANCE WITH O.REG. 431/20,
ADMINISTERING OATH OR DECLARATION REMOTELY
THIS 15TH DAY OF AUGUST, 2025



ASHLEY SCHUITEMA
A Commissioner, etc.,
Province of Ontario,
While a Barrister and Solicitor.
LSO # 68257G



Region of Waterloo
COMMUNITY SERVICES

2024 Point in time count findings

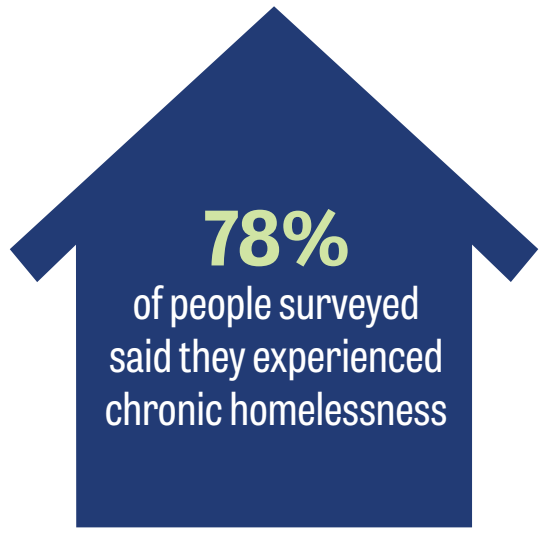
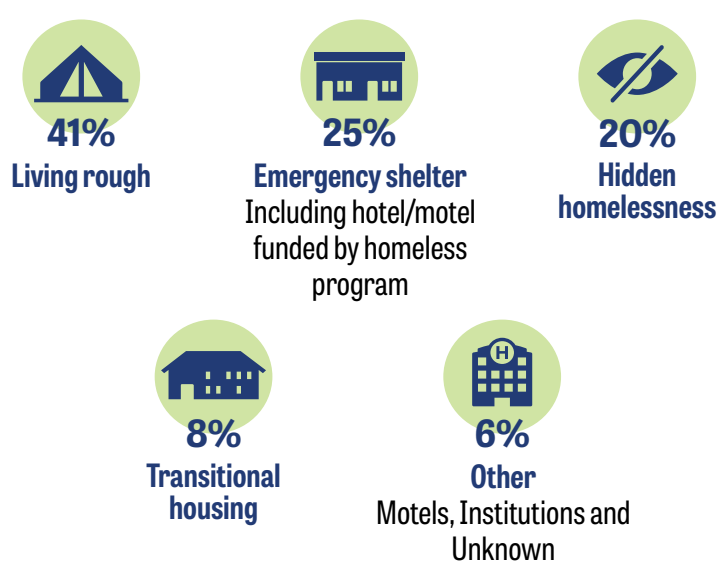
2371 people experiencing any type of homelessness were counted on **October 22, 2024.**

- 1009** people living rough (living in encampments, on the street, or staying in their vehicle)
- 446** people staying in an emergency shelter
- 353** people experiencing hidden homelessness (staying with friends or family, or temporary accommodations)
- 221** people staying in transitional housing
- 153** people staying in a motel funded by the Region
- 100** people in institutions (hospital, police custody)
- 89** people staying in unknown or undisclosed locations

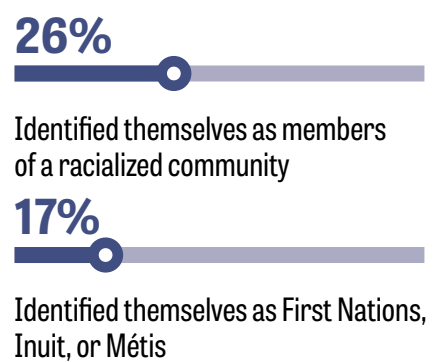
1790 people included in the **point in time count** filled out a survey. A summary of the responses they shared is outlined below.

WHERE/HOW LONG

Where people are experiencing homelessness*

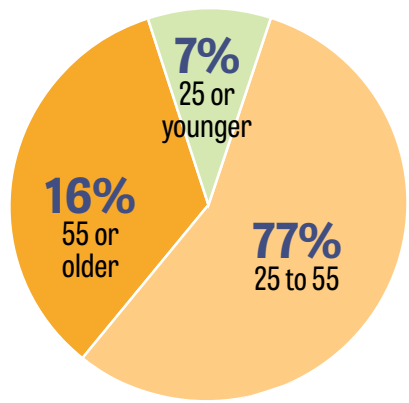


Racial identity

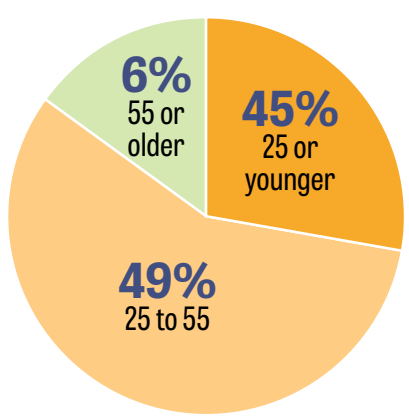


WHO

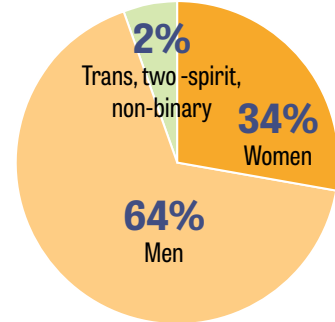
Age of survey respondents



Age when people first experienced homelessness



Gender identity



* The number of people experiencing homelessness in these locations differs from the numbers reported at the top of the page as this section reports on where survey respondents are experiencing homelessness - not everyone experiencing homelessness filled out a survey. Not everyone who participated in the survey answered every question. The percentages above are based on total responses for each question.

EXPERIENCES OF HOMELESSNESS

Top 5 reasons

people said caused their experience of homelessness

Not enough income for housing **(44%)**

Conflict with spouse / partner **(18%)**

Landlord / tenant conflict **(13%)**

Unfit / unsafe housing conditions **(12%)**

Substance use issues **(11%)**



Health challenges reported by survey respondents

72%

Substance use

70%

Mental health

44%

Illness / medical condition

29%

Physical limitation

28%

Acquired brain injury

Top 10 services that would be helpful



Finding affordable housing **(76%)**



Housing search support **(54%)**



Bus pass **(53%)**



Finding a job **(49%)**



Accessing income support (e.g. OW, EI) **(45%)**



Internet access **(42%)**



Getting ID **(41%)**



Outreach workers **(41%)**



Secure storage **(39%)**



Washrooms, showers **(39%)**



Top 10 challenges to finding safe permanent housing

Low income **(80%)**

Rent too high **(78%)**

Addiction **(33%)**

No income assistance **(32%)**

Poor housing conditions **(31%)**

Mental health issues **(29%)**

Discrimination **(27%)**

Criminal history **(19%)**

Family breakdown / conflict **(18%)**

Physical health issues, accessibility **(16%)**

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First Indigenous temporary housing site coming to the region



By **Brandon Maher**

Posted Aug 9, 2023 05:00:31 AM.

Last Updated Aug 9, 2023 04:02:02 PM.

The first indigenous-led transitional housing is coming to the region.

The Kitchener Waterloo Urban Native Wigwam Project is taking the charge and offering temporary housing to those who identify as indigenous and are experiencing homelessness, which will include First Nations, Metis and Inuit.

The shelter space will be 24 hours, seven days a week, and will be able to offer space for 28 people.

Temporary housing will be available to single people, couples and potentially small families in emergencies with the goal of helping people transition to permanent housing.

The initiative is a collaboration with the Regional government, and comes from a \$192.5 million dollar budget the region set aside for 2023 towards housing and homelessness.

The temporary housing will be located at 34 Bridgeport Road East in Waterloo and is expected to open this week.

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Kitchener-Waterloo

Waterloo Indigenous-led transitional housing program being put on pause

Organizers say program needs to be re-envisioned

[Cameron Mahler](#) · CBC News · Posted: Jan 17, 2025 6:00 AM EST | Last Updated: January 17



The transitional house at 34 Bridgeport Rd. E first opened in the summer of 2023 and houses 12-15 tenants. (Google Maps)

The KW Urban Native Wigwam Project (KWUNWP) is putting a pause on its transitional housing program in Waterloo.

A release put out by KWUNWP says the decision was difficult, but it's necessary to "re-envision" the program. This includes hiring new staff including in leadership positions, remodeling programs to meet the nuanced needs of their tenants and finding a new location.

The program began in the summer of 2023 at a temporary location at 34 Bridgeport Rd. E, but the lease ends in May and the building is due to be demolished.

"We're up for anybody who is willing to rent to us at a location that would house about 12 to 15 individuals," said Laury Turcotte, the executive director of KWUNWP.

Turcotte told CBC News the group needs space to develop more sustainable practices to foster healing and successfully transition people to permanent housing.

"We're looking for more of a place that has a lot more green space. There was actually not much at the last one," said Turcotte. "To carry out more of our cultural components, we need that green space."

The organization says it's working with the housing services team at the Region of Waterloo on a plan to move the tenants currently living at the Bridgeport location.

Turcotte said the group is working with tenants on finding new housing as well as a housing worker liaising with the region.

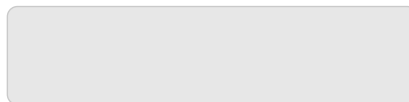
"We have a long history of providing culturally safe and affordable housing for the Indigenous [First Nations, Metis, and Inuit] community in Waterloo Region," said Turcotte in the release.

Turcotte said the program is officially pausing on Mar. 31.

All other programs and services delivered by KWUNWP will continue to operate as usual.

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TRENDING VIDEOS

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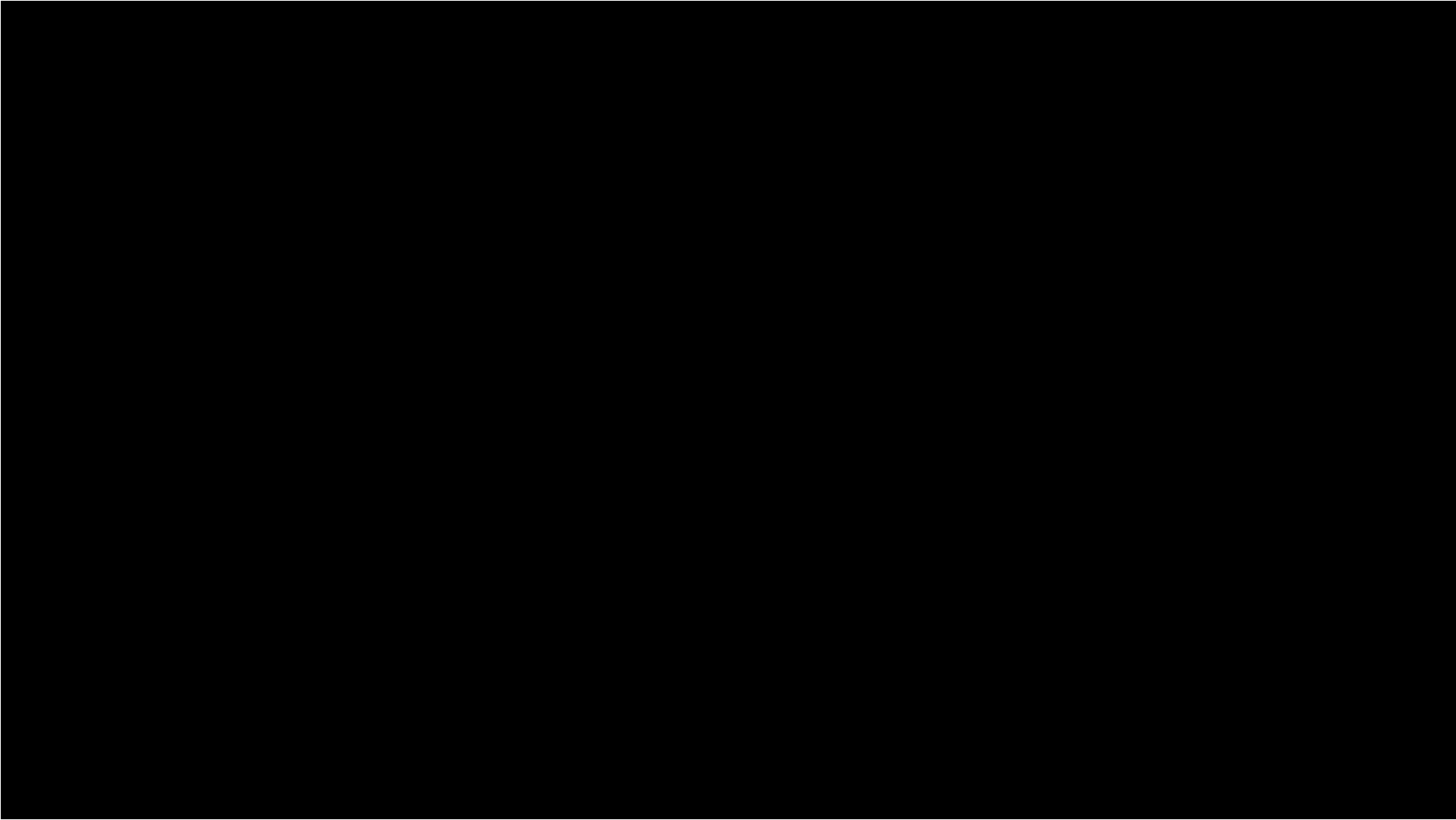


[Kitchener](#) | News

Program pause in Waterloo, Ont. leaves Indigenous people experiencing homelessness in limbo

By [Shelby Knox](#) and [Spencer Turcotte](#)

Published: March 31, 2025 at 3:35PM EDT



People who participated in a transitional housing program could end up back on the streets. CTV's Spencer Turcotte has an update.

People who have been taking part in an Indigenous transitional housing program say they don't plan to leave, even as the program shuts down.

"March 31 was the day they said they were closing the doors, but there's a process that you follow normally," resident James Boppre said.

Boppre has been living at 34 Bridgeport Road East in Waterloo since November. The location has been home to the KW Urban Native Wigwam Project's transitional housing program. The initiative aims at helping Indigenous people transition from temporary housing to permanent housing by providing culturally relevant support.

But now, the future of people relying on the program, like Boppre, has been thrown into uncertainty.

"I haven't been formally served anything. We pay rent here and a normal protocol would be 60 days notice or something. None of the residents here have gotten any notice that we're leaving."



James Boppre sat in his unit at the KW Urban Native Wigwam Project in Waterloo, Ont. on March 31, 2025. (Spencer Turcotte/CTV News)

[In January, the organization that runs the KW Urban Native Wigwam Project said they were putting a pause on its housing program at the Bridgeport Road East location.](#)

Boppre said the announcement has left him in limbo.

“At this stage of the game, I never thought I’d be homeless,” he explained. “This place took me in and gave me programs.”

As March 31 dawned, Boppre was still living in his unit and was making no moves to leave the building.

The organization behind the program said the pause will allow them to devise better ways to meet the growing needs of the Indigenous community.

According to a news release announcing the decision, the program “will undergo a significant re-envisioning process with new staff and leadership to better meet the growing needs of Indigenous residents experiencing homelessness.”

Boppre said the future of the people who had been working at the building is also in turmoil.

“The staff here are excellent,” he said. “They’re under the same kind of unknown. ‘Do we have a job tomorrow?’ I don’t think any of them even got notices.”

Right now, the organization has not announced any potential new locations for the program if it resumes.

“[Our] energy has been spent finding alternative housing for our guests,” Laury Turcotte, KW Urban Native Wigwam Project executive director, said.

“Tomorrow and to the end of our agreement will be used for inventory/cleaning of the property,” Turcotte said.

The news release from KW Urban Native Wigwam Project also said the building will be demolished sometime after their lease ends in early May, but the owners of the building, HIP Developments, told CTV News there are “no immediate plans for demo or development” and that they are “working with the [Region of Waterloo] to find another non-profit group to partner with.”

All other programs and services offered by KW Urban Native Wigwam Project continue to operate as usual.

But as questions continue to pile up, Boppre and others who had been using the program are facing a transition they weren't expecting.

"It's supposed to be transitional housing. Friday, we got a bunch of tents. That's where we came from. I didn't think we were supposed to go in reverse."

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[Renovictions or required repairs? Conflicting stories over conditions at Waterloo apartment building](#)

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Region of Waterloo

Emergency Shelters and Transitional Housing

Emergency shelters are a safe place for people to stay while they work to find stable housing. The Region of Waterloo provides funding to eight shelters in Waterloo Region.

If you are at risk of losing your home, explore all of your options before turning to a shelter. Some options include [applying for financial help \(/en/living-here/financial-assistance.aspx\)](/en/living-here/financial-assistance.aspx), or [talking with someone who can help \(/en/living-here/help-to-find-and-keep-a-home.aspx\)](/en/living-here/help-to-find-and-keep-a-home.aspx).

(.)Pocket card of shelters, services and outreach

Keep a list of locations and contact information for [shelters](#), [drop-in programs](#), [food resources](#) and [street outreach](#) with you when you need it with this pocket card.

[Download Pocket Card \(PDF\) \(/en/living-here/resources/Housing-Services/Pocket-Card.pdf\)](/en/living-here/resources/Housing-Services/Pocket-Card.pdf).

(.)Emergency shelters in Waterloo Region

If you are an adult (18+ years) and need emergency shelter, call First Connect at [519-624-9133 \(tel://5196249133\)](tel://5196249133) (24/7).

Families, call [519-749-2450 \(tel://5197492450\)](tel://5197492450) (8:30 a.m. to 4:30 p.m., Monday to Friday) or [519-501-7947 \(tel://5195017947\)](tel://5195017947) (after hours).

Youth (16 to 25 years), call [519-749-1450 \(tel://5197491450\)](tel://5197491450) (24/7).

You can view emergency shelter options in the list below, organized by city. It includes information about who each shelter serves, as well as amenities on site and in the neighbourhood.

Each shelter receiving funding from the Region is part of a coordinated system. We work together to help people find a safe and appropriate place to stay, which may or may not include a shelter.

Chat

()Cambridge

Chat

The Bridges Shelter (Cambridge Shelter Corporation).

(<http://www.cambridgesheltercorp.ca>), 26 Simcoe Street, Cambridge

- Virtual tour (https://youtu.be/P_1vHk22Ab0).

- Regular capacity: 80 beds

- Serves: Men 25+ years

- Accessibility:
Wheelchair accessible, elevator, ramps, grab bars in bathrooms, accessible entrance (at back), walk-in shower/bath tub

- Onsite Amenities:

- Parking
- Showers
- Computer
- Shared cable TV
- Shared telephone
- Laundry

- Neighbourhood Information:

- Public transit
- Urban neighbourhood
- Convenience store
- Coffee shop/restaurants
- Parks/recreation facilities
- Outdoor trails
- Library
- Retail shopping



Chat

YWCA Cambridge Shelter at Grace Bible

44

Chat

(<https://ywcacambridge.ca/shelter/>), 2 Grand Avenue, Cambridge

- Capacity: 20 beds
- Serves: Women and gender-diverse individuals
- Accessibility: wheelchair accessible, elevator, ramps, grab bars in bathrooms, accessible entrance at back
- Hours: Open 24-hours

Kitchener

Edith Mac Shelter (<https://shipshey.ca/housing/kitchener-shelter/>), 104 Stirling Avenue South, Kitchener

- Capacity: 30 beds
- Serves: Men 25+ years

OneROOF Youth Services Shelter (<http://oneroof.org/>), 35 Sheldon Avenue North, Kitchener

- Regular capacity: 18 beds
- Serves: Youth 16 to 25 years
- Room types: Open area
- Accessibility: Wheelchair accessible, elevator, ramps, grab bars in bathrooms, walk-in shower/bath tub
- Onsite amenities:
 - Backyard/Green space access
 - Parking
 - Storage lockers
 - Computer
 - Shared cable TV
 - Shared telephone
 - Laundry
 - Library

- Neighbourhood information:

Chat

Chat

- Public transit
- Urban neighbourhood
- Convenience store
- Coffee shop/restaurants
- Parks/recreation facilities
- Outdoor trails
- Library
- Community support agencies

Out of the Cold Shelter (SHIP) (<https://shipshey.ca/housing/out-of-the-cold-kitchener/>), 84 Frederick Street, Kitchener

- Capacity: 37 beds
- Serves: Women and gender-diverse adults, 25+ years

Safe Haven Emergency Shelter (<http://www.lutherwood.ca>), 41 Weber Street West, Kitchener

- Virtual tour
(<https://youtu.be/uxelXTRECP4>)
- Regular capacity: 10 beds
- Serves: Youth 12 to 18 years
- Room types: Private
- Accessibility:
Wheelchair accessible,
grab bars in bathrooms
- Onsite amenities:



- Backyard/ green space access
- Computer
- Parking
- Showers
- Shared cable TV
- Shared telephone
- Laundry

Chat

Chat

- Library
- Personal bedroom locks
- Neighbourhood information:
 - Public transit
 - Urban neighbourhood
 - Convenience store
 - Coffee shop/restaurants
 - Parks/recreation Facilities
 - Library
 - Community support agencies
 - Retail shopping
 - Community centres

Waterloo

Erbs Road Shelter, 1001 Erbs Road, Waterloo

- Capacity: 50 spaces
- Serves: Adults 25+ years; women, men, gender diverse, couples
- Pet friendly

House of Friendship ShelterCare (<http://www.houseoffriendship.org>), 190 Weber Street North, Waterloo

- Regular capacity: 100 spaces
- Serves: Adults 25+ years; single men and couples
- Room types: Private accessible rooms, shared double occupancy rooms
- Accessibility: First floor wheelchair accessible, grab bars in bathrooms, accessible entrance, walk-in shower/tub, ramps
- Onsite Amenities:
 - Personal dresser locks
 - Backyard/green space access
 - Bike lockers

Chat

Chat

- Showers
- Computer
- Shared cable TV
- Shared telephone
- Laundry
- Community room
- Laundry
- Neighbourhood Information:
 - Public transit
 - Urban neighbourhood
 - Convenience store
 - Coffee shop/restaurants
 - Parks/recreation facilities
 - Community support agencies
 - Library
 - Retail shopping
 - Community centres

Interim Housing and Transitional Housing

Interim Housing and Transitional Housing provide access to housing that is time limited and serves to promote housing stability. The Region provides funding to three transitional housing providers.

Marillac Place

Marilla Place provides transitional housing to women aged 16+ who are pregnant, have a child under 24 months in their care, or who are attempting to regain care of their child.

- Virtual tour (<https://youtu.be/EWjE5wkCf5g>).
- Marillac Place website (https://marillacplace.ca/?fbclid=IwAR3zxV1Wmcu_tI2CysfRNSkdAI8LJOD1KWRy38ZuT0y4HDL5btqCAuW3iyc).
- Total Number of Spaces: 21

Chat

- Total Number of Units: 10 bedrooms for women, pregnant or parenting ⁴⁸
- Serves: Females 16+ with up to 1 child
- Building Type: Residential home, shared living
- Number of Floors: 3 plus basement
- Types of Bathrooms: Shared
- Common Areas: Kitchen, living room, dining room, laundry room, coach House
- Accessibility: Limited
- Designated: Smoking and vaping, outdoors and away from building

Service & Housing In the Province (SHIP)

SHIP provides transitional housing and supports for individuals and couples. Supports are provided 24 hours/day, 7 days/week with staff onsite.

- SHIP Website (<https://shipshey.ca/>).
- Address: 139 University Avenue, Waterloo
- Phone number: (905) 795-8742
- Total Number of Spaces: 80
- Total number of Units: 80, one-bedroom units
- Serves: Individuals and couples
- Building Type: Former university dorms or apartment building, shared living
- Number of Floors: 4
- Types of Bathrooms: Shared
- Common Areas: Kitchen, lounge, laundry
- Accessibility: Limited
- Designated: Smoking and vaping, outdoors and away from building

(.)Relief from heat, cold or poor air quality

Warming, Cooling and Clean Air Spaces are buildings in the region that provide space for the public to get temporary relief from heat, cold, or poor air quality.

Find a Warming, Cooling or Clean Air Space (</en/health-and-wellness/cooling-and-warming-centres.aspx>).

Chat

(.) Drop-in programs

Drop-ins provide a range of services that may include food, healthcare, showers, laundry, information and referrals, and social and recreational activities to people who are homeless or at risk of homelessness.

Cambridge

Cambridge Vineyard (<https://thevineyardchurch.ca/urban-hope/>), 147 Elgin Street North, Cambridge

- Hours:
 - Monday, Wednesday, Thursday, Saturday: 6 p.m. to 8:30 p.m.
 - Tuesday and Sunday: 11 a.m. to 2 p.m.
- Includes showers and laundry
- Find this drop-in on [Google Maps](https://www.google.com/maps/place/Cambridge+Vineyard+Christian+Fellowship/@43.367603,-80.299226,2,610m/data=!3m2!1e3!4b1!4m6!3m5!1s0x882c77c2e8c4706f:0x1973ae38f4bfef10!8m2!3d43.367603!4d-80.299226!16s%2Fg%2F1thl_23g?entry=tту&g_ep=EgoyMDI1MDEwNi4xIKXMDS0ASAFQAw%3D%3D)
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MACS (Multi-Agency Community Space) (<https://www.acckwa.com/macs-multi-agency-community-space/>), 150 Main Street, Cambridge

- Hours:
 - Monday to Friday: 1 p.m. to 4 p.m.
- Find this drop-in on [Google Maps](https://www.google.com/maps/place/150+Main+St,+Cambridge,+ON+N1R+6P9/@43.3592178,-80.3125692,610m/data=!3m2!1e3!4b1!4m6!3m5!1s0x882c77b81f12f73b:0xe47997cd4b64d476!8m2!3d43.3592139!4d-80.3099943!16s%2Fg%2F11bw3x59j8?entry=tту&g_ep=EgoyMDI1MDEwNi4xIKXMDS0ASAFQAw%3D%3D)
 (https://www.google.com/maps/place/150+Main+St,+Cambridge,+ON+N1R+6P9/@43.3592178,-80.3125692,610m/data=!3m2!1e3!4b1!4m6!3m5!1s0x882c77b81f12f73b:0xe47997cd4b64d476!8m2!3d43.3592139!4d-80.3099943!16s%2Fg%2F11bw3x59j8?entry=tту&g_ep=EgoyMDI1MDEwNi4xIKXMDS0ASAFQAw%3D%3D).
- There is a Region of Waterloo [Welcome Space](/en/living-here/welcome-spaces.aspx) (/en/living-here/welcome-spaces.aspx) in the same building

Kitchener

Chat

Ray of Hope Community Centre (<https://rayofhope.org/services/>), 659 King Street East, Kitchener

Chat

- Drop-in hours:
 - Monday to Friday: 11 a.m. to 8 p.m.
 - Saturday: 11:30 a.m. to 2 p.m.
- Meals:
 - Monday to Friday: 11:30 a.m. to 2 p.m. and 7 p.m. to 8:30 p.m.
 - Saturday from 11:30 a.m. to 2 p.m.
 - Sunday from 4 p.m. to 6 p.m. (takeout)
- Food hampers:
 - Monday to Thursday from 11:30 a.m. to 2 p.m.

- Find this drop-in on [Google Maps](#)

(https://www.google.com/maps/place/Ray+of+Hope+Inc/@43.4445041,-80.4790275,128m/data=!3m2!1e3!5s0x882bf4e9c8131489:0x5b4b5d64154533dd!4m10!1m2!2m1!1sray+of+hope+community+centre!3m6!1s0x882bf4ec43f60a7f:0xc055a59d01e588b0!8m2!3d43.4445142!4d-80.4786158!15sChxyYXkqb2YgaG9wZSBjb21tdW5pdHkgY2VudHJlWH4iHHJheSBvZiBob3BIIGNvbW11bml0eSBjZW50cmWSARdub25fcHJvZml0X29yZ2FuaXphdGlvbpoBI0NoWkRTVWhOTUc5bIMwVkpRMEZuU1VSME5uVIIjXVTFCRUFF4AEA-gEECAAQNQ!16s%2Fg%2F1tc_4q_g?entry=ttu&g_ep=EgoyMDI1MDEwNi4xIKXMDSoASAFQAw%3D%3D).

St. John's Kitchen Drop-in Centre, 23 Water Street North, Kitchener

- Drop-in hours:
 - Monday to Friday: 9:30 a.m. to 4 p.m.
- Meals (takeout):
 - Monday to Friday from 9:30 a.m. to 4 p.m.
- Food hampers:
 - Monday to Friday from 10 a.m. to 12 p.m. and 1:30 to 3 p.m.

- Find this drop-in on [Google Maps](#)

(<https://www.google.com/maps/place/23+Water+St+N,+Kitchener,+ON+N2H+1A1/@43.454,-80.4963147,609m/data=!3m2!1e3!4b1!4m6!3m5!1s0x882bf4f355cdeb0b3:0x27c9161c3d43.45230>)

Chat

15!4d-80.4937398!16s%2Fg%2F11c1x_qdb5?

51

entry=ttu&g_ep=EgoyMDI1MDEwNi4xIKXMDSOASAFQAw%

Chat

SJK Drop-in Centre, 87 Victoria Street North, Kitchener

- Drop-in hours:
 - Monday to Friday: 9:30 a.m. to 4 p.m.
- Find this drop-in on [Google Maps](#)
 (.https://www.google.com/maps/place/87+Victoria+St+N,+Kitchener,+ON+N2H+5C1/@43.454605,-80.4945468,15z/data=!4m1!1m9!1s0x882bf48b655a7319:0x1d4951a43ce62e8d!2s87+Victoria+St+N,+Kitchener,+ON+N2H+5C1!3b1!8m2!3d43.45434!4d-80.494494!10e5!16s%2Fg%2F11c5c1rb_!3m5!1s0x882bf48b655a7319:0x1d4951a43ce62e8d!8m2!3d43.45434!4d-80.494494!16s%2Fg%2F11c5c1rb_?entry=ttu&g_ep=EgoyMDI1MDEwOC4wIKXMDSOASAFQAw%3D%3D).

Waterloo

First United Church Drop-in, 16 William Street West, Waterloo

- Hours:
 - Fridays at 2 p.m.
- Find this drop-in on [Google Maps](#)
 (.https://www.google.com/maps/place/First+United+Church/@43.4615274,-80.524481,609m/data=!3m3!1e3!4b1!5s0x882bf4132e155a27:0xef01198e25c146b4!4m6!3m5!1s0x882bf46cd35c51e9:0x235873781d871b4e!8m2!3d43.4615235!4d-80.5219061!16s%2Fg%2F1tjdxjx_?entry=ttu&g_ep=EgoyMDI1MDEwNi4xIKXMDSOASAFQAw%3D%3D).

(.)Food help and meals

If you or your household needs emergency food help, needs more information about how to get food, or needs a food hamper delivered, [the Food Bank of Waterloo Region can help](#) (<https://www.thefoodbank.ca/network/map/>).

Call the Food Bank's Centralized Food Assistance Outreach line at [519-743-5576 extension 340](#) (tel:5197435576). The phone line is open Monday to Friday, 9 a.m. to 12 p.m., and closed on holidays and weekends. If you leave a message, they'll get back to you within one business day.

Chat

Find emergency food help or a meal (<https://www.the52.org/>)

Chat

(.)Outreach services

Street Outreach workers connect with individuals experiencing homelessness to provide support needs, assist with housing plans, and refer to other resources.

- Kitchener/Waterloo Street Outreach (The Working Centre): Call 519-577-2095 or 519-503-8926
- Cambridge Street Outreach (ACCKWA and Sanguen Health): Call 519-778-2952 or 519-778-4677
- Youth Street Outreach (oneROOF): Call 519-505-6623 or 519-496-8788

(.)Welcome Spaces

The Region of Waterloo offers in-person support at three Welcome Space locations (</en/living-here/welcome-spaces.aspx#Locations>) for people who need to access certain Community Services programs, such as Ontario Works, Child Care Subsidy, Employment Support and Housing Services. Learn more about Welcome Spaces (</en/living-here/welcome-spaces.aspx>).

© 2022 Region of Waterloo, 150 Frederick St., Kitchener, Ontario N2G 4J3,
Telephone: 519-575-4400, Deaf and Hard of Hearing (TTY): 519-575-4608, Fax:
519-575-4481, Email Us

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Browser Compatibility Notification



It appears you are trying to access this site using an outdated browser. As a result, parts of the site may not function properly for you. We recommend updating your browser to its most recent version at your earliest convenience.

Chat

THIS IS **EXHIBIT "G"** REFERRED TO
IN THE AFFIDAVIT OF LEE ANN HUNDT
SWORN REMOTELY AT THE
CITY OF KITCHENER BEFORE ME AT THE REGION OF WATERLOO
DURING A ZOOM VIDEOCONFERENCE
IN ACCORDANCE WITH O.REG. 431/20,
ADMINISTERING OATH OR DECLARATION REMOTELY
THIS 15TH DAY OF AUGUST, 2025



ASHLEY SCHUITEMA
A Commissioner, etc.,
Province of Ontario,
While a Barrister and Solicitor.
LSO # 68257G

First Nations, Inuit and Métis

 mentalhealthcommission.ca/what-we-do/first-nations-inuit-and-metis

September 9, 2021

If you are in distress, you can call or text 988 at any time. If it is an emergency, call 9-1-1 or go to your local emergency department.



What is the issue?

The [Mental Health Strategy for Canada \(Strategy\)](#) highlights that a broad range of legislation and policies aimed at assimilation have contributed to high rates of mental health problems, addiction, and suicide among First Nations, Inuit, and Métis (FN-I-M). The Truth and Reconciliation Commission of Canada (TRC) has qualified attempts to assimilate Indigenous peoples in Canada as tantamount to cultural genocide. While First Nations, Inuit, and Métis nations and communities may face shared challenges, important differences in culture and history must be honoured and distinct rights established through treaties, legislation, self-government agreements, and other means.

The MHCC is committed to a journey of learning and reconciliation. The TRC has placed respectful relationships at the centre of meaningful reconciliation. The MHCC has evaluated existing processes of engagement, and seeks to build respectful nation to nation relationships with First Nations, Inuit and Métis. Strong relationships of trust and mutual respect between the MHCC and FN-I-M governments, organizations, professionals, scholars, and communities will allow the MHCC to serve as an ally in supporting on-going efforts by First Nations, Inuit and Métis to heal from the intergenerational impacts of colonization, close gaps in services, share knowledge about approaches to mental wellness, increase community capacity, and strengthen collaborative relationships.

The MHCC also recognizes that the Métis people have not yet engaged in a process of reconciliation and we are committed to working in partnership with the Métis National Council as the process unfolds.



[Declaration of Reconciliation](#) – The MHCC, in collaboration with a broad network of advisors, including survivors of the residential school system, has developed a Declaration of Reconciliation. This Declaration guides the work of the organization and provides our staff and partners with the principles and objectives we intend to uphold. It is an ‘evergreen’ document evolving as our knowledge and relationships deepen.



[Mental Health First Aid \(MHFA\) First Nations](#) is designed to speak to First Nations participants about mental health, where participants reflect on their life experiences and acknowledge the historical context of that experience. And from this, explore ways to restore balance on their journey to wellness.

[Mental Health First Aid \(MHFA\) Inuit](#) is a course designed by Inuit, for Inuit and for those who work with Inuit. The three-day course encourages people across Inuit Nunungat to have conversations about mental wellness with family, friends, and colleagues.



[HEADSTRONG](#) is an evidence-based anti-stigma initiative that teaches high school students how to reduce stigma and become mental health champions in their schools.



[Roots of Hope](#) is a multi-site, community-led project that aims to reduce the impacts of suicide within communities across Canada. The project builds upon community expertise to implement suicide prevention interventions that are tailored to the local context.



[Mental Health and Cannabis Research](#) – The MHCC is funding 14 projects that will be community led, culturally safe, focused on equity, and centred on lived and living experience. These innovative projects from across the country will address knowledge gaps in the relationship between cannabis and mental health for priority populations.

Upcoming projects that support First Nations, Inuit, and Métis in creating meaningful solutions to address the wellness needs of their communities include:

- Access to Quality Mental Health Standards
- Championing the Standard on Mental Health and Well-being for Post-Secondary Students
- Mental Health and the Criminal Justice System
- Standardization of Mental Health Apps
- E-Mental Health Strategic Partnerships & Stakeholder Engagement
- SPARK
- National Suicide Prevention Action Plan

Mental Health Indicators for Canada

[Learn More](#)

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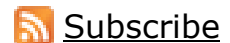
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Province of Ontario,
While a Barrister and Solicitor.
LSO # 68257G



Region of Waterloo

Kitchener Central Transit Hub Moves Forward

Posted on Wednesday April 23, 2025



Approval of additional housing and support resources and a site-specific by-law will allow residents to move to alternative housing and prepare the site for construction.

Waterloo Region – Regional Council has approved a site-specific by-law for 100 Victoria Street in Kitchener, allowing staff to move forward with plans to prepare the site for construction, and offer increased supports to residents as they transition to alternative housing options.

In development since 2013, the Kitchener Central Transit Hub (KCTH) will serve current and future residents of Waterloo Region. This project will redefine how people connect, commute, and experience Waterloo Region. The transit hub will offer connections to GRT and ION Light Rail, GO Transit (bus and rail), VIA rail, intercity bus, active transportation, car shares, and pedestrian trails.

The KCTH project is entering a new phase, with construction anticipated to start in the next year. As part of this phase, the Region's property at 100 Victoria Street North is required by Metrolinx in March 2026. The site-specific by-law requires the site to be vacant by December 1, 2025, to allow enough time for the necessary site preparation.

The by-law acknowledges those who reside at the site. Region staff have developed a plan to transition residents into alternative housing with an increased allocation of resources and supports.

The Region of Waterloo has supported residents at the site since December 2021. These supports include connections with outreach staff and Ontario Works caseworkers, regular cleaning and site maintenance, pest control, portable washrooms, lighting, and other health and safety interventions. Security has been provided 24/7 since the Spring of 2022. These services will continue at the site during the transition process.

Regional staff intend to seek further direction from the Superior Court of Justice in the context of the decision from Justice Valente in *Region v. Persons Unknown and*

Chat

to be Ascertained, to the extent feasible and compatible with the anticipated construction schedule.

Chat

Quotes:

"The Kitchener Central Transit Hub is a generational investment in Waterloo Region. A central, easy to access transit hub is essential for a growing community like ours. Once finished, the transit hub will connect residents and visitors to GRT and ION, GO bus and trains, VIA rail, active transportation, and pedestrian trails. Having the site available by March 2026 is the first step in the construction process. We will continue to keep the community informed as this project progresses."

- Doug Spooner, acting commissioner of transportation services.

"The Region of Waterloo is committed to supporting individuals experiencing homelessness. Region staff will continue to work closely with residents at 100 Victoria to create housing plans and make connections to services supporting their health and wellbeing. Additional resources have been allocated to ensure residents are supported during their transition to alternative housing options."

- Peter Sweeney, commissioner of community services

"In the context of the decision of Justice Valente in *The Regional Municipality of Waterloo v. Persons Unknown and to be Ascertained*, Region staff intend to seek further direction from the Superior Court of Justice to the extent this is feasible and compatible with the anticipated construction schedule."

- Fiona McCrea, acting regional solicitor

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Chat

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**THE REGIONAL MUNICIPALITY OF
WATERLOO**
Applicants

and

**PERSONS UNKNOWN AND TO BE
ASCERTAINED**
Respondents

Court File No.: CV-25-00000750-0000

**ONTARIO
SUPERIOR COURT OF JUSTICE**

Proceeding commenced at KITCHENER

AFFIDAVIT OF LEE ANN HUNDT

WATERLOO REGION COMMUNITY LEGAL SERVICES
450 Frederick Street, Unit 101
Kitchener, Ontario N2H 2P5

Ashley Schuitema (LSO# 68257G)
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Joanna Mullen (LSO# 64535V)
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Shannon K. Down (LSO# 43894D)
shannonkdown@gmail.com

Lawyers for the Respondents

TAB 2

Court File No. CV-25-00000750-0000

**ONTARIO
SUPERIOR COURT OF JUSTICE**

B E T W E E N:

THE REGIONAL MUNICIPALITY OF WATERLOO

Applicant

and

PERSONS UNKNOWN AND TO BE ASCERTAINED

Respondents

AFFIDAVIT OF DR. STEPHEN HWANG

I, **DR. STEPHEN HWANG**, of the City of Toronto, in the Province of Ontario, SOLEMNLY AFFIRM as follows:

1. The facts and opinions contained in this affidavit are based on my own research and experiences as well as other reliable research in this area, where noted.

Background and nature of work

2. I have been a practicing medical doctor for 33 years. I received my medical degree from John Hopkins University School of Medicine in Baltimore, Maryland in 1988 and a master of public health degree from the Harvard School of Public Health in 1996.

3. My expertise is on the health impacts of being homeless and interventions to improve the health of people experiencing homelessness. I refer to homeless persons as those who live in emergency shelters, transitional shelters, or places not intended for human habitation, such as parks, abandoned buildings, and bus or train stations.

4. I practice as a doctor in Toronto. I am a staff physician at St. Michael's Hospital in Toronto, specializing in internal medicine. About 15% of my patients are homeless. I also work at a weekly clinic at Seaton House, which provides healthcare exclusively to homeless men in Toronto.

5. I have been on the faculty of the University of Toronto since 1996. I am a professor at the University of Toronto in the Department of Medicine, the Dalla Lana School of Public Health, and the Institute of Health Policy, Management, and Evaluation. I conduct research on health and homelessness at St. Michael's Hospital, Unity Health Toronto.

6. I have authored or co-authored almost 300 peer-reviewed articles based on my research into the relationship between homelessness, housing, and health. I lecture extensively on a broad range of topics relating to homelessness and health and have received numerous Canadian and international awards for my work. I am frequently invited to speak about homelessness and health by various groups, including government agencies and ministries at the municipal, provincial, and federal levels. A copy of my current curriculum vitae is attached as **Exhibit "A"** to this affidavit.

The impacts of homelessness on health

7. Most homeless persons have chronic health conditions. They often have unmet healthcare needs because they need to prioritize day-to-day survival. Studies I have conducted demonstrate that homelessness and inadequate housing have negative effects on health, including increased risk of death. These negative effects include:

- a) Exposure to the elements. Prolonged exposure to sun and heat increases the risk of heatstroke and severe sunburns. Prolonged exposure to wet and/or cold conditions increases the risk of skin and foot diseases as well as hypothermia.

Homeless persons disproportionately die from hypothermia because they cannot dry wet clothing or escape the cold. In a recent study, my colleagues and I found that emergency department visits for cold-related injuries from 2018-2022 were 14-18 times higher for homeless individuals than the general population. This study is attached as **Exhibit “B”** to my affidavit. Having a tent or other temporary structure provides some relief from the elements.

- b) Cardiovascular disease. Homeless people are at increased risk of death from cardiovascular disease (CVD) as compared to housed individuals. Homeless persons often have high prevalence of cigarette smoking and other CVD risk factors, such as high blood pressure, diabetes, stress, depression, heavy alcohol use, and drug use. Poor access to health care and logistical challenges to cardiac testing may lead to delays in recognizing CVD and diagnosing it. A 2018 article I wrote about this problem is attached as **Exhibit “C”**.
- c) Violence and brain injury. Violence in shelters and on the street is commonplace. For example, homeless persons disproportionately suffer from traumatic brain injuries. In a 2008 study, my colleagues and I found that over 50% of homeless individuals reported having a traumatic brain injury. In a 2015 study, we found that 28.8% of homeless individuals reported being physically assaulted in the past year. The paper with these statistics is attached as **Exhibit “D”** to my affidavit. TBIs are consistently related to poorer self-reported physical and mental health, higher suicide risk, memory concerns, increased health service use, and criminal justice system involvement. An article on the effects of TBIs on homeless people is attached as **Exhibit “E”** to my affidavit.

- d) Bed bug infestations. Bed bug infestations are common at shelters. In a 2005 study, my fellow researchers and I contacted all 65 homeless shelters in Toronto and found that 31% of shelters reported previous or current bed bug infestations. This article is attached as **Exhibit “F”** to my affidavit. Our data suggest that bed bugs can spread from shelter to shelter, presumably transported in the personal belongings of residents. Given the constant turnover of shelter residents, bed bugs could potentially affect a large number of homeless people over the course of a year. Homeless persons with bed bug bites suffer a substantial degree of discomfort and emotional distress. Although this study was conducted in 2005, I still commonly see patients with bed bug bites in my practice.
- e) Transmission of tuberculosis. Shelters increase the risk of contracting tuberculosis (TB). The likelihood of exposure to TB is high in shelters because of shared living spaces, crowding, high population turnover, and inadequate ventilation. Treatment of active TB is difficult with the homeless because of prolonged infectivity, drug resistance, and inability to follow up with treatment. Homeless people die of tuberculosis at double the rate of non-homeless people with the disease. A 10-year study of the incidence and health effects of tuberculosis in Toronto homeless persons is attached as **Exhibit “G”** to my affidavit.
- f) Transmission of COVID-19. Shelters are the ideal environment for transmission. The homeless are at a higher risk of developing severe COVID because of the high prevalence of risk factors in this population, such as respiratory conditions and heart disease. COVID is harder to prevent with homeless persons because of inadequate access to personal protective equipment, healthcare, and the inability

to self-isolate. The study explaining these impacts is attached as **Exhibit “H”** to my affidavit.

- g) Skin and foot problems. Skin and foot problems are frequently seen among the homeless. Homeless persons are particularly prone to develop skin diseases such as impetigo, venous stasis dermatitis, scabies, and body lice. Prolonged exposure to cold and dampness increases the risk of skin breakdown and skin infections, particularly in the feet. Foot disorders such as fungal infections, athlete’s foot, and trench foot usually result from inadequate footwear, prolonged exposure to moisture and cold, long periods of walking and standing, and repetitive minor trauma — all of which are common features of homelessness. These disorders cause pain, aching, and itching that can be debilitating.
- h) Sleep deprivation. Homeless people often suffer from sleep deprivation due to inadequate and disturbed or fragmented sleep. Sleep fragmentation is often related to external stimuli, such as bright lights, loud noises, and intentional efforts by other people to awaken or disturb them. In my experience, sleep deprivation has numerous adverse health effects, including increased risks of diabetes, cardiovascular disease, obesity, depression, and injuries, in addition to the more commonly recognized problems of impaired alertness, attention, and concentration.
- i) Chronic health conditions and mental illness. Homeless people disproportionately suffer from chronic health conditions and mental illness, which often go untreated. In a comprehensive 2010 study, my colleagues and I found that over 50% of

homeless or vulnerably housed participants from Vancouver, Toronto, and Ottawa reported being diagnosed with a mental health problem. Over 85% reported having at least one health condition. The study is attached as **Exhibit “I”** to my affidavit.

8. Physical and mental health problems worsen over the period that a person is homeless. The deterioration in health is related to several factors, including a lack of stable housing, a volatile social environment, and barriers to accessing appropriate healthcare. Many homeless persons do not have a health card, do not know where to access services, cannot attend regular appointments, and/or lack continuity of care because they do not have a permanent address or phone access. Prescription medications are difficult to obtain without proper access to a doctor or insurance. Many homeless persons also report experiencing discrimination when accessing healthcare.

The dangers of prohibiting shelter for people living outdoors

9. Homeless people who are prohibited from erecting even rudimentary shelter from the elements — such as tents, tarps, or cardboard barriers — will suffer clear and direct adverse impacts on their health:

- A lack of protection from wind and rain increases the wind chill effect, greatly increasing the risk of hypothermia. Homeless persons are at a particularly high risk of death from hypothermia because their clothing gets wet and they cannot dry it. The temperature does not have to be freezing for hypothermia to occur. Many deaths occur when the air temperature is above freezing.

- Prolonged exposure to wet and cold conditions can lead to serious skin and foot diseases as well as respiratory diseases. A lack of protection from wet and cold conditions heightens the likelihood of these diseases and magnifies their severity. These diseases are debilitating.
- The lack of protection from the sun greatly increases homeless people's risk of severe sunburn and heatstroke during the summer months. There is little relief from the heat and sun without adequate shelter.
- Lack of shelter also increases the severity of the disturbed and fragmented sleep experienced by the homeless. The weather, light, and noise is more disruptive without any barrier — leading to many serious health conditions.

10. There is no question that the lack of shelter for people living outside causes severe adverse effects on their health.

The adverse effects of forced encampment evictions

11. Homeless people forced to leave their encampments suffer adverse impacts on their health. In a study published in 2022, encampment sweeps or evictions were found to be a harmful factor contributing to the declining health of homeless people. This study is attached as **Exhibit "J"** to my affidavit. Forced evictions tend to disperse people to more remote public spaces which are less publicly visible and/or accessible. Being constantly forced into increasingly remote locations makes it difficult to get to pharmacies, attend medical appointments and outpatient clinics, access food programs, counseling services, methadone clinics and addictions treatment. Frequent displacement leads to significantly enhanced vulnerabilities and health risks for those displaced,

particularly for women, people with disabilities and mental health conditions and people using substances.

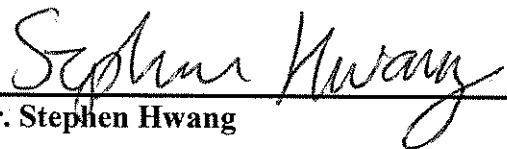
12. Forced eviction and the subsequent displacement deprive homeless people of survival supplies required to survive unhoused. Homeless people may lose medical supplies like wound care supplies or safe drug consumption supplies as a result of displacement. The displacement may also mean that they lose food, clothing and blankets which are essential items needed to survive outdoors. This deprivation of survival supplies results in adverse effects on their ability to look after their own health.

13. Forced evictions increases the likelihood for negative encounters between unhoused people and authorities such as law enforcement. These negative interactions cause emotional stress and distrust which exacerbates homeless people's social exclusion and increases their reluctance to seek health and social supports.

14. I affirm this affidavit to provide evidence on this application and for no other purpose.

SWORN remotely by Stephen Hwang at the City of Toronto, in the Province of Ontario, before me at the County of Wellington in the Province of Ontario on May 6, 2025 in accordance with O. Reg. 431/20.


Joanna Mullen, A Commissioner
of Oaths (LSO#: 64535V)


Dr. Stephen Hwang

THIS IS **EXHIBIT "A"** REFERRED TO
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SWORN REMOTELY AT THE
CITY OF TORONTO BEFORE ME AT THE COUNTY OF WELLINGTON
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THIS 6TH DAY OF MAY, 2025



JOANNA MULLEN
A Commissioner, etc.,
Province of Ontario,
While a Barrister and Solicitor.
LSO # 64535V

Curriculum Vitae

Stephen W. Hwang
MD, MPH, FRCPC

A. Date Curriculum Vitae is Prepared: 2025 May 6

B. Biographical Information

Primary Office	St. Michael's Hospital MAP Centre for Urban Health Solutions 30 Bond Street Toronto, Ontario, Canada M5B 1W8
Telephone	416-864-5991
Fax	416-864-5558
Email	stephen.hwang@unityhealth.to

1. EDUCATION

Degrees

1994 - 1996	Master of Public Health, Clinical Effectiveness, Harvard School of Public Health, Boston, Massachusetts, United States
1984 - 1988	MD, Medicine, Johns Hopkins University School of Medicine, Baltimore, Maryland, United States
1980 - 1984	BA, Biochemistry (magna cum laude), Harvard University, Cambridge, Massachusetts, United States

Postgraduate, Research and Specialty Training

1991 - 1992	Chief Medical Resident, Toronto Western Hospital/Toronto General Hospital, Department of Medicine, University of Toronto, Toronto, Ontario, Canada
1988 - 1991	Internal Medicine Residency, Department of Medicine, University of Toronto, Toronto, Ontario, Canada

Qualifications, Certifications and Licenses

2003 - present	Fellow, American College of Physicians, Philadelphia, Pennsylvania, License / Membership #: 46674
1992 - present	General Licence, College of Physicians and Surgeons of Ontario, Toronto, Ontario, License / Membership #: 60001
1992 - present	Fellow, Royal College of Physicians of Canada, Ottawa, Ontario, License / Membership #: 432499

2. EMPLOYMENT

Current Appointments

2017 Jan - present	Full Member, School of Graduate Studies, University of Toronto, Toronto, Ontario, Canada
2015 Jul - present	Director, MAP Centre for Urban Health Solutions, St. Michael's Hospital, Toronto, Ontario, Canada
2014 Jul - present	Professor, Department of Medicine, Faculty of Medicine, University of Toronto, Toronto, Ontario, Canada
2014 Jul - present	Professor (cross appointment), Health Policy, Management and Evaluation, Faculty of Medicine, University of Toronto, Toronto, Ontario, Canada
2014 Jul - present	Professor (cross appointment), Dalla Lana School of Public Health, Faculty of Medicine, University of Toronto, Toronto, Ontario, Canada
2008 Sep - present	Research Scientist, Li Ka Shing Knowledge Institute, St. Michael's Hospital, Toronto, Ontario, Canada
2008 Mar - present	Adjunct Senior Scientist, Primary Care and Population Health Program, Institute for Clinical Evaluative Sciences, Toronto, Ontario, Canada
2005 - present	Staff Physician, Inner City Health Associates (ICHA), Toronto, Ontario, Canada <i>ICHA provides access to health care to people experiencing homelessness at shelters and other outreach sites across Toronto and links clients to permanent services and support.</i>
1996 Sep - present	Staff Physician, Division of General Internal Medicine, Department of Medicine, St. Michael's Hospital, Toronto, Ontario, Canada

Previous Appointments

HOSPITAL

2001 - 2005	Acting Director, Clinical Epidemiology Unit, St. Michael's Hospital, Toronto, Ontario, Canada
1996 Sep - 2008 Sep	Population Health Epidemiologist, Inner City Health Program, St. Michael's Hospital, Toronto, Ontario, Canada
1992 - 1996	Staff Physician, Division of General Internal Medicine, Boston City Hospital, Boston, Massachusetts, United States

UNIVERSITY

2005 Nov - 2016 Jun	Director, Division of General Internal Medicine, Department of Medicine, Faculty of Medicine, University of Toronto, Toronto, Ontario, Canada
2005 Jul - 2016 Dec	Associate Member, School of Graduate Studies, University of Toronto, Toronto, Ontario, Canada

UNIVERSITY - CROSS APPOINTMENT

2005 - 2014 May	Associate Professor (cross-appointment), Health Policy, Management and Evaluation, Faculty of Medicine, University of Toronto, Toronto, Ontario, Canada
2005 - 2014 May	Associate Professor (cross-appointment), Dalla Lana School of Public Health, Faculty of Medicine, University of Toronto, Toronto, Ontario, Canada
2001 - 2005	Assistant Professor (cross-appointment), Health Policy, Management and Evaluation, Faculty of Medicine, University of Toronto, Toronto, Ontario, Canada
1998 - 2005	Assistant Professor (cross-appointment), Public Health Sciences, Faculty of Medicine, University of Toronto, Toronto, Ontario, Canada

UNIVERSITY - RANK

2008 - 2014	Associate Professor, Medicine, Faculty of Medicine, University of Toronto, Toronto, Ontario, Canada

1998 - 2005	Assistant Professor, Medicine, Faculty of Medicine, University of Toronto, Toronto, Ontario, Canada
1996 - 1998	Lecturer, Medicine, Faculty of Medicine, University of Toronto, Toronto, Ontario, Canada
1995 - 1996	Clinical Assistant Professor, Medicine, School of Medicine, Boston University, Boston, Massachusetts, United States
1992 - 1995	Clinical Instructor, Medicine, School of Medicine, Boston University, Boston, Massachusetts, United States
OTHER	
2020 May - 2020 Jul	Medical Co-Director, COVID Recovery Sites, Inner City Health Associates, Toronto, Ontario, Canada <i>Medical co-director of hotel sites for people experiencing homelessness who are recovering from COVID-19</i>

3. HONOURS AND CAREER AWARDS

Distinctions and Research Awards

INTERNATIONAL

Received

2022	Alumni Award of Merit , Harvard T.H. Chan School of Public Health, Boston, Massachusetts, United States. (Distinction) <i>The Alumni Award of Merit is the highest honor the School can bestow upon a graduate of the Harvard T.H. Chan School of Public Health, recognizing a significant career in the field of public health. The Award recognizes professional excellence in the field of public health as expressed by advancement of its science, improvement of its community practice, leadership of its institutions, or contributions to the growth and accomplishments of its future professionals.</i>
2016	Robert Carr Award , Research team member, International Council of AIDS Service Organizations (ICASO). (Research Award) <i>This award recognizes a research project conducted by a community-academic partnership that has led to evidence-based programs and/or influenced policies in the field of HIV to guide a human rights-based response. The award was presented to the Positive Spaces Healthy Places Study at the 21st International AIDS Conference in Durban, South Africa, July 2016.</i>

NATIONAL

Received

2024 - 2030	Tier 1 Canada Research Chair in Homelessness, Housing and Health , Canada Research Chairs Program. (Distinction)
2015	CSIM Dr. David Sackett Senior Investigator Award , Canadian Society of Internal Medicine, Canada. (Research Award) <i>This award recognizes excellence in research by a senior Canadian general internist. The award is intended to increase awareness of high quality research by general internists in Canada and to foster such research. Total Amount: 2,500</i>
2014	Chinese Canadian Legend Award , Asian Business Network Association, Canada. (Distinction) <i>The Chinese Canadian Legend Award recognizes Chinese Canadians who have accomplished outstanding achievements in their lives and made valuable contributions to the world community.</i>

- 2014 **Fellow**, Canadian Academy of Health Sciences, Canada. (Distinction)
Fellows of the Academy are elected on the basis of their demonstrated leadership, creativity, distinctive competencies and commitment to advance academic health sciences. Membership is considered one of the highest honours for members of the Canadian health sciences community and carries with it a covenant to serve the Academy and Canadian society.
- 2002 **CSIM Young Investigator Award**, Canadian Society of Internal Medicine, Canada. (Research Award)
This award is presented annually to an outstanding Canadian investigator in the field of general internal medicine who is within the first five years of his or her research career. Total Amount: 2,500

PROVINCIAL / REGIONAL

Received

- 2023 **Living the Mission Award - Mission Leadership Award**, Catholic Health Sponsors of Ontario (CHSO). (Distinction)
The annual CHSO Living the Mission Awards aim to recognize people or teams from CHSO sponsored organizations who have made a significant contribution over a sustained period to the advancement of the Catholic Mission of their organization. The Living the Mission Awards recipients have inspired and/or mentored others and are beacons of servant leadership.

LOCAL

Received

- 2024 **2024 Michael Gordon Award for Humanism in Medicine**, University of Toronto, Department of Medicine, Toronto, Ontario, Canada. (Distinction)
This award recognizes faculty members who exemplify a deep and abiding commitment to humanism in health care. Humanism is understood to be an acknowledgment of other human beings as individuals with autonomy, unique backgrounds, values, and perspectives, and a commitment to address issues of inclusion, equity, and social justice.
- 2024 **Spirit of Philanthropy Award**, St. Michael's Foundation. (Distinction)
This award recognizes an individual who has been an outstanding hospital fundraising partner over the past year.
- 2020 - 2024 **2020 President's Impact Award**, University of Toronto, Toronto, Ontario, Canada. (Distinction)
This award recognizes and celebrates University of Toronto faculty members whose research has led to significant impact beyond academia. Total Amount: 50,000 CAD
- 2020 **2020 Complete Physician Award**, St. Michael's Hospital, Toronto, Ontario, Canada. (Distinction)
This annual award recognizes one physician at St. Michael's Hospital that best exemplifies an ongoing commitment to and role modeling of the CanMEDS Roles.
- 2016 **Spirit of Philanthropy Award**, St. Michael's Hospital Foundation. (Distinction)
This award recognizes an individual who has been an outstanding hospital fundraising partner over the past year.
- 2013 **Dr. Vincent J. Hughes Physician Humanitarian Award**, St. Michael's Hospital Medical Staff Association. (Distinction)
This award is presented annually to a physician member of St. Michael's Hospital who has demonstrated outstanding compassion, respect for human dignity and caring of patients of all ages, races and economic status.
- 2008 **Community-Based Research Award of Merit.**, Centre for Urban Health Initiatives and the Wellesley Institute, Toronto, Ontario, Canada. (Research Award)
The award recognizes principal investigators who have demonstrated exemplary participation

in the field of Community Based Research.

Teaching and Education Awards

LOCAL

Received

2021	Department of Medicine Outstanding Postgraduate Teacher Award , Dept of Medicine, Faculty of Medicine, St. Michael's Hospital, University of Toronto. (Postgraduate MD) <i>This award recognizes faculty for their dedication, enthusiasm and teaching excellence.</i>
2018	Robert Sheppard Award for Health Equity and Social Justice , Faculty of Medicine, University of Toronto, Toronto, Ontario, Canada <i>This award recognizes outstanding contributions of faculty members involved in the development and/or implementation of activities, programs or research related to social justice and health equity in faculty development or postgraduate medical education.</i>
2014	FitzGerald Academy Master Teacher Award , Dept of Medicine, Faculty of Medicine, University of Toronto <i>This award is presented annually by the FitzGerald Academy, Faculty of Medicine, in recognition of passion, enthusiasm, and sustained excellence in the teaching and support of undergraduate medical students.</i>
2001	Outstanding Teacher Award in Postgraduate Medical Education , Dept of Medicine, Faculty of Medicine, St. Michael's Hospital, Toronto, Ontario. (Postgraduate MD)
1998	Outstanding Teacher Award in Postgraduate Medical Education , Dept of Medicine, Faculty of Medicine, St. Michael's Hospital, Toronto, Ontario. (Postgraduate MD)
1997	Outstanding Teacher Award in Postgraduate Medical Education , Dept of Medicine, Faculty of Medicine, St. Michael's Hospital, Toronto, Ontario. (Postgraduate MD)

4. PROFESSIONAL AFFILIATIONS AND ACTIVITIES

Professional Associations

2002 - present	Member , Canadian Society of Internal Medicine
2001 - present	Member , Christian Medical and Dental Society of Canada
1998 - present	Member , National Health Care for the Homeless Council
1992 - present	Member , Society of General Internal Medicine
2015 - 2017	President , Canadian Society of Internal Medicine
2014 - 2015	President-Elect , Canadian Society of Internal Medicine
2010 - 2018	Member of Council and Executive Committee , Canadian Society of Internal Medicine
2010 - 2014	Secretary-Treasurer , Canadian Society of Internal Medicine
2006 - 2016	Member , Association of Chiefs and Leaders of General Internal Medicine (ACLGIM)
2004 - 2006	Member, Executive Committee , International Society for Urban Health
2003 - 2012	Member , International Society for Urban Health
2003 - 2009	Chair, Communications Committee , International Society for Urban Health

Administrative Activities

INTERNATIONAL

International Society for Urban Health

2006 Jan - 2006 Oct	Member , Scientific Committee, 5th International Conference on Urban Health, Amsterdam, Netherlands.
2005 Jan - 2005 Oct	Member , Community Engagement Subcommittee, 4th International Conference on Urban Health, Toronto, Ontario, Canada.
2005 Jan - 2005 Oct	Member , Conference Steering Committee, 4th International Conference on Urban Health, Toronto, Ontario, Canada.
2004 Jan - 2004 Oct	Member , Scientific Committee, 3rd International Conference on Urban Health, Boston, Massachusetts, United States.
2003 Jan - 2003 Oct	Member , Scientific Committee, 2nd International Conference on Urban Health, New York City, New York, United States.
2001 Dec - 2002 Oct	Co-Chair , Scientific Committee, 1st International Conference on Inner City Health, Toronto, Ontario, Canada.

National Academies of Sciences, Engineering, and Medicine

2016 Aug - 2018 Jul	Member , Housing, Health, and Homelessness Committee, Washington, District of Columbia, United States.

National Health Care for the Homeless Council (NHCHC)

2009 Sep - present	Member , Research Committee, United States.

North American Housing and HIV/AIDS Research Summit.

2010 Mar - 2010 Jun	Member , Planning Committee for Pre-Summit Learning Institute on "Examining Structural HIV Interventions: Methodological Challenges", Toronto, Ontario, Canada.

Society of General Internal Medicine

2014 Sep - 2015 Feb	Member , 2015 Eisenberg Award Selection Committee, United States.
2013 Jun - 2018 May	Member , SGIM Research Committee, United States.
2006 Jul - 2007 Mar	Chair , 2007 Annual Meeting Workshop Review Committee, Health Disparities/Unique Populations, Toronto, Ontario, Canada.
2006 Jan - 2006 Mar	Member , 2006 Annual Meeting Workshop Review Committee, Health Disparities/Unique Populations, United States.
2005 Jan - 2005 Mar	Member , 2005 Annual Meeting Workshop Review Committee, Health Disparities/Unique Populations, United States.
2004 Jan - 2004 Mar	Member , 2004 Annual Meeting Workshop Review Committee, Health Disparities/Unique Populations, United States.
2003 Jan - 2003 Mar	Member , 2003 Annual Meeting Workshop Review Committee, Health Disparities/Unique Populations, United States.

University of Pennsylvania

2012 Jul - 2013 Jun	Member , Conference Organizing Committee, International Homelessness Research Conference, June 2013, Philadelphia, Pennsylvania, United States.

NATIONAL

Canadian Conference on Homelessness

2004 Jul - 2005 May **Member**, Steering Committee, Toronto, Ontario, Canada.

Canadian Housing and Renewal Association

2003 Jan - 2003 Oct **Member**, Organizing Committee, National Symposium on Health and Housing, Calgary, Alberta, Canada.

Canadian Observatory on Homelessness (successor to the Canadian Homelessness Research Network)

2009 Jul - 2019 **Member**, National Advisory Board, Toronto, Ontario, Canada.

Canadian Society of Hospital Medicine

2008 Jan - 2009 Sep **Member**, Organizing Committee, 7th Annual Canadian Society of Hospital Medicine Conference, Toronto, Ontario, Canada.

Canadian Society of Internal Medicine

2013 Oct - 2014 Oct **Member**, 2014 Annual Meeting Committee, Calgary, Alberta, Canada.

2012 Oct - 2013 Oct **Chair**, 2013 Annual Meeting Committee, Toronto, Ontario, Canada.

2011 Oct - 2012 Oct **Member**, 2012 Annual Meeting Committee, Quebec City, Quebec, Canada.

Government of Canada

2005 Sep - 2006 Jun **Member**, Minister's Advisory Board, Canadian Housing Framework, Ottawa, Ontario, Canada.

The Salvation Army

2013 Jul - 2014 Dec **Member**, National Advisory Board, Task Team on Homelessness, Canada.

PROVINCIAL / REGIONAL

Ministry of Municipal Affairs and Housing

2015 Jan - 2015 Oct **Member**, Expert Panel on Homelessness, Ontario, Canada.

University of Calgary

2017 Oct **External Reviewer**, External Review of the Division of General Internal Medicine, University of Calgary, Ottawa, Ontario, Canada.

University of Ottawa

2010 Nov - 2010 Dec **External Reviewer**, External Review of the Division of General Internal Medicine, University of Ottawa, Ottawa, Ontario, Canada.

LOCAL

Department of Health Policy, Management and Evaluation, University of Toronto

2001 Jul - 2006 Jun **Member**, Executive Committee, Clinical Epidemiology and Health Care Research Program

Department of Medicine, University of Toronto

2006 Apr - 2016 Jun **Co-Chair**, On-Site Review Committee for the Core Internal Medicine Training Program, Faculty of Medicine, Dept of Medicine

2005 Nov - 2016 Jun	Member , Core Internal Medicine Program Committee, Faculty of Medicine, Dept of Medicine
2005 Nov - 2016 Jun	Member , Executive Committee, Department Division Directors
2004 Sep - 2005 Oct	Member , Selection Committee, Director of the Division of General Internal Medicine
1998 Jul - 2005 Jun	Member , Internal Medicine PGY1 Selection Committee, Faculty of Medicine, Dept of Medicine

Division of General Internal Medicine, University of Toronto

2006 Jul - 2016 Jun	Member , General Internal Medicine PGY4-5 Selection Committee, Faculty of Medicine, Dept of Medicine, General Internal Medicine
2006 Jan - 2016 Jun	Chair , University of Toronto Division of General Internal Medicine Executive Committee, Toronto, Ontario, Canada.

Good Shepherd Ministries

2020 Oct - present	Vice Chair , Board of Directors, Toronto, Ontario, Canada.
2019 Oct - present	Member , Board of Directors, Toronto, Ontario, Canada.
	Member , Board of Directors, Toronto, Ontario, Canada.

Inner City Family Health Team (ICFHT)

2015 Jan - 2019 Oct	President , Board of Directors, Toronto, Ontario, Canada.
2013 Oct - 2015 Jan	Member , Board of Directors, Toronto, Ontario, Canada.
2011 Jul - 2013 Oct	Chair , Board of Directors, Toronto, Ontario, Canada.

Inner City Health Associates (ICHA)

2011 Jul - 2014 Sep	Chair , Board of Directors, Toronto, Ontario, Canada.

St. Michael's Hospital

2011 Jan - 2013	Member , St. Michael's Hospital Research Advisory Committee, Toronto, Ontario, Canada.
2011 Jan - 2011 Dec	Chair , Li Ka Shing Knowledge Institute, Internal Scan Working Group on Knowledge Translation/Policy Research/Disadvantaged Populations, Toronto, Ontario, Canada.
2010 Nov - 2017 Dec	Member , Li Ka Shing Knowledge Institute Reappointments Committee
2009 Apr - 2009 Jun	Member , Search Committee for Physician-in-Chief, St. Michael's Hospital
2009 Feb - 2009 Apr	Member , Five-Year Review Committee for Dr. Patricia O'Campo, Ricard Chair of Inner City Health and Director, Centre for Research on Inner City Health, St. Michael's Hospital
2000 Jul - 2003 Jun	Member , Postgraduate Medical Education Committee, St. Michael's Hospital, Faculty of Medicine, Dept of Medicine
2000 Jul - 2003 Jun	Coordinator , Postgraduate Education, Division of General Internal Medicine, St. Michael's Hospital
1997 - 2001	Member , Research Operations Committee, St. Michael's Hospital
1996 Jan - 2009 Jun	Member , Homeless and Underhoused Community Advisory Panel, St. Michael's Hospital

Street Health Community Nursing Foundation

2006 Jan - 2009 Jun	Member , Street Health Survey - Community Advisory Committee, Toronto, Ontario, Canada.

The Hospital for Sick Children

2009 May - 2009 Jun	Member , External Review Committee, Division of Paediatric Medicine

Unity Health Toronto

2019 Jan - present Research Ethics Board, Toronto, Ontario, Canada.

University of Toronto

2013 Dec - 2014 Jun **Member**, Review and Search Committee, Chair, Division of General Surgery, Toronto, Ontario, Canada.

Peer Review Activities

EDITORIAL BOARDS

Editorial Board Member

2018 - present Canadian Society of Internal Medicine, Canadian Journal of General Internal Medicine (CJGIM)

2009 May - 2012 Apr Society of General Internal Medicine, Journal of General Internal Medicine

GRANT REVIEWS

External Grant Reviewer

2009 Ontario HIV Treatment Network (OHTN), Community Based Research Capacity Building Fund, Number of Reviews: 1

2009 Winnipeg Health Sciences Centre Foundation, Number of Reviews: 1

2008 Michael Smith Health Research Foundation, British Columbia, Number of Reviews: 1

2005 Ontario HIV Treatment Network (OHTN), Number of Reviews: 1

2004 Canadian Foundation for AIDS Research (CANFAR), Number of Reviews: 1

2004 Ontario Ministry of Health and Long Term Care, Health Research Personnel Development Program, Number of Reviews: 1

2002 - 2004 The Physicians' Services Incorporated Foundation, Ontario, Number of Reviews: 2

2001 - 2007 Michael Smith Health Research Foundation, British Columbia, Number of Reviews: 4

Reviewer

2025 Social Sciences and Humanities Research Council of Canada (SSHRC), Insight Grants (October 2024 Competition) - Committee 07A (Economics), Number of Reviews: 1

2024 Canadian Institutes of Health Research, Project Grant (Fall 2024 Competition) - Health Services Evaluation & Interventions Research (HS1) Committee, Number of Reviews: 6

2014 Guy's and St. Thomas' Charity, United Kingdom, Number of Reviews: 1

2013 United States Department of Veterans Affairs, Cooperative Studies Program (CSP) Letter of Intent (LOI), Number of Reviews: 1

2010 United States Department of Veterans Affairs, Health Services Research and Development Service, Special Research Proposal Review Panel on Ending Homelessness Among Veterans. Number of Reviews: 1

2004 - 2007 Canadian Institutes of Health Research, Health Research Salary A Peer Review Committee (New Investigator Awards), Number of Reviews: 120

2003 - 2004 Canadian Institutes of Health Research, Health Disparities Initiative Peer Review Committee, Number of Reviews: 40

MANUSCRIPT REVIEWS

Reviewer

2024 Canadian Journal of General Internal Medicine (CJGIM), Number of Reviews: 1

2024 Canadian Medical Association Journal (CMAJ), Number of Reviews: 1

2024	JAMA Health Forum, Number of Reviews: 1
2024	JAMA Pediatrics, Number of Reviews: 1
2022	Canadian Journal of Public Health, Number of Reviews: 1
2022	JAMA, Number of Reviews: 1
2022	JAMA Pediatrics, Number of Reviews: 1
2022	Journal of Substance Abuse Treatment, Number of Reviews: 1
2022	Journal of Urban Health, Number of Reviews: 1
2022	New England Journal of Medicine, Number of Reviews: 1
2022	The Lancet Public Health, Number of Reviews: 1
2021	American Journal of Public Health, Number of Reviews: 1
2021	Annals of Internal Medicine, Number of Reviews: 1
2021	Canadian Journal of General Internal Medicine, Number of Reviews: 1
2021	Canadian Medical Association Journal (CMAJ), Number of Reviews: 1
2021	Journal of General Internal Medicine, Number of Reviews: 1
2021	The Lancet Public Health, Number of Reviews: 1
2020	American Heart Association (AHA) Statements, Number of Reviews: 1
2020	Annals of Internal Medicine, Number of Reviews: 1
2020	British Journal of Psychiatry, Number of Reviews: 1
2020	Health Services Research, Number of Reviews: 1
2020	New England Journal of Medicine, Number of Reviews: 1
2019	AIDS Care, Number of Reviews: 1
2019	Annals of Internal Medicine, Number of Reviews: 1
2019	Canadian Journal of Public Health, Number of Reviews: 1
2019	Health & Social Care in the Community, Number of Reviews: 1
2019	Health Services Research, Number of Reviews: 1
2019	Social Psychiatry and Psychiatric Epidemiology, Number of Reviews: 1
2018	Health & Social Care in the Community, Number of Reviews: 1
2016	Health Services Research, Number of Reviews: 1
2015	Journal of General Internal Medicine, Number of Reviews: 1
2015	Journal of Urban Health, Number of Reviews: 1
2014	American Journal of Public Health, Number of Reviews: 1
2014	BMC Health Services Research, Number of Reviews: 1
2014	Journal of Neurotrauma, Number of Reviews: 1
2013	Canadian Medical Association Journal, Number of Reviews: 2
2013	Trials, Number of Reviews: 1
2012	Journal of Urban Health, Number of Reviews: 2
2011	Annals of Internal Medicine, Number of Reviews: 1
2011	BMC Research Notes, Number of Reviews: 1
2011	Journal of General Internal Medicine, Number of Reviews: 1
2010	Canadian Journal of Urban Research, Number of Reviews: 1
2010	Journal of General Internal Medicine, Number of Reviews: 1
2009	JAMA, Number of Reviews: 1
2008	International Journal of Epidemiology, Number of Reviews: 1
2008	JAMA, Number of Reviews: 1
2008	Journal of Urban Health, Number of Reviews: 1

2008	Medical & Veterinary Entomology, Number of Reviews: 1
2008	Milbank Quarterly, Number of Reviews: 1
2007	JAMA, Number of Reviews: 2
2007	Journal of Hospital Medicine, Number of Reviews: 1
2007	Open Medicine, Number of Reviews: 1
2007	Seminars in Medical Practice, Number of Reviews: 1
2006	BMC Health Services Research, Number of Reviews: 1
2006	Emerging Infectious Diseases, Number of Reviews: 1
2005 - 2007	American Journal of Public Health, Number of Reviews: 2
2005 - 2007	Canadian Journal of Public Health, Number of Reviews: 2
2003 - 2006	JAMA, Number of Reviews: 4
2003 - 2006	Journal of General Internal Medicine, Number of Reviews: 3
2003	The Lancet, Number of Reviews: 1
2002 - 2006	Canadian Medical Association Journal, Number of Reviews: 6
2002	International Journal for Quality in Health Care, Number of Reviews: 1
2001 - 2007	Journal of Urban Health, Number of Reviews: 4
2001	Lancet Infectious Disease, Number of Reviews: 1
2000 - 2001	Acta Psychiatrica Scandinavica, Number of Reviews: 4
1999 - 2006	Annals of Internal Medicine, Number of Reviews: 8
1999	Journal of Health Care for the Poor and Underserved, Number of Reviews: 1

External Scientific Report Reviewer

2007	Canadian Institute for Health Information, Canadian Population Health Initiative, Number of Reviews: 1

SCIENTIFIC ABSTRACT REVIEWS

Member

2012 Oct - 2013 Jan	Society of General Internal Medicine 2013 Annual Meeting, Health Disparities & Vulnerable Populations Abstract Review Committee

Chair

2013 Oct - 2014 Jan	Society of General Internal Medicine 2014 Annual Meeting, Health Disparities & Vulnerable Populations Abstract Review Committee

Conference Abstract Reviewer

2008	7th International Conference on Urban Health, Vancouver 2008, Number of Reviews: 38

C. Academic Profile

1. RESEARCH STATEMENTS

Description of Research Program.

My research program focuses on the connections between homelessness, housing, and health. Our objectives are to develop, evaluate, and scale up interventions to improve the health and well-being of people who are homeless or unstably housed, and interventions to end homelessness itself.

D. Research Funding

1. GRANTS, CONTRACTS AND CLINICAL TRIALS

PEER-REVIEWED GRANTS

FUNDED

2025 Apr - 2027 Apr	Co-Investigator. Characterizing intensity of care received at the end of life by persons experiencing homelessness. Physicians' Services Incorporated (PSI) Foundation. New Investigator Operating Award. PI: Apramian, Tavis. Collaborator(s): K. Quinn, S. Isenberg, N. Bobrovitz, C. Yarnell, S. Blommaert, J. Myers, N. Dosani, L. Richard, S. Hwang . 195,000 CAD. [Grants]
2024 Apr - 2025 Mar	Co-Investigator. Diagnosis and interventions for equitable access to sleep apnea care in people experiencing homelessness. Canadian Institutes of Health Research (CIHR). Project Grant - Priority Announcement. PI: Yadollahi, Azadeh. Collaborator(s): Principal Applicants: F. Almeida, N. Ayas, A. Boozary, S. Pendharkar, V. Rac, M. Singh; Co-Applicants: R. Adams, M. Campos Navarrete, A. Gagliardi, S. Hwang , T. Kendzerska, O. Lyons, M. Mak, T. Meisami, O. Sparks, E. Huszti; Collaborators: A. Bond, A. Legatto, H. Shouly, B. Taghibeyglou. 100,000 CAD. [Grants]
2024 Feb - 2025 Jan	Principal Applicant. Investigating Post-COVID Condition Among People Experiencing Homelessness: A Longitudinal Cohort Study Analysis. Long COVID Web. Long COVID Web - Seed Funding Call 2023. PI: Hwang, Stephen . Collaborator(s): Rosane Nisenbaum, Lucie Richard, Jesse Jenkinson. 100,000 CAD. [Grants]
2024 Jan - 2030 Dec	Principal Applicant. Tier 1 Canada Research Chair in Homelessness, Housing and Health. Canada Research Chairs (CRC). PI: Hwang, Stephen . 1,400,000 CAD. [Grants]
2023 Nov - 2024 Oct	Co-Investigator. Advancing equity in traumatic brain injury care: A stakeholder-informed meeting on screening for traumatic brain injury in underserved populations. Canadian Institutes of Health Research (CIHR). Planning and Dissemination Grant. PI: Chan, Vincy. Collaborator(s): Balogh R, Bayley M, Colantonio A, Cullen N, Hwang S , Matheson F, Omar S, Panenka W, Wiseman-Hakes C, Yadollahi A. 10,000 CAD. [Grants]
2023 Oct - 2025 Sep	Co-Investigator. Understanding the Heightened Amputation Risk Among People Experiencing Homelessness: A Population-based Cohort Study. Canadian Institutes of Health Research (CIHR). Project Grant. PI: de Mestral, Charles. Collaborator(s): Albalawi Z, Austin P, Blanchette V, Campbell D, Hwang S , Kayssi A, Lee DS, Richard L. 145,351 CAD. [Grants]
2023 Jul - 2024 Jun	Co-Investigator. Predicting outbreaks in shelters: development and data-driven testing of a computational model of airborne SARS-CoV-2 spread. Emerging & Pandemic Infections Consortium (EPIC) Institute for Pandemics (IfP). PI: Chaudhuri, Swetaprovo. Collaborator(s): S. Mishra, K. Murty, S. Hwang . 25,000 CAD. [Grants]
2023 Apr - 2024 Mar	Co-Investigator. Effect of healthy food vouchers on blood glucose control in people with type 2 diabetes or prediabetes: a randomized controlled trial. Canadian Institutes of Health Research (CIHR). Project Grant. PI: Persaud, Nav. Collaborator(s): E. Gucciardi, S. Hwang , A. Pinto, K. Thorpe. 100,000 CAD. [Grants]
2023 Jan - 2026 Dec	Co-Investigator. The Effect of Canadian Income Transfer Programs on Health. Canadian

Institutes of Health Research (CIHR). Project Grant. PI: Dunn, James. Collaborator(s): M. Brownell, E. Forget, **S. Hwang**, J. Lavis, N. Nickel, N. Persaud, A. Siddiqi. 348,000 CAD. [Grants]

- 2023 Jan - 2025 Dec **Co-Investigator.** Effect of a healthy food voucher on blood glucose control in people with type 2 diabetes or prediabetes: a randomized controlled trial. Physicians Services Incorporated (PSI) Foundation. Clinical Research Grant. 22-38. PI: Persaud, Nav. Collaborator(s): Gucciardi E, **Hwang SW**, Thorpe KE, Pinto A. 226,500 CAD. [Grants]
- 2022 Jul - 2024 Jun **Co-Investigator.** Transitioning Youth Out of Homelessness 2.0: A Pilot Randomized Rent Subsidy and Identity Capital Intervention for Youth Exiting Homelessness. Making the Shift Youth Homelessness Social Innovation Lab. Insight Grant. PI: Thulien, Naomi. Collaborator(s): Abramovich A, Cote J, Craig K, Daley M, Downey B, Frederick T, O'Keefe H, **Hwang S**, Kozloff N, Lethby M, Nisenbaum R, Noble A, Rampersaud M. 119,688 CAD. [Grants]
- 2022 Jun - 2029 May **Co-Investigator.** The Canadian Observatory on Homelessness - Mobilizing Partnerships to Prevent and End Homelessness. Social Sciences and Humanities Research Council of Canada (SSHRC). Partnership Grant. PI: Gaetz, Stephen. Collaborator(s): Abram Oudshoorn, Alex Abramovich, Alexandria Wilson, Amanda Noble, Amber Gazso, Bernadette Pauly, Carol Kauppi, Carolyne Grimard, Céline Bellot, Cheryl Forchuk, Eric Latimer, Erin Dej, Jacqueline Kennelly, Jeannette Waegemakers Schiff, Jeff Karabanow, Jeffrey Ansloos, Jennifer Connolly, Jino Distasio, John Graham, Joseph Hermer, Katharina Kovacs Burns, Katrina Milaney, Kristy Buccieri, Maritt Kirst, Naomi Nichols, Nicole Kozloff, Peter Mackie, **Stephen Hwang** et.al. 2,499,457. [Grants]
- 2022 Apr - 2024 Mar **Co-Principal Investigator.** Access to Advanced Gynecological Care for Patients Experiencing Disadvantage: A Population Based Study. St. Michael's Hospital. AFP Innovation Fund. SMH-22-007. PI: Simpson, Andrea. Collaborator(s): Skolnik, Emma. 41,596 CAD. [Grants]
- 2022 Feb - 2024 Jan **Co-Investigator.** Health equity during the pandemic recovery period: Updated knowledge syntheses, policy tracking and health outcome monitoring. Canadian Institutes of Health Research (CIHR). Operating Grant: Addressing the Wider Health Impacts of COVID. PI: Persaud, Navindra. Collaborator(s): Co-Principal Applicants: Adams O, Lofters A. Co-Applicants: **Hwang S**, Pinto A, Sayani A. 184,134 CAD. [Grants]
- 2021 Dec - 2022 Nov **Co-Investigator.** MARCO:POLO Marginalization & COVID-19: Promoting Opportunities for Learning & Outreach. Canadian Institutes of Health Research (CIHR). Operating Grant: Emerging COVID-19 Research Gaps & Priorities. PI: Bayoumi, Ahmed. Collaborator(s): Co-Principal Applicants: Firestone M, Boucher L, Dodd Z, Durbin A, Hayman K, Isaacs BJ, Kolla G, Matheson FI, Steer LA, Yakubovich AR, Young SV. Co-Applicants: Beder M, Brothers T, Dobrow M, Du Mont J, Holness L, Huijbregts M, **Hwang S**, Hynie M, Kendall C, Kenny K, Long C, Maguire J, Nisenbaum R, Shankardass K, Strike C, Walker D. Collaborators: Arcenal M, Delgado R, Heineck K, Lunskey Y, Marcolin A, Pepper V. 313,804 CAD. [Grants]
- 2021 Dec - 2022 Nov **Co-Investigator.** The Surgical EQUITY initiative: Establishing equitable access to surgery following the pandemic. Canadian Institutes of Health Research (CIHR). Operating Grant: Emerging COVID-19 Research Gaps & Priorities. PI: Gomez Jaramillo, David. Collaborator(s): Co-PIs: Chan T, Sankar A. Co-Investigators: Baxter N, **Hwang S**, Irish J, Sarhangian V, Simpson A, Stukel T, Urbach D, Wijesundera D, de Mestral C. 220,596 CAD. [Grants]
- 2021 Jul - 2023 Jun **Co-Investigator.** Service Bans among People Experiencing Homelessness: A Timeline

Mapping Study of Antecedents and Consequences. Social Sciences and Humanities Research Council of Canada (SSHRC). Insight Development Grant. PI: Kidd, Sean. Collaborator(s): **Hwang S**, Kozloff N, Marshall CA, Noble A, Stergiopoulos V, Kerman N, Polillo A. 74,885 CAD. [Grants]

- 2021 Jun - 2022 May **Principal Applicant.** A Qualitative Exploration of Vaccine Uptake and Hesitancy Among People Experiencing Homelessness in Toronto. Canadian Institutes of Health Research (CIHR). Operating Grant:Emerging COVID-19 Research Gaps & Priorities. PI: **Hwang, Stephen**. Collaborator(s): Jenkinson J, Kiran T, Orkin A, Thulien N. 100,258 CAD. [Grants]
- 2021 Feb - 2022 Mar **Co-Investigator.** Co-building Equity-Mobilizing Partnerships in Community (EMPaCT) to increase impact through equitable patient-oriented partnerships in research, policy and practice. Ontario Strategy for Patient Oriented Research (SPOR) SUPPORT Unit. EMPOWER Award. PI: Sayani, Ambreen and Maybee, Alies. Collaborator(s): Lofters A, Shaw J, **Hwang S**, Bloch G, Parsons J, Gordon D, Chandra S, Corrado AM, Manthorne J, Nicholson E. 25,000 CAD. [Grants]
- 2020 Sep - 2021 Aug **Principal Applicant.** The COVENANT Study: COVID-19 Cohort Study of People Experiencing Homelessness in Toronto. Canadian Institutes of Health Research (CIHR). Operating Grant: COVID-19 Rapid Research Funding Opportunity. VR5-173211. PI: **Hwang, Stephen**. Collaborator(s): Nisenbaum N, McGeer A, Mishra S, Ostrowski M, deVilla E, Dhalla I, Gingras A, Gommerman J, Jamal A, Kiran T, Lachaud J, Lee R, Mejia Lancheros C, Mubareka S, Baral S, Chris A, Agarwal A. 1,901,698 CAD. [Grants]
- 2020 Jul - 2024 Jun **Co-Investigator.** Canadian Housing Evidence Collaborative (CHEC). Canada Mortgage and Housing Corporation (CMHC) / Social Sciences and Humanities Research Council (SSHRC). CMHC-SSHRC Housing Partnership Development Grant. PI: Dunn, James R. Collaborator(s): 41 Co-investigators. 1,135,000. [Grants]
- 2020 Jul - 2022 Jun **Co-Investigator.** Differential Cognitive Contributions to Functional Ability and Quality of Life in Homeless Adults. Social Sciences and Humanities Research Council of Canada (SSHRC). Insight Development Grant. PI: Gicas, Kristina. Collaborator(s): Stergiopoulos V, **Hwang S**. 65,188 CAD. [Grants]
- 2020 Jun - 2021 May **Co-Investigator.** The COVID-19 Hospital Analytics Laboratory: Improving the Clinical, Organizational, and System Response to COVID-19. Canadian Institutes of Health Research (CIHR). Operating Grant: COVID-19 Rapid Research Funding Opportunity. PI: Verma A (Nominated PI). Collaborator(s): Greenberg A, Chan T, Cheung A, Ghassemi M, Herridge M, Mamdani M, Razak F, Rosella L (Co-PI); Ahmed A, Appleton A, Azzam K, Bell C, Chignell M, Clifford P, Cram P, Daneman N, Desveaux L, Dhalla I, Diamant A, Edelstein B, Fralick M, Gill S, Grimshaw J, Hadfield G, Hawker G, Hussein H, **Hwang SW**, Ivers N, Jensen L, Kandel C, Kapral M, Kwan J, Lapointe-Shaw L, Leis J, Liu J, Lubbers S, MacFadden D, MacMillan T, Manuel D, Marville-Williams C, Mishra S, Muller M, Ng V, et.al. (Co-I). 2,010,000 CAD. [Grants]
- 2020 May - 2023 May **Co-Investigator.** Improving access to lung cancer screening in the underserved, and building capacity for future cancer patient oriented research in Canada. Canadian Institutes of Health Research (CIHR). Patient-Oriented Research Grant. PI: Sayani, Ambreen. Collaborator(s): Lofters A, **Hwang S**, Bloch G, Parsons J, Manthorne J, Nicholson E. 22,500 CAD. [Grants]
- 2020 May - 2021 Apr **Co-Investigator.** The Effects of the COVID-19 Pandemic Response for People who are Marginalized. University of Toronto, Toronto COVID-19 Action Initiative. PI: Bayoumi, Ahmed M. Collaborator(s): Caudarella A, Du Mont J, Durbin A, Firestone M, Holness L, **Hwang S**, Maguire J, Mason R, Matheson F, Nisenbaum R, O'Campo P, Persaud N, Strike C, Werb D,

Kolla G, Long C, Young S, Beder M, Dell E, Vozzolo B, Brillinger C, Davis S, Klaiman M, Schlosser L, Younie K, Raybourne R, Sheth P, Steer L, Hewitt T, Heineck K, Lunskey Y, Ibrahim S, John J, Thompson C, Kenny K, Brothers T, Dodd Z, Kendall C, Mawani F, Yakubovich A. 250,000 CAD. [Grants]

- 2020 May - 2020 Nov **Co-Investigator.** Pandemic-Proof: Synthesizing Real-World Knowledge of Promising Mental Health and Substance Use Practices for Young People Who Are Experiencing or Have Experienced Homelessness. Canadian Institutes of Health Research (CIHR). Operating Grant: Knowledge Synthesis: COVID-19-Mental Health. PI: Thulien N, Noble A. Collaborator(s): **Hwang S**, Kidd S. 49,548 CAD. [Grants]
- 2019 Sep - 2021 Sep **Co-Investigator.** Phenobarbital for the management of severe acute alcohol withdrawal syndrome: The PHENOMANAL Trial. St. Michael's Hospital. Department of Medicine Priorities Fund. PI: Burns, Karen E.A. Collaborator(s): Filewod N, **Hwang S**, Ailon J, Caudarella A, Lamba W, Gray S, Klaiman M. 50,000. [Grants]
- 2019 Apr - 2027 Mar **Principal Investigator.** Interventions Research in Homelessness, Housing, and Health. Canadian Institutes of Health Research (CIHR). Foundation Grant. Collaborator(s): Aubry T, Dunn J, Fabreau G, Gaetz S, Heineck K, Isaranuwatichai W, Nisenbaum R, Palepu A, Raine L, Richter T, Stergiopoulos V, Thulien N, Watson K. 3,972,033 CAD. [Grants]
- 2019 Apr - 2020 Mar **Co-Investigator.** Housing for All Canadians. Social Sciences and Humanities Research Council of Canada (SSHRC). Partnership Development Grant. PI: Dunn, James. Collaborator(s): Harris R, Gabel C, Dion M, Baker-Collins S, Fudge Schormans A, Van Der Linden C, Woodhall J, **Hwang S**, Riva M, Evans J, Collins D, Moos M, Amborski D, Baker E, Leishman C, Suttor G, Gurstein P, Smith M, Pomeroy S, Smetanin P, Barata P, Dewling G, Johnson P, Nord P, Rolfe S. 80,000 CAD. [Grants]
- 2018 Oct - 2019 Sep **Co-Investigator.** Women, Victimization, and Homelessness: Towards a conceptual model to advance trauma- and violence-informed research, policy and practice. Canadian Institutes for Health Research (CIHR). Project Grant. PI: Frankish, James and Abbott, Janet. Collaborator(s): Eiboff F, **Hwang S**, Krausz R, Martin R, Nicholls T, O'Campo P, Strehlau V, Torchalla I. 68,850. [Grants]
- 2017 Oct - 2020 Sep **Principal Investigator.** Improving Support Systems and Health Outcomes for People Experiencing Homelessness. Ontario Ministry of Health and Long-Term Care. Health System Research Fund. Collaborator(s): Vicky Stergiopoulos. 2,087,998 CAD. [Grants]
- 2017 Jul - 2018 Nov **Principal Investigator.** Evaluation Services for the Ontario Basic Income Pilot. Ministry of Community and Social Services. Collaborator(s): **Hwang S**, Dunn J (Co-Lead) O'Campo P, Gabel C, Downey B, Pinto A, Tarride J, Lewchuk W (Co-Principal Investigators) Jüni P, Glazier R, Persaud N, Tarasuk V, Kurdyak P, Coulombe S, Oreopoulos P, Kroft K, Forget E, Sweetman A, Myers K, Aratanga T, Shankardass K, Upshur R, Smith B, Rosella L, Bayoumi AM, Isanaranuwatichai W, Zuberi D, Fudge-Schormans A, Boyle M, Siddiqi A, King M (Co-Investigators). 2,460,000 CAD. [Grants]
- 2017 Mar - 2021 Mar **Co-Investigator.** CLEAN Meds RCT: Carefully seLected and Easily Accessible at No charge Medications. Canadian Institutes of Health Research (CIHR). SPOR Innovative Clinical Trial Multi-Year Grant. PI: Persaud, Nav. Collaborator(s): Mitchell C, Laupacis A, Nicholas A, Boozary A, Glazier R, Gomes T, **Hwang S**, Jüni P, Law M, Mamdani M, Manns B, Martin D, Morgan S, Oh P, Pinto A, Shah B, Sullivan F, Thorpe K, Tu K. 1,065,001 CAD. [Grants]
- 2017 Mar - 2021 Mar **Co-Investigator.** Betting on housing: Women, problem gambling and homelessness. Social Sciences and Humanities Research Council of Canada (SSHRC). Insight Grants. 435-2017-0716. PI: Matheson, Flora. Collaborator(s): Woodhall-Melnik J, Guilcher SJT, **Hwang SW**,

Hahmann TE. 252,387 CAD. [Grants]

- 2016 Apr - 2019 Mar **Co-Investigator.** Optimizing Support and Service Delivery for Problem Gambling Among People Living with Complex Needs. Ontario Ministry of Health and Long-Term Care. Health System Research Fund. PI: Matheson, Flora & Guilcher, Sara. Collaborator(s): **Stephen Hwang**, Nigel Turner, Chris McKillop, Stuart Watt, Wayne Skinner. 749,185. [Grants]
- 2016 Jan - 2019 Dec **Co-Investigator.** CLEAN Meds RCT: The impact of providing carefully selected essential medications at no charge to primary care patients. Ontario Strategy for Patient-Oriented Research (SPOR) Support Unit. Targeted IMPACT Award. PI: Persaud, Nav & Shah, B. Collaborator(s): J Abelson, M Bedard, S Booker, A Boozary, M Evans, R Glazier, T Gomes, **S Hwang**, S Ikura, A Laupacis, M Law, M Mamdani, B Manns, D Martin, S Morgan, D Morissette, P Oh, A Pinto, F Sullivan, K Thorpe, K Tu. 1,000,000. [Grants]
- 2015 Oct - 2017 Sep **Co-Investigator.** Elucidating the health care utilization of people who experience detention or incarceration in provincial facilities in Ontario: a population-based study. Physicians Services Inc. Health Research Grant. PI: Kouyoumdjian, Fiona. 77,000. [Grants]
- 2015 Jul - 2022 Jun **Co-Investigator.** Improving Mental Health Care for High Risk and Disadvantaged Populations: Evidence to Inform Policy and Practice. Canadian Institutes for Health Research (CIHR). Foundation Scheme. PI: Stergiopoulos V. Collaborator(s): **Hwang S**, Goering P, Bowlby A, Chodos H. 1,427,647. [Grants]
- 2015 May - 2016 Apr **Co-Principal Investigator.** Understanding the health impact of extreme temperatures on homeless populations with a view to enhancing Toronto's extreme weather plans and responses: Developing a research proposal. University of Toronto Dalla Lana School of Public Health, The Wellesley Institute, and Toronto Public Health. Healthier Cities and Communities Hub Seed Grant. PI: Bassil, Kate. Collaborator(s): **SW Hwang**, S Gower, A Wainberg, M Kim. 9,861. [Grants]
- 2015 Apr - 2017 Mar **Co-Investigator.** Effects of the Regent Park Housing Redevelopment on Mental Health: Medium-Term Effects of a Population Health Intervention. Canadian Institutes of Health Research (CIHR). Population Health Intervention Research. PI: Dunn, James. Collaborator(s): Co-Investigators: **S. Hwang**, M. Janus, F. Matheson, R Moineddin, C. Muntaner, P. O'Campo. 198,878. [Grants]
- 2015 Jan - 2015 Dec **Co-Investigator.** Understanding the Landscape of Youth Mental Health: Engaging Youth in an Interactive World Café. Canadian Institutes of Health Research (CIHR). Planning and Dissemination Grant. PI: Woodhall-Melnik, Julia. Collaborator(s): Co-Principal Investigator: F.I. Matheson. Co-Investigators: S. Guilcer, P. Ferentzey, W. Skinner, **S. Hwang**, N. Turner. 12,500. [Grants]
- 2015 Jan - 2015 Dec **Co-Investigator.** Defining Gender-Specific Health Research Priorities for Youth Facing Homelessness. Canadian Institutes of Health Research (CIHR). Planning and Dissemination Grant. PI: Matheson, Flora. Collaborator(s): Co-Principal Investigator: J. Woodhall-Melnik. Co-Investigators: S. Guilcer, P. Ferentzey, W. Skinner, **S.W. Hwang**, N. Turner. 10,000. [Grants]
- 2014 Oct - 2019 Sep **Co-Investigator.** Examining the interplay between victimization, justice involvement and housing among homeless mentally ill men and women: A longitudinal study. Canadian Institutes of Health Research (CIHR). Open Operating Grant. PI: Nicholls, Tonia. Collaborator(s): A.G. Crocker, **S.W. Hwang**, R.M. Krausz, E.A. Latimer, L. Roy, J. Somers. 774,958. [Grants]
- 2014 Jul - 2018 Jun **Co-Investigator.** Does subsidized housing improve mental health? GTA West Housing and

Health Study Renewal. Canadian Institutes of Health Research (CIHR). Open Operating Grant. PI: Dunn, James. Collaborator(s): P. O'Campo, C. Muntaner, R. Moineddin, **S. Hwang**, F. Matheson, M. Janus. 995,877. [Grants]

- 2014 Jul - 2015 Jun **Co-Investigator.** Defining priorities and creating a network for prisoner health research in Canada. Canadian Institutes of Health Research (CIHR). Planning Grant. PI: Kouyoumdjian, Fiona. Collaborator(s): G. Brown, **S. Hwang**, L. Kiefer, F. Matheson, D. Silva. 24,890. [Grants]
- 2013 Oct - 2018 Sep **Co-Principal Investigator.** A Randomized Controlled Trial of Housing First for Homeless People with Mental Illness: Long-term Outcomes. Canadian Institutes of Health Research (CIHR). Operating Grant. MOP-130405. PI: **Hwang, Stephen**, O'Campo P, Stergiopoulos V. Collaborator(s): A. Bayoumi, P. Goering, R. Nisenbaum, S. Tsemberis. 1,984,383. [Grants]
- 2013 Oct - 2017 Sep **Co-Investigator.** Our Health Counts Toronto: Developing a Population Based Urban Aboriginal Cohort to Assess and Enhance Individual, Family, and Community Health and Wellbeing. Canadian Institutes for Health Research (CIHR). Operating Grant. PI: Smylie, Janet. Collaborator(s): SE Booth, C Bourgeois, SH Wolfe, B Allan, M Firestone, P Fleiszer, D Gesink, RH Glazier, HA Howard, **SW Hwang**, R Nisenbaum, PJ O'Campo, M Snyder. 992,183. [Grants]
- 2013 May - 2014 Jul **Co-Investigator.** Problem Gambling and Housing Instability. Ontario Problem Gambling Research Centre. Standard Research Awards. PI: Matheson, Flora. Collaborator(s): **S.W. Hwang**, P. Ferentzy, W.J. Skinner. 101,346. [Grants]
- 2013 Mar - 2014 Feb **Co-Investigator.** Does subsidized housing improve mental health and healthy child development? GTA West Housing and Health Study Renewal. Canadian Institutes of Health Research (CIHR). Operating Grant - Population Health Interventions. PI: Dunn, James. Collaborator(s): **S. Hwang**, M. Janus, F. Matheson, R. Moineddin, C. Muntaner, P. O'Campo. 100,000. [Grants]
- 2012 Jul - 2019 Jun **Co-Investigator.** Canadian Observatory on Homelessness: Creating Policy Impact. Social Sciences and Humanities Research Council of Canada (SSHRC). Partnership Grant. PI: Gaetz, Stephen. Collaborator(s): T Aubry, S Baker Collins, Y Belanger, C Bellot, CJ Charette, J Distasio, MP Eberle, C Forchuk, P Goering, JR Graham, R Hurtubise, **SW Hwang**, JM Karabanow, KA Kovacs Burns, DS McCormack, PM Menzies, J Mosher, WL O'Grady, B Pauly, VA Preston, S Shapson, AI Tanasescu Turner, WE Thurston, JL Waegemakers Schiff. 2,500,000. [Grants]
- 2012 Apr - 2015 Mar **Co-Investigator.** The effectiveness of a brief intervention on improving health outcomes for homeless people with unmet health needs. Canadian Institutes of Health Research (CIHR). Partnerships for Health System Improvement. PI: Stergiopoulos, Vicky. Collaborator(s): D. Wasylenki, J. Durbin, **S. Hwang**, R. Nisenbaum, P. O'Campo, J. Tepper. 343,000. [Grants]
- 2012 Apr - 2015 Mar **Co-Investigator.** Increasing Access to Mental Health Services for Street-Involved Youth: The Effectiveness of a Theory-based Multicomponent Resilience and Motivational Intervention. Canadian Institutes of Health Research (CIHR). Partnerships for Health System Improvement. PI: McCay, Elizabeth. Collaborator(s): C. Howes, B. Ferguson, J. Henderson, W. Horton, J. Hughes, **S. Hwang**, J. Karabanow, S. Kidd, J. Langley, B. MacLaurin, I. Manion, S. Quesnel, E. Saewyc, E. Santa Mina, J. Schwind, A. Aiello, K. Ginsburg, D. Soenen. 217,140. [Grants]
- 2012 Apr - 2014 Mar **Co-Investigator.** Picturing foster care: A photo voice evaluation of three different fostering models and their implications for perinatal care provision. Canadian Institutes of Health Research (CIHR). Operating Grant. PI: Parsons, Janet. Collaborator(s): K. Boydell, **S.**

Hwang, P. O'Campo, A. Scott, S. Sridharan. 257,496. [Grants]

- 2012 Apr - 2014 Mar **Principal Investigator.** Advancing the Health and Housing in Transition (HHiT) Study: An extended four-year follow-up of the health of homeless and vulnerably housed adults in three Canadian cities. Canadian Institutes of Health Research (CIHR). Operating Grant. MOP-86765. Collaborator(s): T. Aubry, S. Farrell, A. Palepu, J. Dunn, J. Hoch, A. Hubley, J. Hulchanski, F. Klodawsky, R. Nisenbaum. 1,111,930. [Grants]
- 2012 Mar - 2014 Feb **Principal Investigator.** Population Health Interventions to End Homelessness. Canadian Institutes of Health Research (CIHR). Operating Grant: Population Health Intervention Research. GIR-120511. Collaborator(s): T. Aubry, C. Benoit, J. Dunn, S. Farrell, J. Hoch, A. Hubley, J. Hulchanski, F. Klodawsky, B. MacLaurin, A. Palepu, M. Shapcott, V. Stergiopoulos, C. Worthington. 200,000. [Grants]
- 2011 Oct - 2012 Sep **Co-Investigator.** Clarifying the link between traumatic brain injury and homelessness: a planning workshop. Canadian Institutes of Health Research (CIHR). Meetings, Planning and Dissemination Grant: Planning Grant. PI: Topolovec-Vranic, Jane. Collaborator(s): Angela Colantonio, Michael Cusimano, **Stephen Hwang**, Pia Kontos, M. Donna Ouchterlony, Vicky Stergiopoulos. 24,837. [Grants]
- 2011 Jul - 2012 Jun **Co-Investigator.** Meeting, Planning, and Dissemination Grant: A Resilience and Strengths-based Intervention to Promote Engagement, Positive Development and Reduce Risk in Street-involved Youth. Canadian Institutes of Health Research (CIHR). PI: McCay, Elizabeth. Collaborator(s): C. Howes, M. McDonald, S. Quesnel, K. Ginsburg, T. Guimond, S. Kidd, J. Hughes, **S. Hwang**, J. Karabanow, J. Langley, B. MacLaurin, E. Saewyc, E. Santa Mina, J. Scwind, A. Aiello. 24,800. [Grants]
- 2010 Nov - 2011 Mar **Principal Investigator.** Development Grant for the preparation of a CIHR Programmatic Grant Proposal "Population Health Interventions to Reduce Homelessness and Improve Health". Canadian Institutes for Health Research (CIHR). Collaborator(s): Tim Aubry, Susan Farrell, Anita Hubley, Fran Klodawsky, Anita Palepu, Catherine Worthington (Co-Investigators). 15,000. [Grants]
- 2010 Apr - 2011 Mar **Co-Investigator.** Responding to H1N1 in the Context of Homelessness in Canada. Canadian Institutes of Health Research (CIHR). Operating Grant: Health Systems Research on H1N1. PI: Gaetz, Stephen. Collaborator(s): Syed Ali, John Graham, Roch Hurtubise, **Stephen Hwang**, Roger Keil, Janet Mosher, Bernadette Pauly, Jeannette Waegemakers-Schiff, Jianhong Wu. 99,975. [Grants]
- 2010 Jan - 2014 Dec **Co-Investigator.** CIHR Team in Traumatic Brain Injury and Violence. Canadian Institutes of Health Research (CIHR). Team Grant: Strategic Teams in Applied Injury Research. TIR-103946. PI: Cusimano, Michael. Collaborator(s): Jane Topolovec-Vranic, Carolyn Snider, Charles Tator, **Stephen Hwang**, et al. 2,000,000. [Grants]
- 2010 Jan - 2012 Dec **Co-Investigator.** Enhancement of Transitional Housing Programmes for Street-involved Youth through the Application of Dialectical Behaviour Therapy to Strengthen Resilience. Canadian Institutes of Health Research (CIHR) & the Mental Health Commission of Canada (MHCC). Partnerships for Health System Improvement (PHSI). PI: McCay, Elizabeth. Collaborator(s): Carol Howes, Madelyn McDonald, Heather Beanlands, Linda Cooper, Jean Hughes, **Stephen Hwang**, Jeff Karabanow, John Langley, Bruce MacLaurin, Shelley McMain, Susan Quesnel, Souraya Sidani, Catherine Worthington (co-investigators & decision maker partners). 329,792. [Grants]
- 2009 Aug - 2010 Jun **Co-Investigator.** Understanding Pandemic Preparedness in the Context of the Canadian Homelessness Crisis. Canadian Institutes of Health Research (CIHR). CIHR Catalyst Grant:

Pandemic Preparedness. PI: Gaetz, Stephen. Collaborator(s): Syed Ali, John Graham, Roch Hurtubise, **Stephen Hwang**, Roger Keil, Janet Mosher, Bernadette Pauly, Jeannette Waegemakers-Schiff, Jianhong Wu. 100,000. [Grants]

- 2009 Jul - 2012 Jun **Co-Investigator.** Positive Spaces, Healthy Places - Phase IV: Monitoring and Evaluation to Understand the Health Effects of Housing Status in HIV/AIDS. Canadian Institutes of Health Research (CIHR). PI: Rourke, Sean. Collaborator(s): Saara Greene, Ruthanne Tucker, Jean Bacon, Steve Byers, **Stephen Hwang**, Jay Koornstra, Frank McGee, LaVerne Monette, Michael Sobota. 300,000. [Grants]
- 2009 Apr - 2015 Mar **Co-Investigator.** The CIHR ACHIEVE Research Partnership: Action for Health Equity Interventions Training Grant. Canadian Institutes of Health Research (CIHR). Strategic Training Initiative in Health Research. TGF-96566. PI: O' Campo, Patricia. Collaborator(s): Kelly Murphy (co-PI), Ahmed M Bayoumi, James Dunn, Patrick Fafard, Sarah Flicker, Richard Glazier, Jeffrey Hoch, **Stephen Hwang**, Kamran Kahn, James Lvery, Rosane Nisenbaum, Sean B Rourke, Janet K Smylie, Sanjeev Sridharan, Robb Travers, Alan Walks, Blair Whaeaton. 1,790,000. [Grants]
- 2009 Apr - 2013 Mar **Co-Principal Investigator.** The "At Home" Research Demonstration Project in Mental Health and Homelessness --Toronto Site. Mental Health Commission of Canada / Health Canada. PI: **Stephen Hwang**, Vicky Stergiopoulos, Pat O'Campo. Collaborator(s): Sanjeev Sridharan, James Dunn, Ahmed Bayoumi, Kelly Murphy. 22,246,216. [Grants]
This project is a multi-site randomized controlled trial of Housing First and mental health support services for persons experiencing homelessness and mental illness. I am co-PI for the Toronto site, which has recruited a total of 550 study participants (300 to receive intervention and 250 to receive "treatment as usual"). Total funding for the Toronto site is \$22.2 million over 4 years (\$18.6 million for service delivery and \$3.6 million for research and evaluation). This project has already had a major policy impact at the national level: (<http://www.vancouversun.com/news/Ottawa+commits+five+more+years+funding+affordable+housing/8133648/story.html>).
- 2009 Jan - 2009 Dec **Co-Investigator.** A retrospective longitudinal cohort study comparing health services utilization and health outcomes between patients admitted to an urban tertiary care centre's family practice inpatient ward, either under their own family doctor or a previously unknown family doctor. British Columbia College of Family Physicians. PI: Chuck Wen. Collaborator(s): Garey Mazowita and **Stephen W. Hwang** (co-investigators). 7,600. [Grants]
- 2009 Jan - 2009 Dec **Co-Investigator.** Alleviating disparities in oral health: Responding to the information needs of key decision makers. Canadian Institutes of Health Research (CIHR). DOH-87105. PI: David Locker, Carlos Quinonez. Collaborator(s): Peter Cooney, Raisa Deber, Paul Grootendorst, **Stephen Hwang**, Jeffrey Racine, S. Suri (Co-Investigators). 109,900. [Grants]
- 2008 Dec - 2012 Jun **Co-Investigator.** Effects of the Regent Park Housing Redevelopment on Mental Health and Healthy Child Development. Canadian Institutes of Health Research (CIHR). PI: James Dunn. Collaborator(s): **Stephen Hwang**, Patricia O'Campo (co-investigators). 251,000. [Grants]
- 2008 Jul - 2015 Jun **Co-Investigator.** Strategic Knowledge Clusters Grant: Canadian Homelessness Research Network. Social Sciences and Humanities Research Council (SSHRC). PI: Stephen Gaetz. Collaborator(s): Céline Bellot, C. James Frankish, Janet Mosher, J. David Hulchanski, Jeff Karabanow, Roch Hurtubise, **Stephen Hwang**, Tim Aubry, Uzoamaka Anucha, William O'Grady (Co-applicants); Anita Palepu, Isolde Daiski, Roger Keil, Shirley Roy, Valerie Preston (Collaborators). 2,100,000. [Grants]
- 2008 Apr - 2013 Mar **Co-Investigator.** Effects of Social Housing on Adult and Child Mental Health: A Prospective

Study in the GTA West. Canadian Institutes of Health Research (CIHR). PI: James Dunn. Collaborator(s): **Stephen Hwang**, Magdalena Janus, Flora Matheson, Rahim Moineddin, Carles Muntaner, Patricia O'Campo (Co-Investigators). 1,119,795. [Grants]

- 2008 Apr - 2012 Mar **Principal Investigator.** The Health and Housing in Transition (HHiT) Study: A Longitudinal Study of the Health of Homeless and Vulnerably Housed Adults in Vancouver, Toronto, and Ottawa. Canadian Institutes of Health Research (CIHR). CIHR MOP-86765. Collaborator(s): Tim Aubry, Susan Farrell, Anita Palepu (Co-Principal Investigators); James Dunn, Jeff Hoch, Anita Hubley, J. David Hulchanski, Fran Klodawsky, Rosane Nisenbaum (Co-Investigators). 1,602,472. [Grants]
- 2008 Jan - 2009 Mar **Co-Principal Investigator.** A Developmental Community-Based Research Study to Investigate Factors Leading to Pregnancy and HIV Risk among Female Street Youth in Toronto. Ontario HIV Treatment Network (The) (OHTN). PI: Allison Scott & **Stephen Hwang**. Collaborator(s): Beth Hayhoe, Janet Parsons, Catherine Worthington (Co-investigators). 23,880. [Grants]
- 2007 Oct - 2009 Sep **Co-Investigator.** Collaborative mental health care for the homeless: Effectiveness and cost-effectiveness of two shelter-based models. Canadian Institutes of Health Research (CIHR). CIHR PHE-85210. PI: Vicky Stergiopoulos. Collaborator(s): Carolyn Dewa, Katherine Rouleau, Donald Wasylenko (Co-Principal Investigators); Jeffrey Hoch, **Stephen Hwang**, Rosane Nisenbaum (Co-Investigators). 98,224. [Grants]
- 2007 Jul - 2008 May **Principal Investigator.** A Survey of Domiciliary Hostel Program Residents in Ontario. Ontario Mental Health Foundation. 149,250. [Grants]
- 2006 Dec - 2007 Dec **Co-Investigator.** Homelessness and Diversity Issues in Canada: Dissemination Grant in support of the preparation of an edited volume entitled "Finding Home: Policy Options for Addressing Homelessness in Canada". Social Sciences and Humanities Research Council (SSHRC). PI: J. David Hulchanski. Collaborator(s): **Stephen Hwang**, Sylvia Novac (Co-Investigators). 50,000. [Grants]
- 2006 Jun - 2006 Nov **Principal Investigator.** Development Grant to assist in the preparation of a full proposal entitled "CIHR Team Grant in Homelessness, Housing, and Health". Canadian Institutes for Health Research (CIHR). CIHR CTL-80871. Collaborator(s): Tim Aubry, James Dunn, Jeff Hoch, Anita Hubley, David Hulchanski, Bruce MacLaurin, Anita Palepu, Marie Robert, Élise Roy, Jeffrey Turnbull, Catherine Worthington (Co-Investigators). 10,000. [Grants]
- 2006 Apr - 2011 Mar **Principal Investigator.** Interdisciplinary Capacity Enhancement Grant in Homelessness, Housing, and Health. Canadian Institutes of Health Research (CIHR). CIHR HOA-80066. Collaborator(s): Tim Aubry, James Dunn, Jeff Hoch, Anita Hubley, David Hulchanski, Bruce MacLaurin, Anita Palepu, Marie Robert, Élise Roy, Jeffrey Turnbull, Catherine Worthington (Co-Investigators). 820,000. [Grants]
- 2006 Apr - 2009 Mar **Collaborator.** Hospice and Homelessness in Canada. Social Sciences and Humanities Research Council (SSHRC). PI: Manal Guirguis-Younger. Collaborator(s): Frances Legault, Tim Aubry (Co-Investigators); **Stephen Hwang**, Jeff Turnbull, Vivien Runnels (Collaborators). 85,845. [Grants]
- 2006 Apr - 2007 Feb **Principal Investigator.** The Effects of Supportive Housing on the Health Status and Service Utilization of Homeless and Hard-to-House Adults. The Wellesley Institute. Collaborator(s): Tim Aubry, Jim Dunn, Jeff Hoch (Co-Investigators); Joseph Taylor, Marcella Fresolone (Collaborators). 40,000. [Grants]
- 2005 Jul - 2006 Jun **Co-Investigator.** Access to Primary Care for the Homeless: A Synthesis of Research

Evidence on Effective Practices. Canadian Institutes for Health Research (CIHR). PI: Samuel Shortt. Collaborator(s): **Stephen Hwang**, Heather Stuart (Co-Investigators). 64,900. [Grants]

- 2005 Jul - 2005 Nov **Principal Investigator.** Development Grant to assist in the preparation of a full proposal entitled "CIHR Interdisciplinary Capacity Enhancement Grant in Homelessness, Housing, and Health". Canadian Institutes for Health Research (CIHR). CIHR HDD-77939. Collaborator(s): Tim Aubry, James Dunn, Jeff Hoch, Anita Hubley, David Hulchanski, Bruce MacLaurin, Anita Palepu, Marie Robert, Élise Roy, Jeffrey Turnbull, Catherine Worthington (Co-Investigators). 5,000. [Grants]
- 2005 Jun - 2007 May **Co-Principal Investigator.** Attitudes of Medical Trainees Towards Homeless Persons Presenting for Care in the Emergency Department. The Physicians' Services Incorporated (PSI) Foundation. PI: Julie Spence and **Stephen Hwang**. Collaborator(s): Glen Bandiera (Co-Investigator). 94,000. [Grants]
- 2005 Jun - 2006 Mar **Principal Investigator.** Development Grant to assist in the preparation of a full proposal entitled "CIHR Team Grant in Homelessness, Housing, and Health". Canadian Institutes for Health Research (CIHR). CIHR CTL-77144. Collaborator(s): Tim Aubry, James Dunn, Jeff Hoch, Anita Hubley, David Hulchanski, Bruce MacLaurin, Anita Palepu, Marie Robert, Élise Roy, Jeffrey Turnbull, Catherine Worthington (Co-Investigators). 10,000. [Grants]
- 2005 Apr - 2008 Mar **Co-Investigator.** A prospective study to explore the impact of housing support and homelessness on the health outcomes of people living with HIV/AIDS in Ontario. Canadian Institutes for Health Research (CIHR). CIHR CBR-75568. PI: Ruthann Tucker and Saara Greene. Collaborator(s): Steve Byers, James Dunn, Dale Guenter, **Stephen Hwang**, Jay Koornstra, LaVerne Monette, Lea Narciso, Sean Rourke, Michael Sobota (Co-Investigators). 300,000. [Grants]
- 2004 Jul - 2005 Jun **Co-Investigator.** Nature and Extent of Inappropriate Living Environments for Adults with Moderate to Severe Acquired Brain Injury. Ontario Neurotrauma Foundation. PI: Angela Colantonio. Collaborator(s): Peter Coyte, **Stephen Hwang**, Audrey LaPorte, Bruce Christensen, Bonnie Kirsh, Charissa Levy, Teresa Chiu, Diana Clarke, Carolyn Abramowitz (Co-Investigators). 150,000. [Grants]
- 2004 Jul - 2005 Jun **Co-Investigator.** Development of a quality of life instrument for homeless persons and street youth. Canadian Institutes for Health Research (CIHR). PI: Anita Palepu and Anita Hubley. Collaborator(s): Tim Aubry, Ahmed Bayoumi, **Stephen Hwang**, Elise Roy (Co-Investigators). 60,160. [Grants]
- 2004 Mar - 2005 Aug **Co-Principal Investigator.** The Effect of the Ontario Severe Acute Respiratory Syndrome (SARS) Outbreak on Population Mortality. Canadian Institutes for Health Research (CIHR). CIHR SAR-67802. PI: **Stephen Hwang** and Chaim Bell. Collaborator(s): Angela Cheung, Rahim Moineddin (Co-Investigators). 51,593. [Grants]
- 2003 Sep - 2006 Sep **Principal Investigator.** Health Care Utilization among Homeless People. Agency for Healthcare Research and Quality (AHRQ). 1 RO1 HS014129-01. Collaborator(s): Wendy Levinson, Don Redelmeier, John Paul Szalai, George Tolomiczenko (Co-Investigators). 667,788 USD. [Grants]
- 2003 Jul - 2009 Jun **Co-Investigator.** An Integrated Training Program in Health and Social Science Research to Improve the Health of Marginalized Populations. Canadian Institutes of Health Research (CIHR). CIHR STO-64598. PI: Wendy Levinson, Andreas Laupacis, Joan Eakin. Collaborator(s): Richard Glazier, **Stephen Hwang**, Alex Jadad, Prabhat Jha, Donald Redelmeier, Harvey Skinner, Donald Wasylenko (Co-Investigators). 1,350,000. [Grants]

2003 Jul - 2007 Jun	Co-Investigator. Health services utilization in a concentrated urban setting: A population-based analysis of trends over time. Canadian Institutes for Health Research (CIHR). CIHR MOP-15693. PI: Richard Glazier. Collaborator(s): Mohammad Agha, Elizabeth Badley, Stephen Hwang , Flora Matheson, Rahim Moineddin, Leah Steele (Co-Investigators). 630,092. [Grants]
2003 Jul - 2004 Jun	Principal Investigator. REACH3: Research Alliance for Canadian Homelessness, Housing, and Health. Canadian Institutes for Health Research (CIHR). CIHR HDP-63062. Collaborator(s): Tim Aubry, James Dunn, Anita Palepu, Élise Roy, Alan Shiell, Jeffrey Turnbull (Co-Investigators). 100,000. [Grants]
2003 Mar - 2006 Mar	Principal Investigator. Health Care Utilization among Homeless People. Canadian Institutes for Health Research (CIHR). CIHR MOP-62736. Collaborator(s): Wendy Levinson, Don Redelmeier, John Paul Szalai, George Tolomiczenko (Co-investigators). 261,328. [Grants]
2002 Jul - 2003 Jun	Co-Investigator. Housing as a Socio-economic Determinant of Health: A needs, gaps, and opportunities assessment for research. Canadian Institutes for Health Research (CIHR), Institute of Population and Public Health. CIHR NGO-54119. PI: James Dunn. Collaborator(s): Michael Hayes, David Hulchanski, Stephen Hwang , Louise Potvin (Co-Investigators). 97,900. [Grants]
2001 Feb - 2003 Mar	Principal Investigator. A Community-Based Program to Promote Cervical Cancer and Breast Cancer Screening in Homeless Women. Ontario Women's Health Council. Collaborator(s): Angela Cheung, Eva Mocarski (Co-Investigators). 622,650. [Grants]
1999 Jul - 2003 Jun	Co-Investigator. Trends in Health Services Utilization in a Concentrated Urban Setting, 1991-2003. Medical Research Council of Canada. MRC MT-15693. PI: Richard Glazier. Collaborator(s): Robin Badgley, Elizabeth Badley, Marsha Cohen, Stephen Hwang , Dianne Patychuk (Co-Investigators). 158,140. [Grants]
1999 Jul - 2000 Jun	Co-Investigator. Changes in the Demographic Composition and Health Status of Immigrant Populations in Toronto's Inner City: Time Trend Analysis and Innovative Mapping. Joint Centre of Excellence for Research on Immigration and Settlement – Toronto (CERIS). PI: Richard Glazier. Collaborator(s): Carl Amrhein, Marsha Cohen, Elizabeth Badley, Robin Badgley, Stephen Hwang , Byron Moldofsky, Rob Wright, David Buckeridge, Nita Chaudhry (Co-Investigators). 40,000. [Grants]
1998 Jul - 2001 Jun	Co-Investigator. Effects of Restructuring the Health System on Equity and Access for a Vulnerable Inner City Population: A Time Trend Analysis 1991-2001. National Health Research and Development Program. PI: Richard Glazier. Collaborator(s): Robin Badgley, Elizabeth Badley, Marsha Cohen, Vivek Goel, Stephen Hwang , Michael Mendelson (Co-Investigators). 149,892. [Grants]
1998 Jul - 2001 Jun	Co-Investigator. The Health Effects of Reductions in Welfare Payments and Hospital Closures on Immigrant Populations in Southeast Toronto: A Ten Year Time Trend Analysis. Joint Centre of Excellence for Research on Immigration and Settlement - Toronto. PI: Richard Glazier. Collaborator(s): Marsha Cohen, Elizabeth Badley, Robin Badgley, Vivek Goel, Stephen Hwang , Michael Mendelson (Co-Investigators). 45,000. [Grants]
1998 Jul - 2000 Jun	Principal Investigator. Determinants of Health Status in Inner City Rooming House Residents. The Connaught Foundation and the University of Toronto. Collaborator(s): George Tolomiczenko, J. David Hulchanski (Co-Investigators). 45,000. [Grants]
1997 Jul - 1999 Jun	Principal Investigator. Health Status and Health Care Utilization in Patients Leaving the Hospital Against Medical Advice. The Physicians' Services Incorporated Foundation.

Collaborator(s): Jianli Li (Co-Investigator). 16,000. [Grants]

AWARDED BUT DECLINED

2022 Apr - 2025 Mar **Co-Investigator.** Social isolation, loneliness and causes of early death among adults with histories of homelessness who transitioned into urban supportive housing in Toronto. Social Sciences and Humanities Research Council of Canada (SSHRC). Insight Grant. 435-2022-0602. PI: Lachaud, James. Collaborator(s): **Hwang SW**, Jenkinson J, Mejia-Lancheros C, O'Campo P, Woodhall-Melnik J, Perri M, Stergiopoulos V; Sirotich F, Merchant P, Peters V. 89,908 CAD. [Grants]

NON-PEER-REVIEWED GRANTS

FUNDED

2017 - 2026 **Principal Investigator.** Beyond Housing Initiative & The Navigator Program. St. Michael's Foundation. 4,038,353 CAD. [Donations]
The Beyond Housing Initiative is improving service coordination to achieve better wellness and housing outcomes for individuals experiencing chronic homelessness in Toronto. The Navigator Program is a critical-time intervention to improve health and health care outcomes for people experiencing homelessness who have been admitted to the hospital.

2012 Jan - 2013 Dec **Principal Investigator.** Probiotics for the Prevention of Clostridium difficile Infection in Hospitalized Patients. University of Toronto, Department of Medicine. Strategic Planning Innovation Fund. Collaborator(s): Valerie Palda, Susy Hota, Irfan Dhalla, David Klein, Dante Morra, Muhammad Mamdani, Kevin Thorpe, Catharine Chambers. 74,784. [Grants]

2003 Jul - 2003 Dec **Co-Investigator.** Health, mental health, and addiction treatment needs of people who are homeless in Toronto. City of Toronto, Supporting Community Partnership Initiative (SCPI). PI: Paula Goering. Collaborator(s): Jennifer Pyke, **Stephen Hwang**, Sheryl Lindsay, George Tolomiczenko, Donald Wasylenki (Co-Investigators). 90,000. [Grants]

2002 Jul - 2003 Jun **Co-Principal Investigator.** Models and Practices in Service Integration and Coordination for Women who are Homeless or at Risk of Homelessness. Ontario Women's Health Council. PI: **Stephen Hwang**. Collaborator(s): Deborah Hierlihy (Co-Principal Investigator). 94,969. [Grants]

2002 Jul - 2003 Jun **Co-Investigator.** The Multidimensional Impacts of Adequate Housing: Factors that Affect Housing Stability, Service Use, and Community Integration. City of Toronto, Supporting Communities Partnership Initiative (SCPI). PI: J. David Hulchanski. Collaborator(s): **Stephen Hwang**, Lynn McDonald, Sylvia Novac, George Tolomiczenko, Valerie Tarasuk (Co-Investigators). 64,953. [Grants]

2002 Jul - 2002 Dec **Co-Principal Investigator.** First International Conference on Inner City Health. Canadian Institutes for Health Research (CIHR). PI: **Stephen Hwang**. Collaborator(s): Ahmed Bayoumi (Co-Principal Investigator). 50,000. [Grants]

1998 Jul - 1999 Jun **Co-Principal Investigator.** Housing and Population Health. Canada Mortgage and Housing Corporation. PI: **Stephen Hwang**. Collaborator(s): Esme Fuller-Thompson, J. David Hulchanski (Co-Principal Investigators). 45,800. [Grants]

1997 Jul - 1999 Jun **Principal Investigator.** Mortality in a Cohort of Homeless Adults in Toronto. University of Toronto Faculty of Medicine, Dean's Fund. 10,000. [Grants]

1995 Jul - 1996 Jun **Principal Investigator.** Risk Factors for Death in Homeless Adults in Boston. Boston University School of Medicine, Health Services Research Program. 6,500 USD. [Grants]

2. SALARY SUPPORT AND OTHER FUNDING

Personal Salary Support

2024 Jan - 2030 Dec Tier 1 Canada Research Chair in Homelessness, Housing and Health. Canada Research Chair. 1,400,000 CAD. Canada.

2013 Jan - 2023 Dec Chair in Homelessness, Housing and Health. St. Michael's Hospital and the University of Toronto. Toronto, Ontario, Canada.

2003 Mar - 2008 Feb New Investigator Award. Canadian Institutes of Health Research. 275,000. Ottawa, Ontario, Canada.

1998 Jul - 2003 Jun Career Scientist Award, Health Research Personnel Development Program. Ontario Ministry of Health and Long Term Care. 298,750. Toronto, Ontario, Canada.

1996 Sep - 2013 Jan Population Health Epidemiologist. St. Michael's Hospital. Toronto, Ontario, Canada.

1994 Jul - 1996 Jun Health Services Research Fellowship. Agency for Health Care Policy Research (AHCPR) and the Harvard School of Public Health. 90,000. Boston, Massachusetts, United States.

Trainee Salary Support

2024 - 2027 CIHR Health System Impact Embedded Early Career Researcher Award. Trainee Name: Anna J Dare, MD, PhD (mentee). Canadian Institutes of Health Research. 400,000. Toronto, Ontario, Canada.

2021 Jun - 2023 Jun CIHR Fellowship - Research & Knowledge Translation on Urban Housing and Health. Trainee Name: Jesse Jenkinson. Canadian Institutes of Health Research. 90,000. Toronto, Ontario, Canada.

2020 Apr - 2022 Mar CIHR Fellowship - Research & Knowledge Translation on Urban Housing and Health. Trainee Name: James Lachaud. Canadian Institutes of Health Research. 90,000. Toronto, Ontario, Canada.

2013 Jul - 2016 Jun CIHR Fellowship. Trainee Name: Fiona Kouyoumdjian, MD, PhD. Canadian Institutes of Health Research. 165,000. Ottawa, Ontario, Canada.

2012 Aug - 2017 Jul National Institute on Drug Abuse (NIDA) Mentored Patient-Oriented Research Career Development Award (K23). Trainee Name: Travis Baggett, MD, MPH. National Institutes of Health. 840,000 USD. Bethesda, Maryland, United States.

2008 Sep - 2010 Aug Graduate Studentship Award. Trainee Name: Allison Scott, MSc. Ontario HIV Treatment Network (OHTN). 44,000. Toronto, Ontario, Canada.

2006 Jul - 2008 Jun CIHR Strategic Training Initiative in Health Research (STIHR) Fellowship. Trainee Name: Allison Scott, MSc. Canadian Institutes of Health Research. 50,000. Toronto, Ontario, Canada.

E. Publications

1. MOST SIGNIFICANT PUBLICATIONS

1. Stergiopoulos V, Mejia-Lancheros C, Nisenbaum R, Wang R, Lachaud J, O'Campo P, **Hwang SW**. The long-term effects of rent supplements and mental health support services on housing and health outcomes of homeless adults with mental illness: outcomes of the extended At Home/Chez Soi randomized controlled trial. *The Lancet Psychiatry*. 2019 Nov;6(11):915-925. Impact Factor 18.3. **Coauthor or Collaborator**.

This paper reports the long-term effects of housing first for people experiencing homelessness. This landmark RCT provides 7-year outcome data, the longest follow-up of any such study in the world.

2. Stergiopoulos V, **Hwang SW**, Gozdzik A, Nisenbaum R, Latimer E, Rabouin D, Adair CE, Bourque J, Connelly J, Frankish J, Katz LY, Mason K, Misir V, O'Brien K, Sareen J, Schütz CG, Singer A, Streiner DL, Vasiliadis H-M, Goering PN, for the At Home/Chez Soi Investigators. Effect of Scattered-Site Housing Using Rent Supplements and Intensive Case Management on Housing Stability among Homeless Adults with Mental Illness: A Randomized Trial. *JAMA*. 2015 Mar;313(9):905-915. Impact Factor 30. **Co-Principal Author**.

This paper reports the main outcomes of the At Home/Chez Soi Study, a randomized trial of the Housing First model for people with mental illness who are experiencing homelessness. This study is helping to change how society addresses the problem of homelessness. The study has had a substantial impact on federal and provincial programs and policies to end chronic homelessness

(http://www.esdc.gc.ca/eng/communities/homelessness/housing_first/index.shtml), and it is the impetus for a MaRS proposal for a Housing First Social Impact Bond (<http://www.marsdd.com/mars-library/housing-first-social-impact-bond-feasibility-study/>).

3. **Hwang SW**, Burns T. Health Interventions for People who are Homeless. *The Lancet*. 2014 Oct;384(9953):1541-1547. Impact Factor 39.1. **Principal Author**.

This review article was published by The Lancet as one of two featured papers on the theme of homelessness.

4. **Hwang SW**, Wilkins R, Tjepkema M, O'Campo PJ, Dunn JR. Mortality among residents of shelters, rooming houses, and hotels in Canada: An 11-year follow-up study. *BMJ*. 2009 Oct;339:b4036. Impact Factor 12.8. **Co-Principal Author**.

This large national cohort study, the first of its kind, demonstrated that homeless and marginally- housed persons living in shelters, rooming houses, and hotels have much higher mortality and shorter life expectancy than expected on the basis of low income alone. This study highlighted the fact that people who are vulnerably housed suffer from many of the same threats to health as people who are homeless. This research provided important support for the concept of housing as a determinant of health.

5. **Hwang SW**, Colantonio A, Chiu S, Tolomiczenko G, Kiss A, Cowan L, Redelmeier DA, Levinson W. The Effect of Traumatic Brain Injury on the Health of Homeless People. *Canadian Medical Association Journal*. 2008 Oct;179(8):779-784. Impact Factor 7.1. **Principal Author**.

This study was the first to demonstrate the high prevalence of traumatic brain injury among homeless individuals and the strong association between history of traumatic brain injury and poor health in this population. This paper has sparked research efforts on this topic in Canada, the United States, and Europe.

2. PEER-REVIEWED PUBLICATIONS

Journal Articles

1. Sharan R, Wiens K, Bai L, Ronksley PE, Booth GL, **Hwang SW**, Austin P, Spackman E, Ells A, Fielden M, Campbell DJT. Disparities in screening, diagnosis, treatment, and outcomes for diabetic retinopathy among people with lived experience of homelessness in Canada: results from a matched longitudinal cohort study. *Canadian Journal of Ophthalmology*. 2025 May. In Press. Impact Factor 3.3. **Coauthor or Collaborator**.
2. Cygler J, Dada OO, **Hwang SW**, Jenkinson JIR. Evaluation of a Hospital-Based Case Management Program for Patients who are Experiencing Homelessness: A Qualitative Study of Health Care Workers' Experiences with the Navigator Program. *Canadian Journal of General Internal Medicine (CJGIM)*. 2025 May. [Epub ahead of print]. **Coauthor or Collaborator**.
3. Ramsay K, Shahid H, Merchant P, Wang R, **Hwang SW**. Dying Alone: A Retrospective Cohort Study of Mortality among Individuals Living in Permanent Supportive Housing. *Canadian Journal of Public Health*. 2025 Apr. In Press. Impact Factor 2.9. **Senior Responsible Author**.
4. Thulien NS, Stark RK, Amiri A, Abramovich A, Akdikmen A, Carasco A, Daley M, Downey B, Fambegbe O, Frederick T, **Hwang SW**, Kozloff N, Noble A, Pedersen C, Rampersaud M, Rodney R, Tibebu T, Nisenbaum R. Transitioning Youth Out of Homelessness 2.0: Protocol for a Pilot Randomized Controlled Trial of a Rent Subsidy and Identity Capital Intervention for Youth Exiting Homelessness. *JMIR Research Protocols*. 2025 Apr;14:e66210. Impact Factor 1.4. **Coauthor or Collaborator**.
5. Terao CM, Blumberg MJ, Mckeag S, Stergiopoulos V, **Hwang SW**, Gicas KM. Cognitive Correlates of Resilience in Adults Experiencing Homelessness. *Archives of Clinical Neuropsychology*. 2025 Mar. [Epub ahead of print]. Impact Factor 2.1. **Coauthor or Collaborator**.
6. Ashwell G, Williamson AE, Pattinson M, **Hwang SW**. Caring for patients experiencing homelessness. *BMJ*. 2025 Mar;388:e080768. Impact Factor 93.7. **Coauthor or Collaborator**.
7. El Tobgy NA, Grewal EK, Gonzalez PM, Tibebu T, Booth GL, McBrien KA, **Hwang SW**, Ziegler C, Campbell DJT. Interventions to Improve Diabetes Management and Self-Management for Individuals Experiencing Homelessness: A Systematic Scoping Review Of Qualitative and Quantitative literature. *Diabetologia*. 2025 Feb. In Press. Impact Factor 8.4. **Coauthor or Collaborator**.
8. Richard L, Carter B, Liu M, Nisenbaum R, **Hwang SW**. SARS-CoV-2 incidence, re-infections and risk factors among people experiencing homelessness in Toronto, Canada: a prospective cohort study. *PLOS ONE*. 2025 Feb;20(2):e0319296. Impact Factor 2.9. **Senior Responsible Author**.
9. Jenkinson JIR, Wigle J, Richard L, Tibebu T, Orkin AM, Thulien NS, Kiran T, Gogosis E, Crichlow F, Dyer AP, Gabriel MD, **Hwang SW**. Structural violence as a driver of COVID-19 vaccine hesitancy and low vaccine uptake among people experiencing homelessness in Toronto, Canada: A qualitative study. *Social Science & Medicine*. 2025 Jan;365:117588. Impact Factor 4.9. **Senior Responsible Author**.
10. Brydon R, Haseeb S, Park G-R, Ziegler C, **Hwang SW**, Forget EL, Persaud N, Siddiqi A, Dunn JR. The Effect of Cash Transfers on Health in High-Income Countries: A Scoping Review. *Social Science & Medicine*. 2024 Dec;362:117397. Impact Factor 4.9. **Coauthor or Collaborator**.
11. Dunn JR, Smith KLW, Smith P, Moineddin R, Matheson FI, **Hwang SW**, Muntaner C, Janus M, O'Campo P. Does receipt of social housing impact mental health? Results of a quasi-experimental study in the Greater Toronto Area. *Social Science & Medicine*. 2024 Dec;362:117363. Impact Factor 4.9. **Coauthor or Collaborator**.
12. Agha A, **Hwang SW**, Palepu A, Aubry T. The Role of Housing Stability in Predicting Social Capital: Exploring Social Support and Psychological Integration as Mediators for Individuals with Histories of Homelessness and Vulnerable Housing. *American Journal of Community Psychology*. 2024 Dec;74(3-4):173-183. Impact Factor 3.1. **Coauthor or Collaborator**.

13. Lachaud J, Yusuf A, Maelzer F, Perri M, Gogosis E, Ziegler C, Mejia-Lancheros C, **Hwang SW**. Social isolation and loneliness among people living with experience of homelessness: A scoping review. BMC Public Health. 2024 Sep;24:2515. Impact Factor 3.5. **Senior Responsible Author**.
14. Richard L, Carter B, Nisenbaum R, Brown M, Gabriel M, Stewart S, **Hwang SW**. Disparities in healthcare costs of people experiencing homelessness in Toronto, Canada in the post COVID-19 pandemic era: a matched cohort study. BMC Health Services Research. 2024 Sep;24(1):1074. Impact Factor 2.7. **Senior Responsible Author**.
15. Richard L, Carter B, Nisenbaum R, Liu M, **Hwang SW**. Identification of homelessness using health administrative data in Ontario, Canada following a national coding mandate: a validation study. Journal of Clinical Epidemiology. 2024 Aug;172:111430. Impact Factor 7.2. **Senior Responsible Author**.
16. Richard L, Carter B, Wu L, **Hwang SW**. Disparities in all-cause mortality among people experiencing homelessness in Toronto, Canada during the COVID-19 pandemic: a cohort study. Frontiers in Public Health. 2024 Aug;12:1401662. Impact Factor 3. **Senior Responsible Author**.
17. Wiens K, Bai L, **Hwang SW**, Ronksley PE, Austin PC, Booth GL, Spackman E, Campbell DJT. Disparities in diabetes processes of care among people experiencing homelessness: an opportunity for intervention. Diabetes Research and Clinical Practice. 2024 Jul;213:111748. Impact Factor 5.1. **Coauthor or Collaborator**.
18. Richard L, Holland A, Aghanya V, Campitelli MA, **Hwang SW**. Uptake of COVID-19 vaccination among community-dwelling individuals receiving healthcare for substance use disorder and major mental illness: a matched retrospective cohort study. Frontiers in Public Health. 2024 Jul;12:1426152. Impact Factor 3. **Senior Responsible Author**.
19. Sankar A, Stukel TA, Baxter NN, Wijeyesundera DN, **Hwang SW**, Wilton AS, Chan TCY, Sarhangian V, Simpson AN, de Mestral C, Pincus D, Campbell RJ, Urbach DR, Irish J, Gomez D. Disparities in Surgery Rates during the COVID-19 Pandemic: Retrospective Study. BJS Open. 2024 Jul;8(4):zrae088. Impact Factor 3.5. **Coauthor or Collaborator**.
20. To MJ, Mejia-Lancheros C, Lachaud J, **Hwang SW**. Continuity of primary care among homeless adults with mental illness who received a housing and mental health intervention. Family Practice. 2024 Jun;41(3):369-372. Impact Factor 2.2. **Senior Responsible Author**.
21. Roebuck M, Agha A, Nelson G, Distasio J, Ecker J, **Hwang SW**, Latimer E, Purcell S, Somers JM, Tsemberis S, Aubry T. Predictors of Housing Instability and Stability Among Housing First Participants: A 24-Month Study. Journal of Social Distress and Homelessness. 2024 May;33(1):220-230. **Coauthor or Collaborator**.
22. Kerman N, Marshall CA, Polillo A, Voronov J, de Pass T, Easton C, Ward B, Noble A, **Hwang SW**, Kozloff N, Stergiopoulos V, Kidd SA. Service restrictions from emergency shelters among people experiencing homelessness: Uncovering pathways into unsheltered homelessness and institutional circuitry. Social Science & Medicine. 2024 May;348:116831. Impact Factor 5.4. **Coauthor or Collaborator**.
23. Richard L, Golding H, Saskin R, Shariff SZ, Jenkinson JIR, Francombe Pridham K, Snider C, Boozary A, **Hwang SW**. Trends in Emergency Department Visits During Cold Weather Seasons Among Patients Experiencing Homelessness in Ontario, Canada: a Retrospective Population-Based Cohort Study. Canadian Journal of Emergency Medicine. 2024 May;26(5):339-348. Impact Factor 2.4. **Senior Responsible Author**.
24. Liauw S, Mejia-Lancheros C, Lachaud J, O'Campo P, Stergiopoulos V, **Hwang SW**. Effect of a housing intervention on major cardiovascular events among homeless adults with mental illness. Journal of Social Distress and Homelessness. 2024 Apr;33(1):263-265 (Trainee publication, Samantha Liauw (cardiology resident)). **Senior Responsible Author**.
25. Richard L, Nisenbaum R, Colwill K, Mishra S, Dayam RM, Liu M, Pedersen C, Gingras A-C, **Hwang SW**. Enhancing detection of SARS-CoV-2 re-infections using longitudinal sero-monitoring: demonstration of a methodology in a cohort of people experiencing homelessness in Toronto, Canada. BMC Infectious Diseases. 2024 Feb;24:125. Impact Factor 3.7. **Senior Responsible Author**.
26. Booth RG, Shariff SZ, Carter B, **Hwang SW**, Orkin AM, Forchuk C, Gomes T. Opioid-related overdose deaths among people experiencing homelessness, 2017 to 2021: A population-based analysis using coroner and health administrative data from Ontario, Canada. Addiction. 2024 Feb;119(2):334-344. Impact Factor 6. **Coauthor or Collaborator**.

27. Thulien N, **Hwang SW**, Kozloff N, Nisenbaum R, Akdikmen A, Fambegbe O, Feraday R, Mathewson C, Mutamiri M, Roglich J, Wang A, Zagala M, Amiri A. "When I think about my future, I just see darkness": How youth exiting homelessness navigate the hazy, liminal space between socioeconomic exclusion and inclusion. *Canadian Journal of Public Health*. 2023 Dec;114(6):893-905. Impact Factor 4.3. **Coauthor or Collaborator**.
28. Stephenson R, Sarhangian V, Park J, Sankar A, Baxter NN, Stukel TA, Simpson AN, Wijeyesundera DN, Wilton AS, de Mestral C, **Hwang SW**, Pincus D, Campbell R, Urbach DR, Irish J, Gomez D, Chan TCY. Evolution of the surgical procedure gap during and after the COVID-19 pandemic in Ontario, Canada: a cross-sectional and modeling study. *British Journal of Surgery*. 2023 Dec;110(12):1887-1889. Impact Factor 9.6. **Coauthor or Collaborator**.
29. Jamal O, Mallipatna A, **Hwang SW**, Dimaras H. Social Determinants of Health in Pediatric Ophthalmology Patients: Availability of Data in the Electronic Health Record and Association with Clinic Attendance. *Translational Vision Science & Technology (TVST)*. 2023 Nov;12(11):36. **Coauthor or Collaborator**.
30. Wiens K, Rosella LC, Kurdyak P, Chen S, Aubry T, Stergiopoulos V, **Hwang SW**. Using healthcare encounter data to identify high-cost users among adults with a history of homelessness: a validation study. *Journal of Social Distress and Homelessness*. 2023 Oct;32(2):343-351. Impact Factor 2.2 (Trainee publication, Kathryn Wiens (PhD student)). **Senior Responsible Author**.
31. Agha A, **Hwang SW**, Wang R, Nisenbaum R, Palepu A, Aubry T. Examining the prevalence of chronic homelessness among single adults according to national definitions in Canada. *Canadian Journal of Urban Research*. 2023 Aug;32(1):16-31. **Coauthor or Collaborator**.
32. Richard L, Golding H, Saskin R, Jenkinson JIR, Francombe Pridham K, Gogosis E, Snider C, **Hwang SW**. Cold-related injuries among patients experiencing homelessness in Toronto: a descriptive analysis of emergency department visits. *Canadian Journal of Emergency Medicine*. 2023 Aug;25(8):695-703. Impact Factor 2.9. **Senior Responsible Author**.
33. Kerman N, Nisenbaum R, Durbin A, Wang R, **Hwang SW**, Stergiopoulos V. A pragmatic randomized controlled trial of financial incentives in case management for homeless adults with mental illness. *Psychiatric Services*. 2023 Aug;74(8):823-829. Impact Factor 4.1. **Coauthor or Collaborator**.
34. Sharan R, Wiens K, Ronksley PE, **Hwang SW**, Booth GL, Austin PC, Spackman E, Bai L, Campbell DJT. The Association of Homelessness With Rates of Diabetes Complications: A Population-Based Cohort Study. *Diabetes Care*. 2023 Jun;46(8):1469-1476. PMID: 37276538. Impact Factor 17.1. **Coauthor or Collaborator**.
35. Persaud N, Bedard M, Boozary A, Glazier RH, Gomes T, **Hwang SW**, Juni P, Law MR, Mamdani M, Manns B, Martin D, Morgan SG, Oh P, Pinto AD, Shah BR, Sullivan F, Umali N, Thorpe KE, Tu K, Wu F, Laupacis A, for the CLEAN Meds (Carefully seLected and Easily Accessible at No Charge Medications) study team. Effect of Free Medicine Distribution on Health Care Costs in Canada Over 3 Years: A Secondary Analysis of the CLEAN Meds Randomized Clinical Trial. *JAMA Health Forum*. 2023 May;4(5):e231127. **Coauthor or Collaborator**.
36. Wiens K, Bai L, Austin PC, Ronksley PE, **Hwang SW**, Spackman E, Booth GL, Campbell DJT. Long-term association between homelessness and mortality among people with diabetes. *The Lancet Diabetes & Endocrinology*. 2023 Apr;11(4):229-231. Impact Factor 44.8. **Coauthor or Collaborator**.
37. Richard L, Nisenbaum R, Brown M, Liu M, Pedersen C, Jenkinson JIR, Mishra S, Baral S, Colwill K, Gingras A-C, McGeer A, **Hwang SW**. Incidence of SARS-CoV-2 infection among people experiencing homelessness in Toronto, Canada. *JAMA Network Open*. 2023 Mar;6(3):e232774. Impact Factor 13.3. **Senior Responsible Author**.
38. Gicas KM, Blumberg MJ, Terao CM, Mejia-Lancheros C, Nisenbaum R, **Hwang SW**, Stergiopoulos V. Examination of Bidirectional Associations Between Neurocognitive Functioning and Housing Stability in Homeless Adults: A Longitudinal Subgroup Analysis of the At Home/Chez Soi Study. *Neuropsychology*. 2023 Feb;37(2):157-165. Impact Factor 3.4. **Coauthor or Collaborator**.
39. Yaphe H, Campbell R, Mancini N, Grewal E, Tibebu T, Saunders-Smith T, **Hwang SW**, Campbell DJT. The development of a conceptual framework for providing tailored diabetes care for individuals experiencing homelessness: A qualitative study. *Journal for the Healthcare of the Poor and Underserved*. 2023 Feb;34(1):309-325. Impact Factor 1.2. **Coauthor or Collaborator**.

40. Gicas KM, Mejia-Lancheros C, Nisenbaum R, Wang R, **Hwang SW**, Stergiopoulos V. Cognitive Determinants of Community Functioning and Quality of Life in Homeless Adults with Mental Illness: 6-year follow-up from the At Home/Chez Soi Study Toronto Site. *Psychological Medicine*. 2023 Jan;53(2):362-370. Impact Factor 5.8. **Coauthor or Collaborator**.
41. Jenkinson J, **Hwang SW**, Strike C, Di Ruggiero E. "We don't have a good system for people who don't have a home and don't need a hospital": Contextualizing the Hospital Discharge Process for People Experiencing Homelessness in Toronto, Canada. *Social Science and Medicine - Qualitative Research in Health*. 2022 Dec;2:100056 (Trainee publication, Jesse Jenkinson (PhD student)). **Coauthor or Collaborator**.
42. Mejia-Lancheros C, Lachaud J, Gogosis E, Thulien N, Stergiopoulos V, Da Silva G, Nisenbaum R, O'Campo P, **Hwang SW**. Providing housing first services for an underserved population during the early wave of the COVID-19 pandemic: A qualitative study. *PLOS ONE*. 2022 Dec;17(12):17(12): e0278459. Impact Factor 3.7 (Trainee publication, Cilia Mejia-Lancheros (postdoctoral fellow)). **Senior Responsible Author**.
43. Liu M, Francombe Pridham K, Jenkinson J, Nisenbaum R, Richard L, Pedersen C, Brown R, Virani S, Ellerington F, Ranieri A, Dada O, To MJ, Fabreau GE, McBrien KA, Stergiopoulos V, Palepu A, **Hwang SW**. Navigator Programme for Hospitalised Adults Experiencing Homelessness: Study Protocol for a Pragmatic Randomised Controlled Trial. *BMJ Open*. 2022 Dec;12:e065688. Impact Factor 3. **Senior Responsible Author**.
44. Mejia-Lancheros C, Alfayumi-Zeadna S, Lachaud J, O'Campo P, Gogosis E, Da Silva G, Stergiopoulos V, **Hwang SW**, Thulien N. Differential impacts of COVID-19 and associated responses on the health, social well-being and food security of users of supportive social and health programs during the COVID-19 pandemic: A qualitative study. *Health & Social Care in the Community*. 2022 Nov;30(6):e4332–e4344. Impact Factor 2.8. **Coauthor or Collaborator**.
45. Czechowski K, Sylvestre J, Gogosis E, Agha A, Kerman N, Polillo A, Palepu A, **Hwang SW**. Cycles of Instability: Proximal and Distal Influences on Residential Instability Among People with Histories of Homelessness in Three Canadian Cities. *Journal of Community Psychology*. 2022 Nov;50(8):3402-3420. Impact Factor 2.2. **Coauthor or Collaborator**.
46. Kerman N, Wang R, Aubry T, Distasio J, Gaetz S, **Hwang SW**, Latimer E, O'Grady B, Schwan K, Somers JM, Stergiopoulos V, Kidd SA. Shelter Bans among People Experiencing Homelessness: An Exploratory Study of Predictors in Two Large Canadian Datasets. *Journal of Urban Health*. 2022 Oct;99(5):842-854. Impact Factor 5.8. **Coauthor or Collaborator**.
47. Thulien NS, Amiri A, **Hwang SW**, Kozloff N, Wang A, Akdikmen A, Roglich J, Nisenbaum R. Effect of Portable Rent Subsidies and Mentorship on Socioeconomic Inclusion for Young People Exiting Homelessness: A Community-Based Pilot Randomized Clinical Trial. *JAMA Network Open*. 2022 Oct;5(10):e2238670. Impact Factor 13.3. **Coauthor or Collaborator**.
48. Wiens K, Rosella LC, Kurdyak P, Chen S, Aubry T, Stergiopoulos V, **Hwang SW**. Determinants of Hospital Use and Physician Services Among Adults With a History of Homelessness. *Health Services Insights*. 2022 Oct;15 (Trainee publication, Kathryn Wiens (PhD student)). **Senior Responsible Author**.
49. Ecker J, Brown M, Aubry T, Francombe Pridham K, **Hwang SW**. Coordinated access and coordinated entry system processes in the housing and homelessness sector: A critical commentary on current practices. *Housing Policy Debate*. 2022 Oct;32(6):876-895. Impact Factor 2.3. **Senior Responsible Author**.
50. Firestone F, Zewge-Abubaker N, Salmon C, McKnight C, **Hwang SW**. Using Concept Mapping to Define Indigenous Housing First in Hamilton, Ontario. *International Journal of Environmental Research and Public Health*. 2022 Sep;19(19):12374. Impact Factor 4.6. **Coauthor or Collaborator**.
51. Jenkinson JIR, Sniderman R, Gogosis E, Liu M, Nisenbaum R, Pedersen C, Spandier O, Tibebu T, Dyer A, Crichlow R, Richard L, Orkin A, Thulien N, Kiran T, Kayseas J, **Hwang SW**. Exploring COVID-19 vaccine uptake, confidence and hesitancy among people experiencing homelessness in Toronto, Canada: protocol for the Ku-gaa-gii pimitizi-win qualitative study. *BMJ Open*. 2022 Aug;12(8):e064225. Impact Factor 3. **Senior Responsible Author**.

52. Richard L, Nisenbaum R, Liu M, McGeer A, Mishra S, Gingras A, Gommerman JL, Sniderman R, Pedersen C, Spandier O, Jenkinson J, Baral S, Mejia Lancheros C, Agarwal A, Jamal AJ, Ostrowski M, Dhalla I, Stewart S, Gabriel M, Brown M, Hester J, **Hwang SW**. Ku-gaa-gii pimitizi-win, the COVID-19 Cohort Study of People Experiencing Homelessness in Toronto, Canada: A study protocol. *BMJ Open*. 2022 Aug;12(8):e063234. Impact Factor 3. **Senior Responsible Author**.
53. Richard L, Liu M, Jenkinson JIR, Nisenbaum R, Brown M, Pedersen C, **Hwang SW**. COVID-19 vaccine coverage and factors associated with vaccination among people experiencing homelessness in Toronto, Canada: a cross-sectional study. *Vaccines*. 2022 Aug;10(8):1245. Impact Factor 4.9. **Senior Responsible Author**.
54. Hodwitz K, Parsons J, Juando-Prats C, Rosenthal E, Craig-Neil A, **Hwang SW**, Lockwood J, Das P, Kiran T. Challenges faced by people experiencing homelessness and their providers during the COVID-19 pandemic: a qualitative study. *CMAJ Open*. 2022 Jul;10(3):E685-E691. **Coauthor or Collaborator**.
55. Liu M, Richard L, Campitelli MA, Nisenbaum R, Dosani N, Dhalla IA, Wadhera RK, Shariff SZ, **Hwang SW**. Drug Overdoses During the COVID-19 Pandemic Among Recently Homeless Individuals. *Addiction*. 2022 Jun;117(6):1692–1701. Impact Factor 6.5 (Trainee publication, Michael Liu (graduate student)). **Senior Responsible Author**.
56. Liu M, Richard L, Campitelli MA, Nisenbaum R, Dhalla IA, Wadhera RK, Shariff SZ, **Hwang SW**. Hospitalizations During the COVID-19 Pandemic Among Recently Homeless Individuals: A Retrospective Population-Based Matched Cohort Study. *Journal of General Internal Medicine (JGIM)*. 2022 Jun;37(8):2016-2025. Impact Factor 5.1. **Senior Responsible Author**.
57. Liu M, Koh KA, **Hwang SW**, Wadhera RK. Mental Health and Substance Use Among Homeless Adolescents in the United States. *JAMA*. 2022 May;327(18):1820-1822. Impact Factor 56.3. **Coauthor or Collaborator**.
58. Sayani A, Manthorne J, Nicholson E, Bloch G, Parsons JA, **Hwang SW**, Amenu B, Freedman H, Rathbone M, Jeji T, Wathen N, Browne AJ, Varcoe C, Lofters A. Toward Equity-Oriented Cancer Care: A Strategy for Patient-Oriented Research (SPOR) protocol to promote equitable access to lung cancer screening. *Research Involvement and Engagement*. 2022 Apr;8(1):11. **Coauthor or Collaborator**.
59. Shariff SZ, Richard L, **Hwang SW**, Kwong JC, Forchuk C, Dosani N, Booth R. COVID-19 vaccine coverage and factors associated with vaccine uptake among 23 247 adults with a recent history of homelessness in Ontario, Canada: a population-based cohort study. *The Lancet Public Health*. 2022 Mar;7(4):e366-e377. Impact Factor 21.6. **Coauthor or Collaborator**.
60. Luong L, Beder M, Nisenbaum R, Orkin A, Wong J, Damba C, Emond R, Lena S, Loutfy M, Wright V, Bruce-Barrett C, Cheung W, Cheung K, Williams V, Vanmeurs M, Boozary A, Manning H, Hester J, **Hwang SW**. Prevalence of SARS-CoV-2 infection among people experiencing homelessness in Toronto during the first wave of the COVID-19 pandemic. *Canadian Journal of Public Health*. 2022 Feb;113(1):117-125. Impact Factor 2.4. **Senior Responsible Author**.
61. Kiran T, Craig-Neil A, Das P, Lockwood J, Wang R, Nathanielsz N, **Hwang SW**. Association of Homelessness with COVID-19 Positivity among Individuals Visiting a Testing Centre. *Healthcare Policy*. 2022 Feb;17(3):34-41. **Coauthor or Collaborator**.
62. Jenkinson J, Strike C, **Hwang SW**, Di Ruggiero E. Legal, geographic and organizational contexts that shape knowledge sharing in the hospital discharge process for people experiencing homelessness in Canada. *Health and Social Care in the Community*. 2022 Feb;30(2):e377–e387. Impact Factor 2.8 (Trainee publication, Jesse Jenkinson (PhD student)). **Coauthor or Collaborator**.
63. Reid N, Mason J, Kurdyak P, Nisenbaum R, de Oliveira C, **Hwang S**, Stergiopoulos V. Evaluating the Impact of a Critical Time Intervention Adaptation on Health Care Utilization among Homeless Adults with Mental Health Needs in a Large Urban Center. *Canadian Journal of Psychiatry*. 2022 Jan;67(1):57-66. Impact Factor 3.3. **Coauthor or Collaborator**.

64. Mejia-Lancheros C, Lachaud J, Aubry T, Wiens K, O'Campo P, Stergiopoulos V, **Hwang SW**. Multi-trajectory group profiles of well-being and associated predictors among adults experiencing homelessness and mental illness: Findings from the At Home/Chez Soi study, Toronto site. *Social Psychiatry and Psychiatric Epidemiology*. 2022 Jan;57(1):67-81. Impact Factor 3.3 (Trainee publication, Cilia Mejia-Lancheros (postdoctoral fellow)). **Senior Responsible Author**.
65. Filewod N, **Hwang S**, Turner CJ, Rizvi L, Gray S, Klaiman M, Buell D, Ailon J, Caudarella A, Ginocchio GF, Santos M, Sandhu G, Dewhurst N, Sequeira K, Burns KEA. Phenobarbital for the Management of Severe Acute Alcohol Withdrawal (PHENOMANAL): A Pilot Randomized Controlled Trial. *Pilot and Feasibility Studies*. 2022 Jan;8(1):14. Impact Factor 0.9. **Coauthor or Collaborator**.
66. Gadermann AM, Hubley AM, Russell LB, Thomson KC, Norena M, Rossa-Roccor V, **Hwang SW**, Aubry T, Karim ME, Farrell S, Palepu A. Understanding subjective quality of life in homeless and vulnerably housed individuals: The role of housing, health, substance use, and social support. *Social Science & Medicine - Mental Health*. 2021 Dec;1:Article 100021. **Coauthor or Collaborator**.
67. Persaud N, Woods H, Workentin A, Adekoya I, Dunn J, **Hwang S**, Maguire J, Pinto A, O'Campo P, Rourke SB, Werb D. Recommendations for equitable Covid-19 pandemic recovery in Canada. *Canadian Medical Association Journal (CMAJ)*. 2021 Dec;193:E1878-88. Impact Factor 8.3. **Coauthor or Collaborator**.
68. Vogel M, Choi F, Westenberg JN, Cabanis M, Nikoo N, Nikoo M, **Hwang SW**, Somers J, Schütz CG, Krausz MR. Chronic pain among individuals experiencing homelessness and its interdependence with substance use and mental illness. *International Journal of Environmental Research and Public Health*. 2021 Dec;19(1):5. Impact Factor 3.3. **Coauthor or Collaborator**.
69. Persaud N, Thorpe KE, Bedard M, **Hwang SW**, Pinto AD, Juni P, da Costa B, for the DISTANSE COVID-19 (Direct Income Support and Advice Negating Spread of Epidemic COVID-19: a randomized controlled trial) study team. Cash transfer during the COVID-19 pandemic: a multicentre, randomized controlled trial. *Family Medicine and Community Health*. 2021 Dec;9:e001452. **Coauthor or Collaborator**.
70. Durbin A, Nisenbaum R, Wang R, **Hwang SW**, Kozloff N, Stergiopoulos V. Recovery Education for adults experiencing homelessness: A longitudinal outcome evaluation. *Frontiers in Psychiatry*. 2021 Nov;12:763396. Impact Factor 4.1. **Coauthor or Collaborator**.
71. Liu M, Luong L, Lachaud J, Edalati H, Reeves A, **Hwang SW**. Adverse Childhood Experiences Among Adults Experiencing Homelessness: A Systematic Review and Meta-Analysis. *The Lancet Public Health*. 2021 Nov;693(11):e836-e847. Impact Factor 21.6. **Senior Responsible Author**.
72. Paudyal V, Racine M, **Hwang SW**. COVID-19 vaccination amongst homeless persons : practices and lessons from UK, Canada and the US. *Public Health*. 2021 Oct;199:e2-e3. Impact Factor 2.4. **Coauthor or Collaborator**.
73. Liauw SSL, Luong L, Liu S, Atcha M, Kwok Y, Nisenbaum R, Fam N, **Hwang SW**, Cheema AN. Clinical Presentation and Outcome of Patients Experiencing Homelessness with ST-Elevation Myocardial Infarction. *Canadian Journal of Cardiology*. 2021 Oct;37(10):1555-1561. Impact Factor 5.2 (Trainee publication, Samantha Liauw (cardiology resident)). **Coauthor or Collaborator**.
74. Liu M, Mejia-Lancheros C, Lachaud J, Latimer E, Aubry T, Somers J, Distasio J, Stergiopoulos V, **Hwang SW**. Overall and Gender-Specific Associations Between Dimensions of Adverse Childhood Experiences and Mental Health Outcomes among Homeless Adults. *Canadian Journal of Psychiatry*. 2021 Oct;66(10):906–917. Impact Factor 3.3 (Trainee publication, Michael Liu (graduate student)). **Senior Responsible Author**.
75. Tweed EJ, Thomson RM, Lewer D, Sumpter C, Kirolos A, Southworth PM, Purba AK, Aldridge RW, Hayward A, Story A, **Hwang SW**, Katikireddi SV. Health of people experiencing co-occurring homelessness, imprisonment, substance use, sex work, and/or severe mental illness in high-income countries: a systematic review and meta-analysis. *Journal of Epidemiology & Community Health*. 2021 Oct;75(10):1010-1018. Impact Factor 3.3. **Coauthor or Collaborator**.

76. Campbell DJT, Campbell RB, DiGiandomenico A, Larsen M, Davidson MA, McBrien K, Booth GL, **Hwang SW**. Using a community-based participatory research approach to meaningfully engage those with lived experience of diabetes and homelessness. *BMJ Open Diabetes Research & Care*. 2021 Sep;9(1):e002154. Impact Factor 3.1 (Trainee publication, David Campbell (postdoctoral fellow)). **Coauthor or Collaborator**.
77. Nasmith TE, Gadermann A, Jaworski D, Norena M, To MJ, **Hwang SW**, Palepu A. Clinically significant substance use and residential stability among homeless or vulnerably housed persons in Canada: a longitudinal cohort study. *Journal of Public Health*. 2021 Sep;43(3):532-540. Impact Factor 1.8. **Coauthor or Collaborator**.
78. Sayal AP, Popovic MM, Mustafa M, **Hwang SW**, Lichter M. The Attitudes of Canadian Ophthalmology Residents and Pre-Clerkship Medical Students at an Ontario Medical School Towards Homeless Individuals: A Cross-Sectional Study. *Ophthalmic Epidemiology*. 2021 Aug;28(4):330-336. Impact Factor 1.5. **Coauthor or Collaborator**.
79. Sayani A, Maybee A, Manthorne J, Nicholson E, Bloch G, Parsons J, **Hwang SW**, Lofters A. Building equitable patient partnerships during COVID19: Challenges and key considerations for research and policy. *Healthcare Policy*. 2021 Aug;17(1):17-24. Impact Factor 0.9. **Coauthor or Collaborator**.
80. Jenkinson J, Strike C, **Hwang SW**, Di Ruggiero E. Nowhere to go: exploring the social and economic influences on discharging people experiencing homelessness to appropriate destinations in Toronto, Canada. *Canadian Journal of Public Health*. 2021 Aug. Impact Factor 1.6. **Coauthor or Collaborator**.
81. Reid N, Nisenbaum R, **Hwang SW**, Durbin A, Kozloff N, Wang R, Stergiopoulos V. The Impact of Financial Incentives on Service Engagement Among Adults Experiencing Homelessness and Mental Illness: A Pragmatic Trial Protocol. *Frontiers in Psychiatry*. 2021 Aug;12:1316. Impact Factor 4.1. **Coauthor or Collaborator**.
82. Lachaud J, Mejia-Lancheros C, Durbin A, Nisenbaum R, Wang R, O'Campo P, Stergiopoulos V, **Hwang SW**. The Effect of a Housing First Intervention on Acute Health Care Utilization among Homeless Adults with Mental Illness: Long-term Outcomes of the At Home/Chez-Soi Randomized Pragmatic Trial. *Journal of Urban Health*. 2021 Aug;98(4):505-515. Impact Factor 2.3 (Trainee publication, James Lachaud (postdoctoral fellow)). **Senior Responsible Author**.
83. Thulien N, Wang A, Wang R, **Hwang SW**. Tackling exclusion: A pilot mixed method quasi-experimental identity capital intervention for young people exiting homelessness. *PLOS ONE*. 2021 Aug;16(8):e0256288. Impact Factor 3.2. **Coauthor or Collaborator**.
84. Mejia-Lancheros C, Lachaud J, To MJ, Lee P, Nisenbaum R, O'Campo P, Stergiopoulos V, **Hwang SW**. The Long-Term Effects of a Housing First Intervention on Primary Care and Non-Primary Care Physician Visits Among Homeless Adults with Mental Illness: A 7-Year RCT Follow-Up. *Journal of Primary Care & Community Health*. 2021 Jul;12:1-11. Impact Factor 2.1 (Trainee publication, Cilia Mejia-Lancheros (postdoctoral fellow)). **Senior Responsible Author**.
85. Grewal EK, Campbell RB, Booth GL, McBrien KA, **Hwang SW**, O'Campo P, Campbell DJT. Using concept mapping to prioritize barriers to diabetes care and self-management for those who experience homelessness. *International Journal for Equity in Health*. 2021 Jul;20:158. Impact Factor 2.5. **Coauthor or Collaborator**.
86. Campbell RB, Larsen M, DiGiandomenico A, Davidson MA, Booth GL, **Hwang SW**, McBrien KA, Campbell DJT. The challenges of managing diabetes while homeless: a qualitative study using photovoice methodology. *Canadian Medical Association Journal (CMAJ)*. 2021 Jul;193(27):E1034-E1041. Impact Factor 8.3 (Trainee publication, David Campbell (postdoctoral fellow)). **Coauthor or Collaborator**.
87. Wang A, Francombe Pridham K, Nisenbaum R, Pedersen C, Brown R, **Hwang SW**. Factors Associated with Readmission Among General Internal Medicine Patients Experiencing Homelessness. *Journal of General Internal Medicine (JGIM)*. 2021 Jul;36(7):1944-1950. Impact Factor 5.1. **Senior Responsible Author**.
88. Pinto AD, Perri M, Pedersen C, Aratangy T, Hapsari AP, **Hwang SW**. Exploring different methods to evaluate the impact of Basic Income interventions: a systematic review. *International Journal for Equity in Health*. 2021 Jun;20:142. Impact Factor 2.5. **Coauthor or Collaborator**.

89. Wiens K, Rosella LC, Kurdyak P, Chen S, Aubry T, Stergiopoulos V, **Hwang SW**. Factors associated with higher healthcare costs in a cohort of homeless adults with a mental illness and a general cohort of adults with a history of homelessness. *BMC Health Services Research*. 2021 Jun;21:555. Impact Factor 2 (Trainee publication, Kathryn Wiens (PhD student)). **Senior Responsible Author**.
90. Sayani A, Vahabi M, O'Brien MA, Liu G, **Hwang S**, Selby P, Nicholson E, Giuliani M, Eng L, Lofters A. Advancing Health Equity in Cancer Care: The Lived Experiences of Poverty and Access to Lung Cancer Screening. *PLOS ONE*. 2021 May;16(5):e0251264. Impact Factor 2.7. **Coauthor or Collaborator**.
91. Lachaud J, Mejia-Lancheros C, Wang R, Liu M, Nisenbaum R, Stergiopoulos V, **Hwang SW**, O'Campo P. Severe Psychopathology and Substance Use Disorder Modify the Association between Housing Trajectories and Food Security among Homeless Adults. *Frontiers in Nutrition*. 2021 May;8:Article 608811. Impact Factor 3.3 (Trainee publication, James Lachaud (postdoctoral fellow)). **Coauthor or Collaborator**.
92. Loftus EI, Lachaud J, **Hwang SW**, Mejia-Lancheros C. Food Insecurity and Mental Health Outcomes among Homeless Adults: A Scoping Review. *Public Health Nutrition*. 2021 May;24(7):1766-1777. Impact Factor 2.5 (Trainee publication, Elizabeth Loftus (undergraduate student), Cilia Mejia-Lancheros (postdoctoral fellow)). **Coauthor or Collaborator**.
93. Persaud N, Bedard M, Boozary A, Glazier RH, Gomes T, **Hwang SW**, Juni P, Law MR, Mamdani M, Manns B, Martin D, Morgan SG, Oh P, Pinto AD, Shah BR, Sullivan F, Umali N, Thorpe KE, Tu K, Laupacis A, for the CLEAN Meds (Carefully seLected and Easily Accessible at No Charge Medications) study team. Adherence at 2 years with distribution of essential medicines at no charge: The CLEAN Meds randomized clinical trial. *PLOS Medicine*. 2021 May;18(5):e1003590. Impact Factor 10.5. **Coauthor or Collaborator**.
94. Luong L, Lachaud J, Kouyoumdjian FG, **Hwang SW**, Mejia-Lancheros C. The Impact of a Housing First intervention and health-related risk factors on incarceration among people with experiences of homelessness and mental illness in Canada. *Canadian Journal of Public Health*. 2021 Apr;112(2):270-279. Impact Factor 1.6 (Trainee publication, Linh Luong (MPH practicum student)). **Coauthor or Collaborator**.
95. Wiens K, Nisenbaum R, Sucha E, Aubry T, Duhoux A, Farrell S, Gadermann A, Palepu A, **Hwang SW**. Does housing improve health care utilization and costs? A longitudinal analysis of health administrative data linked to a cohort of individuals who experience homelessness. *Medical Care*. 2021 Apr;59:S110–S116. Impact Factor 3.2 (Trainee publication, Kathryn Wiens (PhD student)). **Senior Responsible Author**.
96. Mejia-Lancheros C, Woodhall-Melnik J, Wang R, **Hwang SW**, Stergiopoulos V, Durbin A. Associations of resilience with quality of life levels in adults experiencing homelessness and mental illness: A longitudinal study. *Health and Quality of Life Outcomes*. 2021 Mar;19:74. Impact Factor 2.9 (Trainee publication, Cilia Mejia-Lancheros (postdoctoral fellow)). **Coauthor or Collaborator**.
97. Kiran T, Craig-Neil A, Das P, Lockwood J, Wang R, Nathanielsz N, Rosenthal E, Snider C, **Hwang SW**. Factors associated with COVID-19 positivity in twenty homeless shelters in Toronto, Canada from April to July 2020: A repeated cross-sectional study. *CMAJ Open*. 2021 Mar;9(1):E302-E308. **Senior Responsible Author**.
98. Cusimano MD, Saha A, Zhang D, Zhang S, Casey J, Rabski J, Carpino M, **Hwang SW**. Cognitive dysfunction, brain volumes, and traumatic brain injury in homeless persons. *Neurotrauma Reports*. 2021 Mar;2(1):136-148. **Coauthor or Collaborator**.
99. Whisler A, Dosani N, To MJ, O'Brien K, Young S, **Hwang SW**. The effect of a Housing First intervention on primary care retention among homeless individuals with mental illness. *PLOS ONE*. 2021 Feb;16(2):e0246859. Impact Factor 2.7. **Senior Responsible Author**.
100. Cusimano MD, Korman MB, Feher A, Puvirajasingam J, Zhang S, **Hwang SW**, Tepperman L. The temporal relations of traumatic brain injury, victimization, aggression, and homelessness: A developmental trajectory. *Neurotrauma Reports*. 2021 Feb;2(1):103-114. **Coauthor or Collaborator**.
101. Liu M, **Hwang SW**. Health Care for Homeless People. *Nature Reviews Disease Primers*. 2021 Jan;7(5). Impact Factor 40.6 (Trainee publication, Michael Liu (graduate student)). **Senior Responsible Author**.

102. Aubry T, Agha A, Mejia-Lancheros C, Lachaud J, Wang R, Nisenbaum R, Palepu A, **Hwang SW**. Housing Trajectories, Risk Factors and Resources Among Individuals Who are Homeless or Precariously Housed. *Annals of the American Academy of Political and Social Science*. 2021 Jan;693(1):102-122. Impact Factor 1.9. **Coauthor or Collaborator**.
103. Sayani A, Vahabi M, O'Brien MA, Liu G, **Hwang SW**, Selby P, Nicholson E, Lofters A. Perspectives of family physicians towards access to lung cancer screening for individuals living with low income – a qualitative study. *BMC Family Practice*. 2021 Jan;22(1):10. Impact Factor 2.4. **Coauthor or Collaborator**.
104. Mejia-Lancheros C, Lachaud J, Woodhall-Melnik J, O'Campo P, **Hwang SW**, Stergiopoulos V. Longitudinal interrelationships of mental health discrimination and stigma with housing and well-being outcomes in adults with mental illness and recent experiences of homelessness. *Social Science & Medicine*. 2021 Jan;268:113463. Impact Factor 3 (Trainee publication, Cilia Mejia-Lancheros (postdoctoral fellow)). **Coauthor or Collaborator**.
105. Lachaud J, Mejia-Lancheros C, Nisenbaum R, Stergiopoulos V, O'Campo P, **Hwang SW**. Housing First and severe mental disorders: the challenge of exiting homelessness. *Annals of the American Academy of Political and Social Science*. 2021 Jan;693(1):178-192. Impact Factor 1.9 (Trainee publication, James Lachaud (postdoctoral fellow)). **Senior Responsible Author**.
106. Wiens K, Rosella L, Kurdyak P, **Hwang SW**. Patterns and predictors of high-cost users of the health system: a data linkage protocol to combine a cohort study and randomised controlled trial of adults with a history of homelessness. *BMJ Open*. 2020 Dec;10(12):e039966 (Trainee publication, Kathryn Wiens (PhD student)). **Senior Responsible Author**.
107. Mejia-Lancheros C, Lachaud J, Stergiopoulos V, Matheson F, Nisenbaum R, O'Campo P, **Hwang SW**. The effects of housing first on violence-related traumatic brain injury in adults with experiences of homelessness and mental illness: Findings from the At Home/Chez Soi randomized trial, Toronto Site. *BMJ Open*. 2020 Dec;10(12):e038443. Impact Factor 2.4 (Trainee publication, Cilia Mejia-Lancheros (postdoctoral fellow)). **Senior Responsible Author**.
108. Kirst M, Friesdorf R, Ta M, Amiri A, **Hwang SW**, Stergiopoulos V, O'Campo P. Patterns and effects of social integration on housing stability, mental health and substance use outcomes among participants in a randomized controlled Housing First trial. *Social Science & Medicine*. 2020 Nov;265:113481. Impact Factor 3.6. **Coauthor or Collaborator**.
109. Distasio J, Adair CE, **Hwang S**, Hinds A, Kopp BC, Aubry T, Somers J, Lemieux A, Dunn J, Veldhuizen S, Kaufman AF. Exploring the Relationship between Neighbourhood Quality (NQ) and Housing Stability among Formerly Homeless Individuals with Mental Illness in Housing First. *Wellbeing, Space & Society*. 2020 Nov. **Coauthor or Collaborator**.
110. Campbell DJT, Campbell RB, Booth GL, **Hwang SW**, McBrien KA. Innovations in Providing Diabetes Care for Individuals Experiencing Homelessness: An Environmental Scan. *Canadian Journal of Diabetes*. 2020 Oct;44(7):643-650. Impact Factor 3 (Trainee publication, David Campbell (post-doctoral fellow)). **Coauthor or Collaborator**.
111. Wang L, Ma H, Yiu KCY, Calzavara A, Landsman D, Luong L, Chan AK, Kustra R, Kwong JC, Boily M-C, **Hwang S**, Straus S, Baral SD, Mishra S. Heterogeneity in testing, diagnosis and outcome in SARSCoV-2 infection across outbreak settings in the Greater Toronto Area, Canada: an observational study. *CMAJ Open*. 2020 Oct;8(4):E627-E636. **Coauthor or Collaborator**.
112. Latimer EA, Rabouin D, Cao Z, Ly A, Powell G, Aubry T, Distasio J, **Hwang SW**, Somers JM, Bayoumi AM, Mitton C, Moodie EEM, Goering PN; for the At Home/Chez Soi Investigators. Cost-effectiveness of Housing First with Assertive Community Treatment: Results from the Canadian At Home/Chez Soi trial. *Psychiatric Services*. 2020 Oct;71(10):1020-1030. Impact Factor 2.5. **Coauthor or Collaborator**.
113. Chum A, Wang R, Nisenbaum R, O'Campo P, Stergiopoulos V, **Hwang SW**. The effect of a housing intervention on selected cardiovascular risk factors among homeless adults with mental illness: 24-month follow-up of a randomized controlled trial. *Journal of the American Heart Association*. 2020 Sep;9(19):e016896. Impact Factor 4.6. **Senior Responsible Author**.

114. Suchting R, Businelle MS, **Hwang SW**, Padhye NS, Yang Y, Santa Maria DM. Predicting Daily Sheltering Arrangements among Youth Experiencing Homelessness Using Diary Measurements Collected by Ecological Momentary Assessment. *International Journal of Environmental Research and Public Health*. 2020 Sep;17:6873. Impact Factor 2.8. **Coauthor or Collaborator**.
115. Liu M, Mejia-Lancheros C, Lachaud J, Nisenbaum R, Stergiopoulos V, **Hwang SW**. Resilience and Adverse Childhood Experiences: Associations With Poor Mental Health Among Homeless Adults. *American Journal of Preventive Medicine*. 2020 Jun;58(6):807-816. Impact Factor 4.4 (Trainee publication, Michael Liu (undergraduate student)). **Senior Responsible Author**.
116. Perri M, Dosani N, **Hwang SW**. COVID-19 and people experiencing homelessness: challenges and mitigation strategies. *Canadian Medical Association Journal (CMAJ)*. 2020 Jun;192:E716-9. Impact Factor 7.7. **Senior Responsible Author**.
117. Lachaud J, Mejia-Lancheros C, Wang R, Wiens K, Nisenbaum R, Stergiopoulos V, **Hwang SW**, O'Campo P. Mental and Substance Use Disorders and Food Insecurity among Homeless Adults Participating in the At Home/Chez Soi Study. *PLOS ONE*. 2020 Apr;15(4):e0232001. Impact Factor 2.7 (Trainee publication, James Lachaud (postdoctoral fellow)). **Coauthor or Collaborator**.
118. Gadermann AM, Karim ME, Norena M, Emerson SD, Hubley AM, Russell LB, Nisenbaum R, **Hwang SW**, Aubry T, Palepu A. The Association of Residential Instability and Hospitalizations among Homeless and Vulnerably Housed Individuals: Results from a Prospective Cohort Study. *Journal of Urban Health*. 2020 Apr;97(2):239-249. Impact Factor 2.1. **Coauthor or Collaborator**.
119. Noel CW, Mok F, Wu V, Eskander A, Yao CMKL, **Hwang SW**, Lichter M, Reekie M, Smith S, Syrett I, Zirkle M, Lin V, Lee JM. Uncorrected Hearing loss and Unmet Hearing Needs Among an Adult Homeless Population: A Prospective Cross-sectional Study. *CMAJ Open*. 2020 Mar;8(1):E199-E204. **Coauthor or Collaborator**.
120. Mejia-Lancheros C, Lachaud J, Nisenbaum R, Wang A, Stergiopoulos V, **Hwang SW**, O'Campo P. Dental problems and chronic diseases in mentally ill homeless adults: A cross-sectional study. *BMC Public Health*. 2020 Mar;20:419. Impact Factor 2.5 (Trainee publication, Cilia Mejia-Lancheros (post-doctoral fellow)). **Coauthor or Collaborator**.
121. Pottie K, Kendall C, Aubry T, Magwood O, Andermann A, Salvalaggio G, Ponka D, Bloch G, Brcic V, Agbata E, Thavorn K, Hannigan T, Bond A, Crouse S, Goel R, Shoemaker E, Zhuo J, Wang J, Mott S, Mathew C, Shanza Hashmi S, Saad A, Kaur H, Piggott T, Arya N, Kozloff N, Beder M, Guenter D, Muckle W, **Hwang S**, Stergiopoulos V, Tugwell P. Clinical guideline for homeless, vulnerably housed and people with lived homelessness experience. *Canadian Medical Association Journal (CMAJ)*. 2020 Mar;192:E240-54. Impact Factor 7.7. **Coauthor or Collaborator**.
122. Roncarati JS, O'Connell JJ. **Hwang SW**, Baggett TP, Cook EF, Krieger N, Sorensen G. The Use of High-Risk Criteria to Assess Mortality Risk among Unsheltered Homeless Persons. *Journal of Health Care for the Poor and Underserved*. 2020 Feb;31(1):441-454. Impact Factor 0.9 (Trainee publication, Jill Roncarati (PhD student)). **Coauthor or Collaborator**.
123. Mejia-Lancheros C, Lachaud J, O'Campo P, Wiens K, Nisenbaum R, Wang R, **Hwang SW**, Stergiopoulos V. Trajectories and mental health-related predictors of perceived discrimination and stigma among homeless adults with mental illness. *PLOS ONE*. 2020 Feb;15(2):e0229385. Impact Factor 2.7 (Trainee publication, Cilia Mejia-Lancheros (postdoctoral fellow)). **Coauthor or Collaborator**.
124. Persaud N, Bedard M, Boozary A, Glazier RH, Gomes T, **Hwang SW**, Juni P, Law MR, Mamdani MM, Manns BJ, Martin D, Morgan SG, Oh PI, Pinto AD, Shah BR, Sullivan F, Umali N, Thorpe KE, Tu K, Laupacis A, for the CLEAN Meds (Carefully seLected and Easily Accessible at No Charge Medications) study team. Effect on Treatment Adherence of Distributing Essential Medicines at No Charge: The CLEAN Meds Randomized Clinical Trial. *JAMA Internal Medicine*. 2020 Jan;180(1):27-34. This paper was selected by the College of Family Physicians of Canada as the 2019 Outstanding Family Medicine Research Article, for the best family medicine research paper published in a national or international journal. Impact Factor 20.7. **Coauthor or Collaborator**.

125. Thulien N, Kozloff N, McCay E, Nisenbaum R, Wang A, **Hwang S**. Evaluating the Effects of a Rent Subsidy and Mentoring Intervention for Youth Transitioning Out of Homelessness: Protocol for a Mixed-Methods, Community-Based, Pilot Randomized Controlled Trial. *JMIR Research Protocols*. 2019 Dec;8(12):e15557. **Coauthor or Collaborator**.
126. Katz C, Roos LE, Wang Y, Bolton J, **Hwang SW**, Katz LY, Bourque J, Adair CE, Somers J, Sareen J, At Home/Chez Soi Investigators. Predictive Validity of the MINI Suicidality Subscale for Suicide Attempts in a Homeless Population With Mental Illness. *Suicide and Life-Threatening Behavior*. 2019 Dec;49(6):1630-1636. Impact Factor 3. **Coauthor or Collaborator**.
127. Shankar S, Gogosis E, Palepu A, Gadermann AM, **Hwang SW**. "I haven't given up and I'm not gonna": A phenomenographic exploration of resilience among individuals experiencing homelessness. *Qualitative Health Research*. 2019 Nov;29(13):1850-1861. Impact Factor 2. **Coauthor or Collaborator**.
128. Stergiopoulos V, Mejia-Lancheros C, Nisenbaum R, Wang R, Lachaud J, O'Campo P, **Hwang SW**. The long-term effects of rent supplements and mental health support services on housing and health outcomes of homeless adults with mental illness: outcomes of the extended At Home/Chez Soi randomized controlled trial. *The Lancet Psychiatry*. 2019 Nov;6(11):915-925. Impact Factor 18.3. **Coauthor or Collaborator**.
129. Magee C, Norena M, Hubley AM, Palepu A, Karim ME, **Hwang SW**, Nisenbaum R, Gadermann A. Longitudinal Associations Between Perceived Quality of Living Spaces and Health-Related Quality of Life Among Homeless and Vulnerably Housed Individuals in Three Canadian Cities. *International Journal of Environmental Research and Public Health*. 2019 Nov;16:4808. Impact Factor 2.4. **Coauthor or Collaborator**.
130. Richard L, **Hwang SW**, Forchuk C, Nisenbaum R, Clemens K, Wiens K, Booth R, Azimaee M, Shariff SZ. Validation study of health administrative data algorithms to identify individuals experiencing homelessness and estimate population prevalence of homelessness in Ontario, Canada. *BMJ Open*. 2019 Oct;9:e030221. Impact Factor 2.3. **Coauthor or Collaborator**.
131. Kouyoumdjian FG, Wang R, Mejia-Lancheros C, Owusu-Bempah A, Nisenbaum R, O'Campo P, Stergiopoulos V, **Hwang SW**. Interactions between police and persons who experience homelessness and mental illness in Toronto, Canada: Findings from a prospective study. *Canadian Journal of Psychiatry*. 2019 Oct;64(10):718-725. Impact Factor 3.6. **Senior Responsible Author**.
132. Richler MJ, Yousaf S, **Hwang SW**, Dewhurst NF. Descriptive study of homeless patients' perceptions that affect medication adherence. *American Journal of Health-System Pharmacy*. 2019 Sep;76(17):1288-1295. Impact Factor 1.8. **Coauthor or Collaborator**.
133. Zhang P, Wiens K, Wang R, Luong L, Ansara D, Gower S, Bassil K, **Hwang SW**. Cold weather conditions and risk of hypothermia among people experiencing homelessness: implications for prevention strategies. *International Journal of Environmental Research and Public Health*. 2019 Sep;16(18):3259. Impact Factor 2.4 (Trainee publication, Paige Zhang (medical student)). **Senior Responsible Author**.
134. Latimer EA, Rabouin D, Cao Z, Ly A, Powell G, Adair CE, Sareen J, Somers JM, Stergiopoulos V, Pinto AD, Moodie EEM, Veldhuizen SR, for the At Home/Chez Soi Investigators. Cost-effectiveness of Housing First Intervention With Intensive Case Management Compared With Treatment as Usual for Homeless Adults With Mental Illness: Secondary Analysis of a Randomized Clinical Trial. *JAMA Network Open*. 2019 Aug;2(8):e199782. **Acknowledged in Publication (Not Author)**.
135. Durbin A, Nisenbaum R, Kopp B, O'Campo P, **Hwang SW**, Stergiopoulos V. Are perceived stress and resilience related to social support and housing stability among homeless adults with mental illness? *Health and Social Care in the Community*. 2019 Jul;27(4):1053–1062. Impact Factor 2. **Coauthor or Collaborator**.
136. Kozloff N, Pinto AD, Stergiopoulos V, **Hwang SW**, O'Campo P, Bayoumi AM. Convergent validity of the EQ-5D-3L in a randomized-controlled trial of the Housing First model. *BMC Health Services Research*. 2019 Jul;19:482. Impact Factor 1.8. **Coauthor or Collaborator**.
137. McConnon A, Fung K, Lofters A, **Hwang SW**, Kouyoumdjian F. Colorectal and breast cancer screening status for people in Ontario provincial correctional facilities. *American Journal of Preventive Medicine*. 2019 Apr;56(4):487-493. Impact Factor 4.1. **Coauthor or Collaborator**.

138. Harris M, Gadermann A, Norena M, To M, Hubley AM, Aubry T, **Hwang S**, Palepu A. Residential moves and its association with substance use, healthcare needs, and acute care use among homeless and vulnerably housed persons in Canada. *International Journal of Public Health*. 2019 Apr;64(3):399-409. Impact Factor 2.6. **Coauthor or Collaborator**.
139. Matheson FI, Hamilton-Wright S, Kryszajtyś D, Wiese J, Cadel L, Ziegler C, **Hwang SW**, Guilcher SJT. The use of self-management strategies for problem gambling: A scoping review. *BMC Public Health*. 2019 Apr;19:445. Impact Factor 2.4. **Coauthor or Collaborator**.
140. Campbell DJT, Campbell RB, Ziegler C, McBrien KA, **Hwang SW**, Booth GL. Interventions for improved diabetes control and self-management among those experiencing homelessness: protocol for a mixed methods scoping review. *Systematic Reviews*. 2019 Apr;8:100 (Trainee publication, David Campbell (postdoctoral fellow)). **Coauthor or Collaborator**.
141. Persaud N, Steiner L, Woods H, Aratangy T, Wanigaratne S, Polsky JY, **Hwang S**, Chahal G, Pinto AD. Health outcomes related to the provision of free, tangible goods: A systematic review. *PLOS ONE*. 2019 Mar;14(3):e0213845. Impact Factor 2.7. **Coauthor or Collaborator**.
142. Walsh C, Hubley A, To MJ, Norena M, Gadermann A, Farrell S, **Hwang SW**, Palepu A. The effect of forensic events on health status and housing stability among homeless and vulnerably housed individuals: a cohort study. *PLOS ONE*. 2019 Feb;14(2):e0211704. Impact Factor 2.7. **Coauthor or Collaborator**.
143. Thulien N, Gastaldo D, McCay E, **Hwang SW**. "I want to be able to show everyone that it is possible to go from being nothing in the world to being something": Identity as a determinant of social integration. *Children and Youth Services Review*. 2019 Jan;96:118-126. Impact Factor 1.3 (Trainee publication, Naomi Thulien (postdoctoral fellow)). **Coauthor or Collaborator**.
144. Zhang P, Bassil K, Gower S, Katic M, Kiss A, Gogosis E, **Hwang SW**. Cold-Related Injuries in a Cohort of Homeless Adults. *Journal of Social Distress and the Homeless*. 2019 Jan;28(1):85-89 (Trainee publication, Paige Zhang (medical student)). **Senior Responsible Author**.
145. Kouyoumdjian F, McConnon A, Herrington ER, Fung K, Lofters A, **Hwang SW**. Cervical cancer screening access for women who experience imprisonment in Ontario, Canada: A population-based retrospective cohort study. *JAMA Network Open*. 2018 Dec;1(8):e185637 (Trainee publication, Fiona Kouyoumdjian (postdoctoral fellow)). **Senior Responsible Author**.
146. Kouyoumdjian FG, Cheng SY, Fung K, Humphreys-Mahaffey S, Orkin AM, Kendall C, Kiefer L, Matheson FI, Green SE, **Hwang SW**. Primary care utilization in people who experience imprisonment in Ontario, Canada: A retrospective cohort study. *BMC Health Services Research*. 2018 Nov;18:845. Impact Factor 1.8 (Trainee publication, Fiona Kouyoumdjian (postdoctoral fellow)). **Senior Responsible Author**.
147. Durbin A, Lunskey Y, Wang R, Nisenbaum R, **Hwang S**, O'Campo P, Stergiopoulos V. Borderline intellectual functioning and duration of homelessness among homeless adults with mental illness. *Healthcare Policy*. 2018 Nov;14(2):40-46. **Coauthor or Collaborator**.
148. Durbin A, Lunskey Y, Wang R, Nisenbaum R, **Hwang SW**, O'Campo P, Stergiopoulos V. The effect of Housing First on housing stability for people with mental illness and low intellectual functioning. *Canadian Journal of Psychiatry*. 2018 Nov;63(11):785-789. Impact Factor 3.4. **Coauthor or Collaborator**.
149. Stergiopoulos V, Gozdzik A, Nisenbaum R, Durbin J, **Hwang SW**, O'Campo P, Tepper J, Wasylenki D. Bridging Hospital and Community Care for Homeless Adults with Mental Health Needs: Outcomes of a Brief Interdisciplinary Intervention. *Canadian Journal of Psychiatry*. 2018 Nov;63(11):774-784. Impact Factor 3.4. **Coauthor or Collaborator**.
150. Fahmy N, Kouyoumdjian FG, Berkowitz J, Fahmy S, Neves SM, **Hwang SW**, Martin RE. Access to primary care for persons recently released from prison. *Annals of Family Medicine*. 2018 Nov;16(6):549-551. Impact Factor 4.5. **Coauthor or Collaborator**.

151. Kouyoumdjian FG, Cheng SY, Fung K, Orkin AM, McIsaac KE, Kendall C, Kiefer L, Matheson FI, Green S, **Hwang SW**. The health care utilization of people in prison and after prison release: A population-based cohort study in Ontario, Canada. *PLOS ONE*. 2018 Aug;13(8):e0201592. Impact Factor 2.7 (Trainee publication, Fiona Kouyoumdjian (postdoctoral fellow)). **Senior Responsible Author**.
152. Mirpuri S, Gill P, Ocampo A, Roberts N, Narang B, **Hwang SW**, Gany F. Discrimination and Health among Taxi Drivers in New York and Toronto. *Journal of Community Health*. 2018 Aug;43(4):667-672. Impact Factor 1.5. **Coauthor or Collaborator**.
153. Roncarati JS, Baggett TP, O'Connell JJ, **Hwang SW**, Cook EF, Krieger N, Sorensen G. Mortality Among Unsheltered Homeless Adults in Boston, Massachusetts, 2000-2009. *JAMA Internal Medicine*. 2018 Jul;178:1242-1248. Impact Factor 20 (Trainee publication, Jill Roncarati (PhD student)). **Coauthor or Collaborator**.
154. Baggett TP, Liauw SS, **Hwang SW**. Cardiovascular disease and homelessness. *Journal of the American College of Cardiology (JACC)*. 2018 Jun;71:2585-97. Impact Factor 19.9. **Senior Responsible Author**.
155. Sylvestre J, Klodawsky F, Gogosis E, Ecker J, Polillo A, Czechowski K, Agha A, Shankar S, To M, Gadermann A, Palepu A, **Hwang S**. Perceptions of Housing and Shelter among People with Histories of Unstable Housing in three Cities in Canada: A Qualitative Study. *American Journal of Community Psychology*. 2018 Jun;61(3-4):445-458. Impact Factor 2.1. **Coauthor or Collaborator**.
156. Sok P, Gardner S, Bekele T, Globerman J, Seeman MV, Greene S, Sobota M, Koornstra J, Monette L, Hambly K, **Hwang SW**, Watson J, Walker G, Rourke SB, and the Positive Spaces, Healthy Places Team. Unmet basic needs negatively affect health-related quality of life in people aging with HIV: Results from the Positive Spaces, Healthy Places Study. *BMC Public Health*. 2018 May;18:644. Impact Factor 2.8. **Coauthor or Collaborator**.
157. Zhang L, Norena M, Gadermann A, Hubley A, Russell L, Aubry T, To MJ, Farrell S, **Hwang S**, Palepu A. Concurrent Disorder and Health Care Utilization among Homeless and Vulnerably Housed Persons in Canada. *Journal of Dual Diagnosis*. 2018 Apr;14:21-31. Impact Factor 1.6. **Coauthor or Collaborator**.
158. Bekele T, Globerman J, Watson J, **Hwang SW**, Hambly K, Koornstra J, Walker G, Bacon J, Rourke SB, and the Positive Spaces, Healthy Places Study Team. Elevated Mortality and Associated Social Determinants of Health in a Community-Based Sample of People Living with HIV in Ontario, Canada: Findings from the Positive Spaces, Healthy Places (PSHP) Study. *AIDS and Behavior*. 2018 Mar;22:2214-2223. Impact Factor 2.9. **Coauthor or Collaborator**.
159. Persaud N, Steiner L, Woods H, Aratangy T, Wanigaratne S, Polsky JY, **Hwang SW**, Chahal G, Pinto AD. Health outcomes related to the provision of free, tangible goods: A systematic review. *PLOS ONE*. 2018 Mar;14(3):e0213845. Impact Factor 2.7. **Coauthor or Collaborator**.
160. Thulien NS, Gastaldo D, **Hwang SW**, McCay E. The elusive goal of social integration: A critical examination of the socio-economic and psychosocial consequences experienced by homeless young people who obtain housing. *Canadian Journal of Public Health*. 2018 Feb;109(1):89-98. Impact Factor 1.3 (Trainee publication, Naomi Thulien (postdoctoral fellow)). **Coauthor or Collaborator**.
161. Katz AS, Brisbois B, Zerger S, **Hwang SW**. Social Impact Bonds as a funding method for public health, health care and social programs: potential areas of concern. *American Journal of Public Health*. 2018 Feb;108(2):210-215. Impact Factor 4.1. **Senior Responsible Author**.
162. Cherner RA, Farrell S, **Hwang SW**, Aubry T, Klodawsky F, Hubley AM, Gadermann A, To MJ. An Investigation of Predictors of Mental Health in Single Men and Women Experiencing Homelessness in Three Canadian Cities. *Journal of Social Distress and the Homeless*. 2018 Feb;27(1):25-33. **Coauthor or Collaborator**.
163. Chung TE, Gozdzik A, Palma Lazgare LI, To MJ, Aubry T, Frankish J, **Hwang SW**, Stergiopoulos V. Housing First for older homeless adults with mental illness: A subgroup analysis of the At Home/Chez Soi randomized controlled trial. *International Journal of Geriatric Psychiatry*. 2018 Jan;33(1):85-95. Impact Factor 2.7. **Coauthor or Collaborator**.
164. Vogel M, Frank A, Choi F, Strehlau V, Nikoo N, Nikoo M, **Hwang SW**, Somers J, Krausz MR, Schütz CG. Chronic Pain among Homeless Persons with Mental Illness. *Pain Medicine*. 2017 Dec;18(12):2280-2288. Impact Factor 2.3. **Coauthor or Collaborator**.

165. Verma AA, Guo Y, Kwan JL, Lapointe-Shaw L, Rawal S, Tang T, Weinerman A, Coke W, Cram P, Dhalla IA, **Hwang SW**, Laupacis A, Mamdani MM, Shadowitz S, Upshur R, Reid RJ, Razak F. Patient characteristics, resource use and outcomes associated with general internal medicine hospital care: the General Medicine Inpatient Initiative (GEMINI) retrospective cohort study. *CMAJ Open*. 2017 Dec;5(4):E842-E849. **Coauthor or Collaborator**.
166. Aldridge RW, Story A, **Hwang SW**, Nordentoft M, Luchenski SA, Hartwell G, Tweed EJ, Lewer D, Katikireddi SV, Hayward AC. Morbidity and mortality in homeless individuals, prisoners, sex workers, and individuals with substance use disorders in high-income countries: a systematic review and meta-analysis. *The Lancet*. 2017 Nov;391(10117):241-250. Impact Factor 47.8. **Coauthor or Collaborator**.
167. Duhoux A, Aubry T, Ecker J, Cherner R, Agha A, To MJ, **Hwang SW**, Palepu A. Determinants of unmet mental healthcare needs of single adults who are homeless or vulnerably housed. *Canadian Journal of Community Mental Health*. 2017 Nov;36(3):41-57. **Coauthor or Collaborator**.
168. Stergiopoulos V, Gozdzik A, Cohen A, Guimond T, **Hwang SW**, Kurdyak P, Leszcz M, Wasylenki D. The Effect of Brief Case Management on Emergency Department Use of Frequent Users in Mental Health: Findings of a Randomized Controlled Trial. *PLoS ONE*. 2017 Jul;12(8):e0182157. Impact Factor 2.8. **Coauthor or Collaborator**.
169. Latimer E, Rabouin D, Cao Z, Ly A, Powell G, Aubry T, Distasio J, **Hwang SW**, Somers J, Stergiopoulos V, Veldhuizen S, Moodie E, Lesage A, Goering P, for the At Home/Chez Soi Investigators. The costs of services for homeless people with mental illness in five Canadian cities: Results from a large prospective follow-up study. *CMAJ Open*. 2017 Jul;5(3):E576-E585. **Coauthor or Collaborator**.
170. Aquin JP, Roos LE, Distasio J, Katz LY, Bourque J, Bolton JM, Bolton SL, Wong JY, Chateau D, Somers JM, Enns MW, **Hwang SW**, Frankish JC, Sareen J, for the At Home/Chez Soi Investigators. Effect of Housing First On Suicidal Behaviour: A Randomised Controlled Trial of Homeless Adults with Mental Disorders. *Canadian Journal of Psychiatry*. 2017 Jul;62(7):473-481. Impact Factor 2.9. **Coauthor or Collaborator**.
171. Kumar N, Plenert E, O'Campo P, **Hwang SW**, Stergiopoulos V. Sustaining Housing First at the end of a successful research demonstration trial: lessons learned in a large urban center. *Psychiatric Services*. 2017 Jul;68(7):739-742. Impact Factor 2.3. **Coauthor or Collaborator**.
172. Nikoo M, Gadermann A, To MJ, Krausz M, **Hwang SW**, Palepu A. Incidence and Associated Risk Factors of Traumatic Brain Injury in a Cohort of Homeless and Vulnerably Housed Adults in Three Canadian Cities. *Journal of Head Trauma Rehabilitation*. 2017 Jul;32(4):E19-E26. Impact Factor 3.3. **Coauthor or Collaborator**.
173. Smith OM, Chant C, Burns KEA, Kaur M, Ashraf S, DosSantos CC, **Hwang SW**, Friedrich JO. Characteristics, Clinical Course, and Outcomes of Homeless and Non-Homeless Patients Admitted to ICU: A Retrospective Cohort Study. *PLOS ONE*. 2017 Jun;12(6):e0179207. Impact Factor 3. **Coauthor or Collaborator**.
174. Gadermann AM, Sawatzky R, Palepu A, Hubley AM, Zumbo BD, Aubry T, Farrell S, **Hwang SW**. Minimal impact of response shift for SF-12 mental and physical health status in homeless and vulnerably housed individuals: An item-level multi-group analysis. *Quality of Life Research*. 2017 Jun;26(6):1463-1472. Impact Factor 2.4. **Coauthor or Collaborator**.
175. Persaud N, Lee T, Ahmad H, Li W, Taglione M, Rajakulasingam Y, Umali N, Boozary A, Glazier RH, Gomes T, **Hwang S**, Juni P, Law M, Mamdani M, Manns B, Martin D, Morgan S, Oh P, Pinto AD, Shah BR, Sullivan F, Thorpe KE, Tu K, Laupacis A. Protocol for a randomized controlled trial evaluating the effects of providing essential medicines at no charge: the Carefully seLected and Easily Accessible at No Charge Medicines (CLEAN Meds) trial. *BMJ Open*. 2017 Jun;7(5):e015686. Impact Factor 2.2. **Coauthor or Collaborator**.
176. O'Campo P, **Hwang SW**, Gozdzik A, Schuler A, Kaufman-Shriqui V, Poremski D, Palma Lazgare LI, Distasio J, Belbraouet S, Addorisio S. Food security among individuals experiencing homelessness and mental illness in the At Home/Chez Soi Trial. *Public Health Nutrition*. 2017 May;20(11):2023-2033. Impact Factor 2.4. **Coauthor or Collaborator**.
177. Wise Harris D, Pauly D, Kahan D, Tan de Bibiana J, **Hwang SW**, Stergiopoulos V. "Hospital was the only option": Experiences of Frequent Emergency Department Users in Mental Health. *Administration and Policy in Mental Health and Mental Health Services Research*. 2017 May;44(3):405-412. Impact Factor 2.1. **Coauthor or Collaborator**.

178. McCay E, Carter C, Aiello A, Quesnel S, Howes C, Beanlands H, Langley J, MacLaurin B, **Hwang S**, Cooper L, Lord C. Training frontline community agency staff in dialectical behaviour therapy: building capacity to meet the mental health needs of street-involved youth. *Journal of Mental Health Training, Education and Practice*. 2017 Apr;12(2):121-132. **Coauthor or Collaborator**.
179. Stergiopoulos V, Gozdzik A, Nisenbaum R, Lamanna D, **Hwang SW**, Tepper J, Wasylenki D. Integrating Hospital and Community Care for Homeless People with Unmet Mental Health Needs: Program Rationale, Study Protocol and Sample Description of a Brief Multidisciplinary Case Management Intervention. *International Journal of Mental Health and Addiction*. 2017 Apr;15:362–378. Impact Factor 1. **Coauthor or Collaborator**.
180. Topolovec-Vranic J, Schuler A, Gozdzik A, Somers J, Bourque P-E, Frankish CJ, Jbilou J, Pakzad S, Palma Lazgare LI, **Hwang SW**. The high burden of traumatic brain injury and comorbidities amongst homeless adults with mental illness. *Journal of Psychiatric Research*. 2017 Apr;87:53-60. Impact Factor 4.4. **Senior Responsible Author**.
181. To MJ, Palepu A, Matheson FI, Ecker J, Farrell S, **Hwang SW**, Werb D. The effect of incarceration on housing stability among homeless and vulnerably housed individuals in three Canadian cities: A prospective cohort study. *Canadian Journal of Public Health*. 2017 Mar;107(6):e550-e555. Impact Factor 1.2 (Trainee publication, Matthew To (medical student)). **Coauthor or Collaborator**.
182. Sumalinog ARN, Harrington K, Dosani N, **Hwang SW**. Advance care planning, palliative and end-of-life care interventions for homeless people: A systematic review. *Palliative Medicine*. 2017 Feb;31(2):109-119. Impact Factor 2.8 (Trainee publication, Rafael Sumalinog and Katy Harrington (medical students)). **Senior Responsible Author**.
183. Kouyoumdjian FG, Pivnick L, McIsaac KE, Wilton AS, Lofters A, **Hwang SW**. Cancer prevalence, incidence, and mortality in persons who experience incarceration in Ontario, Canada: A population-based retrospective cohort study. *PLOS ONE*. 2017 Feb;12(2):e0171131. Impact Factor 3 (Trainee publication, Fiona Kouyoumdjian (postdoctoral fellow)). **Senior Responsible Author**.
184. Leung AK, To MJ, Luong L, Syavash Vahabi Z, Gonçalves VL, Song J, **Hwang SW**. The Effect of Advance Directive Completion on Hospital Care Among Chronically Homeless Persons: a Prospective Cohort Study. *Journal of Urban Health*. 2017 Feb;94(1):43-53. Impact Factor 2 (Trainee publication, Alexander Leung - medical student). **Senior Responsible Author**.
185. Devotta KA, Woodhall-Melnik JR, Pedersen C, Wendaferew A, Dowbor TP, Guilcher SJ, Hamilton-Wright S, Ferentzy P, **Hwang SW**, Matheson FI. Enriching qualitative research by engaging peer interviewers: A case study. *Qualitative Research*. 2016 Dec;16(6):661–680. Impact Factor 1.9. **Coauthor or Collaborator**.
186. To MJ, Palepu A, Aubry T, Nisenbaum R, Gogosis E, Gadermann A, Cherner R, Farrell S, Misir V, **Hwang SW**. Predictors of homelessness among vulnerably housed adults in 3 Canadian cities: a prospective cohort study. *BMC Public Health*. 2016 Oct;16:1041. Impact Factor 2.2 (Trainee publication, Matthew To - medical student). **Senior Responsible Author**.
187. O'Campo P, Stergiopoulos V, Nir P, Levy M, Misir V, Chum A, Arbach B, Nisenbaum R, To MJ, **Hwang SW**. How did a Housing First Intervention Improve Health and Social Outcomes among Homeless Adults with Mental Illness in Toronto? Two Year Outcomes from a Randomized Trial. *BMJ Open*. 2016 Sep;6(9):e010581. Impact Factor 2.5. **Coauthor or Collaborator**.
188. Saab D, Nisenbaum R, Dhalla I, **Hwang SW**. Hospital Readmissions in a Community-based Sample of Homeless Adults: A Matched-cohort Study. *Journal of General Internal Medicine*. 2016 Sep;31(9):1011-1018. Impact Factor 3.5 (Trainee publication, Dima Saab - Masters student). **Senior Responsible Author**.
189. Stergiopoulos V, Gozdzik A, Tan de Bibiana J, Guimond T, **Hwang SW**, Wasylenki D, Leszcz M. Brief case management versus usual care for frequent users of emergency departments: the Coordinated Access to Care from Hospital Emergency Departments (CATCH-ED) randomized controlled trial. *BMC Health Services Research*. 2016 Aug;16:432. Impact Factor 1.6. **Coauthor or Collaborator**.
190. Jaworsky D, Gadermann A, Duhoux A, Nasmith TE, Norena M, To MJ, **Hwang SW**, Palepu A. Residential stability reduces unmet health care needs and emergency department utilization among a cohort of homeless and vulnerably housed persons in Canada. *Journal of Urban Health*. 2016 Aug;93(4):666-81. Impact Factor 2. **Coauthor or Collaborator**.

191. Guilcher SJT, Hamilton-Wright S, Skinner W, Woodhall-Melnik J, Ferentzy P, Wendaferew A, **Hwang S**, Matheson FI. "Talk with me": Perspectives on services for men with problem gambling and housing instability. *BMC Health Services Research*. 2016 Aug;16(1):340. Impact Factor 1.6. **Coauthor or Collaborator**.
192. Adair CE, Kopp B, Distasio J, **Hwang SW**, Lavoie J, Veldhuizen S, Voronka J, Kaufman AF, Somers JM, LeBlanc SR, Cote S, Addorisio S, Matte D, Goering P. Housing Quality in a Randomized Controlled Trial of Housing First for Homeless Individuals with Mental Illness: Correlates and Associations with Outcomes. *Journal of Urban Health*. 2016 Aug;93(4):682-697. Impact Factor 1.9. **Coauthor or Collaborator**.
193. Hamilton-Wright S, Woodhall-Melnik J, Guilcher SJT, Schuler A, Wendaferew A, **Hwang SW**, Matheson FI. Gambling in the landscape of adversity in youth: Reflections from men who live with poverty and homelessness. *International Journal of Environmental Research and Public Health*. 2016 Aug;13:854. Impact Factor 2. **Coauthor or Collaborator**.
194. Poremski D, **Hwang SW**. Willingness of Housing First Participants to Consider Supported-Employment Services. *Psychiatric Services*. 2016 Jun;67(6):667-670. Impact Factor 2.4 (Trainee publication, Daniel Poremski - CIHR Post-doctoral Fellow). **Senior Responsible Author**.
195. Figueiredo R, Dempster L, Quiñonez C, **Hwang SW**. Emergency department use for dental problems among homeless individuals: A population-based cohort study. *Journal of Health Care for the Poor and Underserved*. 2016 May;27(2):860-868. Impact Factor 0.9 (Trainee publication, Rafael Figueiredo - MSc student). **Senior Responsible Author**.
196. Kahan D, Leszcz M, O'Campo P, **Hwang SW**, Wasylenki D, Kurdyak P, Wise Harris D, Gozdzik A, Stergiopoulos V. Integrating Care for Frequent Users of Emergency Departments: Implementation Evaluation of a Brief Multi-organizational Intensive Case Management Intervention. *BMC Health Services Research*. 2016 Apr;16:156. Impact Factor 1.7. **Coauthor or Collaborator**.
197. Kouyoumdjian FG, Kiefer L, Wobeser W, Gonzalez A, **Hwang SW**. Mortality over 12 years of follow up in people admitted to provincial custody in Ontario: A retrospective cohort study. *CMAJ Open*. 2016 Apr;4(2):E153-E161 (Trainee publication, Fiona Kouyoumdjian - CIHR post-doctoral fellow). **Senior Responsible Author**.
198. Chum A, Skosireva A, Tobon J, **Hwang S**. Construct validity of the SF12 v.2 for the homeless population with mental illness: an instrument to measure self-reported mental and physical health. *PLOS ONE*. 2016 Mar;11(3):e0148856. Impact Factor 3.2 (Trainee publication, Antony Chum - CIHR Post-doctoral Fellow). **Senior Responsible Author**.
199. Katz AS, Zerger S, **Hwang SW**. Housing First the conversation: discourse, policy and the limits of the possible. *Critical Public Health*. 2016 Mar;27(1):139-147. Impact Factor 2.5. **Senior Responsible Author**.
200. Kouyoumdjian FG, Schuler A, Matheson FI, **Hwang SW**. The health status of prisoners in Canada: A narrative review. *Canadian Family Physician*. 2016 Mar;62(3):215-222. Impact Factor 1.4 (Trainee publication, Fiona Kouyoumdjian - CIHR post-doctoral fellow). **Senior Responsible Author**.
201. **Hwang SW**, Chambers C, Katic M. Accuracy of Self-reported Health Care Use in a Population-based Sample of Homeless Adults. *Health Services Research*. 2016 Feb;51(1):282-301. Impact Factor 2.5. **Principal Author**.
202. Zerger S, Pridham KF, Jeyaratnam J, **Hwang SW**, O'Campo P, Kohli J, Stergiopoulos V. Understanding Housing Delays and Relocations Within the Housing First Model. *Journal of Behavioral Health Services & Research*. 2016 Jan;43(1):38-53. Impact Factor 0.7. **Coauthor or Collaborator**.
203. To MJ, MacLeod A, **Hwang SW**. Homelessness in the medical curriculum: An analysis of case-based learning content from one Canadian medical school. *Teaching and Learning in Medicine*. 2016 Jan;28(1):35-40. Impact Factor 1.1 (Trainee publication, Matthew To - medical student). **Senior Responsible Author**.
204. Stergiopoulos V, Zerger S, Jeyaratnam G, Connelly J, Kruk K, O'Campo P, **Hwang S**. Dynamic Sustainability: Practitioners' Perspectives on Housing First Implementation Challenges and Model Fidelity Over Time. *Research on Social Work Practice*. 2016 Jan;26(1):61-68. Impact Factor 1.4. **Coauthor or Collaborator**.
205. Kouyoumdjian FG, Schuler A, McIsaac KE, Pivnick L, Matheson FI, Brown G, Kiefer L, Silva D, **Hwang SW**. Using a Delphi process to define priorities for prison health research in Canada. *BMJ Open*. 2016 Jan;6:e010125 (Trainee publication, Fiona Kouyoumdjian - CIHR post-doctoral fellow). **Senior Responsible Author**.

206. McCay E, Carter C, Aiello A, Quesnel S, Langley J, **Hwang S**, Beanlands H, Cooper L, Howes C, Johansson B, MacLaurin B, Hughes J, Karabanow J. Dialectical Behavior Therapy as a Catalyst for Change in Street-Involved Youth: A Mixed Method Study. *Children and Youth Services Review*. 2015 Nov;58:187-199. Impact Factor 1.1. **Coauthor or Collaborator**.
207. Gallinger Z, Fralick M, **Hwang SW**. Ethnic Differences in Drowning Rates in Ontario, Canada. *Journal of Immigrant and Minority Health*. 2015 Oct;17(5):1436-1443. Impact Factor 1.5 (Trainee publication, Mike Fralick & Zane Gallinger - medical students). **Senior Responsible Author**.
208. Nayyar D, **Hwang SW**. Cardiovascular Health Issues in Inner City Populations. *Canadian Journal of Cardiology*. 2015 Sep;31(9):1130-1138. Impact Factor 3.7 (Trainee publication, Dhruv Nayyar - medical student). **Senior Responsible Author**.
209. Woodhall-Melnik J, Misir V, Kaufman-Shriqui V, O'Campo P, Stergiopoulos V, **Hwang SW**. The Impact of a 24 Month Housing First Intervention on Participants' Body Mass Index and Waist Circumference: Results from the At Home / Chez Soi Toronto Site Randomized Controlled Trial. *PLOS ONE*. 2015 Sep;10(9):e0137069. Impact Factor 3.5 (Trainee publication, Julia Woodhall-Melnik - CIHR Post-doctoral Fellow). **Senior Responsible Author**.
210. Poremski D, Distasio J, **Hwang SW**, Latimer E. Employment and income of people who experience mental illness and homelessness in a large Canadian sample. *Canadian Journal of Psychiatry*. 2015 Sep;60(9):379-385. Impact Factor 2.4. **Coauthor or Collaborator**.
211. Figueiredo R, Singhal S, Dempster L, **Hwang SW**, Quiñonez C. The accuracy of International Classification of Diseases coding for dental problems not associated with trauma in a hospital emergency department. *Journal of Public Health Dentistry*. 2015 Sep;75(4):343-7. Impact Factor 1.6 (Trainee publication, Rafael Figueiredo - MSc student). **Coauthor or Collaborator**.
212. Stergiopoulos V, Schuler A, Nisenbaum R, deRuiter W, Guimond T, Wasylenki D, Hoch J, **Hwang SW**, Rouleau K, Dewa CS. The effectiveness of an integrated collaborative care model vs. a shifted outpatient collaborative care model on community functioning, residential stability, and health service use among homeless adults with mental illness: a quasi-experimental study. *BMC Health Services Research*. 2015 Aug;15(1):348. Impact Factor 1.7. **Coauthor or Collaborator**.
213. Young S, Dosani N, Whisler A, **Hwang S**. Influenza Vaccination Rates Among Homeless Adults with Mental Illness in Toronto. *Journal of Primary Care and Community Health*. 2015 Jul;6(3):211-214 (Trainee publication, Samantha Young - medical student). **Senior Responsible Author**.
214. Hunter CE, Palepu A, Farrell S, Gogosis E, O'Brien K, **Hwang SW**. Barriers to prescription medication adherence among homeless and vulnerably housed adults in three Canadian cities: a longitudinal observational study. *Journal of Primary Care and Community Health*. 2015 Jul;6(3):154-161 (Trainee publication, Charlotte Hunter - medical student). **Senior Responsible Author**.
215. To MJ, O'Brien K, Palepu A, Hubley AM, Farrell S, Aubry T, Gogosis E, Muckle W, **Hwang SW**. Healthcare utilization, legal incidents, and victimization following traumatic brain injury in homeless and vulnerably housed individuals: a prospective cohort study. *Journal of Head Trauma Rehabilitation*. 2015 Jul;30(4):270-276. Impact Factor 2.9 (Trainee publication, Matthew To - medical student). **Senior Responsible Author**.
216. Stergiopoulos V, Gozdzik A, Misir V, Skosireva A, Connolly J, Sarang A, Whisler A, **Hwang SW**, O'Campo P, McKenzie K. Effectiveness of Housing First with Intensive Case Management in an Ethnically Diverse Sample of Homeless Adults with Mental Illness: A Randomized Controlled Trial. *PLOS ONE*. 2015 Jul;10(7):e0130281. Impact Factor 3.2. **Coauthor or Collaborator**.
217. Choi SKY, Fielden S, Globerman J, Koornstra JJ, Hambly K, Walker G, Sobota M, O'Brien-Teengs D, Watson J, Bekele T, Greene S, Tucker R, **Hwang SW**, Rourke SB. Food insufficiency, housing and health-related quality of life: Results from the Positive Spaces, Healthy Places Study. *AIDS Care*. 2015 May;27(9):1183-1190. Impact Factor 2.2. **Coauthor or Collaborator**.
218. Noel CW, Fung H, Srivastava R, Lebovic G, **Hwang SW**, Berger A, Lichter M. Visual Impairment and Unmet Eye Care Needs Among Homeless Adults in a Canadian City. *JAMA Ophthalmology*. 2015 Apr;133(4):455-460. Impact Factor 4.5. **Coauthor or Collaborator**.

219. Kouyoumdjian FG, McIsaac KE, Liauw J, Green S, Karachiwalla F, Siu W, Burkholder K, Binswanger I, Kiefer L, Kinner SA, Korchinski M, Matheson F, Young P, **Hwang SW**. A systematic review of randomized controlled trials of interventions to improve the health of persons during imprisonment and in the year after release. *American Journal of Public Health*. 2015 Apr;105(4):e13-33. Impact Factor 4.2 (Trainee publication, Fiona Kouyoumdjian - CIHR post-doctoral fellow). **Senior Responsible Author**.
220. Kouyoumdjian FG, Schuler A, **Hwang S**, Matheson FI. Research on the health of people who experience detention or incarceration in Canada: a scoping review. *BMC Public Health*. 2015 Apr;15:419. Impact Factor 2.3 (Trainee publication, Fiona Kouyoumdjian - CIHR Post-doctoral Fellow). **Coauthor or Collaborator**.
221. Leung AK, Nayyar D, Sachdeva M, Song J, **Hwang SW**. Chronically Homeless Persons' Participation in an Advance Directive Intervention: A Cohort Study. *Palliative Medicine*. 2015 Mar;29(8):746-55. Impact Factor 2.8 (Trainee publication, Leung AK, Nayyar D & Sachdeva M - medical students). **Senior Responsible Author**.
222. Stergiopoulos V, **Hwang SW**, Gozdzik A, Nisenbaum R, Latimer E, Rabouin D, Adair CE, Bourque J, Connelly J, Frankish J, Katz LY, Mason K, Misir V, O'Brien K, Sareen J, Schütz CG, Singer A, Streiner DL, Vasiliadis H-M, Goering PN, for the At Home/Chez Soi Investigators. Effect of Scattered-Site Housing Using Rent Supplements and Intensive Case Management on Housing Stability among Homeless Adults with Mental Illness: A Randomized Trial. *JAMA*. 2015 Mar;313(9):905-915. Impact Factor 30. **Co-Principal Author**.
223. Gozdzik A, Salehi R, O'Campo P, Stergiopoulos V, **Hwang SW**. Cardiovascular Risk Factors and 30-Year Cardiovascular Risk in Homeless Adults with Mental Illness. *BMC Public Health*. 2015 Feb;15:165. Impact Factor 2.3. **Senior Responsible Author**.
224. Kirst M, Zerger S, Misir V, **Hwang SW**, Stergiopoulos V. The impact of a Housing First randomized controlled trial on substance use problems among homeless individuals with mental illness. *Drug and Alcohol Dependence*. 2015 Jan;146:24-29. Impact Factor 3.3. **Coauthor or Collaborator**.
225. **Hwang SW**, Burns T. Health Interventions for People who are Homeless. *The Lancet*. 2014 Oct;384(9953):1541-1547. Impact Factor 39.1. **Principal Author**.
226. Zerger S, Pridham KF, Jeyaratnam J, Connelly J, **Hwang S**, O'Campo P, Stergiopoulos V. The Role and Meaning of Interim Housing in Housing First Programs for People Experiencing Homelessness and Mental Illness. *American Journal of Orthopsychiatry*. 2014 Jul;84(4):431-437. Impact Factor 1.6. **Coauthor or Collaborator**.
227. Chambers LA, Greene S, Watson J, Rourke SB, Tucker R, Koornstra J, Sobota M, **Hwang S**, Hambly K, O'Brien-Teengs D, Walker G, and The Positive Spaces Healthy Places Team. Not Just "A Roof Over Your Head": The Meaning of Healthy Housing for People Living with HIV. *Housing, Theory and Society*. 2014 Jul;31(3):310-333. **Coauthor or Collaborator**.
228. Chambers C, Chiu S, Scott AN, Tolomiczenko G, Redelmeier DA, Levinson W, **Hwang SW**. Factors Associated with Poor Mental Health Status among Homeless Women with and without Dependent Children. *Community Mental Health Journal*. 2014 Jul;50(5):553-559. Impact Factor 1. **Senior Responsible Author**.
229. Adair CE, Kopp B, Lavoie J, Distasio J, **Hwang SW**, Watson A, Veldhuizen S, Chislett K, Voronka J, Ahmad M, Ahmed N, Goering P. Development and Initial Validation of the Observer-rated Housing Quality Scale (OHQS) in a Multi-Site Trial of Housing First. *Journal of Urban Health*. 2014 Apr;91(2):242-255. Impact Factor 1.8. **Coauthor or Collaborator**.
230. Topolovec-Vranic J, Ennis N, Howatt M, Ouchterlony D, Michalak A, Masanic C, Colantonio A, **Hwang SW**, Kontos P, Stergiopoulos V, Cusimano MD. Traumatic brain injury amongst three cohorts of men in an urban homeless shelter: An observational study of the rates and mechanisms of injury. *CMAJ Open*. 2014 Apr;2(2):E69-76. **Coauthor or Collaborator**.
231. McNeil R, Dilley L, Guirguis-Younger M, **Hwang SW**, Small W. Impact of supervised drug consumption services on access to and engagement with care at a palliative and supportive care facility for people living with HIV/AIDS: A qualitative study. *Journal of the International AIDS Society*. 2014 Mar;17:18855. Impact Factor 4.2. **Coauthor or Collaborator**.

232. Chant C, Wang A, Burns KEA, dos Santos CC, **Hwang SW**, Friedrich JO, Smith OM. Critical illness in homeless persons is poorly studied: a systematic review of the literature. *Intensive Care Medicine*. 2014 Jan;40(1):123-125. Impact Factor 5.4. **Coauthor or Collaborator**.
233. Hubley AM, Russell LB, Palepu A, **Hwang SW**. Subjective Quality of Life among Individuals who are Homeless: A Review of Current Knowledge. *Social Indicators Research*. 2014 Jan;115(1):509-524. Impact Factor 1.2. **Coauthor or Collaborator**.
234. Chambers C, Katic M, Chiu S, Redelmeier DA, Levinson W, Kiss A, **Hwang SW**. Predictors of Medical/surgical and Psychiatric Hospitalizations among a Population-based Cohort of Homeless Adults. *American Journal of Public Health*. 2013 Dec;103(S2):S380-S388. Impact Factor 3.9. **Senior Responsible Author**.
235. **Hwang SW**, Chambers C, Chiu S, Katic M, Kiss A, Redelmeier DA, Levinson W. A Comprehensive Assessment of Health Care Utilization among Homeless Adults under a System of Universal Health Insurance. *American Journal of Public Health*. 2013 Dec;103(S2):S294-S301. Impact Factor 3.9. **Principal Author**.
236. Chambers C, Chiu S, Katic M, Kiss A, Redelmeier DA, Levinson W, **Hwang SW**. High utilizers of emergency health services in a population-based sample of homeless adults. *American Journal of Public Health*. 2013 Dec;103(S2):S302-S310. Impact Factor 3.9. **Senior Responsible Author**.
237. Topolovec-Vranic J, Ennis N, Ouchterlony D, Cusimano MD, Colantonio A, **Hwang SW**, Kontos P, Stergiopoulos V. Clarifying the link between traumatic brain injury and homelessness: Workshop proceedings. *Brain Injury*. 2013 Dec;27(13-14):1600-1605. Impact Factor 1.5. **Coauthor or Collaborator**.
238. Fralick M, Gallinger Z, **Hwang SW**. Differences in Drowning Rates Between Rural and Non-Rural Residents of Ontario, Canada. *International Journal of Aquatic Research and Education*. 2013 Nov;7(4):332-343 (Trainee publication, Mike Fralick & Zane Gallinger - medical students). **Senior Responsible Author**.
239. Rawal S, Atia M, Nisenbaum R, Pare DE, Joordens S, **Hwang SW**. Is "Appearing Chronically Ill" a Sign of Poor Health? A Study of Diagnostic Accuracy. *PLOS ONE*. 2013 Nov;8(11):e79934. Impact Factor 3.7 (Trainee publication, Shail Rawal - General Internal Medicine PGY4). **Senior Responsible Author**.
240. Palepu A, Gadermann A, Hubley AM, Farrell S, Gogosis E, Aubry T, **Hwang SW**. Substance use and access to health care and addiction treatment among homeless and vulnerably housed persons in three Canadian cities. *PLOS ONE*. 2013 Oct;8(10):e75133. Impact Factor 3.7. **Coauthor or Collaborator**.
241. van Draanen J, Jeyaratnam J, O'Campo P, **Hwang SW**, Harriott D, Cunningham H, Koo M, Stergiopoulos V. Meaningful Inclusion of Consumers in Research and Service Delivery. *Psychiatric Rehabilitation Journal*. 2013 Sep;36(3):180-186. Impact Factor 0.7. **Coauthor or Collaborator**.
242. Fine A, Zhang X, **Hwang SW**. Attitudes towards the homeless among Emergency Department teachers and learners: A cross-sectional study of medical students and emergency physicians. *BMC Medical Education*. 2013 Aug;13:112. Impact Factor 1.4 (Trainee publication, Alison Fine & Xixin Tony Zhang - medical students). **Senior Responsible Author**.
243. Pattani R, Palda VA, **Hwang SW**, Shah PS. Probiotics for the prevention of antibiotic-associated diarrhea and *Clostridium difficile* infection among hospitalized patients: systematic review and meta-analysis. *Open Medicine*. 2013 Jun;7(2):e56-67 (Trainee publication, Reena Pattani - Internal Medicine PGY3). **Coauthor or Collaborator**.
244. Argintaru N, Chambers C, Gogosis E, Farrell S, Palepu A, Klodawsky F, **Hwang SW**. A cross-sectional observational study of unmet health needs among homeless and vulnerably housed adults in three Canadian cities. *BMC Public Health*. 2013 Jun;13(1):577. Impact Factor 2 (Trainee publication, Nirvan Argintaru - medical student). **Senior Responsible Author**.
245. McNeil R, Guirguis-Younger M, Dilley L, Turnbull J, **Hwang SW**. Learning to account for the social determinants of health affecting homeless persons. *Medical Education*. 2013 May;47(5):485-494. Impact Factor 3.2. **Coauthor or Collaborator**.

246. Aubry T, Farrell S, **Hwang SW**, Calhoun M. Identifying the Patterns of Emergency Shelter Stays of Single Individuals in Canadian Cities of Different Sizes. *Housing Studies*. 2013 Mar;28(6):910-927. Impact Factor 0.6. **Coauthor or Collaborator**.
247. Bekele T, Rourke SB, Tucker R, Greene S, Sobota M, Koornstra J, Monette L, Rueda S, Bacon J, Watson J, **Hwang SW**, Dunn J, Guenter D, the Positive Spaces, Healthy Places Team. Direct and indirect effects of perceived social support on health-related quality of life in persons living with HIV/AIDS. *AIDS Care*. 2013 Mar;25(3):337-346. Impact Factor 1.5. **Coauthor or Collaborator**.
248. Lofters A, Moineddin R, **Hwang SW**, Glazier R. Does social disadvantage affect the validity of self-report for cervical cancer screening? *International Journal of Women's Health*. 2013 Jan;5:29-33 (Trainee publication, Aisha Lofters - PhD student). **Coauthor or Collaborator**.
249. Baggett TP, **Hwang SW**, O'Connell JJ, Porneala BC, Stringfellow E, Orav EJ, Singer DE, Rigotti NA. Mortality Among Homeless Adults in Boston: Shifts in Causes of Death over a 15-Year Period. *JAMA Internal Medicine*. 2013 Jan;173(3):189-95. Impact Factor 10.6 (Trainee publication, Travis Baggett - K23 Research Career Development Award). **Coauthor or Collaborator**.
250. Figueiredo RLF, **Hwang SW**, Quinonez C. Dental health of homeless adults in Toronto, Canada. *Journal of Public Health Dentistry*. 2013 Jan;73(1):74-78. Impact Factor 1.2 (Trainee publication, Rafael Figueiredo - MSc student). **Coauthor or Collaborator**.
251. Topolovec-Vranic J, Ennis N, Colantonio A, Cusimano MD, **Hwang SW**, Kontos P, Ouchterlony D, Stergiopoulos V. Traumatic brain injury among people who are homeless: a systematic review. *BMC Public Health*. 2012 Dec;12:1059. Impact Factor 2. **Coauthor or Collaborator**.
252. Stergiopoulos V, O'Campo P, Gozdzik A, Jeyaratnam J, Corneau S, Sarang A, **Hwang SW**. Moving from rhetoric to reality: Adapting Housing First for homeless individuals with mental illness from ethno-racial groups. *BMC Health Services Research*. 2012 Oct;12:345. Impact Factor 1.7. **Coauthor or Collaborator**.
253. Rourke SB, Tucker R, Greene S, Bekele T, Sobota M, Monette L, Koornstra J, Bhuiyan S, Bacon J, Watson J, **Hwang SW**, Dunn J, Guenter D, and the Positive Spaces Healthy Places Team. Housing Characteristics and their Influence on Health-Related Quality of Life in Persons Living with HIV in Ontario, Canada: Results from the Positive Spaces, Healthy Places Study. *AIDS and Behavior*. 2012 Oct;16:2361-2373. Impact Factor 3.5. **Coauthor or Collaborator**.
254. Burra TA, **Hwang SW**, Rourke SB, Stergiopoulos V. Homeless and housed inpatients with schizophrenia: Disparities in service access upon discharge from hospital. *International Journal of Mental Health and Addiction*. 2012 Oct;10(5):778-789. **Coauthor or Collaborator**.
255. **Hwang SW**, Stergiopoulos V, O'Campo P, Gozdzik A. Ending homelessness among people with mental illness: The At Home/Chez Soi randomized trial of a Housing First intervention in Toronto. *BMC Public Health*. 2012 Sep;12:787. Impact Factor 2. **Principal Author**.
256. Tan N, **Hwang SW**. What is Your Call?: Severe edema and elevated CA 125 in a 56-year-old woman. *Canadian Medical Association Journal*. 2012 Apr;184:671-673. Impact Factor 9 (Trainee publication, Nigel Tan - Internal Medicine PGY1). **Senior Responsible Author**.
257. McNeil R, Guirguis-Younger M, Dilley LB, **Hwang SW**, Turnbull J, Aubry TD. Harm reduction services as a point-of-entry to and source of end-of-life care and support for homeless and marginally housed persons who use alcohol and/or illicit drugs: A qualitative analysis. *BMC Public Health*. 2012 Apr;12:312. Impact Factor 2.4. **Coauthor or Collaborator**.
258. Wen CK, Chambers C, Fang D, Mazowita G, **Hwang SW**. Length of stay and hospital costs among patients admitted under family physicians. *Canadian Family Physician*. 2012 Mar;58(3):290-296. Impact Factor 1.4. **Senior Responsible Author**.
259. Adair CE, Holland AC, Patterson ML, Mason KS, Goering PN, **Hwang SW**, and the At Home/Chez Soi Project Team. Cognitive Interviewing Methods for Questionnaire Pre-testing in Homeless Persons with Mental Disorders. *Journal of Urban Health*. 2012 Feb;89(1):36-52. Impact Factor 2.1. **Coauthor or Collaborator**.

260. **Hwang SW**, Aubry T, Palepu A, Farrell S, Nisenbaum R, Hubley AM, Klodawsky F, Gogosis E, Hay E, Pidlubny S, Dowbor T, Chambers C. The Health and Housing in Transition Study: a longitudinal study of the health of homeless and vulnerably housed adults in three Canadian cities. *International Journal of Public Health*. 2011 Dec;56(6):609-623. Impact Factor 2.2. **Principal Author**.
261. Holland AC, Kennedy MC, **Hwang SW**. The Assessment of Food Security in Homeless Individuals: A Comparison of the Food Security Survey Module and the Household Food Insecurity Access Scale. *Public Health Nutrition*. 2011 Dec;14(12):2254-2259. Impact Factor 2.1 (Trainee publication, Anna Holland & Matthew Kennedy - medical students). **Senior Responsible Author**.
262. **Hwang SW**, Gogosis E, Chambers C, Dunn JR, Hoch J, Aubry T. Health, Quality of Life, Residential Stability, Substance Use, and Healthcare Utilization among Adults Applying to a Supportive Housing Program. *Journal of Urban Health*. 2011 Dec;88(6):1076-1090. Impact Factor 2.1. **Principal Author**.
263. Stergiopoulos V, Burra TA, Rourke SB, **Hwang SW**. Housing status as an independent predictor of functional capacity in patients with schizophrenia. *Journal of Nervous and Mental Disease*. 2011 Nov;199(11):854-860. Impact Factor 1.8. **Coauthor or Collaborator**.
264. Goering P, Streiner DL, Adair C, Aubry T, Barker J, Distasio J, Hwang SW, Komaroff J, Latimer E, Somers J, Zabkiewicz DM. The At Home/Chez Soi trial protocol: A pragmatic, multi-site, randomized controlled trial of a Housing First intervention for homeless individuals with mental illness in five Canadian cities. *BMJ Open*. 2011 Nov;1:e000323. **Coauthor or Collaborator**.
265. Fitzpatrick-Lewis D, Ganann R, Krishnaratne S, Ciliska D, Kouyoumdjian F, **Hwang SW**. Effectiveness of interventions to improve the health and housing status of homeless people: A rapid systematic review. *BMC Public Health*. 2011 Sep;11:638. Impact Factor 2.4. **Coauthor or Collaborator**.
266. **Hwang SW**, Wilkins E, Chambers C, Estrabillo E, Berends J, MacDonald A. Chronic pain among homeless persons: characteristics, treatment, and barriers to management. *BMC Family Practice*. 2011 Jul;12:73. Impact Factor 1.5 (Trainee publication, Emma Wilkins, Eileen Estrabillo, Jon Berends & Anne MacDonald). **Principal Author**.
267. Rourke SB, Sobota M, Tucker R, Bekele T, Gibson K, Greene S, Price C, Koornstra JJ, Monette L, Byers S, Watson J, **Hwang SW**, Guenter G, Dunn J, Ahluwalia A, Wilson MG, Bacon J; the Positive Spaces, Healthy Places Team. Social determinants of health associated with hepatitis C co-infection among people living with HIV: results from the Positive Spaces, Healthy Places study. *Open Medicine*. 2011 Jun;5(3):E120-E131. **Coauthor or Collaborator**.
268. Khandor E, Mason K, Chambers C, Rossiter K, Cowan L, **Hwang SW**. Access to primary health care among homeless adults in Toronto, Canada: Results from the Street Health survey. *Open Medicine*. 2011 May;5(2):94-103. **Coauthor or Collaborator**.
269. Lofters AK, Moineddin R, **Hwang SW**, Glazier RH. Predictors of low cervical cancer screening among immigrant women in Ontario, Canada. *BMC Women's Health*. 2011 May;11:20. Impact Factor 2 (Trainee publication, Aisha Lofters - PhD student). **Coauthor or Collaborator**.
270. Monette L, Rourke SB, Gibson K, Bekele TM, Tucker R, Greene S, Sobota M, Koornstra J, Byers S, Marks E, Bacon J, Watson JR, **Hwang SW**, Ahluwalia A, Dunn JR, Guenter D, Hambly K, Bhuiyan S, and the Positive Spaces Healthy Places Team. Inequalities in Determinants of Health among Aboriginal and Caucasian Persons Living with HIV/AIDS in Ontario: Results from the Positive Spaces, Healthy Places Study. *Canadian Journal of Public Health*. 2011 May;102(3):215-219. **Coauthor or Collaborator**.
271. Khan K, Rea E, McDermaid C, Stuart R, Chambers C, Chan A, Gardam M, Jamieson F, Yang J, **Hwang SW**. Trends in Active Tuberculosis among Homeless People in Toronto, Canada, 1998-2007. *Emerging Infectious Diseases*. 2011 Mar;17(3):357-365. Impact Factor 6.9. **Co-Principal Author**.
272. **Hwang SW**, Atia M, Nisenbaum R, Pare DE, Joordens S. Is looking older than one's actual age a sign of poor health? *Journal of General Internal Medicine*. 2011 Feb;26(2):136-141. Impact Factor 2.8 (Trainee publication, Mina Atia - medical student). **Principal Author**.

273. Lofters A, **Hwang SW**, Moineddin R, Glazier RH. Cervical cancer screening among urban immigrants by region of origin: A population-based cohort study. *Preventive Medicine*. 2010 Dec;51(6):509-516. Impact Factor 3.2 (Trainee publication, Aisha Lofters - PhD student). **Coauthor or Collaborator**.
274. Whelan C, Chambers C, Chan M, Thomas S, Ramos G, **Hwang SW**. Why do homeless people use a mobile health unit in a country with universal healthcare? *Journal of Primary Care & Community Health*. 2010 Jul;1(2):78-82 (Trainee publication, Ciara Whelan, Michael Chan, Sunu Thomas & Gabrielle Ramos). **Senior Responsible Author**.
275. Lofters A, **Hwang SW**, Moineddin R, Glazier RH. Low Rates of Cervical Cancer Screening among Urban Immigrants: A Population-Based Study in Ontario, Canada. *Medical Care*. 2010 Jul;48(7):611-618. Impact Factor 3.2 (Trainee publication, Aisha Lofters - PhD student). **Coauthor or Collaborator**.
276. Greene S, Tucker R, Rourke SB, Guenter D, Koornstra J, Sobota M, Monette L, Byers S, **Hwang S**, Dunn J, Watson J, White P. "Under My Umbrella": The housing experiences of HIV positive parents who live with and care for their children in Ontario. *Archives of Women's Mental Health*. 2010 Jun;13(3):223-232. Impact Factor 2.2. **Coauthor or Collaborator**.
277. Grinman MN, Chiu S, Redelmeier DA, Levinson W, Kiss A, Tolomiczenko G, Cowan L, **Hwang SW**. Drug problems among homeless individuals in Toronto, Canada: Prevalence, drugs of choice, and relation to health status. *BMC Public Health*. 2010 Feb;10:94. Impact Factor 2 (Trainee publication, Michelle Grinman - Internal Medicine PGY3). **Senior Responsible Author**.
278. Chiu S, Redelmeier DA, Tolomiczenko G, Kiss A, Cowan L, **Hwang SW**. The health of homeless immigrants. *Journal of Epidemiology and Community Health*. 2009 Nov;63:943-948. Impact Factor 3.2. **Senior Responsible Author**.
279. **Hwang SW**, Wilkins R, Tjepkema M, O'Campo PJ, Dunn JR. Mortality among residents of shelters, rooming houses, and hotels in Canada: An 11-year follow-up study. *BMJ*. 2009 Oct;339:b4036. Impact Factor 12.8. **Co-Principal Author**.
280. **Hwang SW**, Kirst MJ, Chiu S, Tolomiczenko G, Kiss A, Cowan L, Levinson W. Multidimensional social support and the health of homeless individuals. *Journal of Urban Health*. 2009 Sep;86(5):791-803. Impact Factor 2.4. **Co-Principal Author**.
281. Monette L, Rourke SB, Tucker R, Greene S, Sobota M, Koornstra J, Byers S, Ahluwalia A, Bekele T, Bacon J, Johnston C, **Hwang S**, Dunn J, Guenter D, and the Positive Spaces Healthy Places Team. Housing Status and Health Outcomes in Aboriginal People Living with HIV/AIDS in Ontario: The Positive Spaces, Healthy Places Study. *Canadian Journal of Aboriginal Community-Based HIV/AIDS Research*. 2009 Sep;2:41-60. **Coauthor or Collaborator**.
282. Kertesz SG, **Hwang SW**, Irwin J, Ritchey FJ, Lagory ME. Rising inability to obtain needed health care among homeless persons in Birmingham, Alabama (1995-2005). *Journal of General Internal Medicine*. 2009 Jul;24(7):841-847. Impact Factor 2.7. **Coauthor or Collaborator**.
283. Travers R, Wilson M, McKay C, O'Campo P, Meagher A, **Hwang SW**, Parris UJ, Cowan L. Increasing Accessibility for Community Participants at Academic Conferences. *Progress in Community Health Partnerships*. 2008 Nov;2(3):257-264. **Coauthor or Collaborator**.
284. **Hwang SW**, Kiss A, Gundlapalli AV, Ho MM, Leung CS. Infectious Disease Exposures and Contact Tracing in Homeless Shelters. *Journal of Health Care for the Poor and Underserved*. 2008 Nov;19:1163-1167 (Trainee publication, Cheryl Leung & Minnie Ho - MSc student). **Principal Author**.
285. **Hwang SW**, Colantonio A, Chiu S, Tolomiczenko G, Kiss A, Cowan L, Redelmeier DA, Levinson W. The Effect of Traumatic Brain Injury on the Health of Homeless People. *Canadian Medical Association Journal*. 2008 Oct;179(8):779-784. Impact Factor 7.1. **Principal Author**.
286. Hoch JS, Dewa CS, **Hwang SW**, Goering P. Health care cost matters for homeless people: An example of costing mental health and addiction services in homeless shelters in Canada. *International Journal of Mental Health and Addiction*. 2008 Oct;6:476-483. **Coauthor or Collaborator**.

287. Shortt SED, **Hwang S**, Stuart H, Bedore M, Zurba N, Darling M. Delivering Primary Care to Homeless Persons: A Policy Analysis Approach to Evaluating the Options. *Healthcare Policy*. 2008 Aug;4(1):108-122. **Coauthor or Collaborator**.
288. Leung CS, Ho MM, Kiss A, Gundlapalli AV, **Hwang SW**. Homelessness and the Response to Emerging Infectious Disease Outbreaks: Lessons from SARS. *Journal of Urban Health*. 2008 May;85(3):402-410. Impact Factor 1.9 (Trainee publication, Cheryl Leung & Minnie Ho - MSc student). **Senior Responsible Author**.
289. Riley ED, Gandhi M, Hare CB, Cohen J, **Hwang SW**. Poverty, unstable housing, and HIV infection among women living in the United States. *Current HIV/AIDS Reports*. 2007 Dec;4(4):181-186. **Coauthor or Collaborator**.
290. Leaver CA, Bargh G, Dunn JR, **Hwang SW**. The Effects of Housing Status on the Health of People Living with HIV Infection: A Systematic Review of the Literature. *AIDS and Behavior*. 2007 Nov;11(S2):S85-S100. Impact Factor 2.7. **Senior Responsible Author**.
291. Bargh GJM, Hoch JS, **Hwang SW**, Speechley M, Willey BM, McGeer A. Group A Streptococcal Carriage Among Residents of an Urban Homeless Shelter. *Canadian Journal of Infectious Diseases and Medical Microbiology*. 2007 Sep;18(5):316-317 (Trainee publication, Gordon Bargh - MSc student). **Senior Responsible Author**.
292. Wen CK, Hudak P, **Hwang SW**. Homeless Persons' Perceptions of Welcomeness and Unwelcomeness in Healthcare Encounters. *Journal of General Internal Medicine*. 2007 Jul;22:1011-1017. Impact Factor 3 (Trainee publication, Chuck Wen - medical student). **Senior Responsible Author**.
293. **Hwang SW**, Cheung AM, Moineddin R, Bell CM. Population mortality during the outbreak of Severe Acute Respiratory Syndrome in Toronto. *BMC Public Health*. 2007 May;7:93. Impact Factor 1.7. **Co-Principal Author**.
294. Dunn JR, Hayes MV, Hulchanski JD, **Hwang SW**, Potvin L. Housing as a Socio-Economic Determinant of Health: Findings of a National Needs, Gaps and Opportunities Assessment. *Canadian Journal of Public Health*. 2006 Sep;97(S3):S11-S15. **Coauthor or Collaborator**.
295. **Hwang SW**, Wong SY, Bargh GJ. Dyspepsia in homeless adults. *Journal of Clinical Gastroenterology*. 2006 May;40(5):416-420. Impact Factor 2.1 (Trainee publication, Sunny Wong - medical student). **Principal Author**.
296. **Hwang SW**, Tolomiczenko G, Kouyoumdjian FG, Garner RE. Interventions to improve the health of the homeless: a systematic review. *American Journal of Preventive Medicine*. 2005 Nov;29(4):311-319. Impact Factor 3.2 (Trainee publication, Fiona Kouyoumdjian - medical student). **Principal Author**.
297. Kotsopoulos J, Medline A, Renlund R, Sohn KJ, Martin R, **Hwang SW**, Lu S, Archer MC, Kim YI. Effects of dietary folate on the development and progression of mammary tumors in rats. *Carcinogenesis*. 2005 Sep;26(9):1603-1612. Impact Factor 5.4. **Coauthor or Collaborator**.
298. Heyding RK, Cheung AM, Mocarski EJ, Moineddin R, **Hwang SW**. A community-based intervention to increase screening mammography among disadvantaged women at an inner-city drop-in center. *Women and Health*. 2005 Jul;41(1):21-31. **Senior Responsible Author**.
299. **Hwang SW**, Tram CQ, Knarr N. The effect of illustrations on patient comprehension of medication instruction labels. *BMC Family Practice*. 2005 Jun;6:26 (Trainee publication, Carolyn Tram & Nadia Knarr - medical students). **Principal Author**.
300. Lee TC, Hanlon JG, Ben-David J, Booth GL, Cantor WJ, Connelly PW, **Hwang SW**. Risk factors for cardiovascular disease in homeless adults. *Circulation*. 2005 May;111(20):2629-2635. Impact Factor 11.6 (Trainee publication, Tony Lee, John Hanlon & Jessica Ben-David). **Senior Responsible Author**.
301. **Hwang SW**, Svoboda TJ, De Jong IJ, Kabasele KJ, Gogosis E. Bed bug infestations in an urban environment. *Emerging Infectious Diseases*. 2005 Apr;11(4):533-538. Impact Factor 5.3. **Principal Author**.
302. Frankish CJ, **Hwang SW**, Quantz D. Homelessness and health in Canada: research lessons and priorities. *Canadian Journal of Public Health*. 2005 Mar;96(S2):S23-S29. **Coauthor or Collaborator**.

303. **Hwang SW**, Agha MM, Creatore MI, Glazier RH. Age- and sex-specific income gradients in alcohol-related hospitalization rates in an urban area. *Annals of Epidemiology*. 2005 Jan;15:56-63. Impact Factor 2.4. **Principal Author**.
304. Zakrisson TL, Hamel PA, **Hwang SW**. Homeless people's trust and interactions with police and paramedics. *Journal of Urban Health*. 2004 Dec;81:596-605. Impact Factor 1.3 (Trainee publication, Tanya Zakrisson - medical student). **Senior Responsible Author**.
305. Cheung AM, **Hwang SW**. Risk of death among homeless women: a cohort study and review of the literature. *Canadian Medical Association Journal*. 2004 Apr;170:1243-1247. Impact Factor 5.9. **Co-Principal Author**.
306. **Hwang SW**, Martin RE, Tolomiczenko GS, Hulchanski JD. The relationship between housing conditions and health status of rooming house residents in Toronto. *Canadian Journal of Public Health*. 2003 Nov;94:436-440. **Principal Author**.
307. Carrier J, Medline A, Sohn KJ, Choi M, Martin R, **Hwang SW**, Kim YI. Effects of dietary folate on ulcerative colitis-associated colorectal carcinogenesis in the interleukin 2- and beta(2)-microglobulin-deficient mice. *Cancer Epidemiology Biomarkers and Prevention*. 2003 Nov;12:1262-1267. Impact Factor 4.7. **Coauthor or Collaborator**.
308. Kotsopoulos J, Sohn KJ, Martin R, Choi M, Renlund R, McKerlie C, **Hwang SW**, Medline A, Kim YI. Dietary folate deficiency suppresses N-methyl-N-nitrosourea-induced mammary tumorigenesis in rats. *Carcinogenesis*. 2003 May;24:937-944. Impact Factor 4.7. **Coauthor or Collaborator**.
309. **Hwang SW**, Li J, Gupta R, Chien V, Martin RE. What happens to patients who leave hospital against medical advice? *Canadian Medical Association Journal*. 2003 Feb;168:417-420. Impact Factor 4.8. **Principal Author**.
310. Bayoumi AM, **Hwang SW**. Methodological, practical, and ethical challenges to inner-city health research. *Journal of Urban Health*. 2002 Dec;79(S1):S35-S42. Impact Factor 1.2. **Co-Principal Author**.
311. **Hwang SW**. Is homelessness hazardous to your health? Obstacles to the demonstration of a causal relationship. *Canadian Journal of Public Health*. 2002 Oct;93:407-410. **Principal Author**.
312. Bose R, **Hwang SW**. Income and spending patterns among panhandlers. *Canadian Medical Association Journal*. 2002 Sep;167:477-479. Impact Factor 3.2 (Trainee publication, Rohit Bose - medical student). **Senior Responsible Author**.
313. **Hwang SW**, O'Connell JJ, Lebow JM, Bierer MF, Orav EJ, Brennan TA. Health care utilization among homeless adults prior to death. *Journal of Health Care for the Poor and Underserved*. 2001 Feb;12:50-58. **Principal Author**.
314. **Hwang SW**. Homelessness and health. *Canadian Medical Association Journal*. 2001 Jan;164:229-233. Impact Factor 2.8. **Principal Author**.
315. **Hwang SW**, Windrim PM, Svoboda TJ, Sullivan WF. Physician payment for the care of homeless people. *Canadian Medical Association Journal*. 2000 Jul;163:170-171. Impact Factor 2.4. **Principal Author**.
316. **Hwang SW**, Bugeja AL. Barriers to appropriate diabetes management among homeless people in Toronto. *Canadian Medical Association Journal*. 2000 Jul;163:161-165. Impact Factor 2.4 (Trainee publication, Ann Bugeja - medical student). **Principal Author**.
317. **Hwang SW**. Mortality among men using homeless shelters in Toronto, Ontario. *JAMA*. 2000 Apr;283:2152-2157. Impact Factor 15.4. **Principal Author**.
318. Ragg M, **Hwang SW**, Steinhart B. Analysis of serious injuries caused by stairway falls. *Emergency Medicine*. 2000 Mar;12:45-49. **Coauthor or Collaborator**.
319. Fuller-Thomson E, Hulchanski JD, **Hwang SW**. The housing/health relationship: what do we know? *Reviews on Environmental Health*. 2000 Jan;15(1-2):109-133. **Senior Responsible Author**.
320. **Hwang SW**, Gottlieb JL. Drug access among homeless men in Toronto. *Canadian Medical Association Journal*. 1999 Apr;160:1021. Impact Factor 2.4 (Trainee publication, Jason Gottlieb). **Principal Author**.

321. **Hwang SW**, Lebow JM, Bierer MF, O'Connell JJ, Orav EJ, Brennan TA. Risk factors for death in homeless adults in Boston. *Archives of Internal Medicine*. 1998 Jul;158:1454-1460. Impact Factor 5.4. **Principal Author**.
322. **Hwang SW**, Orav EJ, O'Connell JJ, Lebow JM, Brennan TA. Causes of death in homeless adults in Boston. *Annals of Internal Medicine*. 1997 Apr;126:624-628. Impact Factor 12. **Principal Author**.

Case Reports

1. Phillips Z, Alqassas I, Famiyeh P, Silverman M, Radwi S, **Hwang SW**. Miliary Tuberculosis Presenting with Meningitis, Tuberculomas, Osteomyelitis, Psoas Abscesses and Pulmonary Involvement. 2024 May. *Annals of Internal Medicine Clinical Cases*. 3(5). <https://doi.org/10.7326/aimcc.2023.1293> (Trainee publication, Zoe Phillips (PGY2), Ibrahim Alqassas (PGY 2), Petra Famiyeh (PGY1)). **Senior Responsible Author**.
2. Jogova M, **Hwang SW**. Fluid-filled Striae in a Patient with Hypoalbuminemia. 2017 Jul. *Canadian Medical Association Journal (CMAJ)* 2017 189(28): E942. Impact Factor 6.7 (Trainee publication, Maria Jogova (PGY3)). **Senior Responsible Author**.
3. Prichard MJ, **Hwang SW**. Severe anemia from bed bugs. 2009 Sep. *Canadian Medical Association Journal (CMAJ)*. 2009;181(5):287-8. Impact Factor 7.5. **Co-Principal Author**.
4. **Hwang SW**, Yucel EK, Bernard S. Aortic root abscess with fistula formation. 1997 May. *Chest*. 1997;111:1436-38. **Principal Author**.

Books

1. National Academies of Sciences, Engineering, and Medicine. Committee members: Kizer KW (chair), Brush B, Hayashi S, **Hwang S**, Katz M, Mujahid M, O'Connell J, Samuels B, Shinn M, Wang P, Wenzel S. *Permanent Supportive Housing: Evaluating the evidence for improving health outcomes among people experiencing chronic homelessness*. Washington (United States): The National Academies Press; 2018. Available at: <http://nationalacademies.org/hmd/Reports/2018/permanent-supportive-housing.aspx>. **Coauthor or Collaborator**.

Editorials

1. Stajduhar KI, Mollison A, Gleave D, **Hwang SW**. When cancer hits the streets. *Current Oncology*. 2017 Jun;24(3):149-150. Impact Factor 1.8. **Coauthor or Collaborator**.

Commentaries

1. **Hwang SW**. Science and Ideology. *Open Medicine*. 2007;1(2):e99-101. **Principal Author**.

Letters to Editor

1. Stergiopoulos V, **Hwang SW**, Gozdzik A. Housing for Homeless Adults With Mental Illness—Reply. *JAMA*. 2015 Jun;313(24):2493-2494. **Senior Responsible Author**.

Non-Fiction

1. **Hwang SW**. After Insurance Issues are Settled. *Annals of Internal Medicine*. July 2006;145(2):150-1. Impact Factor 13.3. **Principal Author**.

3. NON-PEER-REVIEWED PUBLICATIONS

Journal Articles

1. Katz AS, Agahbanaei N, Cheff R, Harris T, **Hwang SW**, Schmidt C. Hospital care for patients who are uninsured due to immigration status during the COVID-19 pandemic in Toronto: lessons from frontline knowledge translation. *Healthcare Quarterly*. 2023 Jul;26(2):24-31. **Coauthor or Collaborator**.
2. Ecker J, Dada O, Francombe Pridham K, **Hwang SW**. Beyond Housing: Supporting the Health and Well-Being of Individuals Residing in Temporary Shelter Hotels in Toronto. *Healthcare Quarterly*. 2023 Apr;26(1):18-23. **Coauthor or Collaborator**.
3. Sayani A, Maybee A, Manthorne J, Nicholson E, Bloch G, Parsons JA, **Hwang SW**, Shaw JA, Lofters A, and members of EMPaCT. Equity-Mobilizing Partnerships in Community (EMPaCT): Co-designing patient engagement to promote health equity. *Healthcare Quarterly*. 2022 Apr;24(Special):86-92. **Coauthor or Collaborator**.
4. Cherner RA, Farrell S, **Hwang S**, Aubry T, Palepu A, Nisenbaum R, Hubley AM, Klodawsky F, Gogosis E, To MJ. A Longitudinal Study of the Health and Housing Transitions of Homeless and Vulnerably Housed Adults in Three Canadian Cities. *Psynopsis: Canada's Psychology Magazine*. 2016 Feb;38(1):17. **Coauthor or Collaborator**.
5. Lam K, **Hwang SW**, Dhalla I, Thorpe K, Palda V, Hota S, Brown A, Klein DJ. Creating the Right Evidence for Policy Makers. *Healthcare Quarterly*. 2013 Aug;16(3):22-26. **Coauthor or Collaborator**.
6. Chiu S, **Hwang SW**. Barriers to health care among homeless people with diabetes. *Diabetes Voice*. 2006 Dec;51(4):9-12. **Senior Responsible Author**.

Books Edited

1. Guirguis-Younger M, McNeil R, **Hwang SW**. Homelessness and Health in Canada. Ottawa: University of Ottawa Press; 2014. Available from: <http://www.press.uottawa.ca/homelessness-health-in-canada>. **Editor**.
2. Kirst M, Schaefer-McDaniel N, **Hwang S**, O'Campo P. Converging Disciplines: A Transdisciplinary Research Approach to Urban Health Problems. New York: Springer, 2011. ISBN 978-1-4419-6329-1. Web: <http://www.springer.com/medicine/book/978-1-4419-6329-1>. eBook: <http://dx.doi.org/10.1007/978-1-4419-6330-7>. **Editor**.
3. Hulchanski JD, Campsie P, Chau SBY, **Hwang SW**, Paradis E, editors. Finding Home: Policy Options for Addressing Homelessness in Canada. Toronto: Cities Centre, University of Toronto, 2009. Available at: www.homelesshub.ca/findinghome. **Editor**.

Book Chapters

1. Vogel M, Schütz C, **Hwang SW**. Chronic pain in people experiencing homelessness. In: Castaldelli-Maia JM, Ventriglio A, Bhugra D, editor(s). Homelessness and Mental Health. Oxford (United Kingdom): Oxford University Press; 2021. Available from: <https://global.oup.com/academic/product/homelessness-and-mental-health-9780198842668?q=9780198842668&cc=gb&lang=en>. **Coauthor or Collaborator**.
2. Adamo A, Klodawsky F, Aubry T, **Hwang S**, Gogosis E. Research Networks and Homelessness: Contributing to More Equitable and Inclusive Cities? In: Klodawsky F, Siltanen J, Andrew C, editor(s). Toward Equity and Inclusion in Canadian Cities: Lessons from Critical Praxis-Oriented Research. Montreal (Canada): McGill-Queen's University Press; 2018. p. 235-255. **Coauthor or Collaborator**.
3. **Hwang SW**, Colantonio A, Chiu S, Tolomiczenko G, Kiss A, Cowan L, Redelmeier DA, Levinson W. Traumatic Brain Injury in the Homeless Population: A Toronto Study. In: Hulchanski JD, Campsie P, Chau SBY, Hwang SW, Paradis E (eds). Finding Home: Policy Options for Addressing Homelessness in Canada. Toronto: Cities Centre, University of Toronto, 2009. Available at: www.homelesshub.ca/findinghome. **Principal Author**.

4. Hulchanski JD, Campsie P, Chau SBY, **Hwang SW**, Paradis E. Introduction. Homelessness: What's in a Word? In: Hulchanski JD, Campsie P, Chau SBY, Hwang SW, Paradis E (eds). Finding Home: Policy Options for Addressing Homelessness in Canada. Toronto: Cities Centre, University of Toronto, 2009. Available at: www.homelesshub.ca/findinghome. **Coauthor or Collaborator**.
5. **Hwang SW**. After Insurance Issues are Settled. In: Laine C, LaCombe MA, eds. On Being a Doctor 3. Philadelphia: American College of Physicians, 2007. **Principal Author**.
6. **Hwang SW**, Dunn JR. Homeless people. In: Handbook of Urban Health: Populations, methods, and practice. Galea S, Vlahov D, eds. New York: Kluwer/Plenum, 2005. **Principal Author**.
7. **Hwang SW**. Homelessness and Health in Canada. In: Finding Room: Policy Options for a Canadian Rental Housing Strategy. Hulchanski JD, Shapcott M, eds. Toronto: Centre for Urban and Community Studies Press/University of Toronto, 2004. **Principal Author**.
8. **Hwang SW**. Toronto. In: Encyclopedia of Homelessness. Levinson, D., ed. Thousand Oaks, CA: Sage Publications, 2004. **Principal Author**.
9. Dunn JR, Hayes M, Hulchanski D, **Hwang S**, Potvin L. Housing as a socio-economic determinant of health: a Canadian research framework. In: Housing & Health: Research, Policy, and Innovation. Howden-Chapman P, Carroll P, eds. Wellington, New Zealand: Steele Roberts Ltd., 2004. **Coauthor or Collaborator**.
10. **Hwang SW**, Martin RE, Bayoumi AM. Methodological, Practical, and Ethical Challenges to Inner-City Health Research. In: Evidence-Based Practice Manual: Research and Outcome Measures in Health and Human Services. Roberts AR, Yeager K, eds. New York: Oxford University Press, 2004. **Principal Author**.

Commentaries

1. Stergiopoulos V, **Hwang S**. Rethinking crisis intervention at the TTC. Toronto Star. 2023 Feb 21. Available from: <https://www.thestar.com/opinion/contributors/2023/02/21/rethinking-crisis-intervention-at-the-ttc.html>. **Co-Principal Author**.
2. Jenkinson J, **Hwang S**. The solution to homeless encampments is making them unnecessary, not illegal. The Conversation. 2021 Sep 22. <https://theconversation.com/the-solution-to-homeless-encampments-is-making-them-unnecessary-not-illegal-167166>. **Co-Principal Author**.
3. Kouyoumdjian F, **Hwang S**. Missed opportunities: jail and prison a chance to improve health. The Hill Times. 2015 Jun 9. **Co-Principal Author**.
4. **Hwang SW**. Defining the Role and Value of GIM -- The Canadian Experience. The Leadership Forum (Association of Chiefs and Leaders in General Internal Medicine). 2015 Jun;7(2):3. **Principal Author**.
5. **Hwang SW**, McKenzie K. Ontario's housing crisis is also a health crisis. Toronto Star. 2014 Jul 6. July 6, 2014. http://www.thestar.com/opinion/commentary/2014/07/06/ontarios_housing_crisis_is_also_a_health_crisis.html. **Co-Principal Author**.
6. **Hwang SW**. Dental care a gaping hole in our health care system. Healthy Debate (blog). 2013 Jun 4. June 4, 2013. <http://healthydebate.ca/opinions/dental-care-a-gaping-hole-in-our-health-care-system>. **Principal Author**.
7. **Hwang SW**. We All Deserve Dental Care. Huffington Post. 2013 May 7. May 7, 2013. http://www.huffingtonpost.ca/stephen-hwang/dental-care-homeless-ontario_b_3223855.html. **Principal Author**.
8. **Hwang SW**. Why we all -- including doctors -- discriminate. Medical Post. March 8, 2013. <http://www.canadianhealthcarenetwork.ca/physicians/discussions/opinion/why-we-all-including-doctors-discriminate-27018>. **Principal Author**.
9. **Hwang SW**. Doctors must be conscious of their biases. Ottawa Citizen. February 27, 2013. <http://www.ottawacitizen.com/opinion/op-ed/Doctors+must+conscious+their+biases/8024248/story.html>. **Principal Author**.

10. **Hwang SW.** Canada's hidden emergency: the "vulnerably housed.". The Globe and Mail. November 22, 2010. <http://www.theglobeandmail.com/news/opinions/opinion/canadas-hidden-emergency-the-vulnerably-housed/article1806777/>. **Principal Author.**
11. **Hwang SW.** Homelessness and harm reduction. Canadian Medical Association Journal. January 2006;174(1):50-1. Impact Factor 7.4. **Principal Author.**
12. **Hwang SW.** Fifteen per cent of people treated for mental health disorders are homeless. Evidence-Based Mental Health. November 2005; 8(4):118. **Principal Author.**
13. **Hwang SW.** Discharge Against Medical Advice. AHRQ WebM&M, 2005. An online publication of the U.S. Agency for Healthcare Research and Quality. Available at: <http://webmm.ahrq.gov>. **Principal Author.**
14. **Hwang SW.** Mental illness and mortality among homeless people. Acta Psychiatrica Scandinavica. February 2001;103:81-2. Impact Factor 2.1. **Principal Author.**

Letters to Editor

1. Goligher EC, Del Sorbo L, Cheung AM, Alibhai SMH, Liao L, Easson A, Halpern J, Ely EW, Sulmasy DP, **Hwang SW.** Why conscientious objection merits respect. Canadian Medical Association Journal (CMAJ). 2016 Aug;188(11):822-823. Available from: http://www.cmaj.ca/content/187/18/1339.full/reply#cmaj_el_731617. **Coauthor or Collaborator.**
2. Stergiopoulos V, **Hwang SW**, Gozdzik A. Effect of Scattered-Site Housing Using Rent Supplements and Intensive Case Management on Housing Stability among Homeless Adults with Mental Illness -- Reply. JAMA. 2015 May;313(24):2493-4. **Co-Principal Author.**
3. **Hwang SW.** Dealing with alcoholism. Canadian Medical Association Journal. August 2006; 175(5):502-3. **Principal Author.**

Clinical Care Guidelines

1. Lemsky C, Jenkins D, King B, Synovec C, Caughlin J, Gelberg L, **Hwang S**, Lepore SW, Tatlock T. Adapting your practice: Recommendations for the care of patients who are homeless or unstably housed living with the effects of traumatic brain injury. Nashville (United States): Health Care for the Homeless Council, Inc.; 2018 Oct. Available from: <https://nhchc.org/clinical-practice/adapted-clinical-guidelines/tbi/>. **Coauthor or Collaborator.**

Non-Fiction

1. **Hwang SW.** Discharge Day. Canadian Medical Association Journal. April 2006; 174(8):1138-9. Impact Factor 5.9. **Principal Author.**

Preprint

1. Wiens K, Bai L, Austin PC, Ronksley PE, **Hwang SW**, Spackman E, Booth GL, Campbell DJT. Characteristics of People with Type I or Type II Diabetes with and without a History of Homelessness: a Population-based Cohort Study. medRxiv preprint server. 2022 Aug. Available from: <https://www.medrxiv.org/content/10.1101/2022.08.11.22278127v1>. **Coauthor or Collaborator.**

Reports

1. Adamo A, Klodawsky F, Aubry T, **Hwang SW.** Ending homelessness in Canada: A study of 10-year plans in 4 Canadian cities. 2016 Oct. Toronto: Research Alliance for Canadian Homelessness, Housing, and Health (REACH3). October 2016. **Senior Responsible Author.**

2. Wismer B, Amann T, Diaz R, Eisen D, Elder N, Ho C, **Hwang S**, Johnston M, Joslyn M, Kertesz S, Kushel M, Preston C, Solotoroff R, Thompson L, Silva F, Smith S, Zevin B, Meinbresse M, Post P (Ed.). Adapting Your Practice: Recommendations for the Care of Homeless Adults with Chronic Nonmalignant Pain. Nashville, TN: Health Care for the Homeless Clinicians' Network, National Health Care for the Homeless Council, Inc., 2011. Available at: <http://www.nhchc.org/clinicalresources/ChronicPainManagement.pdf>. **Coauthor or Collaborator**.
3. Holton E, Gogosis E, **Hwang S**. Housing vulnerability and health: Canada's hidden emergency. Toronto: Research Alliance for Canadian Homelessness, Housing, and Health (REACH3), November 2010. **Senior Responsible Author**.
4. **Hwang S**, Chiu S, Wilkins E. A Survey of Domiciliary Hostel Program Tenants in Ontario. Report for the Ontario Mental Health Foundation. January 2009. **Principal Author**.
5. Khandor E, Mason K. The Street Health Report 2007. Toronto: Street Health, 2007. Full report available at: www.streethhealth.ca. "Street Health Stories" film available at: <http://www.youtube.com/watch?v=-omQ5rr3GUk>. **Acknowledged in Publication (Not Author)**.
6. **Hwang SW**, Martin RE, Tolomiczenko GS, Hulchanski JD. The Relationship Between Housing Conditions and Health Status of Rooming House Residents in Toronto. Centre for Urban and Community Studies, Research Bulletin #26. Toronto: Centre for Urban and Community Studies, 2004. **Principal Author**.
7. Goering P, Pyke J, Bullock H, Hoch J, **Hwang S**, Lindsay S, Tolomiczenko G, Wasylenko D. Health, Mental Health and Addiction Treatment Needs of People Using Emergency Shelters in Toronto. Prepared for: City of Toronto, Community and Neighbourhood Services, Shelter, Housing and Support Division, 2004. **Coauthor or Collaborator**.
8. Hierlihy D, **Hwang SW**, Whitzman C, Hamilton A. Models and Practices in Service Integration and Coordination for Women who are Homeless or At-Risk of Homelessness: An Inventory of Initiatives. Toronto: Ontario Women's Health Council, 2004. **Coauthor or Collaborator**.
9. Frankish CJ, **Hwang SW**, Quantz D. The Relations Between Homelessness & Health in Canada: Research Lessons and Priorities. Ottawa: Canadian Institutes of Health Research, 2003. **Coauthor or Collaborator**.
10. **Hwang SW**, Martin R, Tolomiczenko G, Hulchanski D. Rooming house residents: Challenging the stereotypes. Centre for Urban and Community Studies, Research Bulletin #16. Toronto: Centre for Urban and Community Studies, 2003. **Principal Author**.
11. **Hwang SW**, Fuller-Thomson E, Hulchanski JD, Bryant T, Habib Y, Regoeczi W. Housing and Population Health: A Review of the Literature. Ottawa: Canada Mortgage and Housing Corporation, 1999. **Principal Author**.
12. **Hwang SW**, Fuller-Thomson E, Hulchanski JD, Bryant T, Habib Y, Regoeczi W. The Housing/Health Relationship: Research, Policy and Program Implications. Ottawa: Canada Mortgage and Housing Corporation, 1999. **Principal Author**.

4. SUBMITTED PUBLICATIONS

Journal Articles

1. Jamal O, Mallapatna A, **Hwang SW**, Dimaras H. Influence of Social Determinants of Health on Rare Pediatric Eye Cancer. Canadian Journal of Ophthalmology. 2025 May. **Coauthor or Collaborator**.
2. Hanafy S, Estrella MJ, Colantonio A, Haag H, Matheson FI, Omar S, Odorico N, Yin J, Bayley M, **Hwang S**, Panenka W, Wiseman-Hakes C, Cullen N, Balogh R, Yadollahi A, Chan V. How should we screen for traumatic brain injury in underserved populations? Perspectives from persons with lived experience and service providers. PLOS ONE. 2025 May. **Coauthor or Collaborator**.
3. Wiens K, Tariq S, Bai L, Ronksley PE, **Hwang SW**, Austin PC, Booth GL, Spackman E, Reed T, Campbell D. The association between homelessness and kidney outcomes in adults with diabetes: A population-based retrospective cohort study. Clinical Journal of the American Society of Nephrology. 2025 Apr. **Coauthor or Collaborator**.

4. Yan H, Gallant A, Delahunty-Pike A, Langley J, Zsager A, Abaga E, Ziegler C, Karabanow J, **Hwang SW**, Pinto AD. Addressing housing as a social determinant of health: A systematic review of interventions in healthcare settings. *Social Science & Medicine*. 2025 Apr.
5. Nisenbaum R, Mejia-Lancheros C, Wang R, Lachaud J, O'Campo P, Stergiopoulos V, **Hwang SW**, Isaranuwachai W. Short- and Long-Term Cost-effectiveness Analyses of a Housing First Intervention for Adults Experiencing Homelessness and Mental Illness in Toronto, Canada, from a Public Payer Perspective: Impact on Healthcare, Justice System and Social Services, Housing and Program Costs. *BMC Public Health*. 2025 Mar. **Coauthor or Collaborator**.
6. Lachaud J, Nisenbaum R, Mejia Lancheros C, Latimer E, Aubry T, Woodhall-Melnik J, Distasio J, Hinds A, Dutton D, Somers J, Moniruzzaman A, Stergiopoulos V, O'Campo P, **Hwang SW**. Effect of a Housing and Support Intervention on Mortality among Homeless Adults with Mental Illnesses: A Pragmatic Randomized Controlled Trial. *JAMA Network Open*. 2025 Jan. **Senior Responsible Author**.
7. Luong LD, Mejia-Lancheros C, Kouyoumdjian F, Lachaud J, **Hwang SW**. Trajectories of incarceration over six years among people with mental illness and experiences of homelessness: Predictive factors among participants in a randomized trial of Housing First. *Canadian Journal of Psychiatry*. 2025 Jan. **Senior Responsible Author**.
8. Yusuf AA, Hatfield V, Francombe Pridham K, De Silva G, Adams R, Mergarten D, Snooks V, Crichlow F, **Hwang SW**. Design and implementation of a Community Expert Group comprised of people with lived expertise of homelessness at an academic health research center: A program description and analysis of challenges. *Research Involvement and Engagement*. 2024 Dec. **Senior Responsible Author**.
9. Kerman N, Gok S, Sylvestre J, Ecker J, Zhang S, **Hwang SW**, Kozloff N, Stergiopoulos V. Complexity among People Experiencing Homelessness: A Scoping Review of Definitions and Measurement Approaches. *American Journal of Community Psychology*. 2024 May. **Coauthor or Collaborator**.

F. Presentations and Special Lectures

1. INTERNATIONAL

Invited Lectures and Presentations

2023 Mar 30	Invited Speaker. Housing First: Efficacy, Limitations and Future Directions. Drug Policy Alliance. United States. Presenter(s): Hwang SW , Boden P.
2022 Sep 22	Invited Speaker. Beyond Housing. 18th Annual International Street Medicine Symposium. Toronto, Ontario, Canada. Presenter(s): Hwang SW , Ecker J.
2022 Apr 5	Invited Speaker. A Pilot Intervention Program: From Shelter Hotels to Stable Housing. Harvard T.H. Chan School of Public Health, Initiative on Health and Homelessness, Research & Practice Seminar Series. Boston, Massachusetts, United States. Presenter(s): Hwang SW .
2020 Feb 19	Distinguished Speaker. Creating Urban Health Solutions: Promises and Perils. University of Colorado, Department of Family Medicine, Levitt Distinguished Speaker Series. Denver, Colorado, United States. Presenter(s): Hwang SW .
2015 Apr 23	Invited Speaker. Pragmatic and Patient-Centered: Clinical Trials Done Differently. Society of General Internal Medicine (SGIM) 38th Annual Meeting / Patient-Centered Outcomes Research Institute (PCORI). Toronto, Ontario, Canada. Presenter(s): Chuang CH, Hwang SW , Jacobs E, Gapka S, Bild D, Kraschnewski JL.
2015 Apr 22	Invited Speaker. Defining the Role and Value of GIM -- The Canadian Experience. Association of Chiefs and Leaders of General Internal Medicine (ACLGIM) Management and Leadership Institute. Toronto, Ontario, Canada. Presenter(s): Hwang SW .

- 2014 Dec 5 **Invited Speaker.** High-Cost Medicaid Users Supportive Housing Think Tank. Supportive Housing Network of New York (SHNNY). New York City, New York, United States. Presenter(s): **Hwang SW.**
- 2014 Mar 5 **Keynote Speaker.** 2nd International Symposium on Homelessness, Social Exclusion, and Health Inequalities. Faculty for Homeless and Inclusion Health. London, United Kingdom. Presenter(s): **Hwang SW.** Epidemiology of Homelessness and Exclusion.
- 2012 Oct 24 **Invited Speaker.** Caring for Homeless Patients: Why Research Does (and Doesn't) Help. Boston University School of Medicine/Boston Medical Center - Section of General Internal Medicine Grand Rounds. Boston, Massachusetts, United States. Presenter(s): **Hwang SW.**
- 2012 Oct 24 **Invited Speaker.** The At Home Study: An RCT of Housing First for Homeless People with Mental Illness. Massachusetts General Hospital - General Internal Medicine Rounds. Boston, Massachusetts, United States. Presenter(s): **Hwang SW.**
- 2012 Oct 23 **Invited Speaker.** Research on Homelessness, Housing, and Health in Toronto, Canada. Boston Health Care for the Homeless Program (BHCHP) Grand Rounds. Boston, Massachusetts, United States. Presenter(s): **Hwang SW.**
- 2010 Jun 2 **Invited Speaker.** Examining Structural HIV Interventions: Methodological Challenges. North American Housing and HIV/AIDS Research Summit V. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2008 Feb 4 **Invited Speaker.** Traumatic Brain Injury and Homelessness. The 2nd Annual Camillus House Institute of Homeless Studies Symposium: Applying Research to End Homelessness. Miami, Florida, United States. Presenter(s): **Hwang SW.**
- 2007 Oct 18 **Invited Speaker.** Traumatic Brain Injury and Homelessness. Columbia University Mailman School of Public Health, Center for Homelessness Prevention Studies, Grand Rounds. New York City, New York, United States. Presenter(s): **Hwang SW.**
- 2007 Oct 11 **Invited Speaker.** Quality of Life in Non-mainstream Populations. 2007 Annual Meeting of the International Society for Quality of Life Research (ISOQOL). Toronto, Ontario, Canada. Presenter(s): **Hwang SW,** Hubley A, Smylie J.
- 2007 Jun 14 **Invited Speaker.** Pandemic readiness planning and homelessness. 2007 National Health Care for the Homeless Conference. Washington, District of Columbia, United States. Presenter(s): **Hwang SW.**
- 2006 Oct 21 **Co-author.** Impact of Housing Status and Perceived Quality of Housing Environment on Health Related Quality of Life in HIV/AIDS. National Housing and HIV/AIDS Research Summit II. Baltimore, Maryland, United States. Presenter(s): Tucker R, Greene S, Rourke SB, Guenter D, Monette L, Narciso L, Koornstra J, Byers S, Sobota M, Dunn J, **Hwang SW.** Oral presentation by M. Sobota and J. Koornstra.
- 2006 Mar 9 **Invited Speaker.** National and International Perspectives on Homelessness and Health. Canadian Institutes of Health Research (CIHR), Reducing Health Disparities Research and Policy Symposium. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2005 Oct 26 **Invited Speaker.** How to Understand and Conduct Research on Homelessness: A Practical Guide. 4th International Conference on Urban Health. Toronto, Ontario, Canada. Presenter(s): **Hwang SW,** Svoboda T. Pre-Conference Workshop.
- 2005 Jun 29 **Invited Speaker.** Homeless and Mentally Ill: Quality of Life. Seminar on "Psychiatric Epidemiology: Searching for Causes". 2005 Joint Meeting of the Society for Epidemiologic Research and the Canadian Society for Epidemiology and Biostatistics (SER/CSEB). Toronto, Ontario, Canada. Presenter(s): **Hwang SW.** Seminar Presentation.
- 2003 Sep 21 **Invited Speaker.** Homelessness and Health. Canadian Institutes of Health Research (CIHR), International Think Tank on Reducing Health Disparities and Promoting Equity for Vulnerable Populations. Ottawa, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2002 Oct 6 **Chair.** Closing Remarks. 1st International Conference on Inner City Health. Toronto, Ontario, Canada.

Presenter(s): **Hwang SW**, Bayoumi A.

1996 Apr **Speaker**. Mortality Rates Among Homeless Adults in Boston. Harvard School of Public Health, Clinical Epidemiology Research Rounds. Boston, Massachusetts, United States. Presenter(s): **Hwang SW**.

Presented Abstracts

- 2024 Sep **Co-author**. Identifying homelessness using health administrative data in Ontario, Canada: how coding policies impact case validity (poster presentation). 2024 International Population Data Linkage Network (IPDLN) Conference. Chicago, Illinois, United States. Presenter(s): Richard L, **Hwang SW**, et al.
- 2023 May 16 **Presenter**. A Navigator Program to Improve the Care of Homeless Patients Admitted to Hospital. 2023 National Health Care for the Homeless Conference & Policy Symposium. Baltimore, Maryland, United States. Presenter(s): **Hwang SW**, Ellerington F, Ranieri A, Jenkinson J.
- 2021 Dec **Co-author**. What can be done to improve diabetes care for the homeless? A comprehensive international scoping review of interventions. International Diabetes Federation Congress [Virtual Meeting]. Presenter(s): Campbell D, Grewal E, Tibebe T, Gonzalez P, Campbell R, **Hwang S**, McBrien K, Booth G.
- 2021 Nov **Co-author**. Placeless and Powerless: Experiences of patients who are homelessness and healthcare workers caring for them during COVID-19. 2021 North American Primary Care Research Group (NAPCRG) Annual Meeting. United States. Presenter(s): Hodwitz K, Juando-Prats C, Parsons J, Rosenthal E, Das P, Lockwood J, Snider C, **Hwang S**, Kiran T.
- 2021 Oct **Presenter**. Beyond Housing: Enhancing coordination and supports to complement case management in Housing First. Fourth International Housing First Conference. Canada. Presenter(s): **Hwang S**, Francombe Pridham K, Ecker J.
- 2021 Feb **Co-author**. Cognitive and functional trajectories in homeless adults: 6-year outcomes from the At Home/Chez Soi study. 49th Annual Meeting of the International Neuropsychological Society. United States. Presenter(s): Gicas KM., Mejia-Lancheros C, Wang R., **Hwang S**, Stergiopoulos V. Poster presentation [virtual conference].
- 2019 Nov **Co-author**. How does context shape the process of discharging people experiencing homelessness from acute care hospitals? American Public Health Association (APHA) 2019 Annual Meeting and Expo. Philadelphia, Pennsylvania, United States. Presenter(s): Jenkinson J, **Hwang SW**, Strike C, Di Ruggiero E. Oral presentation. (Trainee Presentation).
- 2019 Sep **Co-author**. Beyond a Home: Facilitating Socioeconomic Inclusion for Young People Transitioning Out of Homelessness. 14th European Research Conference on Homelessness. Helsingborg, Skåne län [SE-12], Sweden. Presenter(s): Naomi Thulien, **Stephen Hwang**, Andrea Wang. (Trainee Presentation).
- 2019 Jun **Co-author**. Mental illness, homelessness, and victimization: Results from the National At Home/Chez Soi Study and perspectives of people with lived experience (Symposium). International Association of Forensic Mental Health Services. Montreal, Quebec, Canada. Presenter(s): Nicholls TL, Eiboff F, Wang R, O'Campo P, **Hwang SW**, Frankish CJ. (Trainee Presentation).
- 2019 Jun **Co-author**. The effect of housing status on health care utilization and costs among homeless and vulnerably housed persons in Ontario. Symposium on Findings from a Longitudinal Study of the Health of Adults Who Are Homeless or Vulnerably Housed in Three Canadian Cities. Society for Community Research and Action - 2019 Biennial Conference. Chicago, Illinois, United States. Presenter(s): **Stephen Hwang**, Kathryn Wiens, Rosane Nisenbaum, Ewa Sucha, Tim Aubry, Arnaud Duhoux, Susan Farrell, Anne Gadermann, Anita Palepu. (Trainee Presentation).
- 2018 Aug **Co-author**. Perceptions of Housing Transitions Among People with Histories of Unstable Housing in Ottawa, Canada. American Psychological Association (APA) 2018 Convention. San Francisco, California, United States. Presenter(s): Konrad Czechowski, John Sylvestre, Fran Klodawsky, **Stephen Hwang**.
- 2018 Jun **Co-author**. Criminal justice-involvement, recovery and victimization among homeless mentally ill

individuals: Findings from the Canadian At Home/Chez Soi study. International Association of Forensic Mental Health Services. Antwerp, Antwerpen, Belgium. Presenter(s): Eiboff F, Nicholls TL, Wang R, Frankish CJ, **Hwang SW**. (Trainee Presentation).

- 2018 Mar **Co-author.** High prevalence and severity of intimate partner violence among women who are homeless with mental illness. American Psychology-Law Society (AP-LS) 2018 Annual Conference. Memphis, Tennessee, United States. Presenter(s): Eiboff F, Nicholls TL, Wang R, Krausz M, Frankish CJ, **Hwang SW**. (Trainee Presentation).
- 2017 Nov 6 **Co-author.** Understanding the health impacts of weather on people experiencing homelessness: Using research to inform healthy public policy. American Public Health Association (APHA) 2017 Annual Meeting and Expo. Atlanta, Georgia, United States. Presenter(s): Bassil K, Wainberg A, Coleman PC, Gower S, Keirstead H, Kim M, **Hwang S**, Gogosis E. Oral presentation.
- 2017 Sep 1 **Co-author.** A comparison of intimate partner victimization among homeless women and men with mental illness. Symposium: Criminal justice involvement and victimization among homeless individuals with mental illnesses. The Royal Australian & New Zealand College of Psychiatrists (RANZCP) Faculty of Forensic Psychiatry 2017 Conference. Vancouver, British Columbia, Canada. Presenter(s): Eiboff F, Nicholls TL, Wang R, Moniruzzaman A, **Hwang SW**, Frankish CJ, Krausz M.
- 2015 Nov 2 **Senior author..** Emergency Department Visits for Cold-related Injuries among Homeless Adults: A 5-Year Cohort Study in Toronto, Canada. 143rd Annual Meeting of the American Public Health Association (APHA). Chicago, Illinois, United States. Presenter(s): Zhang P, Gower S, Bassil K, Kiss A, Katic M, **Hwang S**. Poster presentation.
- 2015 Nov 1 **Co-author.** High prevalence of overweight and obesity among homeless individuals with mental illness in Toronto, Canada. 143rd Annual Meeting of the American Public Health Association (APHA). Chicago, Illinois, United States. Presenter(s): Kaufman-Shriqui V, Gozdzik A, Misir V, Molnar A, **Hwang SW**. Oral presentation.
- 2015 Sep 25 **Co-author.** Homeless youth transitions to independent housing in Canada: Preliminary findings. European Research Conference on Families, Housing and Homelessness. Dublin, Ireland. Presenter(s): Thulien N, Gastaldo D, **Hwang S**, McCay E. (Trainee Presentation).
- 2015 Jun 25 **Co-author.** Health and housing in transition: A qualitative study. 2015 Biennial Conference of the Society for Community Research and Action. Lowell, Massachusetts, United States. Presenter(s): Polillo A, Sylvestre J, Aubry T, Klodawsky F, **Hwang SW**. Poster presentation. (Trainee Presentation).
- 2015 Apr 25 **Presenter.** Canadian Healthcare 101: Answers to all of the questions you are embarrassed to ask. 38th Annual Meeting of the Society of General Internal Medicine (SGIM). Toronto, Ontario, Canada. Presenter(s): Cram P, Bell C, Cavalcanti R, Dhalla I, **Hwang S**. Workshop. (Trainee Presentation).
- 2013 Nov 4 **Presenter.** Housing First with Intensive Case Management: 12 Month Outcomes of the At Home/Chez Soi Randomized Trial. 141st Annual Meeting of the American Public Health Association (APHA). Boston, Massachusetts, United States. Presenter(s): **Hwang SW**. Oral presentation.
- 2013 Oct 9 **Co-author.** Critical Illness in Homeless Persons: A Systematic Review of the Literature. 26th Annual Congress of the European Society of Intensive Care Medicine (ESICM). Paris, Paris, France. Presenter(s): Chant C, Smith O, Wang A, **Hwang S**, Friedrich JO, Burns KEA, Dos Santos CC. Poster presentation.
- 2013 Jun 3 **Co-author.** Development and Initial Validation of the Observer-rated Housing Quality Scale (OHQS) in a multi-site trial of Housing First. 2013 International Homelessness Research Conference, University of Pennsylvania & VA National Center on Homelessness Among Veterans. Philadelphia, Pennsylvania, United States. Presenter(s): Adair CE, Kopp B, Lavoie J, Distasio J, **Hwang S**, Watson A, Veldhuizen S, Chislett K, Voronka J, Ahmad M, Ahmed N, Goering P. Poster presentation.
- 2013 Jun 3 **Presenter.** At Home: A Randomized Controlled Trial of Housing First and Intensive Case Management for Homeless People with Mental Illness. 2013 International Homelessness Research Conference, University of Pennsylvania & VA National Center on Homelessness Among Veterans. Philadelphia, Pennsylvania,

United States. Presenter(s): **Hwang SW**. Oral presentation.

- 2013 May 21 **Co-author**. Homelessness and Critical Care: A Systematic Review of the Literature. 2013 American Thoracic Society International Conference. Philadelphia, Pennsylvania, United States. Presenter(s): Chant C, Smith O, Wang A, **Hwang S**, Friedrich JO, Burns KEA, Dos Santos CC. Poster presentation.
- 2013 Mar 14 **Presenter**. At Home: A Randomized Controlled Trial of Housing First for Homeless People with Mental Illness. 2013 National Health Care for the Homeless Conference. Washington, District of Columbia, United States. Presenter(s): **Hwang SW**, Stergiopoulos V. Oral presentation (Workshop).
- 2012 Oct **Co-author**. Examining response shift and true change in self-reported physical and mental health status in homeless and vulnerably housed individuals. International Society for Quality of Life Research Conference. Budapest, Budapest, Hungary. Presenter(s): Gadermann AM, Sawatzky R, Palepu A, Hubley AM, Zumbo BD, Aubry T, **Hwang SW**. Oral presentation.
- 2011 Nov 3 **Co-author**. Implementing and Evaluating Dialectical Behaviour Therapy in Urban Street Youth: Addressing the Need for Mental Health Intervention. 10th International Conference on Urban Health. Belo Horizonte, Brazil. Presenter(s): McCay B, **Hwang SW**, et al. Poster presentation.
- 2011 May 10 **Senior Author**. Drowning risk of immigrants versus non-immigrants in the province of Ontario: A cross-sectional retrospective study. World Conference on Drowning Prevention 2011. Danang, Viet Nam. Presenter(s): Gallinger Z, Fralick M, Nisenbaum R, **Hwang SW**. Oral Presentation. (Trainee Presentation).
- 2010 Oct 28 **Co-author**. Housing Satisfaction is Associated with Better Physical and Mental Health-related Quality of Life among Persons Living with HIV. 9th International Conference on Urban Health. New York City, New York, United States. Presenter(s): Rourke SB, Bekele T, Tucker R, Sobota M, Monette L, Koornstra J, Byers S, **Hwang SW**, Dunn J, Guenter D, Watson J, Ahluwalia A, Bacon J, the Positive Spaces, Healthy Places Team. Oral presentation.
- 2010 Oct 28 **Presenter**. Health Care Utilization among Homeless Adults in Toronto, Canada. 9th International Conference on Urban Health. New York City, New York, United States. Presenter(s): **Hwang SW**, Chiu S, Chambers C, Tolomiczenko G, Kiss A, Cowan L, Redelmeier D, Levinson W. Oral presentation.
- 2010 Oct 28 **Principal Author**. Homeless People in the Hospital: Why Do They Cost More? 9th International Conference on Urban Health. New York City, New York, United States. Presenter(s): **Hwang SW**, Weaver J, Aubry T, Hoch J. Oral presentation. (Trainee Presentation).
- 2010 Oct 27 **Co-author**. Defining a Typology of Homelessness for Single Adults Based on Shelter Utilization Patterns in Three Canadian Cities. 9th International Conference on Urban Health. New York City, New York, United States. Presenter(s): Aubry TD, **Hwang SW**, Farrell S, Calhoun M. Oral presentation. (Trainee Presentation).
- 2010 Jul 19 **Co-author**. Upstream determinants of health and housing are major contributors to health-related quality of life in HIV infection. XVIII International AIDS Conference. Vienna, Austria. Presenter(s): Rourke S, Bekele T, Tucker R, Greene S, Monette L, Koornstra J, Sobota M, Byers S, Watson J, Bacon J, Ahluwalia A, Hambly K, **Hwang S**, Guenter D, Dunn J, Hamilton M, Truax J, Hintzen DB, White P, Kayitesi M, Desbiens M, De Blois S, Cubillos M, The Positive Spaces, Healthy Places Team. Poster presentation.
- 2009 Feb 26 **Co-author**. Epidemiology of tuberculosis among the homeless: Toronto 1998-2007. 13th International Union Against Tuberculosis and Lung Disease (IUATLD) North America Region Conference. Vancouver, British Columbia, Canada. Presenter(s): Khan K, Rea E, McDermaid C, Stuart R, Gardam M, Yang J, **Hwang S**. Poster presentation.
- 2008 Oct 31 **Presenter**. Changes in health status, quality of life, and alcohol and drug use among homeless and vulnerably housed adults applying to a supportive housing program. 7th International Conference on Urban Health. Vancouver, British Columbia, Canada. Presenter(s): **Hwang SW**. Oral presentation.
- 2008 Oct 30 **Presenter**. Access to primary care among homeless people within a system of universal health insurance. 7th International Conference on Urban Health. Vancouver, British Columbia, Canada. Presenter(s):

Hwang SW. Poster presentation.

- 2008 Oct 29 **Presenter.** Homelessness and immigration in Toronto: A comparison of the health of homeless recent immigrants, non-recent immigrants, and Canadian-born individuals. 7th International Conference on Urban Health. Vancouver, British Columbia, Canada. Presenter(s): **Hwang SW.** Oral presentation.
- 2008 Oct 29 **Presenter.** The research alliance for Canadian homelessness, housing, and health (REACH3). 7th International Conference on Urban Health. Vancouver, British Columbia, Canada. Presenter(s): **Hwang SW,** Cowan L. Oral presentation.
- 2008 Oct 28 **Presenter.** Homelessness and immigration in Toronto: A comparison of the health of homeless recent immigrants, non-recent immigrants, and Canadian-born individuals. 136th Annual Meeting of the American Public Health Association (APHA). San Diego, California, United States. Presenter(s): Chiu S, **Hwang SW.** Oral presentation.
- 2008 Aug 6 **Co-author.** Housing status/stability and key determinants of health affect health outcomes in people living with HIV/AIDS: Moving Research into Action. XVII International AIDS Conference. Mexico City, Mexico. Presenter(s): Tucker R, Greene S, Sobota M, Koornstra J, Monette L, Guenter D, Byers S, Dunn J, **Hwang S,** Bernstine N, Shubert G, Bacon J, Rourke SB. Poster presentation.
- 2007 Nov 7 **Presenter.** Traumatic brain injury among homeless persons. 135th Annual Meeting of the American Public Health Association. Washington, District of Columbia, United States. Presenter(s): **Hwang SW,** Colantonio A, Chiu S, Tolomiczenko G, Kiss A, Cowan L, Redelmeier D, Levinson W. Poster presentation.
- 2007 Nov 2 **Presenter.** Traumatic brain injury among homeless persons. 6th International Conference on Urban Health. Baltimore, Maryland, United States. Presenter(s): **Hwang SW,** Colantonio A, Chiu S, Tolomiczenko G, Kiss A, Cowan L, Redelmeier D, Levinson W. Poster presentation.
- 2007 Jul 25 **Co-author.** Significant Housing, Economic and Social Challenges for People with HIV Who are Living with and Caring for Their Children: Results from the Canadian Positive Spaces, Healthy Places Study. NIMH Annual International Research Conference on the Role of Families in Preventing and Adapting to HIV/AIDS. San Francisco, California, United States. Presenter(s): Greene S, Tucker R, Rourke SB, Guenter D, Monette L, Narciso L, Koornstra J, Byers S, Sobota M, Dunn J, **Hwang SW.**
- 2006 Aug 13 **Co-author.** Building Community-Based Research Capacity through Exploring the Impact of Housing Status on People Living with HIV/AIDS in Ontario. XVI International AIDS Conference. Toronto, Ontario, Canada. Presenter(s): Tucker R, Greene S, Rourke SB, Guenter D, Monette L, Narciso L, Koornstra J, Byers S, Sobota M, Dunn J, **Hwang SW.** Oral presentation.
- 2006 Jun 8 **Presenter.** Access to Health Care for Homeless People with Serious Health Conditions in Toronto, Canada. 2006 National Health Care for the Homeless Conference. Portland, Oregon, United States. Presenter(s): **Hwang SW,** Chiu S, Khandor E, Mason K, Cowan L, Tolomiczenko G, Kiss A, Katic M, Redelmeier D, Levinson W. Poster presentation.
- 2005 Oct 26 **Presenter.** Access to Health Care for Homeless People with Serious Health Conditions in Toronto, Canada. 4th International Conference on Urban Health. Toronto, Ontario, Canada. Presenter(s): **Hwang SW,** Chiu S, Khandor E, Mason K, Cowan L, Tolomiczenko G, Kiss A, Katic M, Redelmeier D, Levinson W. Oral presentation.
- 2004 Oct **Presenter.** Bedbugs redux: Cimex lectularius infestations in homeless shelters and other locations in Toronto. 3rd International Conference on Urban Health. Boston, Massachusetts, United States. Presenter(s): **Hwang SW,** Svoboda TJ, De Jong IJ, Kabasele KJ, Moukas E. Poster presentation.
- 2004 Oct **Presenter.** Use of meal programs and shelters by homeless people in Toronto. 3rd International Conference on Urban Health. Boston, Massachusetts, United States. Presenter(s): **Hwang SW,** Chiu S, Kiss A, Katic M, Tolomiczenko G, Levinson W, Redelmeier D, Szalai JP, Cowan L. Poster presentation.
- 2004 Oct **Co-author.** Predictors of satisfaction with primary care and improving homeless men's access to primary care: A randomized controlled trial (preliminary results). 3rd International Conference on Urban Health. Boston, Massachusetts, United States. Presenter(s): Svoboda T, Bloch G, Knowles H, **Hwang S,** Glazier

R, Kelly M, Chow K, Jones K, Tynan AM. Poster presentation.

- 2004 May 13 **Presenter.** General Internists: Shaping the Future of Homeless Health Care. 27th Annual Meeting of the Society of General Internal Medicine. Chicago, Illinois, United States. Presenter(s): Kertesz SG, Gordon A, Bharel M, Buchanan D, **Hwang S**, Jain S, Kehoe L, Kushel M, McCary J, O'Connell JJ, O'Toole TP. Pre-Course Presentation.
- 2003 Oct 15 **Presenter.** Risk factors for cardiovascular disease among homeless people in Toronto. 2nd International Conference on Urban Health. New York City, New York, United States. Presenter(s): Lee TC, Hanlon J, Ben-David J, Booth G, Cantor W, **Hwang SW**. Poster presentation.
- 2003 Sep 20 **Co-author.** Do graphic illustrations improve patients' comprehension of medication labels? Society of Teachers of Family Medicine Conference, Research Forum. Atlanta, Georgia, United States. Presenter(s): Tram C, Knarr N, **Hwang SW**. Oral presentation.
- 2002 Oct 3 **Co-author.** The Annex Harm Reduction Program: Rates of adherence and hepatotoxicity among homeless alcohol dependent men receiving directly observed prophylactic therapy (DOPT) during a tuberculosis outbreak. 1st International Conference on Inner City Health. Toronto, Ontario, Canada. Presenter(s): Svoboda T, **Hwang SW**, Chien K, Ross J. Poster presentation.
- 2002 Oct 3 **Co-author.** Do shelters for the homeless in Toronto provide appropriate menus for those with diabetes? 1st International Conference on Inner City Health. Toronto, Ontario, Canada. Presenter(s): Ross N, Chislett D, **Hwang S**, Whitham D, Hanning R, Miller K, Darling P. Poster presentation.
- 2002 Sep **Co-author.** Dietary folate deficiency suppresses mammary tumorigenesis in a chemical carcinogen rat model of breast cancer. Era of Hope 2002 Department of Defense Breast Cancer Research Program Meeting. Orlando, Florida, United States. Presenter(s): Kotsopoulos J, Sohn K-J, Martin R, Renlund R, **Hwang S**, Medline A, Kim YI. Oral presentation.
- 2002 Jun **Co-author.** Perceptions of emergency services among homeless people. 2nd International Conference of the International Society for Equity in Health. Toronto, Ontario, Canada. Presenter(s): Zakrisson TL, Hamel PA, **Hwang SW**. Poster presentation.
- 2002 Apr **Co-author.** Effects of dietary folate on the initiation and promotion phases of MNU-induced mammary tumorigenesis in rats. 2002 Annual Meeting of the American Association for Cancer Research. San Francisco, California, United States. Presenter(s): Kotsopoulos J, Sohn K-J, Martin R, Renlund R, **Hwang S**, Medline A, Kim YI. Oral presentation.
- 2001 May **Co-author.** Effects of dietary folate on colorectal carcinogenesis in a genetically-predisposed murine model of ulcerative colitis-associated colon cancer. 2001 Digestive Disease Week. Atlanta, Georgia, United States. Presenter(s): Carrier J, Medline A, Sohn KJ, **Hwang SW**, Kim YI. Poster presentation. Award for poster of distinction.
- 1999 Apr **Presenter.** Mortality Among Homeless Men in Toronto. 22nd Annual Meeting of the Society of General Internal Medicine. San Francisco, California, United States. Presenter(s): **Hwang SW**. Poster presentation.
- 1997 May **Presenter.** Risk Factors for Death in Homeless Adults in Boston. 20th Annual Meeting of the Society of General Internal Medicine. Washington, District of Columbia, United States. Presenter(s): **Hwang SW**, Lebow JM, Bierer MF, O'Connell JJ, Orav EJ, Brennan TA. Poster presentation.

Presented and Published Abstracts

- 2015 Oct 22 **Co-author.** Minimal impact of response shift for SF-12 mental and physical health status in the homeless and vulnerably housed: An item-level multi-group analysis. International Society for Quality of Life Research (ISOQOL) 22nd Annual Conference. Vancouver, British Columbia, Canada. Presenter(s): Gadermann AM, Sawatzky R, Palepu A, Hubley AM, Zumbo BD, Aubry T, **Hwang SW**. Oral presentation.

Publication Details:

Minimal impact of response shift for SF-12 mental and physical health status in the homeless and vulnerably housed: An item-level multi-group analysis. **Coauthor or Collaborator.**

- 2015 Apr 22 **Senior author.** The effect of advance directive completion on hospital care among homeless persons: A prospective cohort study. 38th Annual Meeting of the Society of General Internal Medicine (SGIM). Toronto, Ontario, Canada. Presenter(s): Leung AK, To M, Luong L, Syavash-Vahabi Z, Song J, **Hwang SW**. Poster presentation. (Trainee Presentation)

Publication Details:

The effect of advance directive completion on hospital care among homeless persons: A prospective cohort study. Journal of General Internal Medicine. April 2015;30,(2) S268.

- 2014 Jun 8 **Co-author.** Concurrent validity of the EQ-5D-3L in homeless adults with mental illness. 15th Biennial European Meeting of the Society for Medical Decision Making (SMDM). Antwerp, Antwerpen, Belgium. Presenter(s): Bayoumi AM, Pinto AD, O'Campo P, Stergiopoulos V, **Hwang S**. Oral presentation.

Publication Details:

Concurrent validity of the EQ-5D-3L in homeless adults with mental illness. Medical Decision Making. October 2014, 34(7) p.E7.

- 2014 Apr 24 An Advance Directive Intervention for Chronically Homeless People: Acceptability, Factors Associated with Completion, and Treatment Preferences. 37th Annual Meeting of the Society of General Internal Medicine (SGIM). San Diego, California, United States. Presenter(s): Leung AK, Nayyar D, Sachdeva M, Song J, **Hwang SW**. Poster presentation. (Trainee Presentation)

Publication Details:

An Advance Directive Intervention for Chronically Homeless People: Acceptability, Factors Associated with Completion, and Treatment Preferences. Journal of General Internal Medicine. April 2014;29,(1)S17.

- 2014 Apr **Senior author.** Advance directive intervention for chronically homeless people: Acceptability, factors associated with completion, and treatment preferences.

Publication Details:

Leung A, Nayyar D, Sachdeva M, Song J, **Hwang S**. Advance directive intervention for chronically homeless people: Acceptability, factors associated with completion, and treatment preferences. Journal of General Internal Medicine. 2014 Apr. April 2014;29(S1):S17-18. **Senior Responsible Author.**

- 2013 Jun Health status, health care utilization, and legal incidents following traumatic brain injury in homeless and vulnerably housed adults in three Canadian cities.

Publication Details:

To M, O'Brien K, Palepu A, Hubley AM, Farrell S, Aubry T, Gogosis E, Muckle W, **Hwang S**. Health status, health care utilization, and legal incidents following traumatic brain injury in homeless and vulnerably housed adults in three Canadian cities. Journal of General Internal Medicine. 2013 Jun. June 2013;28(S1):S85. **Senior Responsible Author.**

- 2013 Jun Unmet health needs among homeless and vulnerably housed adults in three Canadian cities.

Publication Details:

Argintaru N, Chambers C, Gogosis E, Farrell S, Palepu A, Klodawsky F, **Hwang S**. Unmet health needs among homeless and vulnerably housed adults in three Canadian cities. Journal of General Internal Medicine. 2013 Jun. June 2013;28(S1):S231-232. **Senior Responsible Author.**

- 2013 May Homelessness And Critical Care: A Systematic Review Of The Literature.

Publication Details:

Chant C, Smith O, Wang A, **Hwang S**, Friedrich JO, Burns KEA, Dos Santos CC. Homelessness And Critical Care: A Systematic Review Of The Literature. American Journal of Respiratory and Critical Care Medicine. 2013 May. 187;2013:A4419. **Coauthor or Collaborator.**

- 2011 May Mortality and Causes of Death Among Homeless Adults in Boston.
- Publication Details:*
Baggett TP, Rigotti NA, Stringfellow E, **Hwang S**, Orav EJ, O'Connell JJ. Mortality and Causes of Death Among Homeless Adults in Boston. Journal of General Internal Medicine. May 2011;26(S1):S234. **Coauthor or Collaborator.**
- 2011 May Is "appearing chronically ill" a sign of poor health?
- Publication Details:*
Hwang SW, Rawal S, Atia M, Nisenbaum R, Pare DE, Joordens S. Is "appearing chronically ill" a sign of poor health? Journal of General Internal Medicine. May 2011;26(S1):S94. **Principal Author.**
- 2009 May Differences in social and health determinants between First Nations and Non-First Nations Aboriginal people living with HIV/AIDS in Ontario: The Positive Spaces, Healthy Places Study.
- Publication Details:*
Monette L, Rourke SB, Tucker R, Greene S, Sobota M, Koornstra J, Byers S, Guenter D, **Hwang SW**, Dunn J, Ahluwalia A, Bekele T, Johnston C, Bacon J. Differences in social and health determinants between First Nations and Non-First Nations Aboriginal people living with HIV/AIDS in Ontario: The Positive Spaces, Healthy Places Study. Journal of Urban Health. May 2009;86(3):324. **Coauthor or Collaborator.**
- 2009 May Direct and indirect effect of social support on health-related quality of life among people living with HIV/AIDS in Ontario: The Positive Spaces, Healthy Places Study.
- Publication Details:*
Bekele T, Rourke SB, Tucker R, Greene S, Sobota M, Koornstra J, Monette L, Byers S, Ahluwalia A, **Hwang SW**, Dunn J, J Bacon. Direct and indirect effect of social support on health-related quality of life among people living with HIV/AIDS in Ontario: The Positive Spaces, Healthy Places Study. Journal of Urban Health. May 2009;86(3):326. **Coauthor or Collaborator.**
- 2009 May Disparities in health outcomes and social determinants of health between Aboriginal and Caucasian people living with HIV/AIDS in Ontario.
- Publication Details:*
Monette L, Rourke SB, Tucker R, Greene S, Sobota M, Koornstra J, Byers S, Guenter D, **Hwang SW**, Dunn J, Ahluwalia A, Bekele T, Johnston C, J Bacon. Disparities in health outcomes and social determinants of health between Aboriginal and Caucasian people living with HIV/AIDS in Ontario. Journal of Urban Health. May 2009;86(3):327. **Coauthor or Collaborator.**
- 2009 May Mental health and addiction issues and health service needs of people living with HIV/AIDS in Ontario: The Positive Spaces, Healthy Places Study.
- Publication Details:*
Rourke SB, Tucker R, Greene S, Sobota M, Koornstra J, Monette L, Byers S, Guenter D, **Hwang SW**, Dunn J, Ahluwalia A, Bacon J. Mental health and addiction issues and health service needs of people living with HIV/AIDS in Ontario: The Positive Spaces, Healthy Places Study. Journal of Urban Health. May 2009;86(3):446. **Coauthor or Collaborator.**
- 2009 May Homelessness and immigration in Toronto: A comparison of the health of homeless recent immigrants, non-recent immigrants, and Canadian born individuals.
- Publication Details:*
Hwang SW, Chiu A, Tolomiczenko C, Kiss A, Cowan L, Redelmeier D, Levinson W. Homelessness and immigration in Toronto: A comparison of the health of homeless recent immigrants, non-recent immigrants, and Canadian born individuals. Journal of Urban Health. May 2009;86(3):350. **Principal Author.**

- 2009 May Changes in health status, quality of life, and alcohol and drug use among homeless and vulnerably housed adults applying to a supportive housing program.
- Publication Details:*
Hwang SW, Gogosis E, Aubry T, Dunn J, Hoch J, Taylor J, Fresolone M, Kiss A. Changes in health status, quality of life, and alcohol and drug use among homeless and vulnerably housed adults applying to a supportive housing program. *Journal of Urban Health*. May 2009;86(3):365. **Principal Author**.
- 2009 May Access to primary care among homeless people within a system of universal health insurance.
- Publication Details:*
Hwang SW, Chiu S, Ueng J, Tolomiczenko C, Kiss A, Cowan L, Levinson W, Redelmeier D. Access to primary care among homeless people within a system of universal health insurance. *Journal of Urban Health*. May 2009;86(3):435. **Principal Author**.
- 2008 Apr 9 **Co-author**. Value of a longitudinal clinic experience: A survey of resident perceptions at a large Canadian internal medicine program. 31st Annual Meeting of the Society of General Internal Medicine. Pittsburgh, Pennsylvania, United States. Presenter(s): Locke KA, Tzanetos K, Imrie K, **Hwang SW**.
- Publication Details:*
 Value of a longitudinal clinic experience: A survey of resident perceptions at a large Canadian internal medicine program. *Journal of General Internal Medicine*. March 2008; 23, (S2) p. 437.
- 2008 Apr 9 **Co-author**. Priced out of the safety net? Declining access to health care among Birmingham's homeless, 1995-2005. 31st Annual Meeting of the Society of General Internal Medicine. Pittsburgh, Pennsylvania, United States. Presenter(s): Kertesz SG, **Hwang SW**, Ritchey FJ, LaGory M.
- Publication Details:*
 Priced out of the safety net? Declining access to health care among Birmingham's homeless, 1995-2005. *Journal of General Internal Medicine*. March 2008; 23, (S2) p. 379.
- 2008 Mar Value of a longitudinal clinic experience: A survey of resident perceptions at a large Canadian internal medicine program.
- Publication Details:*
 Locke KA, Tzanetos K, Imrie K, **Hwang SW**. Value of a longitudinal clinic experience: A survey of resident perceptions at a large Canadian internal medicine program. *Journal of General Internal Medicine*. March 2008;23(S2):437. **Coauthor or Collaborator**.
- 2008 Mar Priced out of the safety net? Declining access to health care among Birmingham's homeless, 1995-2005.
- Publication Details:*
 Kertesz SG, **Hwang SW**, Ritchey FJ, LaGory M. Priced out of the safety net? Declining access to health care among Birmingham's homeless, 1995-2005. *Journal of General Internal Medicine*. March 2008;23(S2):379-380. **Coauthor or Collaborator**.
- 2006 Apr 27 **Presenter**. Population Mortality during the SARS Outbreak in Toronto. 29th Annual Meeting of the Society of General Internal Medicine. Los Angeles, California, United States. Presenter(s): **Hwang SW**, Cheung AM, Bell CM, Moineddin R. Poster presentation.
- Publication Details:*
 Population Mortality during the SARS Outbreak in Toronto. *Journal of General Internal Medicine*. April 2006; 21, (S4) p. 104.
- 2006 Apr Population Mortality during the SARS Outbreak in Toronto.
- Publication Details:*
Hwang SW, Cheung AM, Moineddin R, Bell CM. Population Mortality during the SARS Outbreak in Toronto. *Journal of General Internal Medicine*. April 2006;21(Supplement 4):104. **Principal Author**.

- 2005 Dec Access to Health Care for Homeless People with Serious Health Conditions in Toronto, Canada.
- Publication Details:*
Hwang SW, Chiu S, Khandor E, Mason K, Cowan L, Tolomiczenko G, Kiss A, Katic M, Redelmeier D, Levinson W. Access to Health Care for Homeless People with Serious Health Conditions in Toronto, Canada. *Journal of Urban Health*. December 2005;82(Supplement 5):v28. **Principal Author**.
- 2005 Jun Use of meal programs and shelters by homeless people in Toronto.
- Publication Details:*
Hwang SW, Chiu S, Kiss A, Katic M, Tolomiczenko G, Levinson W, Redelmeier D, Szalai JP, Cowan L. Use of meal programs and shelters by homeless people in Toronto. *Journal of Urban Health*. June 2005;82(Supplement 2):ii46. **Principal Author**.
- 2005 Jun Bedbugs redux: Cimex lectularius infestations in homeless shelters and other locations in Toronto.
- Publication Details:*
Hwang SW, Svoboda TJ, De Jong IJ, Kabasele KJ, Moukas E. Bedbugs redux: Cimex lectularius infestations in homeless shelters and other locations in Toronto. *Journal of Urban Health*. June 2005;82(Supplement 2):ii46. **Principal Author**.
- 2005 Jun Predictors of satisfaction with primary care and improving homeless men's access to primary care: A randomized controlled trial (preliminary results).
- Publication Details:*
 Svoboda T, Bloch G, Knowles H, **Hwang S**, Glazier R, Kelly M, Chow K, Jones K, Tynan AM. Predictors of satisfaction with primary care and improving homeless men's access to primary care: A randomized controlled trial (preliminary results). *Journal of Urban Health*. June 2005;82(Supplement 2):ii47-ii48. **Coauthor or Collaborator**.
- 2003 Oct Risk factors for cardiovascular disease among homeless people in Toronto.
- Publication Details:*
 Lee TC, Hanlon J, Ben-David J, Booth G, Cantor W, **Hwang SW**. Risk factors for cardiovascular disease among homeless people in Toronto. *Journal of Urban Health*. October 2003;80(Supplement 2):ii69. **Senior Responsible Author**.
- 2003 Apr Mortality among homeless women.
- Publication Details:*
 Cheung AM, **Hwang SW**. Mortality among homeless women. *Journal of General Internal Medicine*. April 2003;18(Supplement 1):170. **Senior Responsible Author**.
- 2003 Apr Homeless people's interactions with and trust in paramedics and police in Toronto.
- Publication Details:*
Hwang SW, Zakrisson TL, Hamel PA. Homeless people's interactions with and trust in paramedics and police in Toronto. *Journal of General Internal Medicine*. April 2003;18(Supplement 1):176. **Principal Author**.
- 2002 Dec The Annex Harm Reduction Program: Rates of adherence and hepatotoxicity among homeless alcohol dependent men receiving directly observed prophylactic therapy (DOPT) during a tuberculosis outbreak.
- Publication Details:*
 Svoboda T, **Hwang S**, Chien K, Ross J. The Annex Harm Reduction Program: Rates of adherence and hepatotoxicity among homeless alcohol dependent men receiving directly observed prophylactic therapy (DOPT) during a tuberculosis outbreak. *Journal of Urban Health*. December 2002 (Supplement 1);79:S150-S151. **Coauthor or Collaborator**.

- 2002 Dec Do shelters for the homeless in Toronto provide appropriate menus for those with diabetes?
- Publication Details:*
Ross N, Chislett D, **Hwang S**, Whitham D, Hanning R, Miller K, Darling P. Do shelters for the homeless in Toronto provide appropriate menus for those with diabetes? Journal of Urban Health. December 2002 (Supplement 1);79:S147-S148. **Coauthor or Collaborator.**
- 2002 Effects of dietary folate on the initiation and promotion phases of MNU-induced mammary tumorigenesis in rats.
- Publication Details:*
Kotsopoulos J, Sohn K-J, Martin R, Renlund R, **Hwang S**, Medline A, Kim Y-I. Effects of dietary folate on the initiation and promotion phases of MNU-induced mammary tumorigenesis in rats. Proceedings of the American Association for Cancer Research 2002;. 43: Abstract #2539. **Coauthor or Collaborator.**
- 2001 Jun 1 The Impact of Leaving Hospital Against Medical Advice.
- Publication Details:*
Hwang SW, Li J. The Impact of Leaving Hospital Against Medical Advice. American Journal of Epidemiology. June 1, 2001;153(11):S221. **Principal Author.**
- 2001 Jun 1 The Relationship Between Income Level and Alcohol-Related Hospitalization Rates in an Urban Area.
- Publication Details:*
Hwang SW, Glazier RH. The Relationship Between Income Level and Alcohol-Related Hospitalization Rates in an Urban Area. American Journal of Epidemiology. June 1, 2001;153(11):S242. **Principal Author.**
- 2001 Jun **Presenter.** The Relationship Between Income Level and Alcohol-Related Hospitalization Rates in an Urban Area. 2001 Congress of Epidemiology. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**, Glazier RH. Joint Meeting of the American College of Epidemiology, the American Public Health Association Epidemiology Section, the Canadian Society for Epidemiology and Biostatistics, and the Society for Epidemiologic Research. Poster presentation.
- Publication Details:*
The Relationship Between Income Level and Alcohol-Related Hospitalization Rates in an Urban Area. American Journal of Epidemiology. 153,(11), p. S242.
- 2001 May Effects of dietary folate on colorectal carcinogenesis in a genetically-predisposed murine model of ulcerative colitis-associated colon cancer.
- Publication Details:*
Carrier J, Medline A, Sohn KJ, **Hwang SW**, Kim YI. Effects of dietary folate on colorectal carcinogenesis in a genetically-predisposed murine model of ulcerative colitis-associated colon cancer. Gastroenterology. May 2001;120(supp 1):A2279. **Coauthor or Collaborator.**
- 2001 Apr What happens to patients who leave against medical advice?
- Publication Details:*
Hwang SW, Li J. What happens to patients who leave against medical advice? Journal of General Internal Medicine. April 2001;16(S1):140. **Principal Author.**
- 2001 Reductions in welfare payments and avoidable hospital admissions in a Canadian inner city.
- Publication Details:*
Glazier RH, Badley EM, Agha MM, Creatore MI; Inner City Toronto Time Trends Working Group. Reductions in welfare payments and avoidable hospital admissions in a Canadian inner city. American Journal of Epidemiology. 2001; 153(11):S1017. **Member of Research Group.**

- 2000 Apr Income levels and alcohol-related hospital admission rates.
- Publication Details:*
Hwang SW, Glazier RH. Income levels and alcohol-related hospital admission rates. Journal of General Internal Medicine. April 2000;15(S1):73. **Principal Author.**
- 2000 Apr Risk of death during periods of homeless shelter use.
- Publication Details:*
Hwang SW. Risk of death during periods of homeless shelter use. Journal of General Internal Medicine. April 2000;15(S1):73. **Principal Author.**
- 1999 Aug Barriers to appropriate diabetes management among homeless persons in Toronto.
- Publication Details:*
 Bugeja AL, **Hwang SW**. Barriers to appropriate diabetes management among homeless persons in Toronto. Clinical and Investigative Medicine. August 1999; 22(S4):S10. **Senior Responsible Author.**
- 1999 Apr Mortality among homeless men in Toronto.
- Publication Details:*
Hwang SW. Mortality among homeless men in Toronto. Journal of General Internal Medicine. April 1999;14(S2):42. **Principal Author.**
- 1998 Aug Patients with serious injury from stairway falls.
- Publication Details:*
 Ragg M, Steinhart B, **Hwang SW**. Patients with serious injury from stairway falls. Clinical and Investigative Medicine. August 1998;21(S4):S32. **Senior Responsible Author.**
- 1997 Apr Risk factors for death in homeless adults in Boston.
- Publication Details:*
Hwang SW, Lebow JM, Bierer MF, O'Connell JJ, Orav EJ, Brennan TA. Risk factors for death in homeless adults in Boston. Journal of General Internal Medicine. April 1997;12(S1):121. **Principal Author.**
- 1996 Apr Causes of mortality in a cohort of homeless adults in Boston.
- Publication Details:*
Hwang SW, Lebow JM, O'Connell JJ, Orav EJ, Brennan TA. Causes of mortality in a cohort of homeless adults in Boston. Journal of General Internal Medicine. April 1996;11(S1):144. **Principal Author.**
- 1996 Apr Medicaid expenditures in a homeless population admitted to a recuperative care facility.
- Publication Details:*
 Lebow J, **Hwang S**, O'Connell JJ, Krause D, DeCoursey M. Medicaid expenditures in a homeless population admitted to a recuperative care facility. Journal of General Internal Medicine. April 1996;11(S1):145. **Coauthor or Collaborator.**

Media Appearances

- 2024 Aug 7 **Quoted Source.** Homelessness and hospitals. Interviewer: Stacy Butterfield. ACP Hospitalist, American College of Physicians. United States. Available from:
<https://acphospitalist.acponline.org/archives/2024/08/07/homelessness-and-hospitals.htm>.
- 2020 Feb 6 **Quoted Source.** Traumatic Brain Injury in Homeless People Is Underrecognized. Interviewer: Susan Fitzgerald. Neurology Today, American Academy of Neurology. United States.
https://journals.lww.com/neurotodayonline/Fulltext/2020/02060/Traumatic_Brain_Injury_in_Homeless_Peo

ple_ls.4.aspx.

- 2015 May 15 **Quoted Source.** Panhandling. Interviewer: Trey Kay. Us & Them Podcast, West Virginia Public Broadcasting. West Virginia, United States. <http://usandthempodcast.com/podcast/to-give-or-not-to-give/>.
- 2013 Sep 25 **Quoted Source.** The Portland Mercury. Portland, Oregon, United States. Presenter(s): Joe Streckert. The Millionaire Panhandler. <http://www.portlandmercury.com/portland/the-millionaire-panhandler/Content?oid=10627133>.
- 2010 Dec 20 **Quoted Source.** A Plan to Make Homelessness History. The New York Times. New York City, New York, United States. Presenter(s): David Bornstein. The New York Times. <http://opinionator.blogs.nytimes.com/2010/12/20/a-plan-to-make-homelessness-history/>.
- 2009 May **Personal Profile.** At Home with the Homeless. Stephen Hwang '88 has dedicated his career to serving society's most desperate and difficult. Johns Hopkins University School of Medicine. Baltimore, Maryland, United States. Presenter(s): Kurt Kleiner. Hopkins Medicine. Spring/Summer 2009.
- 2005 Nov 16 **Personal Profile.** Interventions to Improve the Health of the Homeless. A Backwards Glance: Interviews with public health and healthcare leaders coping with infectious disease challenges to the marginalized. Medical Advocates (medadvocates.org). United States.

2. NATIONAL

Invited Lectures and Presentations

- 2024 Oct 31 **Presenter.** Implementing and expanding a hospital-community Navigator Program for patients experiencing homelessness in three settings. Canadian Alliance to End Homelessness - 2024 National Conference on Ending Homelessness. Ottawa, Ontario, Canada. Presenter(s): **Hwang S**, Aleman A, MacKinnon A.
- 2024 Oct 28 **Invited Speaker.** State of Housing, Homelessness and Housing First in Canada. Mental Health Commission of Canada - Workshop on Housing First – What's Next? Ottawa, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2024 Oct 16 **Invited Speaker.** "No Fixed Address": Upholding Standards of Care for Unhoused/Underhoused Patients. Canadian Society of Internal Medicine - Annual Meeting 2024. Hamilton, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2024 May 29 **Invited Speaker.** Homelessness and Health: Background and Tips for Frontline Practice. March of Dimes Canada. Canada. Presenter(s): **Hwang SW**, Aleman A.
- 2023 Nov 9 **Presenter.** An innovative patient navigation program for people experiencing homelessness in an acute care hospital. Canadian Alliance to End Homelessness - 2023 National Conference on Ending Homelessness. Halifax, Nova Scotia, Canada. Presenter(s): Jenkinson J, Francombe Pridham K, **Hwang SW**.
- 2023 Nov 8 **Presenter.** Dying alone during the COVID-19 pandemic: Mortality among permanent supportive housing residents in Toronto. Canadian Alliance to End Homelessness - 2023 National Conference on Ending Homelessness. Halifax, Nova Scotia, Canada. Presenter(s): Merchant P, **Hwang SW**, Shahid M.
- 2023 Jun 8 **Invited Speaker.** Housing First: The Solution to Homelessness? A Journey from Concept to Research to Policy. Homelessness Policy Directorate, Infrastructure Canada, Government of Canada. Ottawa, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2022 Oct 14 **Invited Speaker.** Debate -- Be It Resolved: When Compared to Observational Research Studies, Randomized Controlled Trial Evidence is the Only Evidence That Matters. Canadian Society of Internal Medicine - Annual Meeting 2022. Victoria, British Columbia, Canada. Presenter(s): Steve Shadowitz and **Stephen Hwang**.

- 2022 Jan 25 **Presenter.** The COVENANT Study: COVID-19 Cohort Study of People Experiencing Homelessness in Toronto. CanCOVID Speaker Series. Canada. Presenter(s): **Stephen Hwang**.
- 2019 May 28 **Keynote Speaker.** Challenges in homelessness research: What data will make a difference? Data That Makes a Difference: 4th Annual Canadian Homelessness Data Sharing Initiative Conference, Calgary Homeless Foundation and University of Calgary School of Public Policy. Calgary, Alberta, Canada. Presenter(s): **Stephen Hwang**.
- 2017 May 6 **Invited Speaker.** Healthcare among the Marginalized. Christian Medical and Dental Society 2017 National Conference. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**, Etzkorn W, Rajah J, Zung P.
- 2016 Sep 24 **Invited Speaker.** "Homeless but not Hopeless:" A Panel Discussion on Homelessness. Young Presidents' Organization (YPO) 2016 Canadian Conference. Toronto, Ontario, Canada. Presenter(s): Barata P, **Hwang SW**, Stergiopoulos V, Gadon S.
- 2015 Oct 15 **Keynote Speaker.** The Beauty and Boundaries of Research. Canadian Society of Internal Medicine 2015 Annual Conference, Dr. David Sackett Senior Investigator Award Presentation. Charlottetown, Prince Edward Island, Canada. Presenter(s): **Hwang SW**.
- 2015 Oct 15 **Invited Speaker.** Five Top Papers in General Internal Medicine. Canadian Society of Internal Medicine 2015 Annual Conference. Charlottetown, Prince Edward Island, Canada. Presenter(s): **Hwang SW**.
- 2014 Oct 3 **Invited Speaker.** Seeing the Big Picture: Acting on the Social Determinants of Health. Canadian Society of Internal Medicine 2014 Annual Conference, ACP/AM Edwards Lecture. Calgary, Alberta, Canada. Presenter(s): **Hwang SW**.
- 2014 Jun 6 **Invited Speaker.** Science Panel: Livable Cities. Canadian Science Writers Association 2014 Annual Conference. Toronto, Ontario, Canada. Presenter(s): Murphy J, **Hwang SW**, Roorda M, Cowen D.
- 2014 May 15 **Invited Speaker.** Caring for Vulnerable and Marginalized Populations in Toronto. The Commonwealth Fund and the Canadian Foundation for Healthcare Improvement (CFHI). Harkness Fellowships in Health Care Policy and Practice. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2014 May 15 **Invited Speaker.** The Bridging of Research and Policy by At Home/Chez Soi (AH/CS): A multi-site trial of Housing First for persons with a mental illness who are homeless. Canadian Association of Health Services and Policy Research (CAHSPR) 2014 Conference. Toronto, Ontario, Canada. Presenter(s): **Hwang S**, Goering P, More F.
- 2013 Oct 17 **Invited Speaker.** Poverty, Homelessness, and Health: Why Housing Matters. Canadian Mental Health Association (CMHA) National Conference 2013. Addressing the Social Determinants of Mental Health and Addictions. Ottawa, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2011 Oct 6 **Invited Speaker.** Health care utilization among people who are homeless. Canadian Homelessness Research Network. Without a Home: Research symposium on contemporary issues in Canadian homelessness. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2010 Nov 15 **Invited Speaker.** The Health and Housing in Transition Study: Understanding the trajectories of homeless and vulnerably housed adults. National Housing Research Committee (NHRC) Homelessness Working Group. Ottawa, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2010 Jun 14 **Invited Speaker.** Beyond Barriers: Photographs from the Frontlines of Health (Exhibit at the Centenary Conference of the Canadian Public Health Association). AstraZeneca Canada/Frontline Health. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2009 Dec 1 **Invited Speaker.** Life expectancy of the homeless. Canadian Housing and Renewal Association. Ontario, Canada. Presenter(s): **SW Hwang**.
- 2009 Nov 29 **Invited Speaker.** What Causes Homelessness? Myths and Realities. Mental Health Commission of Canada. Into the Light: Transforming Mental Health in Canada. Vancouver, British Columbia, Canada. Presenter(s): **SW Hwang**.

- 2009 May 27 **Invited Speaker.** One Size Doesn't Fit All: Primary Care Access for Vulnerable Populations. Canadian Institutes of Health Research - Institute of Gender and Health and Institute of Health Services and Policy Research. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**, Grace SL, Travers A.
- 2009 Apr 24 **Invited Speaker.** Aging among People Experiencing Homelessness. 2009 Annual Meeting of the Canadian Geriatric Society. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**. (Continuing Education).
- 2009 Feb 18 **Invited Speaker.** Unmet needs for health care among homeless people within a universal health insurance system. Finding Home: The 2nd National Conference on Housing and Homelessness. Calgary, Alberta, Canada. Presenter(s): **Hwang SW**.
- 2009 Feb 18 **Invited Speaker.** REACH3: The Research Alliance for Canadian Homelessness, Housing, and Health. Finding Home: The 2nd National Conference on Housing and Homelessness. Calgary, Alberta, Canada. Presenter(s): **Hwang SW**. Khandor E. Klodawky F. Worthington C. MacLaurin B. Aubry T.
- 2008 Jun 2 **Invited Speaker.** Drug Use among Homeless People: Data from a Representative Sample in Toronto. Health Canada, Drug Strategy and Controlled Substances Programme, Office of Research and Surveillance. Ottawa, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2008 May 27 **Invited Speaker.** Mental Health and Homelessness Workshop. Canadian Population Health Initiative, Canadian Institute for Health Information (CIHI). Toronto, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2008 May 13 **Invited Speaker.** Research on Homelessness, Housing, and Health. Health Council of Canada. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2006 Nov 2 **Invited Speaker.** Health Care Delivery in the Shelter Setting. Human Resources and Social Development Canada (HRSDC), Housing and Homelessness Branch, Meeting of Large Multi-Service Shelters. Montreal, Quebec, Canada. Presenter(s): **Hwang SW**.
- 2006 Mar 30 **Invited Speaker.** Homelessness and Health. Street Level Conference 2006: Truth-tellers and Peacemakers. Sponsored by the Evangelical Fellowship of Canada. Ottawa, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2005 May 20 **Invited Speaker.** Risk Factors and Behaviors Among Homeless Persons: Mortality Among Homeless Women. Canadian Conference on Homelessness. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**. Plenary address.
- 2005 May 19 **Invited Speaker.** Translating Research on Homelessness into Policy and Action. Canadian Conference on Homelessness. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**. Plenary address.
- 2005 May 19 **Presenter.** Bedbugs infestations in homeless shelters and other locations in Toronto. Canadian Conference on Homelessness. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**, Svoboda TJ, De Jong IJ, Kabasele KJ, Gogosis E. Poster presentation.
- 2005 May 19 **Presenter.** Use of meal programs and shelters by homeless people in Toronto. Canadian Conference on Homelessness. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**, Chiu S, Kiss A, Katic M, Tolomiczenko G, Levinson W, Redelmeier D, Szalai JP, Cowan L. Poster presentation.
- 2004 May 5 **Invited Speaker.** Canadian Policy Briefing. Commonwealth Fund International Program in Health Care Policy (Harkness Fellowships) and the Canadian Health Services Research Foundation. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2004 Mar 22 **Invited Speaker.** Policy Forum on Health Disparities. Health Canada, Canadian Institutes for Health Research (CIHR), and the Health Disparities Task Group of the Federal/Provincial/Territorial Advisory Committee on Population Health and Health Security. Ottawa, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2003 Nov 18 **Invited Speaker.** Homelessness and Health: What is the Role of Housing? Canada Mortgage and Housing Corporation (CMHC), National Housing Research Committee (NHRC) Working Group on Homelessness. Ottawa, Ontario, Canada. Presenter(s): **Hwang SW**.

- 2003 Oct 3 **Invited Speaker.** Homelessness: Implications for Housing and Health. Canadian Housing and Renewal Association (CHRA), National Symposium on Health and Housing. Calgary, Alberta, Canada. Presenter(s): **Hwang SW.**
- 2003 Jun 18 **Invited Speaker.** Consultation Workshop on the National Research Agenda of the National Homelessness Initiative. National Secretariat on Homelessness (Human Resources Development Canada). Ottawa, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2002 Nov 4 **Invited Speaker.** Overview of Research on Homelessness and Health. Canadian Institutes of Health Research (CIHR) and the National Secretariat on Homelessness (NSH), Community-Research Think Tank on Health and Homelessness. Ottawa, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2002 Oct 18 **Invited Speaker.** Inner City Health and the Heart of General Internal Medicine. 2002 National Conference of the Canadian Society of Internal Medicine. Halifax, Nova Scotia, Canada. Presenter(s): **Hwang SW.** Keynote Address.
- 2002 Mar **Invited Speaker.** National Roundtable on Homelessness. National Secretariat on Homelessness (Human Resources Development Canada). Ottawa, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2000 Aug **Invited Speaker.** Expert Panel on Gaps in Research on Homelessness. National Secretariat on Homelessness (Human Resources Development Canada). Ottawa, Ontario, Canada. Presenter(s): **Hwang SW.**
- 1997 Mar **Invited Speaker.** The Role of the Chief Medical Resident: Leadership. 6th Annual Canadian Chief Medical Resident's Conference. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.** (Continuing Education).

Presented Abstracts

- 2024 May 15 **Senior Author.** Transitions of care from the hospital to community settings for people experiencing homelessness: Learnings from The Navigator Program in Toronto, Canada. Canadian Association for Health Services and Policy Research (CAHSPR) Annual Conference 2024. Ottawa, Ontario, Canada. Presenter(s): Dada O, Jenkinson J, Ffrancombe Pridham K, **Hwang S.**
- 2023 Nov 8 **Presenter.** Dying Alone During the COVID-19 Pandemic: Mortality among permanent supportive housing residents. Canadian Alliance to End Homelessness - National Conference on Ending Homelessness. Halifax, Nova Scotia, Canada. Presenter(s): Merchant P, **Hwang S.**
- 2023 May 30 **Senior Author.** The Navigator Program: Reflections from a multidisciplinary inpatient healthcare team providing care for patients experiencing homelessness. Canadian Association for Health Services and Policy Research (CAHSPR) Annual Conference 2023. Montreal, Quebec, Canada. Presenter(s): Cygler J, Jenkinson J, Ffrancombe Pridham K, Dada O, **Hwang S.** (Trainee Presentation).
- 2021 Jun 24 **Co-author.** : The Attitudes of Canadian Ophthalmology Residents and Pre-Clerkship Medical Students at an Ontario Medical School Towards Homeless Individuals. Canadian Ophthalmological Society (COS) 2021 Annual Conference. Canada. Presenter(s): Sayal AP, Popovic MM, Mustafa M, **Hwang SW**, Lichter M.
- 2021 May 19 **Co-author.** Diabetes self-management and homelessness: Using concept mapping to understand and prioritize challenges. Canadian Association for Health Services and Policy Research (CAHSPR) Annual Conference 2021. Canada. Presenter(s): Grewal E, Campbell R, Booth G, McBrien K, **Hwang S**, O'Campo, P, Campbell D.
- 2020 Oct 28 **Co-author.** Identifying Challenges and Solutions to Providing Diabetes Care for the Homeless. Diabetes Canada/CSEM Professional Conference. Canada. Presenter(s): Mancini N, Campbell R, Yaphe H, Tibebe T, Grewal E, Saunders-Smith T, **Hwang S**, McBrien K, Booth G, Campbell D.
- 2020 Oct 28 **Co-author.** Approaches to Enabling Care for People with Diabetes Experiencing Homelessness. Diabetes Canada/CSEM Professional Conference, Virtual Conference. Oct 28-30, 2020. Canada. Presenter(s):

Yaphe H, Campbell R, Mancini N, Grewal E, Tibebu T, Saunders-Smith T, Booth G, McBrien K, **Hwang S**, Campbell D.

- 2020 Oct 28 **Co-author.** Patient-level Barriers to Diabetes Management Among those with Housing Instability. Diabetes Canada/CSEM Professional Conference, Virtual Conference. Oct 28-30, 2020. Canada. Presenter(s): Campbell R, Saunders-Smith T, Tibebu T, Grewal E, Yaphe H, Mancini N, **Hwang S**, McBrien K, Booth G, Campbell D.
- 2020 Oct 28 **Co-author.** Diabetes Management and Homelessness: Understanding Barriers Using Concept Mapping. Diabetes Canada/CSEM Professional Conference, Virtual Conference. Oct 28-30, 2020. Canada. Presenter(s): Campbell R, Saunders-Smith T, Tibebu T, Grewal E, Yaphe H, Mancini N, **Hwang S**, McBrien K, Booth G, Campbell D.
- 2020 Oct 21 **Co-author.** Baseline characteristics and clinical outcomes of homeless adults presenting to an inner city STEMI network hospital. Canadian Cardiovascular Congress (CCC). Canada. Presenter(s): Liauw S et al. (Trainee Presentation).
- 2020 May **Co-author.** Giving a voice to the voiceless: Use of an arts-based approach to understand the challenges of managing diabetes while homeless . 2020 Canadian Association for Health Services and Policy Research (CAHSPR) Conference. Saskatoon, Saskatchewan, Canada. Presenter(s): David Campbell et al. Oral presentation. (Trainee Presentation).
- 2020 May **Co-author.** Diabetes self-management and homelessness: Using concept mapping to understand and prioritize challenges. 2020 Canadian Association for Health Services and Policy Research (CAHSPR) Conference. Saskatoon, Saskatchewan, Canada. Presenter(s): David Campbell et al. Oral presentation. (Trainee Presentation).
- 2020 May **Co-author.** Community-based Participatory Research and Knowledge Translation: Lessons from a Toronto-based client group. 2020 Canadian Association for Health Services and Policy Research (CAHSPR) Conference. Saskatoon, Saskatchewan, Canada. Presenter(s): David Campbell et al. Oral presentation. (Trainee Presentation).
- 2020 Mar **Co-author.** Outcomes of ST-Segment Elevation Myocardial Infarction in a Canadian Homeless Population. ACC Rockies Conference. Banff, Alberta, Canada. Presenter(s): Liauw S, Luong L, Atcha M, Liu S, Fam N, Cheema A, **Hwang S**. Poster presentation. (Trainee Presentation).
- 2019 Nov 4 **Presenter.** Beyond the Advisory: Lessons Learned from a Research Community Expert Group. Canadian Alliance to End Homelessness - 2019 National Conference on Ending Homelessness. Edmonton, Alberta, Canada. Presenter(s): Zewge-Abubaker N, **Hwang S**.
- 2019 May **Co-author.** Characterizing program models for diabetes management among those experiencing homelessness. 2019 Canadian Association for Health Services and Policy Research (CAHSPR) Conference. Halifax, Nova Scotia, Canada. Presenter(s): David Campbell, Kerry McBrien, **Stephen Hwang**, Gillian Booth. Oral presentation. (Trainee Presentation).
- 2019 May **Co-author.** Findings from a scoping review on self-management of problem gambling. 2019 Canadian Association for Health Services and Policy Research (CAHSPR) Conference. Halifax, Nova Scotia, Canada. Presenter(s): Flora Matheson, Sarah Hamilton-Wright, David Kryszajts, Jessica Wiese, Lauren Cadel, Carolyn Ziegler, **Stephen Hwang**, Sara Guilcher. Poster presentation. (Trainee Presentation).
- 2019 May **Co-author.** Validity of Health Administrative Data in Identifying Individuals Experiencing Homelessness. 4th Annual Canadian Homelessness Data Sharing Initiative - Data That Makes a Difference, Calgary Homeless Foundation and University of Calgary School of Public Policy. Calgary, Alberta, Canada. Presenter(s): Salimah Shariff, Lucie Richard, **Stephen Hwang**, Cheryl Forchuk, Rosane Nisenbaum, Kristin Clemens, Kathryn Wiens, Richard Booth, Mahmoud Azimae.
- 2018 Nov 6 **Co-author.** Impact of Housing First Interventions on Housing and Well-being Outcomes Among Homeless Individuals with Mental Health Issues in Toronto. Canadian Alliance to End Homelessness - 2018 National Conference on Ending Homelessness. Hamilton, Ontario, Canada. Presenter(s): Mejia-Lancheros C, Lachaud J.

- 2018 Nov 6 **Co-author.** Beyond a Demonstration Project: Evaluating and Supporting Housing First in a Real-World Context. Canadian Alliance to End Homelessness - 2018 National Conference on Ending Homelessness. Hamilton, Ontario, Canada. Presenter(s): Granat S, Dunn J.
- 2018 Nov 6 **Co-author.** The Tools of Housing First: Evaluating a Client Needs Assessment. Canadian Alliance to End Homelessness - 2018 National Conference on Ending Homelessness. Hamilton, Ontario, Canada. Presenter(s): Raine L, **Hwang SW**.
- 2018 Nov 6 **Co-author.** Capturing an Indigenous Approach to Housing First. Canadian Alliance to End Homelessness - 2018 National Conference on Ending Homelessness. Hamilton, Ontario, Canada. Presenter(s): Francombe-Pridham K, Passmore D.
- 2018 Oct 12 **Co-author.** Ted Giles Clinical Vignettes: "An Unusual Cause of Involuntary Movements". Canadian Society of Internal Medicine 2018 Annual Meeting. Banff, Alberta, Canada. Presenter(s): Prakash V, **Hwang SW**. (Trainee Presentation).
- 2016 Nov 3 **Co-author.** The Effect of the At Home/Chez Soi Housing First program on Database-Documented Health Care Utilization among Homeless Adults with Mental Illness. Canadian Alliance to End Homelessness - 2016 National Conference on Ending Homelessness. London, Ontario, Canada. Presenter(s): Gozdzik A, **Hwang SW**.
- 2016 Jun 15 **Co-author.** Extreme Cold Weather Alerts in Toronto: An Emerging Public Health Issue. Poster presentation. Public Health 2016 - Annual Conference of the Canadian Public Health Association. Toronto, Ontario, Canada. Presenter(s): Coleman P, Bassil K, Ansara D, Gower S, Kim M, Wainberg A, Zhang P, **Hwang S**, Benny R, Campbell M, Shapiro H.
- 2015 Oct 1 **Co-author.** Assessing the Effectiveness of a Brief Case Management Program for Frequent Users of Hospital Emergency Departments. Workshop. 65th Annual Conference of the Canadian Psychiatric Association. Vancouver, British Columbia, Canada. Presenter(s): Stergiopoulos V, Wasylenki D, Leszcz M, O'Campo P, Kurdyak P, Voore P, **Hwang SW**, Guimond T, Alsharafi Z, Gozdzik A.
- 2015 Sep 30 **Co-author.** Does Housing First Decrease Suicidal Behavior Among Homeless Adults with Mental Health Disorders? Oral Presentation. Canadian Academy of Psychiatric Epidemiology 2015 Annual Scientific Symposium. Vancouver, British Columbia, Canada. Presenter(s): Roos L, Distasio J, Katz L, Bourque J, Bolton JM, Bolton SL, Wong J, Chateau D, Somers J, **Hwang S**, Frankish JC, Sareen J, for the At Home Chez Soi Team.
- 2015 Jun 5 **Co-author.** Understanding the lived experiences of housing transitions for homeless and vulnerably housed individuals: A qualitative study. 76th Annual Convention of the Canadian Psychological Association. Ottawa, Ontario, Canada. Presenter(s): Polillo A, Sylvestre J, Aubry T, Klodawsky F, **Hwang SW**. Poster presentation. (Trainee Presentation).
- 2015 May 29 **Senior Author.** End-of-life & Palliative Care Interventions for Homeless People: A Systematic Review (poster presentation; winner of Best Poster Presentation Award). Canadian Society of Palliative Care Physicians, 11th Advanced Learning of Palliative Medicine Conference. Calgary, Alberta, Canada. Presenter(s): Sumalinog R, Harrington K, Dosani N, **Hwang SW**. (Trainee Presentation).
- 2014 Nov 4 **Senior Author.** Measuring progress towards ending homelessness. Canadian Alliance to End Homelessness - National Conference on Ending Homelessness. Vancouver, British Columbia, Canada. Presenter(s): Adamo A. Panel presentation.
- 2014 Sep 11 **Presenter.** Being a psychiatrist practicing evidence-based Housing First approaches with homeless people with severe mental illness. Canadian Psychiatric Association 64th Annual Conference. Toronto, Ontario, Canada. Presenter(s): Lesage A, Farmer O, Musgrave I, Stergiopoulos V, **Hwang S**.
- 2014 May **Co-author.** Hospital Readmissions among Homeless Patients in Toronto. 2014 Canadian Association for Health Services and Policy Research (CAHSPR) Conference. Toronto, Ontario, Canada. Presenter(s): Saab D, Katic M, Dhalla I, Nisenbaum R, **Hwang SW**. Poster presentation. (Trainee Presentation).
- 2014 Apr 30 **Co-author.** Hospital Readmissions among Homeless Patients in Toronto. Canadian Housing Renewal

Association (CHRA) 46th National Congress on Housing and Homelessness. Edmonton, Alberta, Canada. Presenter(s): Saab D, Katic M, Dhalla I, Nisenbaum R, **Hwang SW**. Emerging Professional Research Colloquium. (Trainee Presentation).

- 2013 Oct 30 **Senior Author**. Conducting a medical chart review in a homeless mentally ill population: Lessons from the Toronto site of the At Home Study. Canadian Alliance to End Homelessness - National Conference on Ending Homelessness. Ottawa, Ontario, Canada. Presenter(s): Dosani N, Young S, Whisler A, **Hwang S**. Oral presentation. (Trainee Presentation).
- 2013 Oct 29 **Co-author**. Identifying the Patterns of Shelter Stays of Families in Three Canadian Cities of Different Sizes. Canadian Alliance to End Homelessness - National Conference on Ending Homelessness. Ottawa, Ontario, Canada. Presenter(s): Aubry T, Farrell S, **Hwang SW**, Calhoun M. Oral presentation. (Trainee Presentation).
- 2013 Apr 12 **Co-author**. Impact of comprehensive harm reduction services on access to and engagement with care at a residential palliative and supportive care program for people living with HIV/AIDS: A qualitative study. 22nd Annual Canadian Conference on HIV/AIDS Research (CAHR 2013). Vancouver, British Columbia, Canada. Presenter(s): Dilley L, McNeil R, Guirguis-Younger M, **Hwang SW**, Small W. Oral presentation.
- 2013 Apr 12 **Co-author**. Impact of Food Insecurity and Housing on Health Outcomes among People Living with HIV from 2006-2009: Longitudinal Findings from Positive Spaces, Healthy Places Cohort Study. 22nd Annual Canadian Conference on HIV/AIDS Research (CAHR 2013). Vancouver, British Columbia, Canada. Presenter(s): Choi S, Globerman JM, Fielden S, Bekele T, Koornstra JJ, Hambly K, Greene S, Sobota M, Watson J, Walker G, O'Brien Teengs D, Tucker R, **Hwang SW**, Rourke SB, and the Positive Spaces, Healthy Places Team. Poster presentation.
- 2012 Nov 26 **Co-author**. Rates and characteristics of traumatic brain injury among homeless civilian men. 3rd Annual Military and Veteran Health Research Forum, Canadian Institute for Military and Veteran Health Research. Kingston, Ontario, Canada. Presenter(s): Topolovec-Vranic J, Ennis N, Johnson P, Michalak A, Masanic C, Ouchterlony D, Distin K, Stergiopolous V, **Hwang S**, Kontos P, Colantonio A, Cusmano M. Poster presentation.
- 2012 Oct 18 **Co-author**. Aging with HIV: Basic Needs and Health Status. 41st Annual Meeting, Canadian Association on Gerontology. Vancouver, British Columbia, Canada. Presenter(s): Sok P, Rourke SB, Tucker R, Greene S, Sobota M, Koornstra J, Byers S, **Hwang S**, Watson J, Bekele T, for the Positive Spaces, Healthy Places Team. Poster presentation. Winner of the Canadian Association on Gerontology Divisional Poster Award for Social Sciences. (Trainee Presentation).
- 2012 Jun 12 **Senior Author**. Discrimination on the Basis of Socioeconomic Status in Access to Primary Care. 4th Canadian National Medical Student Research Symposium, University of Manitoba. Winnipeg, Manitoba, Canada. Presenter(s): Olah M, Gaisano G, **Hwang SW**. (Trainee Presentation).
- 2011 Oct 15 **Presenter**. Discrimination in Access to Primary Care on the Basis of Socioeconomic Status: A Randomized Controlled Audit Study. 2011 Annual Meeting of the Canadian Society of Internal Medicine. Halifax, Nova Scotia, Canada. Presenter(s): **Hwang SW**, Gaisano G, Olah M. Oral presentation.
- 2011 Apr 14 **Co-author**. Housing affordability and sense of community belonging predict health-related quality of life among people with HIV in Ontario: Results from the Positive Spaces, Healthy Places study. 20th Annual Canadian Conference on HIV/AIDS Research (CAHR 2011). Toronto, Ontario, Canada. Presenter(s): Rourke ST, Bekele T, Tucker R, Greene S, Monette L, Koornstra J, Sobota M, Byers S, Watson J, Bacon J, Hambly K, **Hwang S**, Guenter D, Dunn J, Hamilton M, Truax J, Hintzen DB, White P, Kayitesi M, Desbiens M, De Blois S, Cubillos M, and The Positive Spaces, Healthy Places Team. Poster presentation.
- 2009 Apr 24 **Co-author**. Housing Instability Over Time is Associated with Worse Health Outcomes in People Living with HIV in Ontario: The Positive Spaces, Healthy Places Study. 18th Annual Canadian Conference on HIV/AIDS Research. Vancouver, British Columbia, Canada. Presenter(s): Koornstra J, Tucker R, Greene S, Sobota M, Monette L, Guenter D, Byers S, Dunn J, **Hwang SW**, Rourke SB. Poster presentation.
- 2009 Apr 24 **Co-author**. Examining Food Insecurity and its Associated Factors in People Living with HIV in Ontario: The Positive Spaces, Healthy Places Study. 18th Annual Canadian Conference on HIV/AIDS Research.

- Vancouver, British Columbia, Canada. Presenter(s): Koornstra J, Tucker R, Greene S, Sobota M, Monette L, Guenter D, Byers S, Dunn J, **Hwang SW**, Rourke SB. Oral presentation.
- 2009 Apr 24 **Co-author.** Determinants of health amongst people living with HIV/AIDS in Ontario with and without HCV co-infection: The Positive Spaces, Healthy Places Study. 18th Annual Canadian Conference on HIV/AIDS Research. Vancouver, British Columbia, Canada. Presenter(s): Koornstra J, Tucker R, Greene S, Sobota M, Monette L, Guenter D, Byers S, Dunn J, **Hwang SW**, Rourke SB. Poster presentation.
- 2009 Apr 24 **Co-author.** Social support has direct and indirect effects on health-related quality of life among people living with HIV/AIDS in Ontario: The Positive Spaces, Healthy Places Study. 18th Annual Canadian Conference on HIV/AIDS Research. Vancouver, British Columbia, Canada. Presenter(s): Tsegaye, Koornstra J, Tucker R, Greene S, Sobota M, Monette L, Guenter D, Byers S, Dunn J, **Hwang SW**, Rourke SB. Poster presentation.
- 2009 Feb 18 **Principal Author.** Chronic pain among homeless people. Finding Home: The 2nd National Conference on Housing and Homelessness. Calgary, Alberta, Canada. Presenter(s): Wilkins E. **Hwang SW**. (Trainee Presentation).
- 2008 Jun 7 **Co-Author.** Impact of a Homeless Curriculum on the Attitudes of Medical Trainees Towards Homeless Persons who Present for Care in the Emergency Department. 2008 Annual Meeting of the Canadian Association of Emergency Physicians (CAEP). Ottawa, Ontario, Canada. Presenter(s): Spence JM, Bandiera G, Taback N, Balu-Kakkar P, **Hwang S**.
- 2008 Apr 26 **Co-author.** Positive Spaces, Healthy Places: Health Outcomes at 6 Months. 17th Annual Canadian Conference on HIV/AIDS Research. Montreal, Quebec, Canada. Presenter(s): Tucker R, Greene S, Sobota M, Koornstra J, Monette L, Guenter D, Byers S, Dunn J, **Hwang SW**, Rourke SB. Oral presentation.
- 2008 Apr 26 **Co-author.** Positive Spaces, Healthy Places: Regional Analyses to Put Research into Action. 17th Annual Canadian Conference on HIV/AIDS Research. Montreal, Quebec, Canada. Presenter(s): Koornstra J, Tucker R, Greene S, Sobota M, Monette L, Guenter D, Byers S, Dunn J, **Hwang SW**, Rourke SB. Oral presentation.
- 2007 Apr 26 **Co-author.** Increasing Participation of Community Members at Research Conferences: Evidence from the International Conference on Urban Health, 2005 and the OHTN Research Conference, 2006. 16th Annual Canadian Conference on HIV/AIDS Research. Toronto, Ontario, Canada. Presenter(s): McKay C, Travers R, Meagher A, Wilson MG, O'Campo P, **Hwang SW**, Cowan L, Parris UJ, Globberman J, Rourke SB. Poster presentation.
- 2006 May 25 **Co-author.** Whose Capacity Are We Building Through HIV/AIDS Community-Based Research? 15th Annual Canadian Conference on HIV/AIDS Research. Québec City, Quebec, Canada. Presenter(s): Tucker R, Greene S, Rourke SB, Guenter D, Monette L, Narciso L, Koornstra J, Byers S, Sobota M, Dunn J, **Hwang SW**. Poster presentation.
- 2005 May 19 **Presenter.** REACH3: Research Alliance for Canadian Homelessness, Housing, and Health. Canadian Conference on Homelessness. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**, Aubry T, Dunn J, Palepu A, Roy E, Shiell A, Turnbull J. Poster presentation.
- 2005 May 19 **Presenter.** Group A Streptococcal Carriage Among Residents of an Urban Homeless Shelter. Canadian Conference on Homelessness. Toronto, Ontario, Canada. Presenter(s): Bargh GJM, Hoch J, Speechley M, Willey B, McGeer A, **Hwang SW**. Poster presentation.
- 2005 May 19 **Presenter.** Dyspepsia in Homeless Adults. Canadian Conference on Homelessness. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**, Wong SY, Bargh GJ. Poster presentation.
- 2000 Sep **Co-author.** Prevalence of Helicobacter pylori infection among homeless people in Toronto. 69th Annual meeting of the Royal College of Physicians and Surgeons of Canada, Canadian Association of Teachers of Community Health / National Specialty Society in Community Medicine. Edmonton, Alberta, Canada. Presenter(s): Wong S, **Hwang SW**. Oral presentation.

- 1999 Sep **Co-author.** Barriers to appropriate diabetes management among homeless persons in Toronto. 68th Annual meeting of the Royal College of Physicians and Surgeons of Canada, Canadian Association of Teachers of Community Health / National Specialty Society in Community Medicine. Montreal, Quebec, Canada. Presenter(s): Bugeja A, **Hwang SW**. Oral presentation.
- 1998 Sep **Co-author.** Access to Prescription Medications among Homeless Men in Toronto. 67th Annual meeting of the Royal College of Physicians and Surgeons of Canada, Canadian Association of Teachers of Community Health / National Specialty Society in Community Medicine. Toronto, Ontario, Canada. Presenter(s): Gottlieb J, **Hwang SW**. Oral presentation.

Presented and Published Abstracts

- 2017 Nov 8 **Co-author.** Access to primary care for persons recently released from prison: An audit study. Family Medicine Forum 2017 Family Medicine Innovations in Research and Education Day. Montreal, Quebec, Canada. Presenter(s): Fahmy N.
- Publication Details:*
N Fahmy, FG Kouyoumdjian, J Berkowitz, S Fahmy, CM Neves, **SW Hwang**, RE Martin. Access to primary care for persons recently released from prison: An audit study. Canadian Family Physician. **Coauthor or Collaborator.**
- 2007 Apr 26 **Co-author.** The Effects of Housing Status on Health-Related Outcomes in People living with HIV: A Systematic Review of the Literature. 16th Annual Canadian Conference on HIV/AIDS Research. Toronto, Ontario, Canada. Presenter(s): Leaver CA, Bargh G, Dunn JR, **Hwang SW**. Poster presentation.
- Publication Details:*
The Effects of Housing Status on Health-Related Outcomes in People living with HIV: A Systematic Review of the Literature. AIDS & Behavior. 11(S2): 85-100.
- 2001 Socioeconomic barriers to ambulatory mental health services despite universal health care in a Canadian inner-city setting.
- Publication Details:*
Steele LS, Glazier RH, Agha M, Lin E, Cohen MM; Inner City Toronto Time Trends Working Group. Socioeconomic barriers to ambulatory mental health services despite universal health care in a Canadian inner-city setting. American Journal of Epidemiology. 2001;153(11):S856. **Member of Research Group.**
- 2000 Aug Prevalence of Helicobacter pylori infection among homeless people in Toronto.
- Publication Details:*
Wong S, **Hwang SW**. Prevalence of Helicobacter pylori infection among homeless people in Toronto. Clinical and Investigative Medicine. August 2000; 23(S4):S7. **Senior Responsible Author.**
- 1998 Aug Access to prescription medications among homeless men in Toronto.
- Publication Details:*
Gottlieb J, **Hwang SW**. Access to prescription medications among homeless men in Toronto. Clinical and Investigative Medicine. August 1998;21(S4):S23. **Senior Responsible Author.**

Media Appearances

- 2025 Jan 29 **Author.** A Solution to Homelessness is Within Our Grasp. The Hill Times. Ontario, Canada. Available from: <https://www.hilltimes.com/story/2025/01/29/a-solution-to-homelessness-is-within-our-grasp/448753/>.
- 2023 Nov 28 **Quoted Source.** Growing number of homeless people turning to ERs for shelter and warmth, study says. Interviewer: Nicole Ireland. The Globe and Mail. Canada. Available from: <https://www.theglobeandmail.com/canada/article-growing-number-of-homeless-people-turning-to-ers-for-shelter-and/>.

- 2023 Feb 10 **Quoted Source.** Homeless: Search for solution grows more urgent than ever. Interviewer: Michael Swan. The Catholic Register. Canada. Available from: <https://www.catholicregister.org/item/35248-homeless-search-for-solution-grows-more-urgent-than-ever>.
- 2023 Jan 14 **Quoted Source.** Code Z59.0: diagnosing the toll of homelessness on health care. Interviewer: Molly Hayes. The Globe and Mail. Canada. Available from: <https://www.theglobeandmail.com/canada/article-experts-look-to-diagnose-the-toll-of-homelessness-on-health-care/>.
- 2022 Dec 12 **Quoted Source.** 'People are going to experience frostbite, people are going to have more amputations'. Interviewer: Nazanin Meshkat. National Observer. Canada. Available from: <https://www.nationalobserver.com/2022/12/12/news/people-experience-frostbite-people-amputations-homelessness-shelters-Toronto>.
- 2022 Sep 19 **Quoted Source.** St. Michael's research project aims to improve care access for unhoused people. Interviewer: Carly Weeks. The Globe and Mail. Canada. Available from: <https://www.theglobeandmail.com/canada/article-st-michaels-research-project-aims-to-improve-care-access-for-unhoused/>.
- 2020 Dec 10 **News Article.** Toronto researchers to study COVID-19 among people experiencing homelessness. Interviewer: Muriel Draaisma. CBC. Canada. Available from: <https://www.cbc.ca/news/canada/toronto/researchers-covid-19-homelessness-people-problem-toronto-federal-task-force-1.5835321>.
- 2019 Jan 2 **Quoted Source.** Oshawa addiction clinic takes a stab at opioid crisis with acupuncture treatment. Interviewer: Marcus Gee. The Globe and Mail. Canada. Available from: <https://www.theglobeandmail.com/canada/article-acupuncture-treatments-used-to-aid-drug-users-on-road-to-recovery/>.
- 2018 Jun 1 **Quoted Source.** 'Be An Angel' project offers a little taste of humanity for most vulnerable patients. Interviewer: Michael Swan. Catholic Register. Ontario, Canada. Available from: <https://www.catholicregister.org/item/27459-be-an-angel-project-offers-a-little-taste-of-humanity-for-most-vulnerable-patients?platform=hootsuite>.
- 2017 Feb 28 **Quoted Source.** Bringing homeless deaths to light. Interviewer: Webster P. CMAJ News. Ontario, Canada. Available from: <http://cmajnews.com/2017/02/28/bringing-homeless-deaths-to-light-109-5399/>.
- 2015 Jul 5 **Opinion / Commentary.** Doctor pushes the boundaries of health-care: Goar. The Toronto Star. Toronto, Ontario, Canada. Available from: <http://www.thestar.com/opinion/commentary/2015/07/02/doctor-pushes-the-boundaries-of-health-care-goar.html>.
- 2014 Apr 25 **Quoted Source.** Solution to homelessness at hand, but it won't be cheap. Interviewer: Swan M. The Catholic Register. Toronto, Ontario, Canada. Available from: <http://www.catholicregister.org/home/canada/item/18022-solution-to-homelessness-at-hand-but-it-won-t-be-cheap>.
- 2013 Oct 2 **Quoted Source.** Leaving hospital against doctor's advice is high risk, Canadian study says. Interviewer: Helen Branswell. The Globe and Mail / Calgary Herald, Canadian Press. Canada. Presenter(s): Helen Branswell.
- 2013 Oct 1 **Quoted Source.** 25,000 a year left hospital despite doctor's order. CBC News. Canada.
- 2013 Feb 4 **Personal Profile.** Homelessness And Health: Toronto Hospital Gets Position Dedicated To Helping Those On Street. Available at: http://www.huffingtonpost.ca/2013/02/04/homelessness-and-health_n_2599740.html. Huffington Post. Canada.
- 2013 Jan 24 **Author of Commentary.** Fixing Homelessness Means Putting Housing First. Available at: http://www.huffingtonpost.ca/stephen-hwang/at-home-homeless-study_b_2536434.html. Huffington Post, Hill Times Online, Hamilton Spectator. Canada. Presenter(s): **Stephen Hwang** & Paula Goering.
- 2013 Jan 21 **Quoted Source.** Homeless Health Care: Helping People On Street Challenging, But Worthwhile For

Doctors. Available at: http://www.huffingtonpost.ca/2013/01/21/homeless-health-care_n_2521460.html. Huffington Post, Canadian Press, Victoria Times Colonist, Vancouver Sun, Calgary Herald, Montreal Gazette, Ottawa Citizen, Yahoo! News Canada. Canada. Presenter(s): Sheryl Ubelacker.

- 2012 Dec 13 **Quoted Source.** Want to Help the Homeless Thrive? Give Them Homes. Available at: http://www.huffingtonpost.ca/lindsay-jolivet/at-home-homelessness-program-_b_2286441.html. Huffington Post. Canada. Presenter(s): Lindsay Jolivet.
- 2012 Dec 2 **Quoted Source.** City's outreach workers face myriad challenges. Available at: <http://www.montrealgazette.com/news/Unique+hurdles+reaching+risk+youth+city+outreach+workers+face+myriad+challenges/7636486/story.html>. Montreal Gazette. Montreal, Quebec, Canada. Presenter(s): Adam Kovac.
- 2011 May 12 **Quoted Source.** 'Super' bedbugs found in Vancouver's Downtown Eastside. Available at: <http://bc.ctvnews.ca/super-bedbugs-found-in-vancouver-s-downtown-eastside-1.642474>. Canadian Press, CTV News. Canada. Presenter(s): Sheryl Ubelacker.
- 2010 Jan 19 **Personal Profile.** Personal Profile. Doctor Dismisses Profitable Career For The Homeless. 100 Huntley Street. Toronto. Ontario, Canada. Presenter(s): Bridget Antwi. Available at: <http://100huntley.com/video.php?id=gjrRc-GT8Ww> OR <http://www.youtube.com/watch?v=gjrRc-GT8Ww>. (Presentation to Patients/Public).
- 2008 Oct 18 **Personal Profile.** Toronto's Street Saviour. Profile of Dr. Stephen Hwang. The Globe and Mail. Toronto, Ontario, Canada. Presenter(s): Hayley Mick. The Globe and Mail. Page M1.
- 2008 Oct 9 **Quoted Source.** Canadian researchers call for end to 'politicization' of science. CBC News. Toronto, Ontario, Canada. Presenter(s): Paul Jay. <http://www.cbc.ca/technology/story/2008/10/09/scientists-letter.html>.
- 2008 Oct 9 **Quoted Source.** Canadian scientists blast 'suppression of research' by Tories. Canwest News Service. Ontario, Canada. Presenter(s): Margaret Munro.
- 2008 Oct 8 **Quoted Source.** For many, brain injury at root of homelessness. More than half of city's homeless population have experienced severe trauma, researchers find. The Globe and Mail. Toronto, Ontario, Canada. Presenter(s): Caroline Alphonso. The Globe and Mail. Page A11.
- 2008 Oct 6 **Quoted Source.** Traumatic brain injury common among homeless, study finds. CBC News. Toronto, Ontario, Canada. Presenter(s): Maureen Brosnahan. <http://www.cbc.ca/health/story/2008/10/06/homeless-head-injury.html>.
- 2008 May 17 **Quoted Source.** Toronto's white underbelly. Curious anomaly: Multiculturalism stops at the street. The Globe and Mail. Toronto, Ontario, Canada. Presenter(s): Kate Hammer.
- 2007 Sep 19 **Interview.** Health study of Toronto homeless demands action, says group. CBC News. Toronto, Ontario, Canada.
- 2007 Sep 15 **Quoted Source.** "Doctors, get tough on drugs": Tony Clement. Minister's mind made up on safe injection site, warn experts. National Review of Medicine. Canada. Presenter(s): Solomon S. Pages 22 and 25.
- 2007 Aug 30 **Quoted Source.** Complicity with evil or social-justice response? Scientists, Catholic ethicists wrestle with funding of safe-injection sites. The Catholic Register. Toronto, Ontario, Canada. Presenter(s): Swan M.
- 2007 Aug 27 **Quoted Source.** Renew Insite's license. The Globe and Mail. Canada. Presenter(s): Editorial. Page A14.
- 2007 Aug 21 **Quoted Source.** 130 Scientists urge Ottawa to base Insite decision on science, not ideology. Canadian Press. Canada. Presenter(s): Branswell H. Article ran in the Globe and Mail, CBC News, CTV News, and Yahoo Canada News.
- 2007 Aug 14 **Quoted Source.** Panhandler panic: over the top? The Globe and Mail. Toronto, Ontario, Canada. Presenter(s): Mick H. Section L1.

- 2007 Feb 21 **Speaker.** Physical and Mental Health on the Street. Homelessness Radio Marathon, CKUT Radio. Montreal, Quebec, Canada. Presenter(s): **Hwang SW.**
- 2006 Dec **Speaker.** Physicians and Discrimination. Omni Television, Omni News Mandarin Weekend Edition. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2005 Jul 12 **Speaker.** Interview on the Impact of Heat Waves on Inner City Populations. CBC News: Morning. Canada. Presenter(s): **Hwang SW.**
- 2002 Nov 5 **Personal Profile.** Homelessness, health link studied. The Medical Post. Canada. Presenter(s): Moulton D.

3. PROVINCIAL / REGIONAL

Invited Lectures and Presentations

- 2025 Mar 1 **Keynote Speaker.** Health Care Professionals as Advocates: Opportunities and Pitfalls. Interdisciplinary Social Accountability Conference in Healthcare (ISACH). Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2024 Apr 26 **Invited Speaker.** Homelessness and Health: Exploring Complex Connections. Centre interuniversitaire de recherche en économie quantitative (CIREQ) Interdisciplinary Workshop on Homelessness. Montreal, Quebec, Canada. Presenter(s): **Hwang SW.**
- 2023 May 11 **Invited Speaker.** Working with vulnerable populations: Challenges in transitions of care. HoPingKong Workshop in Complex Medicine. Toronto, Ontario, Canada. Presenter(s): Andrew Bond, Tracy Warne, **Stephen Hwang.**
- 2023 Mar 29 **Keynote Speaker.** Advancing Health Equity. Catholic Health Sponsors of Ontario (CHSO). Ontario, Canada. Presenter(s): **Hwang SW.**
- 2022 Oct 19 **Invited Speaker.** Lessons from those who experience poverty: Reflections from leaders working in Community Social Services Research and the ER. Catholic Health Sponsors of Ontario (CHSO) - Care for All Webinar Series. Ontario, Canada. Presenter(s): Snider C, **Hwang SW.**
- 2021 Dec 7 **Invited Speaker.** Improving the Health and Wellbeing of People Experiencing Homelessness. McGill University Health Centre - Medical Grand Rounds. Montreal, Quebec, Canada. Presenter(s): **Hwang SW.**
- 2020 Oct 7 **Invited Speaker.** Missed and Late Diagnosis of Concussions in Non-Sport Populations. ECHO Concussion. Ontario, Canada. Presenter(s): **Hwang SW.** Online webinar - Medical education programming for primary care providers in Ontario.
- 2020 Sep 30 **Invited Speaker.** Health, Homelessness, and COVID-19. Ontario Housing First Regional Network Community of Interest. Ontario, Canada. Presenter(s): **Hwang SW.** Online webinar.
- 2019 May 23 **Invited Speaker.** Housing, Health and Policy Conference 2019. McGill University Institute for Health and Social Policy. Montreal, Quebec, Canada. Presenter(s): **Hwang SW.**
- 2019 Mar 8 **Invited Speaker.** Screening and Assessment Tools for Housing First. Housing Forum on Evidence-Based Practices, Ontario Housing First Regional Network. Toronto, Ontario, Canada. Presenter(s): Ecker J, **Hwang SW.**
- 2016 Apr 11 **Keynote Speaker.** Ending Homelessness: Dream or Illusion? Grandes Conférences Paul-Bernard sur les Inégalités Sociales de Santé. Léa Roback Centre de Recherche. Montreal, Quebec, Canada. Presenter(s): **Hwang SW.**
- 2015 Apr 2 **Invited Speaker.** Solving the Problem of Homelessness. University of Lethbridge - Discovery Lecture. Lethbridge, Alberta, Canada. Presenter(s): **Hwang SW.**

- 2015 Jan 29 **Invited Speaker.** Assessing Multi-morbidity in Marginalized Populations: A View from the Frontlines. Disability Adjudication Unit, Ontario Ministry of Community and Social Services. Toronto, Ontario, Canada.
- 2014 Nov 22 **Invited Speaker.** "Think Before You Jump in the River". McMaster LIGHT Humanitarian Health Conference. Hamilton, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2014 Nov 20 **Invited Speaker.** Research on Homelessness: Housing First. 2nd Annual Shelter Health Network Retreat. Hamilton, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2014 Jan 31 **Invited Speaker.** Research with Marginalized Populations. Public Health Ontario - Ethics Review Board Retreat. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2013 Nov 28 **Invited Speaker.** The At Home/Chez Soi Project. Ontario Ministry of Municipal Affairs and Housing (MMAH) Homelessness Learning Day. Toronto, Ontario, Canada. Presenter(s): More F and **Hwang SW.**
- 2011 Nov 9 **Invited Speaker.** Canadian Crisis: The Hidden Cost of Homelessness. Portland Hotel Community Service Society - Knowledge Exchange on Homelessness and Health in Canada. Vancouver, British Columbia, Canada. Presenter(s): **Hwang SW.**
- 2011 Nov 9 **Invited Speaker.** Challenges in Understanding the Connections between Housing and Health: The Health and Housing in Transition (HHiT) Study. Centre for Health Evaluation and Outcome Sciences, St. Paul's Hospital, University of British Columbia. Vancouver, British Columbia, Canada. Presenter(s): **Hwang SW.**
- 2011 Oct 29 **Invited Speaker.** Meaningful Measurement of Housing Success. Ontario Non-Profit Housing Association 2011 Annual Conference. Niagara Falls, Ontario, Canada. Presenter(s): Davis B, Witkowski B, Huehn V, **Hwang S.**
- 2010 Nov 19 **Invited Speaker.** Housing Vulnerability and Health: Canada's Hidden Emergency. Ottawa Alliance to End Homelessness 2010 Community Forum on Homelessness. Ottawa, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2010 Sep 21 **Invited Speaker.** Patterns of Shelter Utilization in Toronto, Ottawa, and Guelph: Implications for Service Delivery. Ontario Municipal Social Services Association (OMSSA) & the Ontario Association of Hostels (OAH) 2010 Housing and Homelessness Conference. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2010 May 28 **Invited Speaker.** Defining a Typology of Homelessness Based on Shelter Utilization Patterns in Three Ontario Cities. Ottawa Homelessness Roundtable. Ottawa, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2010 Feb 16 **Invited Speaker.** Homelessness, Housing, and Health. McGill University. Montreal, Quebec, Canada. Presenter(s): **Hwang SW.** McGill University Health Centre, Medical Grand Rounds.
- 2010 Feb 15 **Invited Speaker.** Is Beauty Only Skin Deep? Apparent Age and Health. McGill University. Montreal, Quebec, Canada. Presenter(s): **Hwang SW.** Inter-Division Rounds, Division of General Internal Medicine.
- 2009 Sep 22 **Invited Speaker.** Traumatic Brain Injury and Homelessness. Ontario Municipal Social Services Association. 2009 Forum on Social Housing and Homelessness. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2009 Feb 24 **Invited Speaker.** A survey of domiciliary hostel program tenants in Ontario. Ontario Ministry of Community and Social Services & Ontario Ministry of Health and Long-term Care. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.** Chiu S.
- 2008 Jun 10 **Invited Speaker.** Research Challenges in Homelessness and Health: Feasibility and Relevance. Ontario Training Centre in Health Services and Policy Research. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2007 Nov 22 **Invited Speaker.** Housing Solutions: The Role of Research. Alliance to End Homelessness in Ottawa. Ottawa, Ontario, Canada. Presenter(s): **Hwang SW.** 2007 Community Forum on Homelessness.

- 2007 Sep 25 **Invited Speaker.** CIHR Cafe Scientifique: Home is Where Your Health Is. Canadian Institutes of Health Research, in partnership with Human Resources and Social Development Canada. Edmonton, Alberta, Canada. Presenter(s): **Hwang S.**
- 2007 Jan 26 **Invited Speaker.** Housing, Homelessness, and Health. Ontario Ministry of Community and Social Services. Healthy Communities: A Policy Research Knowledge Exchange. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2007 Jan 19 **Invited Speaker.** Current Investigations: An example of a sister hospital, a model for investigation. INTEGRATION (Interdisciplinary Teams Generating Research on Complex Patients) Workshop. Sponsored by St. Paul's Hospital, University of British Columbia, and Simon Fraser University. Vancouver, British Columbia, Canada. Presenter(s): **Hwang SW.**
- 2006 Nov 17 **Invited Speaker.** Homelessness: Root Causes and Solutions. Keynote Address. 3rd Annual Conference on Diversity and Wellbeing: Taking Action on Homelessness and Health. Sponsored by the Calgary Health Region, United Way of Calgary, and the Calgary Homeless Foundation. Calgary, Alberta, Canada. Presenter(s): **Hwang SW.**
- 2006 Nov 16 **Invited Speaker.** Solving the Problem of Homelessness: Health Care and Beyond. Calgary Health Region. Calgary, Alberta, Canada. Presenter(s): **Hwang SW.**
- 2006 Feb 28 **Invited Speaker.** Homelessness and Health. Ontario Ministry of Health and Longterm Care, Human Resources Branch, Lunch 'N' Learn Program. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2005 Nov 30 **Invited Speaker.** Translating Research on Homelessness and Health into Action and Policy. Queen's University, Department of Community Health and Epidemiology and the School of Urban and Regional Planning. Kingston, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2005 May 3 **Invited Speaker.** Homelessness and Health. The Salvation Army - Ontario Homeless Conference. Jackson's Point, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2005 Mar 7 **Invited Speaker.** Policy Forum on Improving Access to Health Care and Social Services for People Experiencing Homelessness. McMaster University Centre for Health Economics and Policy Analysis (CHEPA) and the Centre for Research on Inner City Health. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**, Ploeg J, Thomas H, Semogas D.
- 2004 Nov 22 **Invited Speaker.** Translating Research on Homelessness into Policy and Action. Community Forum on Homelessness: Linking Ottawa Research with Action and Policy. Alliance to End Homelessness in Ottawa. Ottawa, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2004 Oct 19 **Invited Speaker.** Mortality among Homeless Women. Ontario Association of Hostels and the Ontario Municipal Social Services Association, 2004 Learning Forum on Homelessness. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2004 Apr 13 **Expert Witness.** Homelessness, Housing, and Health. Office of the Chief Coroner for Ontario, Inquest into the Death of Joseph Teigesser (a homeless man who died of tuberculosis). Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2003 Nov 21 **Invited Speaker.** Inner City Health Research. Ontario Ministry of Health and Long-term Care. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2003 Feb 20 **Invited Speaker.** Homelessness, Health, and Public Policy. Queen's University, Faculty of Medicine, Seminar Series on Medicine and Activism. Kingston, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2003 Jan 10 **Invited Speaker.** A Community-based Program in Increase Cervical and Breast Cancer Screening Among Homeless Women. Cancer Care Ontario, Ontario Cervical Screening Collaborative Group. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2002 Dec 12 **Invited Speaker.** Research on Homelessness and Health. Ontario Ministry of Health and Long-term Care. Toronto, ON, Ontario, Canada. Presenter(s): **Hwang SW.**

- 2002 Jan **Invited Speaker.** Research on Homelessness and Health. University of British Columbia, Centre for Health Evaluation & Outcome Sciences (CHEOS), Health in the City Conference. Vancouver, British Columbia, Canada. Presenter(s): **Hwang SW.**
- 2001 May **Invited Speaker.** Health Research Involving Homeless Persons: Pitfalls and Paradigms. University of Western Ontario School of Medicine and the London InterCommunity Health Centre, Bringing Medicine Into the Community Workshop. London, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2000 Nov **Invited Speaker.** Homelessness: In the Shelters and On the Street. Ontario Ministry of Community and Social Services, Brown Bag Policy Network. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2000 Sep **Invited Speaker.** Ethical and Clinical Issues Affecting the Homeless. Centre for Clinical Ethics, Conference on Affirming an Ethic of Care: Understanding the Needs of Vulnerable Persons. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 1995 Dec **Invited Speaker.** Homelessness and Health. St. Paul's Hospital, Department of Medicine Rounds. Vancouver, British Columbia, Canada. Presenter(s): **Hwang SW.**

Presented Abstracts

- 2010 Nov 15 **Co-author.** Upstream determinants of health and housing are major contributors to health-related quality of life in HIV infection: Findings from the Positive Spaces, Healthy Places study. Ontario HIV Treatment Network (OHTN) 2010 Research Conference. Toronto, Ontario, Canada. Presenter(s): Rourke ST, Bekele T, Tucker R, Greene S, Monette L, Koornstra J, Sobota M, Byers S, Watson J, Bacon J, Hambly K, **Hwang S**, Guenter D, Dunn J, Hamilton M, Truax J, Hintzen DB, White P, Kayitesi M, Desbiens M, De Blois S, Cubillos M, and The Positive Spaces, Healthy Places Team. (Trainee Presentation).
- 2009 Nov 16 **Co-author.** Peer Investigator experiences in a community based research study: expression through creative projects. Ontario HIV Treatment Network (OHTN) 2009 Research Conference. Toronto, Ontario, Canada. Presenter(s): Scott AN, Hayhoe B, Walker D, Ewert R, Parsons J, Worthington C, **Hwang SW**, and Peer Investigators. (Trainee Presentation).
- 2009 Oct 8 **Co-author.** Housing is Health: The Positive Spaces Healthy Places Study. Ministry of Health and Long Term Care 2009 Health Research Showcase. Toronto, Ontario, Canada. Presenter(s): Tucker R, Greene S, Guenter D, Sobota M, Koornstra J, Byers B, Monette L, **Hwang W**, Dunn J, Rourke SB. Poster presentation.
- 2008 Nov 14 **Co-author.** The Positive Spaces, Health Places Study. Ontario HIV Treatment Network 2008 Research Conference. Toronto, Ontario, Canada. Presenter(s): Tucker R, Greene S, Sobota M, Koornstra J, Monette L, Guenter D, Byers S, Dunn J, **Hwang S**, Rourke SB. Oral session (6 abstracts).
- 2008 Nov 13 **Co-author.** Conception of a CBR Project on Pregnancy in Street-Involved Young Women: Development of a Strong Service Provider-Researcher Partnership. Ontario HIV Treatment Network (OHTN) 2008 Research Conference. Toronto, Ontario, Canada. Presenter(s): Scott AN, Hayhoe B, Walker D, Ewert R, Parsons J, Worthington C, **Hwang SW.** (Trainee Presentation).
- 2007 Nov 19 **Co-author.** Positive Spaces, Healthy Places: Health Outcomes at 6 Months. Ontario HIV Treatment Network (OHTN) Research Conference. Toronto, Ontario, Canada. Presenter(s): Tucker R, Greene S, Sobota M, Koornstra J, Monette L, Guenter D, Byers S, Dunn J, **Hwang SW**, Rourke SB.

Media Appearances

- 2023 Jan 18 **Quoted source.** 'A Band-Aid on top of a Band-Aid': Winter-weather alerts are leaving vulnerable Ontarians out in the cold. Interviewer: Justin Chandler. TVO Today. Ontario, Canada. Available from: <https://www.tvo.org/article/the-quick-fix-part-4-how-to-tackle-homelessness-in-ontario>.
- 2021 Aug 19 **Interview.** The quick fix, Part 4: How to tackle homelessness in Ontario. Interviewer: Matt Gurney. TVO. Ontario, Canada. Available from: <https://www.tvo.org/article/the-quick-fix-part-4-how-to-tackle-homelessness-in-ontario>.

- 2016 Oct 11 **Interview.** Rob Snow speaks with Dr. Stephen Hwang, Director for the Centre for Urban Health Solutions at St. Michael's Hospital, about the homeless and housing. Interviewer: Rob Snow. 580 CFRA News Talk Radio. Ottawa, Ontario, Canada. Available from: <http://devel.autopod.ca/chum/181/podcasts/6/>.
- 2009 Jan 28 **Quoted Source.** On health and the homeless. The Edmonton Journal. Edmonton, Alberta, Canada. Presenter(s): Richard Warnica. The Edmonton Journal.
- 2008 Sep 25 **Interview.** Health care for homeless people. CBC Radio: Up to Speed with Margot Watt. Winnipeg, Manitoba, Canada. Presenter(s): **Hwang SW**.
- 2007 Nov 26 **Interview.** Traumatic Brain Injury among Homeless People. CBC Radio: Ontario Morning. Ontario, Canada. Presenter(s): **Hwang SW**.
- 2007 Sep 24 **Interview.** Crack use 'staggering' among homeless. The Globe and Mail. Toronto, Ontario, Canada. Presenter(s): Reinhart A.
- 2007 Sep 1 **Quoted Source.** Conservatives confuse science and moralizing. The Vancouver Sun. Vancouver, British Columbia, Canada. Presenter(s): McKnight P.
- 2004 Apr 20 **Speaker.** Women and Homelessness. Television Ontario (TVO), "More to Life" Program. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**.

4. LOCAL

Invited Lectures and Presentations

- 2024 Oct 2 **Invited Speaker.** Improving Health and Health Care for Patients Experiencing Homelessness. Hospital-Wide Grand Rounds, North York General Hospital. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2024 May 3 **Invited Speaker.** Homelessness, Housing, Health and Substance Use: Exploring Complex Connections. University of Toronto/CAMH Addictions Fellowship Training Program - Academic Half-Day. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2021 Mar 22 **Invited Speaker.** Just the Facts: Affordable Housing, Homelessness, and Healthcare. Toronto Science Policy Network (TSPN), University of Toronto. Toronto, Ontario, Canada. Presenter(s): **Stephen Hwang**, Mikaela Gabriel and Andrew Boozary (panelists); Victoria Gibson (moderator).
- 2019 Nov 1 **Keynote Speaker.** Caring for People Experiencing Disadvantage and Marginalization. St. Joseph's Health Centre 64th Annual Clinical Day. Toronto, Ontario, Canada.
- 2019 Oct 16 **Keynote Speaker.** Aging in Place Report Launch. Mainstay Housing. Toronto, Ontario, Canada.
- 2019 Apr 5 **Invited Speaker.** From the Streets to Solutions: Tackling Homelessness. CRAM University of Toronto. Toronto, Ontario, Canada. Available from: <https://cramtoronto.com>.
- 2018 Oct 30 **Invited Lecturer.** Transition to Professional Practice - The Causes of Illness & What We Should Do About It. Global Health Education Initiative, University of Toronto Postgraduate Medical Education. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2018 Oct 2 **Panel Member.** Tackling Toronto's Homelessness Crisis. St. Michael's Hospital Foundation. Toronto, Ontario, Canada. Presenter(s): Katz M (keynote speaker); Aston M, Bedard M, **Hwang SW** (discussion panel); Mediwake AM (moderator).
- 2018 Jun 27 **Invited Speaker.** Improving health systems and public policy for disadvantaged populations. Grand Rounds, St. Joseph's Health Centre. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2018 Apr 25 **Invited Speaker.** The Quest for Urban Health Solutions. University of Toronto IHPME Graduate Student Union. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**.

- 2018 Mar 9 **Invited Speaker.** Homelessness and Urban Health Solutions. Metropolitan United Church, A Great Light: Discussion Series. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2017 Nov 6 **Invited Speaker.** Research metrics and health equity research. St. Michael's Hospital, Research Matters Month & Centre Talks. Toronto, Ontario, Canada. Presenter(s): **Hwang SW** and Nelson LA.
- 2017 Oct 27 **Invited Speaker.** Traumatic Brain Injury in People Experiencing Homelessness. University of Toronto, Department of Surgery - 2017 Interdisciplinary Trauma Conference - Violence Close to Home: Intentional injuries in vulnerable populations. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2017 Sep 8 **Invited Lecturer.** Panel on Basic Income. Introduction to Public Health Sciences (CHL 5004H). Dalla Lana School of Public Health, University of Toronto. Toronto, Ontario, Canada. Presenter(s): **Hwang SW** and Stapleton J.
- 2017 Jun 15 **Keynote Speaker.** Five Things That I Wish Someone Had Told Me When I Was Your Age. University of Toronto, Division of General Internal Medicine - 2017 GIM Research Day. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2017 Mar 22 **Invited Speaker.** Housing: A Critical Determinant of Urban Health. Massey Grand Rounds 11th Annual Symposium. Health & Environment: Air, Food and Drugs. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2016 Dec 2 **Invited Speaker.** Cold-related Injuries and Deaths among People Experiencing Homelessness. The Paula Goering Memorial Workshop on Coordinating Care for People who are Homeless, Centre for Addiction and Mental Health. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2016 Oct 22 **Invited Speaker.** Homelessness: Symptom or Disease? 9th Annual Dalla Lana School of Public Health Student-Led Conference. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2016 Sep 27 **Invited Speaker.** Inner City Health: Physicians & Marginalized Patients. University of Toronto PGY2 Academic Half Day. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2016 Sep 27 **Keynote Speaker.** Homelessness and Housing Solutions. Homes First Foundation. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2016 Apr 23 **Invited Speaker.** A Biblical View of Social Justice. Thinking Conference: Has God Spoken? Mississauga, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2016 Feb 9 **Invited Speaker.** Creating Urban Health Solutions. University of Toronto Senior Alumni Association - Canadian Perspectives Lecture Series. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2016 Jan 27 **Invited Speaker.** Faith, Science, and Effective Advocacy. Multifaith Alliance to End Homelessness. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2015 Sep 29 **Invited Speaker.** Inner City Health: Physicians & Marginalized Patients. University of Toronto PGY2 Academic Half Day. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2015 Apr 9 **Invited Speaker.** The Best Kept Secret: What Really Determines Your Health. Li Ka Shing Knowledge Institute of St. Michael's Hospital, Popular Science Lecture. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2015 Mar 16 **Moderator.** Debate: Has Science Made God Irrelevant? Power to Change, RZIM Canada, University of Toronto Secular Alliance, and The Veritas Forum. Toronto, Ontario, Canada. Presenter(s): Prof. John Lennox and Christopher DiCarlo.
- 2014 Nov 27 **Invited Lecturer.** Understanding the Social Determinants of Health. Interprofessional Health, Arts & Humanities Certificate Program - Humanities Lunch and Learn Session. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2014 Nov 3 **Invited Lecturer.** Homelessness: What's the Real Story? Ryerson University, School of Journalism, JN8104 - Urban Politics and Society for Journalists. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**

- 2014 Oct 7 **Invited Speaker.** Homelessness in Downtown Toronto. Street Health, Board of Directors Meeting. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2014 Oct 6 **Speaker.** Academic Promotions at the University of Toronto. North York General Hospital, Department of Medicine Business Meeting. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2014 Sep 21 **Invited Speaker.** Science and Faith: Are they really in conflict? Center for Science and Culture. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2014 Jul 30 **Speaker.** Itchy and Scratchy: A General Internist's Guide to Infestations. St. Michael's Hospital, Medical Grand Rounds. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2014 Jun 18 **Invited Speaker.** Housing First: A Common Sense Approach. Affordable Housing Halton. Oakville, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2014 Jun 10 **Invited Speaker.** Homelessness and Housing First. Homes First Society, Annual General Meeting. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2014 May 14 **Keynote Speaker.** Research and Responsibility: The Science of Homelessness. Sunnybrook Health Sciences Centre Department of Medicine Resident Research Day Grand Rounds. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2014 Apr 2 **Keynote Speaker.** Homelessness, Housing, and Hope. 2014 Royacker Lecture, Regis College, University of Toronto. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2014 Apr 1 **Invited Speaker.** Homelessness, Science, and Morality. The Art of Medicine Lecture Series, Ho Ping Kong Centre for Excellence in Education and Practice (CEEP), Toronto Western Hospital. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2014 Feb 18 **Invited Speaker.** Inner City Health: Physicians & Marginalized Patients. University of Toronto PGY2 Academic Half Day. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2014 Feb 7 **Invited Speaker.** Housing First and Intensive Case Management for Homeless Adults with Mental Illness: Results from the At Home Randomized Controlled Trial. St. Michael's Hospital Mental Health Grand Rounds. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2014 Jan 13 **Invited Speaker.** Solving the Problem of Homelessness. St. Lawrence Supper Club. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2014 Jan 4 **Keynote Speaker.** A Radical Vision for Medical Mission. Richmond Hill Christian Community Church, Ontario Chinese Christian Medical Fellowship, and Education Medical Aid and Service (EMAS). Richmond Hill, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2013 Nov 21 **Invited Speaker.** The Aging Homeless: Best Practices for End of Life Care. The Good Neighbours' Club. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2013 Oct 31 **Invited Speaker.** Housing First and Intensive Case Management for Homeless Adults with Mental Illness: Results from the At Home Randomized Controlled Trial. St. Michael's Hospital Clinical and Population Research Round. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2013 Jul 31 **Speaker.** Improving Health and Healthcare for People who are Homeless: What Really Works? St. Michael's Hospital - Medical Grand Rounds. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2013 Jul 24 **Invited Speaker.** Solving the Problem of Homelessness. St. Michael's Foundation - A Legacy of Caring. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2013 May 29 **Invited Speaker.** Bridging the Gap: A Closer Look at Addictions, _Mental Health, Brain Injury and the Justice System. Toronto Acquired Brain Injury Network. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.** Available from: http://www.abinetwork.ca/news?news_id=52.
- 2013 Apr 11 **Invited Speaker.** Caring for the Whole Person: Insights from the Inner City. The Good Neighbours' Club -

Annual General Meeting. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**

- 2012 Oct 11 **Invited Speaker.** Putting a Roof over Inadequate Housing: "Home Safe" Documentary Screening and Panel Discussion. Canadian Institutes of Health Research - Institute of Population and Public Health. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**, Tarasuk V, Richards C, Adams R, Shapcott M.
- 2012 May 17 **Invited Speaker.** 24th Annual Higgins Day - Resident Research Day. St. Michael's Hospital - Department of Medicine. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.** Keynote address.
- 2012 Apr 28 **Invited Speaker.** CIHR Cafe Scientifique: No Room for Health? University of Toronto Public Health Social Justice Collective. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2012 Mar 9 **Invited Lecturer.** Homelessness and the Determinants of Health. University of Toronto - University College, Health Studies Program. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2012 Mar 7 **Speaker.** Prevention of Clostridium difficile Infection in Hospitalized Patients. St. Michael's Hospital - Medical Grand Rounds. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2012 Feb 23 **Invited Speaker.** Traumatic Brain Injury and Homelessness. Sherbourne Health Centre. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2012 Feb 21 **Invited Speaker.** Seeking Solutions Symposium: Access to Health Care for the Uninsured in Canada. Hospital for Sick Children, Women's College Hospital, and Ryerson University. Toronto, Ontario, Canada. Presenter(s): Mason K, **Hwang SW.**
- 2012 Feb 2 **Invited Speaker.** Discrimination in Health Care. St. Michael's Hospital - Clinical and Population Research Rounds. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2012 Feb 1 **Invited Speaker.** Pain Management in Homeless and Hard-to-House Patients. Casey House: Physicians and Advanced Practice Clinicians HIV/AIDS Health Care Seminar Series. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2012 Jan 17 **Invited Speaker.** Chronic Pain Management in Homeless and Underhoused Patients. Sherbourne Health Centre. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2011 Dec 5 **Invited Speaker.** Keynote Speaker, "Forty is Too Young to Die: A Call to Action" Report Launch. Mainstay Housing, Early-Onset Illnesses and Mortality Working Group. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2011 May 31 **Invited Speaker.** FitzTalks, in Honor of Graduating Medical Students in the Fitzgerald Academy. "The Patient Appeared Older Than His Stated Age - A Reflection on Curiosity, Empathy, and Privilege.". Faculty of Medicine, University of Toronto. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2010 Nov 22 **Invited Speaker.** Advocacy Rounds. St. Michael's Hospital - Department of Medicine. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2010 Nov 3 **Invited Speaker.** Homelessness and Public Health. Public Health Interest Group at University of Toronto. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2010 Oct 5 **Invited Speaker.** Health care utilization among homeless people. Clinical Epidemiology Unit / Institute for Clinical Evaluative Sciences - Conjoint Evaluative Sciences Rounds. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2010 Oct 4 **Invited Speaker.** Homelessness and Health. IMAGINE Community Awareness Lecture Series, University of Toronto Faculty of Medicine. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2010 Sep 23 **Invited Speaker.** Homelessness and Palliative Care. Toronto Central Palliative Care Network. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2010 Jul 22 **Invited Speaker.** Homelessness and Immigration: Toronto's Changing Face. City of Toronto - Immigrant and Refugee Housing Committee. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**

- 2010 Jul 14 **Invited Speaker.** Defining a Typology of Homelessness Based on Shelter Utilization Patterns in Three Ontario Cities. Housing & Homeless Service Network, Toronto Shelter, Support & Housing Administration. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2010 May 26 **Invited Speaker.** Defining a Typology of Homelessness Based on Shelter Utilization Patterns in Three Ontario Cities. Street Outreach Steering Committee, Toronto Shelter, Support & Housing Administration. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2010 Mar 1 **Invited Speaker.** Homelessness and Immigration: Toronto's Changing Face. Social Planning Toronto - Research and Policy Forum. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2010 Feb 10 **Invited Lecturer.** Homelessness and Health. Ryerson University, School of Occupational and Public Health (ENH 809). Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2009 Dec 18 **Invited Speaker.** Traumatic Brain Injury and Homelessness. St. Michael's Hospital Mental Health Grand Rounds. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.** (Continuing Education).
- 2009 Nov 16 **Invited Speaker.** Research on homelessness: Moving from problems to solutions. Innovation Night at St. Michael's Hospital. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2009 Jun 2 **Invited Speaker.** Traumatic brain injury and the health of homeless people. Toronto Acquired Brain Injury Network. Brain Injury and Homelessness Workshop. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.** (Continuing Education).
- 2009 Apr 10 **Invited Speaker.** Good Friday Breakfast Speaker: Homelessness. St. Andrew's Presbyterian Church Humber Heights. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2009 Mar 29 **Invited Speaker.** Lenten Speaker Series: Homelessness. Anglican Church of St. Clement. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2009 Mar 6 **Invited Speaker.** Harm Reduction: A Balanced Approach. Casey House - HIV/AIDS and Mental Health: A Symposium for Health Care Providers. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.** (Continuing Education).
- 2009 Mar 5 **Invited Speaker.** Unmet needs for health care among homeless people within a universal health insurance system. St. Michael's Hospital - Clinical and Population Research Rounds. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2009 Mar 3 **Invited Lecturer.** Homelessness and Health. Ryerson University, School of Occupational and Public Health. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2009 Feb 24 **Invited Speaker.** Homelessness & Immigration: Toronto's Changing Face. Let's Get Talking: Community Discussions on Neighbourhoods & Health - Regent Park Community Health Centre. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2008 Oct 20 **Invited Speaker.** Unmet needs for health care among homeless people within a universal health insurance system. Toronto General Hospital - Clinical Epidemiology Rounds. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2008 Oct 3 **Invited Speaker.** Poverty and Health: Partnerships in Action 2008 Conference. Workshop on Homelessness and Health. Public Health Sciences Students Association, University of Toronto. Toronto, Ontario, Canada. Presenter(s): Khandor E, Mason K, **Hwang SW.**
- 2008 Sep 12 **Invited Speaker.** Addressing Health Disparities in Toronto: Spotlight on Diabetes and Mental Illness. Toronto Central Local Health Integration Network (LHIN). Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2008 Jun 5 **Invited Speaker.** Health Connections 2008. Health Equity: From Challenges to Solutions. Toronto Central Local Health Integration Network (LHIN). Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2008 May 26 **Invited Speaker.** Supportive Housing: How much does Toronto need; how are we going to get it?

Wellesley Institute. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**

- 2008 May 26 **Invited Speaker.** Homelessness & Brain Injuries: Cause or Effect? Let's Get Talking: Community Discussions on Neighbourhoods & Health - St. Christopher House. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2008 May 24 **Invited Speaker.** Why care about homelessness in Toronto? Ontario Public Service Employees Union (OPSEU) Educational Forum on Poverty in Toronto. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2008 May 10 **Invited Speaker.** Harm Reduction: A Balanced Approach. Casey House Board of Directors Retreat. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2008 Feb 19 **Invited Speaker.** Homelessness and Health. 11th Annual Toronto Catholic District School Board High School Gifted Program Conference, "Perspectives: Challenges, Ideas and Responses 2008". Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2007 Oct 9 **Invited Speaker.** Research on homelessness and health. Innovation Night at St. Michael's Hospital. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2007 Mar 13 **Invited Lecturer.** Homelessness and Health. York University, Faculty of Arts, A Critical Study of Health and Society (AS/SOSC 2110). Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2007 Mar 8 **Invited Speaker.** Lenten Speaker Series: Homelessness. Saint Luke's United Church. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2007 Feb 28 **Invited Lecturer.** Homelessness and Health. Ryerson University, School of Occupational and Public Health. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2007 Feb 20 **Invited Speaker.** Homelessness and Health. 10th Annual Toronto Catholic District School Board High School Gifted Program Conference, "Perspectives: Challenges, Ideas and Responses 2007". Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2006 Aug 30 **Speaker.** The Discriminating Physician: Does Prejudice Affect the Provision of Health Care? St. Michael's Hospital, Medical Grand Rounds. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2006 Apr 13 **Speaker.** Challenges and Rewards of Research with Homeless Persons. St. Michael's Hospital, Clinical Research Rounds. Toronto, Ontario, Canada. Presenter(s): **Hwang SW, Chiu S.**
- 2006 Apr 5 **Invited Speaker.** Forget Chaoulli: Existing financial barriers in our health care system. Student Medical Reform Group and Diversity in Medicine Speaker Series, Faculty of Medicine, University of Toronto. Toronto, Ontario, Canada. Presenter(s): **Hwang SW, Glazier RH.**
- 2006 Mar 31 **Invited Lecturer.** Homelessness and Health. Ryerson University, School of Occupational and Public Health. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2006 Mar 7 **Invited Lecturer.** Homelessness and Health. York University, Faculty of Arts, A Critical Study of Health and Society (AS/SOSC 2110). Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2006 Feb 21 **Invited Speaker.** Homelessness and Health. 9th Annual Toronto Catholic District School Board High School Gifted Program Conference, "Perspectives: Challenges, Ideas and Responses". Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2005 Sep 14 **Invited Lecturer.** Marginalized Populations: Homelessness. University of Toronto, Dept. of Public Health Sciences, Introduction to Public Health Sciences (CHL 5004). Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2005 Jun 14 **Invited Speaker.** Bed Bugs and Beyond: Infectious Diseases in Homeless Persons. Sunnybrook and Women's College Health Sciences Centre, Infectious Diseases/Microbiology Rounds. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2005 Jun 13 **Invited Speaker.** Homeless People's Trust and Interactions with Paramedics and Police in Toronto.

Toronto Police Services Board. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**, Zakrison T.

- 2005 May 11 **Invited Speaker.** Bedbug Infestations in Homeless Shelters and Other Locations in Toronto. City of Toronto, Community and Neighbourhood Services, Alternative Housing and Services Committee. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2005 May 9 **Invited Speaker.** Bedbug Infestations in Homeless Shelters and Other Locations in Toronto. Toronto Board of Health. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2005 Mar 1 **Invited Lecturer.** Homelessness and Health. York University, Faculty of Arts, A Critical Study of Health and Society. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2005 Feb 23 **Speaker.** Homeless People's Use of Health Care: Too Much, Too Little, or Just Right? St. Michael's Hospital, Medical Grand Rounds. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2005 Feb 7 **Invited Lecturer.** Homelessness and Health. University of Toronto, Department of Sociology, Introduction to Health and Social Policy. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2004 Nov 29 **Invited Speaker.** The Reemergence of Bedbugs in the Urban Environment. City of Toronto, Advisory Committee on Homeless and Socially Isolated Persons. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2004 Oct 6 **Invited Lecturer.** Access to Health Care in Disadvantaged Populations. Michener Institute for Applied Health Sciences and University of Toronto Faculty of Medicine, Medical Radiation Sciences Program. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2004 Jun 21 **Invited Speaker.** The Role of Research in Improving Community Health. St. Michael's Hospital Community Advisory Panels and the Wellesley Central Corporation. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2004 Jun 1 **Invited Speaker.** Alarming Death Rates among Homeless Women in Toronto: What's the Story Behind the Story? Wellesley Central Health Corporation, Wellesley Urban Health Seminar Series. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2004 May 19 **Invited Speaker.** Cardiovascular Risk Factors in Homeless Adults. Institute for Clinical Evaluation Sciences and Sunnybrook and Women's Health Sciences Centre, Clinical Epidemiology Rounds. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2004 Apr 19 **Invited Speaker.** Cardiovascular Risk Factors in Homeless Adults. Toronto General Hospital, Clinical Epidemiology Rounds. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2004 Mar 29 **Invited Lecturer.** Homelessness and Health. Ryerson University, School of Occupational and Public Health. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2004 Mar 9 **Invited Lecturer.** Homelessness and Health. University of Toronto, Population Health Course. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2004 Feb 15 **Invited Lecturer.** Homelessness and Health. Ryerson University, School of Occupational and Public Health. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2004 Jan 14 **Invited Speaker.** Health Care Utilization among Homeless Persons in Toronto. City of Toronto, Community and Neighbourhood Services, Alternative Housing and Services Committee. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2003 Nov 6 **Speaker.** Cardiovascular Risk Factors in Homeless Adults. St. Michael's Hospital, Clinical Epidemiology Rounds. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2003 Sep 15 **Invited Speaker.** Keynote Address, 2003 Annual General Meeting. Daily Bread Food Bank Foundation. Toronto, Ontario, Canada. Presenter(s): **Hwang SW**.
- 2003 Jul 9 **Invited Speaker.** The Health of Rooming House Residents in Toronto. City of Toronto, Community and

Neighbourhood Services, Alternative Housing and Services Committee. Toronto, Ontario, Canada.
Presenter(s): **Hwang SW.**

- 2002 Oct **Invited Lecturer.** Community-Based Action Research. Ryerson University, Homelessness in Canadian Society. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2002 Oct **Invited Lecturer.** Access to Health Care: Issues of Class, Ethnicity, and Culture. Michener Institute for Applied Health Sciences and University of Toronto Faculty of Medicine, Medical Radiation Sciences Program. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2001 Dec **Invited Speaker.** Access to Health Care Among the Homeless and Hungry in the Inner City. University Health Network, Clinical Epidemiology Rounds. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2001 Nov **Speaker.** Access to Health Care Among the Homeless and Hungry in the Inner City. St. Michael's Hospital, Clinical Epidemiology Rounds. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2001 Nov **Invited Speaker.** Leadership. 2nd Annual University of Toronto PGY2 Teaching Residents to Teach Retreat (Millcroft Inn, Alton). Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2001 Oct **Invited Lecturer.** Barriers to Health Care Access for Homeless Persons. Michener Institute for Applied Health Sciences and the University of Toronto, Individual and Social Issues in Health Care Course. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2001 Jul **Invited Speaker.** Health Status of Rooming House Residents in Toronto. Toronto Dept. of Community & Neighbourhood Services, Rooming House Working Group. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2001 Jul **Invited Speaker.** Homelessness and Health. University of Toronto, Summer Mentorship Program. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2001 May **Invited Speaker.** Homelessness and Health. University of Toronto, Community Medicine Residents' Rounds. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2001 May **Invited Speaker.** Screening for Cervical and Breast Cancer in Homeless Women. Toronto Homeless Health Reference Group and Ottawa Inner City Health. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2001 Apr **Speaker.** Screening for Cervical and Breast Cancer in Homeless Women: A Community-Academic Partnership. St. Michael's Hospital, Clinical Epidemiology Rounds. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2001 Apr **Invited Speaker.** Health Care at Homeless Shelters. Utilization Information Sharing Day, Greater Toronto Area Hospitals. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2001 Mar **Invited Speaker.** Anemia in High-Risk Adult Populations. Anemia Institute for Research and Education, Anemia and Nutrition Forum. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.** (Continuing Education).
- 2000 Nov **Speaker.** Homelessness: Challenges for Clinical Care and Research. St. Michael's Hospital, Medical Grand Rounds. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2000 Nov **Invited Speaker.** Homelessness: Challenges for Clinical Care and Research. University Health Network, Toronto Western Hospital, Medical Grand Rounds. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2000 Oct **Invited Speaker.** Deaths among the Homeless. Toronto Disaster Relief Committee, Homelessness Toronto 2000. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2000 Oct **Invited Speaker.** Research in Homelessness and Health. St. Michael's Hospital Foundation, Care & Cure Lecture. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2000 Oct **Invited Lecturer.** Barriers to Health Care Access for Homeless Persons. Michener Institute for Applied

Health Sciences and the University of Toronto, Individual and Social Issues in Health Care Course. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**

- 2000 Sep **Invited Lecturer.** What is Population Health? University of Toronto, Faculty of Medicine, Determinants of Health Course. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2000 Mar **Speaker.** The Rational Clinical Exam. St. Michael's Hospital, Division of General Internal Medicine, Residents' Educational Retreat Day. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2000 Feb **Invited Speaker.** Patterns of Shelter Use and Mortality Among Homeless Men. University of Toronto, Department of Public Health Sciences, Community Health Research Day. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2000 Feb **Speaker.** Research on Homelessness and Health: Lessons from the McKinney Demonstration Projects. Inner City Health Journal Club, University of Toronto. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2000 Feb **Speaker.** Homelessness and Health in Toronto. St. Michael's Hospital Foundation. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 1999 Dec **Invited Speaker.** The Canadian Health Care System: How Does It Compare to Others? The Course on Gastroenterology and Digestive Endoscopy, The Wellesley Hospital. Toronto, Ontario, Canada. Presenter(s): **Hwang, SW.** (Continuing Education).
- 1999 Oct **Invited Lecturer.** Barriers to Health Care for Homeless Persons. Michener Institute for Applied Health Sciences and the University of Toronto Dept. of Public Health Sciences, Individual and Social Issues in Health Care Course. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 1999 Oct **Speaker.** Patterns of Shelter Use and Mortality Among Homeless Men. St. Michael's Hospital, Inner City Health Research Rounds. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 1999 Oct **Speaker.** Disease Probability for Differential Diagnosis. St. Michael's Hospital, Division of General Internal Medicine, R4 Seminar Series. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 1999 Sep **Invited Speaker.** The Canadian Health Care System: How Does It Compare to Others? The Course on Gastroenterology and Digestive Endoscopy, The Wellesley Hospital. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.** (Continuing Education).
- 1999 Aug **Invited Lecturer.** What is Population Health? University of Toronto, Faculty of Medicine, Determinants of Health Course. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 1999 Jun **Invited Speaker.** The Canadian Health Care System: How Does It Compare to Others? The Course on Gastroenterology and Digestive Endoscopy, The Wellesley Hospital. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.** (Continuing Education).
- 1999 Feb **Speaker.** Homelessness and Health Research. St. Michael's Hospital, Homeless and Underhoused Community Advisory Panel. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 1999 Jan **Speaker.** What Do Homeless Families Really Need? Inner City Health Journal Club, University of Toronto. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 1998 Dec **Invited Speaker.** The Canadian Health Care System: How Does It Compare to Others? The Course on Gastroenterology and Digestive Endoscopy, The Wellesley Hospital. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.** (Continuing Education).
- 1998 Nov **Invited Speaker.** What Happens to Patients Who Leave the Hospital Against Medical Advice? The Toronto Hospital, Clinical Epidemiology Rounds. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 1998 Jun **Invited Speaker.** The Canadian Health Care System: How Does It Compare to Others? The Course on Gastroenterology and Digestive Endoscopy, The Wellesley Hospital. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.** (Continuing Education).

- 1997 Oct **Speaker.** Healthy, Wealthy, and Wise: Why Rich People Live Longer. St. Michael's Hospital, Inner City Health Rounds. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 1997 Oct **Invited Speaker.** Statistics for Clinicians. University of Toronto, Department of Family and Community Medicine Core Day. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 1997 Sep **Speaker.** Healthy, Wealthy, and Wise: Why Rich People Live Longer. St. Michael's Hospital, Medical Grand Rounds. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 1997 Jul **Invited Speaker.** Healthy, Wealthy, and Wise: Why Rich People Live Longer. St. Michael's Hospital, Department of Family and Community Medicine, Grand Rounds. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 1997 Jun **Invited Speaker.** Integrated Health Information Systems. Healthy Connections, East Toronto Conference 1997. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 1997 Apr **Invited Speaker.** Finding and Counting the Homeless. University of Toronto, Department of Public Health Sciences, Graduate Student Seminar in Biostatistics. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 1996 Mar **Invited Speaker.** Death on the Street. St. Michael's Hospital, Medical Grand Rounds. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**

Presented Abstracts

- 2014 Jul 29 **Supervisor.** The effect of advance directive completion on end-of-life care in homeless persons. St. Michael's Hospital, Keenan Research Summer Student Program -- 2014 Research Poster Competition. Toronto, Ontario, Canada. Presenter(s): Matthew To, Linh Luong, and Victor Goncalves. (Trainee Presentation).
- 2013 May 22 **Supervisor.** Measurement of Retention in Primary Care among Vulnerably Housed Populations: The At Home/Chez Soi Project. St. Michael's Hospital, Department of Family and Community Medicine. Toronto, Ontario, Canada. Presenter(s): Dosani N. (Trainee Presentation).
- 2012 Nov 8 **Co-author.** Exploring the link between traumatic brain injury and homelessness: a feasibility study. Toronto Acquired Brain Injury Network Conference. Toronto, Ontario, Canada. Presenter(s): Topolovec-Vranic J, Ennis N, Johnson P, Michalak A, Masanic C, Ouchterlony D, Distin K, Stergiopoulos V, **Hwang S**, Kontos P, Colantonio A, Cusimano M.
- 2007 May 1 **Co-author.** Integrating conceptual frameworks to study pregnancy in street youth. 3rd Annual Epidemiology and Biostatistics Student Society Research Day, McGill University. Montreal, Quebec, Canada. Presenter(s): Scott AN, Boivin JF, **Hwang SW.** Poster presentation.
- 2000 Jan **Co-author.** Barriers to appropriate diabetes management among homeless persons in Toronto. University of Toronto, Medical Student Research Day. Toronto, Ontario, Canada. Presenter(s): Bugeja A, **Hwang SW.** Poster presentation. Winner of Award for Best Health Services Research Project.

Media Appearances

- 2025 Feb 9 **Quoted Source.** 'Absolutely horrific:' The median age of death for unhoused women in Toronto is now 36. Interviewer: Joanne Lavoie. CP24 News. Toronto, Ontario, Canada. Available from: <https://www.cp24.com/local/toronto/2025/02/09/absolutely-horrific-the-median-age-of-death-for-unhoused-women-in-toronto-is-now-36/>.
- 2024 Sep 26 **Quoted Source.** The high costs of health when homeless. Interviewer: Beverly Andrews. CityNews (Toronto). Toronto, Ontario, Canada. Available from: <https://toronto.citynews.ca/video/2024/09/26/the-high-costs-of-health-when-homeless-2/>.
- 2023 Jan 16 **Quoted Source.** Keep Toronto warming centres open 24/7 for rest of winter, Board of Health urges city.

Interviewer: Joanna Lavoie. CTV News (Toronto). Toronto, Ontario, Canada. Available from: <https://toronto.ctvnews.ca/keep-toronto-warming-centres-open-24-7-for-rest-of-winter-board-of-health-urges-city-1.6233129>.

- 2022 May 23 **Quoted Source.** Toronto's homeless encampments are back on the fringes. Here's why that's a problem. Interviewer: Victoria Gibson. The Toronto Star. Toronto, Ontario, Canada. Available from: <https://www.thestar.com/news/gta/2022/05/23/torontos-homeless-encampments-are-back-on-the-fringes-heres-why-thats-a-problem.html>.
- 2022 Jan 29 **Quoted Source.** 'People are stranded:' A downtown hospital is seeing a rise in cold-related injuries as shelters struggle to find spots. Interviewer: Megan Ogilvie. The Toronto Star. Toronto, Ontario, Canada. Available from: <https://www.thestar.com/news/gta/2022/01/29/people-are-stranded-a-downtown-hospital-is-seeing-a-rise-in-cold-related-injuries-as-shelters-struggle-to-find-spots.html>.
- 2022 Jan 25 **Televised Interview.** Cold weather and people experiencing homelessness. CP24 News. Toronto, Ontario, Canada. Available from: <https://www.cp24.com/video?binId=1.5364204>.
- 2021 Jul 31 **Quoted Source.** A private community housing provider noticed a spike in premature deaths in one of their buildings. So they decided to do something about it. Interviewer: Donovan Vincent. The Toronto Star. Toronto, Ontario, Canada. Available from: <https://www.thestar.com/news/gta/2021/07/31/a-private-community-housing-provider-noticed-a-spike-in-premature-deaths-in-one-of-their-buildings-so-they-decided-to-do-something-about-it.html>.
- 2019 Oct 23 **Quoted Source.** Who's to blame for youth homelessness in York Region? Interviewer: Sheila Wang. The Richmond Hill Liberal, King Connection, yorkregion.com. Richmond Hill, Ontario, Canada. Available from: <https://www.yorkregion.com/news-story/9637639-analysis-who-s-to-blame-for-youth-homelessness-in-york-region-/>.
- 2017 Jun 25 **Quoted Source.** Toronto faces Catch-22 with impending Seaton House closure. Interviewer: Emma McIntosh. The Toronto Star. Toronto, Ontario, Canada. Available from: <https://www.thestar.com/news/gta/2017/06/25/toronto-faces-catch-22-with-impending-seaton-house-closure.html>.
- 2016 Oct 10 **Quoted Source.** Cities' homelessness plans doomed to fail without federal cash: Report. Interviewer: Laurie Monsebraaten and Hin Alam. The Toronto Star. Toronto, Ontario, Canada. Available from: <https://www.thestar.com/news/gta/2016/10/10/cities-homelessness-plans-doomed-to-fail-without-federal-cash-report.html>.
- 2016 Feb 21 **Quoted Source.** Ontario's uncounted homeless dead. Interviewer: Mary Ormsby and Kenyon Wallace. The Toronto Star. Toronto, Ontario, Canada. Available from: <http://www.thestar.com/news/insight/2016/02/21/ontarios-uncounted-homeless-dead.html>.
- 2015 Jan 26 **Cited.** Toronto experts to advise Ontario on how to end homelessness. Interviewer: Laurie Monsebraaten. The Toronto Star. Toronto, Ontario, Canada. Available from: <http://www.thestar.com/news/queenspark/2015/01/26/toronto-experts-to-advise-ontario-on-how-to-end-homelessness.html>.
- 2015 Jan 15 **Quoted Source.** 780 homeless people have died on Toronto streets since 1985...we think. Interviewer: Ben Spurr. NOW Toronto. Toronto, Ontario, Canada. Available from: <https://nowtoronto.com/news/740-homeless-people-have-died-on-toronto-streets-since-1985/>.
- 2014 Mar 5 **Quoted Source.** Make TTC free overnight during cold alerts, Councillor Josh Colle urges. Interviewer: Patty Winsa. The Toronto Star. Toronto, Ontario, Canada. Available from: http://www.thestar.com/news/gta/2014/03/05/make_ttc_free_overnight_during_cold_alerts_councillor_josh_colle_urges.html.
- 2013 Feb 2 **Personal Profile.** St. Michael's Hospital appoints Dr. Stephen Hwang inaugural chair in homelessness, housing and health. The Toronto Star. Toronto, Ontario, Canada. Presenter(s): Laurie Monsebraaten. The Toronto Star. Available at: http://www.thestar.com/news/gta/2013/02/01/st_michaels_hospital_appoints_dr_stephen_hwang_inaugur

al_chair_in_homelessness_housing_and_health.html.

- 2008 Oct 9 **Quoted Source.** Canadian group protests the 'politicization of science'. The Toronto Star. Toronto, Ontario, Canada. Presenter(s): Anne-Marie Tobin. The Toronto Star.
- 2008 May 5 **Quoted Source.** Outrageous but predictable violence (commentary). The Toronto Star. Toronto, Ontario, Canada. Presenter(s): Nick Falvo.
- 2007 Nov 23 **Interview.** Traumatic Brain Injury among Homeless People. CBC Radio: Metro Morning with Andy Barry. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2007 Jun 28 **Interview.** Infection control measures during the SARS outbreak and death rates in Toronto. Omni 2 Television, Cantonese News. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 2006 Nov 9 **Letter to the Editor.** Homeless Face More Health Risks. The Toronto Star. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.** The Toronto Star, Page A29.
- 2005 Feb 14 **Speaker.** Mental and Physical Health on the Street. 3rd Annual Homelessness Radio Marathon, CKUT Radio. Montreal, Quebec, Canada. Presenter(s): **Hwang SW.**
- 2002 Oct **Speaker.** Daily Bread Food Bank Report: "Turning Our Backs on Our Children: Hunger + Decrepit Housing = Unhealthy, Unsafe Children". Daily Bread Food Bank Foundation. Toronto, Ontario, Canada. Presenter(s): **Hwang SW.**
- 1997 Sep 21 **Personal Profile.** Caring for the street people: Doctor leads St. Michael's Hospital medical program for Metro's homeless. The Toronto Sun. Toronto, Ontario, Canada. Presenter(s): Linton M.

5. OTHER

Presented and Published Abstracts

- 2009 May The research alliance for Canadian homelessness, housing and health (REACH3).

Publication Details:

Aubry T, Cowan L, Dunn JR, Evans L, Evans S, Farrell S, Flamand S, Gogosis E, Hoch J, Hubley, Hulchanski D, **Hwang SW**, Khandor E, Klodawsky F, MacLaurin B, Muckle W, Palepu A, Roy E, Worthington C, Wyllie K. The research alliance for Canadian homelessness, housing and health (REACH3). Journal of Urban Health. May 2009;86(3):386. **Principal Author.**

G. Teaching and Design

1. INNOVATIONS AND DEVELOPMENT IN TEACHING AND EDUCATION

- 2007 Jan - 2016 Jun University of Toronto Division of General Internal Medicine Faculty Day, Continuing Education, Faculty of Medicine, Dept of Medicine, General Internal Medicine, University of Toronto
Director. The University of Toronto Division of General Internal Medicine Faculty Day was initiated in 2007. It is now an annual divisional event that brings together 60 faculty members for updates on clinical topics and the activities of the division.
- 2006 Jul - 2007 Jun Scenario Rounds. Postgraduate MD, Faculty of Medicine, Dept of Medicine, General Internal Medicine, University of Toronto
Director. Coordinated creation of a university-wide curriculum and evaluation process for these rounds.

H. Research Supervision

1. PRIMARY OR CO-SUPERVISION

Undergraduate Education

2023 Sep - 2024 Jun	Primary Supervisor. B. Sc. Sarah Stouffer-Lerch. Supervisee Position: Fulbright Scholar, Supervisee Institution: Ohio State University. <i>Experiences of 2SLGBTQ+ Adults in Toronto's Homelessness and Housing Support System, Non-thesis Project.</i> Awards: Fulbright Scholar - US Student Research Grantee. Supervisor(s): Stephen Hwang. Collaborator(s): John Ecker. Completed 2024.
2019 Aug - 2020 Aug	Primary Supervisor. BA. Dylan Balter. <i>Patient factors affecting family physicians' prescribing decisions for patients with chronic diseases, Non-thesis Project.</i> Awards: Johns Hopkins University - Second Decade Society - Meg Walsh Award. Completed 2020.
2017 Jun - 2017 Aug	Primary Supervisor. B. Sc. Linh Luong. Supervisee Position: Summer Research Student, Supervisee Institution: York University. <i>Readmissions among Homeless Patients.</i>
2016 Jun - 2016 Dec	Primary Supervisor. Alexandra Patel. Supervisee Position: Undergraduate Student, Supervisee Institution: University of Toronto. <i>Factors Affecting 90 Day Readmission to a General Medical Unit in the Homeless Population.</i>
2014 Jun - 2014 Aug	Primary Supervisor. B. Sc. Linh Luong. Supervisee Position: Summer Research Student, Supervisee Institution: York University. <i>The Effect of Advance Directives on the Care of Homeless Persons.</i>
2012 Jun - 2013 Aug	Primary Supervisor. B. Sc. Matthew To. Supervisee Institution: Western University. <i>Health status, healthcare utilization, and criminal incidents following traumatic brain injury in homeless and vulnerably housed adults in 3 Canadian cities.</i>
2012 Mar - 2012 Jul	Primary Supervisor. High School. Linh Luong. Supervisee Institution: Richmond Hill High School. <i>Health and Housing in Transition Study.</i>
2007 May - 2007 Aug	Primary Supervisor. B. Sc. Emma Wilkins. Supervisee Institution: University of Alberta. <i>Barriers to Chronic Pain Management in Homeless People.</i> Completed 2010.
2007 May - 2007 Aug	Primary Supervisor. B. Sc. Stephen VanderHerberg. Supervisee Institution: St. Michael's Hospital, Toronto. <i>Barriers to Chronic Pain Management in Homeless People.</i>
2005 Sep - 2006 Aug	Primary Supervisor. B. Sc. Michael Chan. Supervisee Institution: University of Toronto. <i>Access to Mobile Healthcare Services: A Comparison of Toronto and New York City.</i>
2005 May - 2006 Jun	Primary Supervisor. BA. Gabrielle Ramos. Supervisee Institution: Columbia University, NY. <i>Access to Mobile Healthcare Services: A Comparison of Toronto and New York City.</i>
2004 May - 2004 Aug	Primary Supervisor. BA. Toby Shaw. Supervisee Institution: Wesleyan University, Middletown, CT. <i>Bone Mineral Density in Women using Meal Programs.</i>
2002 May - 2002 Aug	Primary Supervisor. B. Sc. Jessica Ben-David. Supervisee Institution: University of Western Ontario. <i>Risk factors for cardiovascular disease among homeless people.</i>
2001 - 2003	Co-Supervisor. B. Sc. Diana Chislett and Naomi Ross. Supervisee Institution: St. Michael's Hospital. <i>Do shelters for the homeless in Toronto provide appropriate menus for those with diabetes?.</i> Collaborator(s): Primary supervisor: Pauline Darling. Completed 2003.
2000 - 2003	Primary Supervisor. B. Sc. Carolyn Tram. Supervisee Institution: University of Toronto. <i>Do graphic illustrations improve patients' comprehension of medication labels?.</i>

Graduate Education

2021 Mar - present	Co-Supervisor. MSc. Emma Skolnik, MD, Health Policy, Management and Evaluation. Supervisee Position: Fellow in Minimally Invasive Gynecologic Surgery, Supervisee Institution: St. Michael's Hospital. <i>Access to Advanced Gynecological Care for Patients Experiencing Disadvantage; A Population Based Study.</i> Supervisor(s): Andrea Simpson &

2019 Jan - 2019 Mar	Stephen Hwang. Primary Supervisor. Master of Public Health. Linh Luong, Public Health Sciences. Supervisee Position: MPH Student, Supervisee Institution: University of Toronto. <i>The "At Home" Research Demonstration Project in Mental Health and Homelessness --Toronto Site.</i> Completed 2019.
2017 Nov - 2021 Jan	Co-Supervisor. PhD. Jesse Jenkinson, Public Health Sciences. Supervisee Position: Graduate Student, Supervisee Institution: University of Toronto. <i>How does context shape the implementation process of discharging homeless patients from hospitals in Toronto, Canada?.</i> Supervisor(s): Erica Di Ruggiero and Stephen Hwang. Collaborator(s): Carol Strike. Completed 2021.
2016 Sep - 2021 Jun	Primary Supervisor. PhD. Kathryn Wiens, Public Health Sciences. Supervisee Position: MD Student, Supervisee Institution: University of Toronto. <i>Healthcare utilization among adults with a history of homelessness: The distribution and determinants of high-cost use of the healthcare system.</i> Supervisor(s): Laura Rosella, Paul Kurdyak. Completed 2021.
2013 Jul - 2015 Dec	Primary Supervisor. PhD. Jeyagobi Jeyaratnam, Health Policy, Management and Evaluation. Supervisee Position: Graduate Student, Supervisee Institution: University of Toronto. Collaborator(s): Farah Ahmad, Elizabeth Lin.
2012 Apr - 2014 Sep	Primary Supervisor. MSc. Dima Saab, Health Policy, Management and Evaluation. Supervisee Position: Graduate Student, Supervisee Institution: University of Toronto. <i>Hospital Readmissions among People who are Homeless in Toronto.</i> Collaborator(s): Rosane Nisenbaum, Irfan Dhalla. Completed 2014.
2011 Sep - 2014 Sep	Co-Supervisor. MSc Dental Public Health. Rafael Figueiredo, Dentistry. Supervisee Position: Provincial Dental Public Health Officer, Alberta Health Services, Supervisee Institution: University of Toronto. <i>Emergency Department Visits for Dental Problems by Homeless People: A Four-Year Observational Cohort Study using Health Care Databases.</i> Supervisor(s): Carlos Quinonez. Collaborator(s): Laura Dempster. Completed 2014.
2010 Sep - 2014 Sep	Primary Supervisor. MSc. Gayathri Naganathan, Health Policy, Management and Evaluation. Supervisee Position: Graduate Student, Supervisee Institution: University of Toronto. <i>The core features and perceived value of family support for ethnoracial homeless individuals with mental illness: Findings from the At Home/Chez Soi Project.</i> Collaborator(s): Vicky Stergiopoulos, Paul Williams. Completed 2014.
2005 Jan - 2012	Co-Supervisor. PhD. Allison Scott, Department of Epidemiology and Biostatistics. Supervisee Position: Epidemiologist, Alberta Health Services, Supervisee Institution: McGill University. <i>Incidence of Pregnancy, Identity, and Constructing Belonging in Street Youth.</i> Supervisor(s): Jean-François Boivin, Robert Platt, Janet Parsons. Completed 2017.
2002 - 2004	Co-Supervisor. MSc. Gordon Bargh, Department of Epidemiology and Biostatistics. Supervisee Position: Physician, Supervisee Institution: Western University. <i>Group A Streptococcus colonization among residents of a homeless shelter.</i> Supervisor(s): Jeffrey Hoch. Completed 2004.

Undergraduate MD

2022 - 2024	Primary Supervisor. Year 2. Kaitlyn Ramsay, Hammad Shahid. Supervisee Position: Medical student, Supervisee Institution: University of Toronto. <i>Dying alone during the COVID-19 pandemic: Mortality among permanent supportive housing residents in Toronto.</i> Collaborator(s): Parvin Merchant.
2019 Mar - 2021 Jun	Co-Supervisor. Year 2. Patsy Lee. Supervisee Position: Medical student, Supervisee Institution: McMaster University. <i>A Scoping review on community integration and social inclusion in formerly or current homeless people:.</i> Collaborator(s): Cilia Mejia-Lancheros.
2019 - 2022	Primary Supervisor. Year 1. Michael Liu. Supervisee Position: Medical Student, Supervisee Institution: Harvard Medical School.
2016 Jul - 2017	Primary Supervisor. Year 2. David Anderson. Supervisee Position: Medical student, Supervisee Institution: McMaster University. <i>PICC line for injection drug users.</i>
2015 Sep - 2016 Aug	Primary Supervisor. Year 2. Mei Wen. Supervisee Position: Medical student, Supervisee

	Institution: University of Toronto. <i>Factors Affecting 90 Day Readmission to a General Medical Unit in the Homeless Population.</i>
2014 Sep - 2017 Jun	Primary Supervisor. Year 2. Paige Zhang. Supervisee Position: Medical student, Supervisee Institution: University of Toronto. <i>Extreme Weather and Cold- and Heat-related Injuries among Homeless Individuals.</i>
2014 Sep - 2016 Jun	Co-Supervisor. Year 2. Rafael Sumalinog. Supervisee Position: Medical student, Supervisee Institution: University of Toronto. <i>Palliative Care for Homeless Patients.</i>
2014 Jun - 2014 Aug	Primary Supervisor. Year 2. Matthew To. Supervisee Position: Summer Research Student, Supervisee Institution: Dalhousie University. <i>The Effect of Advance Directives on the Care of Homeless Persons.</i>
2014 Jun - 2014 Aug	Primary Supervisor. Year 3. Victor Lucas Goncalves. Supervisee Position: Summer Research Student, Supervisee Institution: University of Sao Paulo, Brasil. <i>The Effect of Advance Directives on the Care of Homeless Persons.</i>
2013 Jul - 2016 Jun	Primary Supervisor. Year 2. Dhruv Nayyar. Supervisee Position: Medical Student, Supervisee Institution: University of Toronto. <i>Risk of Cardiovascular Disease in Homeless Adults: 10-Year Follow-Up.</i>
2013 Jul - 2014 Jun	Primary Supervisor. Year 2. Pavan Gill. Supervisee Position: Medical Student, Supervisee Institution: University of Toronto. <i>Health Needs Assessment of Taxi Drivers in Toronto.</i> Collaborator(s): Francesca Gany.
2013 Jun - 2013 Aug	Primary Supervisor. Year 2. Manisha Sachdeva and Dhruv Nayyar. Supervisee Position: Medical Students, Supervisee Institution: University of Toronto. <i>The Effect of Advance Directives on the Care of Homeless Persons.</i>
2012 Oct - 2016 Jun	Primary Supervisor. Year 2. Alexander Leung. Supervisee Position: Medical Student, Supervisee Institution: University of Toronto. <i>The Effect of Advance Directives on the Care of Homeless Persons.</i> Collaborator(s): John Song (University of Minneapolis).
2012 Jul - 2012 Sep	Primary Supervisor. Year 2. Kenneth Lam. Supervisee Position: Medical Student, Supervisee Institution: Western University. <i>Pragmatic Cluster Randomized Trials as an Evidence Tool for Patient Safety.</i>
2012 Jun - 2013 Sep	Primary Supervisor. Year 1. Charlotte Hunter. Supervisee Position: Medical Student, Supervisee Institution: Western University. <i>Barriers to prescription medication adherence among homeless and vulnerably housed adults in three Canadian cities.</i>
2011 Oct - 2013 Dec	Primary Supervisor. Year 2. Samantha Young. Supervisee Position: Medical Student, Supervisee Institution: University of Toronto. <i>Influenza vaccination rates among homeless people with mental illness.</i>
2011 Aug - 2012 Dec	Primary Supervisor. Year 2. Alison Fine & Tony Zhang. Supervisee Position: Medical Students, Supervisee Institution: Western University. <i>Attitudes towards Homeless People among Medical Students and Emergency Department Staff.</i>
2011 Jun - 2013 Jun	Primary Supervisor. Year 1. Niran Argintaru. Supervisee Position: Medical Student, Supervisee Institution: Western University. <i>Unmet health needs among homeless and vulnerably housed adults in three Canadian cities.</i>
2010 Oct - 2012 Dec	Primary Supervisor. Year 2. Greg Gaisano & Michelle Olah. Supervisee Position: Medical Students, Supervisee Institution: University of Toronto. <i>The Effects of Socioeconomic Status and Chronic Health Conditions on the Ability to Find a Family Physician in Toronto.</i>
2010 Jun - 2011 May	Primary Supervisor. Year 2. Matthew Kennedy. Supervisee Institution: University of Toronto, Faculty of Medicine. <i>Instruments to Assess Food Security among Homeless Individuals.</i>
2010 Apr - 2012 Dec	Primary Supervisor. Year 2. Mike Fralick & Zane Gallinger. Supervisee Institution: University of Toronto, Faculty of Medicine. <i>Drowning and the Influence of Foreign-born Status.</i>
2009 Oct - 2011 May	Primary Supervisor. Year 2. Anna Holland. Supervisee Institution: St. Michael's Hospital. <i>Instruments to Assess Food Security among Homeless Individuals.</i>
2009 Jan - 2009 Dec	Primary Supervisor. Year 1. Anna Holland. Supervisee Institution: University of Toronto. At

Home: Research Demonstration Project on Homelessness and Mental Health. Completed 2012.

2008 Oct - 2009 May	Primary Supervisor. Year 2. Mina Atia. Supervisee Institution: University of Toronto, Faculty of Medicine. <i>The Relationship between Apparent Age and Health Status.</i> Completed 2011.
2008 Apr - 2008 Aug	Primary Supervisor. Year 2. Joanna Ueng. Supervisee Institution: Queen's University, School of Medicine. <i>Unmet needs for health care among homeless people within a system of universal health insurance.</i> , Completed 2010.
2007 Oct - 2008 May	Primary Supervisor. Year 2. Eileen Estrabillo. Supervisee Institution: University of Toronto, Faculty of Medicine. <i>Barriers to Chronic Pain Management in Homeless People.</i> Completed 2009.
2006 Oct - 2007 May	Primary Supervisor. Year 2. Shaqil Kassam. Supervisee Institution: University of Toronto, Faculty of Medicine. <i>Infirmity Care for Homeless Adults.</i> Collaborator(s): Co-Supervisor: Alice Broughton.
2006 Oct - 2007 May	Primary Supervisor. Year 2. Anna MacDonald. Supervisee Institution: University of Toronto, Faculty of Medicine. <i>Barriers to Chronic Pain Management in Homeless People.</i>
2006 Apr - 2007 Aug	Primary Supervisor. Year 1. Ciara Whelan. Supervisee Institution: Queen's University, School of Medicine. <i>Access to Mobile Healthcare Services: A Comparison of Toronto and New York City.</i>
2005 Oct - 2006 May	Primary Supervisor. Year 2. Andrew Smith. Supervisee Institution: University of Toronto, Faculty of Medicine. <i>The Effects of Supportive Housing on the Health Status and Service Utilization of Homeless and Hard-to-House Adults.</i>
2005 May - 2007 May	Primary Supervisor. Year 2. Cheryl Leung. Supervisee Institution: University of Western Ontario, Schulich School of Medicine. <i>Control of Emerging Infectious Diseases in Homeless Populations.</i>
2004 Oct - 2007 May	Primary Supervisor. Year 2. Chuck Wen. Supervisee Institution: University of Toronto, Faculty of Medicine. <i>Perceptions of Unwelcomeness among Homeless People.</i> Collaborator(s): Collaborator: Pam Hudak.
2004 Oct - 2005 May	Primary Supervisor. Year 2. Theepa Sundaralingam. Supervisee Institution: University of Toronto, Faculty of Medicine. <i>Bone Mineral Density in Women using Meal Programs.</i>
2003 Oct - 2004 May	Primary Supervisor. Year 2. Emily Lai. Supervisee Institution: University of Toronto, Faculty of Medicine. <i>Bone Mineral Density in Women using Meal Programs.</i>
2003 Jan - 2005 Dec	Primary Supervisor. Year 2. Fiona Kouyoumdjian. Supervisee Institution: Dalhousie University Medical School. <i>Systematic review of interventions to improve the health of the homeless.</i>
2002 Oct - 2003 May	Primary Supervisor. Year 2. Melanie Makhija. Supervisee Institution: University of Toronto, Faculty of Medicine. <i>Factors affecting women's decisions regarding infertility treatment.</i>
2002 Oct - 2003 May	Primary Supervisor. Year 2. John Hanlon. Supervisee Institution: University of Toronto, Faculty of Medicine. <i>Risk factors for cardiovascular disease among homeless people.</i>
2001 May - 2001 Aug	Primary Supervisor. Year 1. Susan Scarrow. Supervisee Institution: University of Western Ontario, School of Medicine. <i>Cervical cancer and breast cancer screening among homeless women.</i>
2001 - 2003	Primary Supervisor. Year 2. Pavi Kundhal. Supervisee Institution: University of Toronto, Faculty of Medicine. <i>The effect of socioeconomic status on waiting time for MRI scans.</i>
2001 - 2002	Primary Supervisor. Year 2. Tony Lee. Supervisee Institution: University of Toronto, Faculty of Medicine. <i>Risk factors for cardiovascular disease among homeless people.</i>
2000 - 2003	Primary Supervisor. Year 2. Tanya Zakrison. Supervisee Institution: University of Toronto, Faculty of Medicine. <i>Homeless people's interactions with police officers and paramedics.</i> Collaborator(s): Collaborator: Paul Hamel.
2000 - 2002	Primary Supervisor. Year 2. Rohit Bose. Supervisee Institution: University of Toronto, Faculty of Medicine. <i>Income and spending among panhandlers.</i>
1999 - 2001	Primary Supervisor. Year 2. Sunny Wong. Supervisee Institution: University of Toronto, Faculty of Medicine. <i>Dyspepsia among homeless people.</i>

- 1999 - 2000 **Primary Supervisor.** Year 2. Nadia Knarr. Supervisee Institution: University of Toronto, Faculty of Medicine. *Do graphic illustrations improve patients' comprehension of medication labels?*
- 1998 - 2000 **Primary Supervisor.** Year 2. Ann Bugeja. Supervisee Institution: University of Toronto, Faculty of Medicine. *Barriers to appropriate diabetes management among homeless persons in Toronto.*
- 1997 - 1999 **Primary Supervisor.** Year 2. Jason Gottlieb. Supervisee Institution: University of Toronto, Faculty of Medicine. *Drug access among homeless men in Toronto.*

Postgraduate MD

- 2024 Oct **Primary Supervisor.** Subspecialty. Zoha Hassan. Supervisee Position: General Internal Medicine PGY-5. *Effectiveness of Medical Respite Programs for Patients Experiencing Homelessness: An Updated Systematic Review (Capstone Project), Non-thesis Project.* Supervisor(s): Stephen Hwang.
- 2020 - 2021 **Primary Supervisor.** Core Program. Alison McFadden, MD. Supervisee Institution: University of Toronto. *The effect of a Housing First intervention on COPD management in a population of individuals with mental illness experiencing homelessness in Canada, Non-thesis Project.*
- 2019 - 2021 **Primary Supervisor.** Core Program. Ashley Jensen, MD. Supervisee Institution: University of Toronto. *The Impact of a Housing First Intervention on Substance Use: Follow-up Analysis of the At Home/Chez Soi Randomized Controlled Trial, Non-thesis Project.*
- 2017 Nov - 2021 Jun **Primary Supervisor.** Subspecialty. Samantha Liauw, MD. Supervisee Position: Cardiology Resident, Supervisee Institution: University of Toronto. *Outcomes of ST-Segment Elevation Myocardial Infarction in a Canadian Inner City Population.* Collaborator(s): Shuangbo Liu.
- 2015 Jul - 2017 Jun **Primary Supervisor.** Core Program. Yayi Huang, MD. Supervisee Institution: University of Toronto. *Factors Affecting 90 Day Readmission to a General Medical Unit in the Homeless Population, Non-thesis Project.*
- 2011 Oct - 2014 Sep **Primary Supervisor.** Resident in Family Medicine. Naheed Dosani, MD. Supervisee Institution: University of Toronto. *Measurement of Retention in Primary Care among Vulnerably Housed Populations: The At Home/Chez Soi Project.* Awards: First Place, St. Michael's Hospital Resident Research Day (May 2013).
- 2010 Nov - 2012 Dec **Primary Supervisor.** Core Program. Shail Rawal, MD. Supervisee Institution: University of Toronto. *Is "Looking Chronically Ill" a Sign of Poor Health?*
- 2008 Jul - 2009 Aug **Primary Supervisor.** Subspecialty. Michelle Grinman, MD. Supervisee Institution: University of Toronto. *The Impact of Drug Problems on Homeless Individuals in Toronto, Ontario.* Completed 2009.
- 2001 - 2002 **Co-Supervisor.** Resident in Family Medicine. Jennifer Ross, MD and Karen Chien, MD. Supervisee Institution: University of Toronto, Faculty of Medicine. *Adherence and hepatotoxicity among homeless men receiving directly observed prophylactic therapy for tuberculosis.* Collaborator(s): Co-supervisor: Tomislav Svoboda.
- 2000 - 2001 **Co-Supervisor.** Resident in Psychiatry. Treena Wilkie, MD. Supervisee Institution: University of Toronto, Faculty of Medicine. *Differential treatment of homeless compared to non-homeless patients.* Collaborator(s): Primary Supervisor: Gordon Duval.

Postdoctoral Research Fellow (PhD)

- 2025 Jan **Primary Supervisor.** Postdoctoral Training. Ayda Agha, PhD. Supervisee Position: Postdoctoral Fellow, Supervisee Institution: St. Michael's Hospital. *TBD.*
- 2021 Mar - 2023 Jun **Primary Supervisor.** Postdoctoral Training. Jesse Jenkinson, PhD. Supervisee Position: Postdoctoral Fellow, Supervisee Institution: St. Michael's Hospital. *Health care transitions among people experiencing homelessness.*
- 2020 - 2022 **Co-Supervisor.** Postdoctoral Training. Ambreen Sayani, MD, PhD. Supervisee Position: Postdoctoral Fellow, Supervisee Institution: Women's College Hospital. *Improving access to*

lung cancer screening in the underserved & Building capacity for future cancer patient-oriented research in Canada, Group Supervision. Awards: CIHR Patient-Oriented Research Award -- Transition to Leadership Stream. Supervisor(s): Aisha Lofters.

- 2018 Sep - 2019 Jul **Primary Supervisor.** Postdoctoral Training. David Campbell MD, PhD. Supervisee Position: Postdoctoral Fellow, Supervisee Institution: St. Michael's Hospital. *Understanding and engaging with individuals experiencing homelessness who have diabetes: A participatory research project.* Supervisor(s): Gillian Booth, Stephen Hwang, Pat O'Campo.
- 2018 May - 2022 Aug **Primary Supervisor.** Postdoctoral Training. James Lachaud, PhD. Supervisee Position: Postdoctoral Fellow, Supervisee Institution: St. Michael's Hospital. *The At Home Research Demonstration Project in Mental Health and Homelessness.* Awards: CIHR Fellowship - Research & Knowledge Translation on Urban Housing and Health.
- 2018 Jan - 2022 Feb **Primary Supervisor.** Postdoctoral Training. Cilia Mejia-Lancheros, PhD. Supervisee Position: Postdoctoral Fellow, Supervisee Institution: St. Michael's Hospital. *The At Home Research Demonstration Project in Mental Health and Homelessness --Toronto Site.* Supervisor(s): Stephen Hwang, Pat O'Campo, Vicky Stergiopoulos.
- 2017 Mar - 2018 Oct **Primary Supervisor.** Postdoctoral Training. Naomi Thulien, NP, MN, PhD. Supervisee Position: Postdoctoral Fellow, Supervisee Institution: St. Michael's Hospital. *Tackling Social Exclusion: A Peer Support Intervention for Street-Involved and Homeless Youth.*
- 2014 Jul - 2015 Jun **Co-Supervisor.** Postdoctoral Training. Daniel Poremski, PhD. Supervisee Position: ACHIEVE Postdoctoral Fellow, Supervisee Institution: St. Michael's Hospital. Supervisor(s): Vicky Stergiopoulos.
- 2013 Jul - 2016 Jun **Primary Supervisor.** Postdoctoral Training. Fiona Kouyoumdjian, MD, PhD. Supervisee Position: CIHR Postdoctoral Fellow, Supervisee Institution: St. Michael's Hospital. *Mortality of people incarcerated in provincial facilities in Ontario: A 15 year retrospective cohort study.* Awards: CIHR Postdoctoral Fellowship.

2. OTHER SUPERVISION

Graduate Education

Thesis Committee Member

- 2024 Nov - present **MSc.** Tucker Reed, Community Health Science. Supervisee Position: Graduate Student, Supervisee Institution: The University of Calgary. *Evaluation of the Diabetes Mobile Clinic.* Supervisor(s): David Campbell. Collaborator(s): Amity Quinn, Hanan Bassyouni.
- 2023 Sep - present **PhD.** Peter Hoang, Health Policy, Management and Evaluation. Supervisee Position: Graduate Student, Supervisee Institution: University of Toronto. *Health disparities and health needs among older adults who have experienced homelessness.* Supervisor(s): Paula Rochon. Collaborator(s): Nathan Stall, Therese Stukel.
- 2019 Aug - present **PhD.** Michael Potvin, Social Work. Supervisee Position: Graduate Student, Supervisee Institution: McMaster University. *Exploration of the internalization of Homeless Oppression.* Supervisor(s): Ann Fudge Schormans. Collaborator(s): Rachel Zhou.
- 2022 Sep - 2024 Aug **MSc.** Omer Jamal, Medical Science. Supervisee Position: Graduate Student, Supervisee Institution: University of Toronto. *Exploring the Relationship Between the Social Determinants of Health and Health Inequities in Pediatric Ophthalmology.* Supervisor(s): Helen Dimaras. Collaborator(s): Ashwin Mallipatna. Completed 2024.
- 2022 Jul - 2024 Dec **PhD.** Ayda Agha, Psychology. Supervisee Position: Graduate Student, Supervisee Institution: University of Ottawa. *Changes in social support and integration based on changes in housing status over time among homeless and vulnerably housed population in 3 Canadian cities.* Supervisor(s): Tim Aubry. Completed 2024.
- 2021 Mar - 2024 Aug **PhD.** Volletta Peters, Health Sciences. Supervisee Position: Graduate Student, Supervisee Institution: Ontario Tech University. *Exploring the Lived Experience of Aging among Older Adults who are Chronically Homeless.* Supervisor(s): Winnie Sun. Collaborator(s): David

	Rudoler. Completed 2024.
2019 Sep - 2022 Aug	Master of Medical Science. Parisa Dastoori, Medical Science. Supervisee Position: Graduate Student, Supervisee Institution: University of Toronto. Supervisor(s): Flora Matheson. Collaborator(s): Paul Kurdyak, Samantha Anthony.
2013 Oct - 2017 Feb	PhD. Naomi Thulien, NP, MN, Nursing Science. Supervisee Position: Assistant Professor, McMaster University, Supervisee Institution: University of Toronto. <i>Tackling Social Exclusion: A Peer Support Intervention for Street-Involved and Homeless Youth.</i> Supervisor(s): Denise Gastaldo. Collaborator(s): Elizabeth McCay. Completed 2017.
2012 Jun - 2015 Jun	PhD. Carrie Marshall, Rehabilitation Therapy. Supervisee Position: Graduate Student, Supervisee Institution: Queen's University, Kingston, Ontario. <i>Time Use and Health and Wellbeing in the Transition From Homeless to Housed in Chronically Homeless Persons.</i> Supervisor(s): Rosemary Lysaght. Collaborator(s): Stephen Gaetz, Terry Krupa. Completed 2015.
2012 Apr - 2016 Sep	SD (Doctor of Science). Jill Roncarati, MPH, Public Health. Supervisee Position: Graduate Student, Supervisee Institution: Harvard School of Public Health. <i>Sleeping Rough: Morbidity, mortality, and the effects of housing on the health of Boston's street population.</i> Supervisor(s): Glorian Sorensen. Collaborator(s): Nancy Krieger, Fran Cook. Completed 2016.
2011 Oct - 2013 Aug	MSc. Tyler Pettes, Nutritional Sciences. Supervisee Position: Psychiatry Resident, Supervisee Institution: University of Toronto. <i>Responsiveness of Food Provisioning Programs to the Needs of Homeless Populations in Five Canadian Cities.</i> Supervisor(s): Valerie Tarasuk. Collaborator(s): Stephen Gaetz, Anthony Hanley. Completed 2013.
2010 Jan - 2012 Dec	MSc Nursing. Lisa Beames, RN, Nursing. Supervisee Position: Clinical Leader/Manager, Mental Health Services, Supervisee Institution: University of Victoria. <i>Homeless Clients' Perspectives on Health Care Experiences.</i> Supervisor(s): Bernie Pauly. Collaborator(s): Joan MacNeil. Completed 2012.
2009 Oct - 2011 Jun	MSc. Rafael Figueiredo, Dentistry. Supervisee Position: Chief Dental Officer, Alberta Health, Supervisee Institution: University of Toronto. <i>Oral Health of Homeless People in Toronto.</i> Supervisor(s): Carlos Quinonez. Collaborator(s): David Locker. Completed 2011.
2007 May - 2012 Jun	PhD. Aisha Lofters, MD, Health Policy, Management and Evaluation, Clinical Epidemiology. Supervisee Position: Assistant Professor, University of Toronto, Supervisee Institution: University of Toronto. <i>Cervical cancer screening among women who are recent immigrants: A population-based study in Ontario.</i> Supervisor(s): Richard Glazier. Collaborator(s): Rahim Moineddin. Completed 2012.

Thesis Examiner

2024 Nov	MSc. Negin Rashidi, Institute of Medical Science. <i>Natural History of Functional Tricuspid Regurgitation after Device Closure of Atrial Septal Defect.</i> Supervisor(s): Asim Cheema. Completed 2024.
2016 Feb	MSc. Michelle Sholzberg, Health Policy, Management and Evaluation. Supervisee Institution: University of Toronto. <i>The Influence of Socioeconomic Status on Selection of Anticoagulation for Atrial Fibrillation: A Population-Based Study.</i> Supervisor(s): Andreas Laupacis. Completed 2016.
2015 Jan	PhD. Claire Kendall, MD. Supervisee Institution: University of Ottawa. <i>A Population-Based Evaluation of the Delivery of Care for People Living with HIV in Ontario.</i> Supervisor(s): William Hogg and Douglas Manuel. Completed 2015.
2009 May	MSc. Patricia Lee, MD. Supervisee Institution: University of Toronto. <i>Injury and Neighborhood Marginalization: Does it matter where you live?.</i> Supervisor(s): Avery Nathens. Completed 2009.
1998 Sep	MSc. Wendy Wobeser, MD. Supervisee Institution: University of Toronto. <i>Risk Factors for Active TB Among Foreign Born Persons Arriving in Ontario.</i> Completed 1998.

Chair and Facilitator, Clinical Epidemiology Rounds

2024 Nov - present	PhD. Asha Behdinan, etc, Health Policy, Management and Evaluation. Supervisee

Institution: St. Michael's Hospital. *IHPME Step II Transfer Defense.*

Chair for Thesis Defense

2005 Sep **MSc.** Olga Gajic-Veljanoski. Supervisee Institution: University of Toronto. *Predictors of First Clinical Fracture in Patients with Primary Osteoporosis.* Completed 2005.

Collaborator

2003 Sep - 2004 Jun **PhD.** Agnieszka (Iggy) Kosny. Supervisee Institution: University of Toronto, Dept. of Public Health Sciences. *Are nonprofit organizations healthy workplaces? Examining working conditions and occupational health and safety of volunteers and paid workers.* Collaborator(s): Primary supervisor: Joan Eakin. Completed 2006.

Primary Supervisor for Research Practicum

2022 May - 2022 Aug **MPH.** Chi-Hang Jonathan Sinn, Public Health Sciences. Supervisor(s): Stephen Hwang. Completed 2022.

2009 May - 2010 Apr **M.H.Sc.** James Weaver. Supervisee Position: Research Coordinator, Division of Mental Health Services and Policy Research, Department of Psychiatry, Columbia University, New York City. *Hospitalization Costs of Homeless People: Do They Cost More?.* Completed 2010.

2006 Jan - 2006 Apr **M.H.Sc.** Minnie Ho. Supervisee Position: Epidemiologist, Institute for Clinical Evaluative Sciences, Toronto (as of 2012), Supervisee Institution: University of Toronto. *Control of Emerging Infectious Diseases in Homeless Populations.* Completed 2006.

Project Advisor

2012 Sep - 2013 Jun **Master of Public Health.** Shail Rawal, MD. Supervisee Position: Clinical Associate, Supervisee Institution: University of Toronto. *Translation Services and Outcomes among Non-English Proficient Hospitalized Patients.*

Supervisor for Research Elective

2009 Nov - 2010 Jun **Master of Public Policy.** Anna-Maria Cappella. Supervisee Position: Project Advisor & Program Coordinator, Service Ontario (as of 2012), Supervisee Institution: University of Toronto. *An Impact Analysis of Housing First Programs in the United States and Canada.*

Undergraduate MD

Secondary Supervisor

2013 Oct - 2014 Aug **Year 2.** Christopher Noel and Henry Fung. Supervisee Position: Medical Students, Supervisee Institution: University of Toronto. *Eye Needs of the Homeless Population.* Collaborator(s): Myrna Lichter.

THIS IS **EXHIBIT "B"** REFERRED TO
IN THE AFFIDAVIT OF DR. STEPHEN HWANG
SWORN REMOTELY AT THE
CITY OF TORONTO BEFORE ME AT THE COUNTY OF WELLINGTON
DURING A ZOOM VIDEOCONFERENCE
IN ACCORDANCE WITH O.REG. 431/20,
ADMINISTERING OATH OR DECLARATION REMOTELY
THIS 6TH DAY OF MAY, 2025



JOANNA MULLEN
A Commissioner, etc.,
Province of Ontario,
While a Barrister and Solicitor.
LSO # 64535V



Cold-related injuries among patients experiencing homelessness in Toronto: a descriptive analysis of emergency department visits

Lucie Richard¹ · Haley Golding² · Refik Saskin² · Jesse I. R. Jenkinson³ · Katherine Francombe Pridham³ · Evie Gogosis³ · Carolyn Snider⁴ · Stephen W. Hwang³

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Abstract

Purpose Homelessness increases the risk of cold-related injuries. We examined emergency department visits for cold-related injuries in Toronto over a 4-year period, comparing visits for patients identified as homeless to visits for patients not identified as homeless.

Methods This descriptive analysis of visits to emergency departments in Toronto between July 2018 and June 2022 used linked health administrative data. We measured emergency department visits with cold-related injury diagnoses among patients experiencing homelessness and those not identified as homeless. Rates were expressed as a number of visits for cold-related injury per 100,000 visits overall. Rate ratios were used to compare rates between homeless vs. not homeless groups.

Results We identified 333 visits for cold-related injuries among patients experiencing homelessness and 1126 visits among non-homeless patients. In each of the 4 years of observation, rate ratios ranged between 13.6 and 17.6 for cold-related injuries overall, 13.7 and 17.8 for hypothermia, and 10.3 and 18.3 for frostbite. Rates per 100,000 visits in the fourth year (July 2021 to June 2022) were significantly higher than in the pre-pandemic period. Male patients had higher rates, regardless of homelessness status; female patients experiencing homelessness had higher rate ratios than male patients experiencing homelessness.

Conclusion Patients experiencing homelessness visiting the emergency department are much more likely to be seen for cold-related injuries than non-homeless patients. Additional efforts are needed to prevent cold-related exposure and consequent injury among people experiencing homelessness.

Keywords Homelessness · Cold-related injuries · Emergency department

Résumé

Objectif L'itinérance augmente le risque de blessures liées au froid. Nous avons examiné les visites aux urgences pour des blessures liées au froid à Toronto sur une période de quatre ans, en comparant les visites de patients en situation d'itinérance aux visites de patients pas en situation d'itinérance.

Méthodes Cette analyse descriptive des visites aux services d'urgence à Toronto entre juillet 2018 et juin 2022 a utilisé des données administratives de santé liées. Nous avons mesuré les visites aux services d'urgence avec un diagnostic de blessure liée au froid parmi les patients en situation d'itinérance et ceux pas en situation d'itinérance. Les taux ont été exprimés en

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nombre de visites pour les blessures liées au froid par 100 000 visites au total. Le rapport de taux ont été utilisés pour comparer les taux entre les groupes en situation d'itinérance et ceux pas en situation d'itinérance.

Résultats Nous avons identifié 333 visites pour des blessures liées au froid chez les patients en situation d'itinérance et 1126 chez les patients pas en situation d'itinérance. Au cours de chacune des quatre années d'observation, les rapports de taux variaient entre 13,6 et 17,6 pour l'ensemble des blessures liées au froid, 13,7 et 17,8 pour l'hypothermie et 10,3 et 18,3 pour les engelures. Les taux par 100 000 visites au cours de la quatrième année (de juillet 2021 à juin 2022) étaient considérablement plus élevés que pendant la période précédant la pandémie. Les patients de sexe masculin affichaient des taux plus élevés, peu importe leur statut d'itinérance; les patients de sexe féminin en situation d'itinérance affichaient des rapports de taux plus élevés que les patients de sexe masculin en situation d'itinérance.

Conclusion Les patients en situation d'itinérance qui se rendent à l'urgence sont beaucoup plus susceptibles d'être vus pour des blessures liées au froid que les autres. Des efforts supplémentaires sont nécessaires pour prévenir l'exposition au froid et les blessures qui en découlent chez les personnes en situation d'itinérance.

Mots clés L'itinérance · Blessures liées au froid · Service des urgences

Clinician's capsule

What is known about the topic?

People experiencing homelessness are at disproportionate risk for cold-related injuries, but the rate since the COVID-19 pandemic began is unknown.

What did this study ask?

What is the rate of cold-related injury ED visits occurring among patients experiencing homelessness compared to non-homeless patients?

What did this study find?

Patients experiencing homelessness have 14 to 18 times more cold-related injuries compared to non-homeless patients; Rates increased during the pandemic.

Why does this study matter to clinicians?

Additional efforts are needed to prevent cold-related exposure and consequent injury among people experiencing homelessness.

considered to be mild [7, 8]. Recently, healthcare organizations have reported a concerning increase in the utilization of local EDs by individuals experiencing homelessness during the cold season [9, 10].

The COVID-19 pandemic has greatly exacerbated the potential risk for cold-related injury in this group. More individuals than ever are living in encampments or are otherwise unsheltered [11]. Furthermore, with the end of pandemic-related funding, the City of Toronto has closed many of the single-occupancy shelter hotel spaces it had created, starting in the spring of 2022 [12, 13]. While efforts are underway to increase capacity elsewhere [13, 14], there is currently an insufficient number of spaces to accommodate all those seeking shelter [12–15]. In concert, these circumstances that increase the likelihood of cold exposure may have led to an exacerbation of ED utilization for cold-related injuries by people experiencing homelessness in Toronto.

For this reason, healthcare organizations, medical professionals and housing advocates have been urging the City of Toronto to implement additional measures to protect individuals experiencing homelessness during the winter months [9, 10]. Short-term recommendations include increasing the availability and accessibility of winter-related services, such as 24-h drop-in warming centers. However, timely evidence regarding the extent and burden of cold-related injuries among people experiencing homelessness is essential to substantiate the need for additional services. We aim to fill this gap by analyzing Ontario health administrative data to measure cold-related injury visits among patients experiencing homelessness who sought care in Toronto-based EDs between July 1 2018 and June 30 2022. Additionally, we compare these rates to those of patients not identified as experiencing homelessness.

Introduction

Emergency medicine professionals play a crucial role in addressing the healthcare needs of individuals experiencing homelessness, who have a disproportionate reliance on emergency department (ED) resources [1] and face an elevated risk of preventable injuries, particularly cold-related injuries [2–6]. In Toronto, Canada, the risk of cold-related injuries remains significant even during conditions locally

Methods

Study design and setting

We conducted this descriptive analysis in Toronto, Ontario's largest city, using health administrative data from between July 1 2018 and June 30 2022. Years were defined as July 1 to June 30 to integrate cold months into a single year. Datasets were linked using unique encoded identifiers and analyzed at ICES (formerly known as the Institute for Clinical Evaluative Sciences) [16], an independent, non-profit research institute whose legal status under Ontario's health information privacy law allows it to collect and analyze healthcare and demographic data, without explicit consent, for health system evaluation and improvement.

Population and data source

We obtained visits to all 18 Toronto-based EDs between July 1 2018 and June 30 2022 from the Canadian Institute for Health Information's (CIHI) National Ambulatory Care Reporting System (NACRS) database. No exclusions were applied.

Patients attending Toronto-based EDs were classified into two groups. The first group was patients experiencing homelessness ("patients experiencing homelessness"). This group was defined as anyone with at least one visit during the year with International Classification of Diseases, 10th Revision (ICD-10-CA) diagnosis codes Z590 ('Homelessness') or Z591 ('inadequate housing'); whose residential type was listed as 'Homeless' or 'Shelter'; or who provided a postal code that uniquely identifies a shelter (that is, the postal code does not identify other residences). These identifiers were previously validated [17] and show that identification across a year improves sensitivity without reducing specificity. The second group was patients not identified as experiencing homelessness ("non-homeless patients"), defined as anyone not identified in the first group.

We further classified groups by sex. Sex for patients with valid Ontario health insurance was derived from the ICES Registered Persons Database; for patients without Ontario health insurance, it was derived from the hospital record.

Outcomes

We ascertained cold-related injuries as any visit coded with ICD-10-CA codes T33 ('Superficial frostbite'), T34 ('Frostbite with tissue necrosis'), T35 ('Frostbite involving multiple body regions and unspecified frostbite'), or T68 ('Hypothermia') or T69 ('Other effects of reduced temperature') when combined with external code X31 ('Exposure

to excessive natural cold'). Secondary outcomes of interest included frostbite (ICD-10-CA codes T33, T34 or T35) and hypothermia (ICD-10-CA T68 or T69 when combined with external code X31). We considered any diagnosis code as sufficient evidence for the outcome of interest, to avoid missing cases when injuries were not deemed the most responsible diagnosis.

Statistical analysis

We describe characteristics from the visit record, by group membership (however, some important social determinants of health such as race/ethnicity, income level, or educational background, were unavailable). We further determined counts (provided in supplement tables) and rates of each outcome per 100,000 visits, by group, year, and sex. 95% confidence intervals (CI) for rates in the supplements were calculated from the gamma distribution. We also calculated rate ratios and 95% CIs to summarize the excess burden of visits by homeless patients as compared to non-homeless patients.

Finally, we conducted a post-hoc z-score test comparing proportions to assess the significance of a change in cold-related injuries among patients experiencing homelessness between 2018/2019 and 2019/2020 and the pandemic period (2021/2022). We a priori excluded 2020/2021 from this test, as there was a significant drop in emergency department (ED) visits in Ontario during the early pandemic [18], artificially reducing the denominator and rendering this data point non-comparable to the others.

Cells with fewer than six visits were suppressed to protect patient privacy. All analyses were conducted using SAS enterprise guide v7.1 [19]. This study followed the Reporting of Studies Conducted Using Observational Routinely Collected Data (RECORD) reporting guidelines (Supplement Table 1).

Ethical review

The use of data in this project was authorized under Sect. 45 of Ontario's *Personal Health Information Protection Act*, which does not require review by a research ethics board.

Results

Between July 1 2018 and June 30 2022, we identified 4,872,279 ED visits to Toronto-based hospitals (Table 1). 90,165 (1.9%) visits were for patients experiencing homelessness, who were disproportionately 25 to 54 years old and male (73.3%). Visits by patients experiencing homelessness were twice as likely to be 15 or more hours long and more than twice as likely to have arrived by ambulance (47.7%

Table 1 Characteristics of visits, by group membership (patients experiencing homelessness vs. patients not experiencing homelessness)

	Visits from patients identified as experiencing homelessness (90,165)	Visits from patients not identified as experiencing homelessness (N=4,782,114)
Year of visit, %		
July 2018 to June 2019	25.3%	28.0%
July 2019 to June 2020	27.6%	25.4%
July 2020 to June 2021	23.2%	21.9%
July 2021 to June 2022	23.8%	24.7%
Age at visit		
Median (IQR)	40 (31–53)	43 (25–64)
%, 0–24 years old	10.3%	24.0%
%, 25–44 years old	49.0%	27.5%
%, 45–54 years old	18.2%	11.9%
%, 55+ years old	21.8%	36.5%
% Unknown/missing	0.8%	0.0%
Sex, %		
Male	73.3%	48.0%
Female	26.7%	52.0%
Other/missing	0.1%	0.0%
Visit duration in hours		
Median (IQR)	5 (3–10)	4 (3–7)
%, 0–< 4 h	9.6%	9.6%
%, 4–< 10 h	11.4%	10.8%
%, 10–< 15 h	2.9%	1.6%
%, 15+ hours	4.4%	2.1%
Patient arrived by ambulance, %	47.7%	20.0%
Triage level, %		
Non-urgent	4.2%	3.5%
Less-urgent	13.4%	13.8%
Urgent	48.7%	53.9%
Emergent	29.5%	27.3%
Resuscitation	3.9%	1.5%
Unknown	0.2%	0.1%
Visit for cold-related injury, %	0.37%	0.02%

vs 20.0%). Despite this, they exhibited similar CTAS triage levels. Over the 4-year period, we found 333 cold-related injury visits among patients experiencing homelessness, representing 0.37% of their visits overall, compared to 1,126 cold-related injury visits among non-homeless patients, representing 0.02% of their overall visits.

Cold-related injury rates (per 100,000 visits) among patients experiencing homelessness ranged between a low of 268.9 visits/100,000 (in 2019/2020) and a high of 483.9 visits/100,000 (in 2021/2022) (Table 2 and Supplement Table 1). By contrast, rates among non-homeless patients ranged between 15.8 and 30.0 visits/100,000. Rates among patients experiencing homelessness significantly increased ($p < 0.01$) during the pandemic period (2021/2022) from the pre-pandemic period (2018/2019 and 2019/2020). Overall,

patients experiencing homelessness were between 13.6 and 17.6 times more likely to visit EDs for cold-related injuries compared to non-homeless patients (Fig. 1). While female patients experiencing homelessness had lower visit rates than male patients experiencing homelessness, they had higher rate ratios due to the more acute sex disparity present among non-homeless patients.

Supplement table 3 and Fig. 2 summarize visits with coding for hypothermia. Patients experiencing homelessness had visit rates ranging between 256.9 and 479.3 visits/100,000, while non-homeless patients had visit rates ranging between 14.7 and 28.8 visits/100,000. As with cold-related injuries generally, patients experiencing homelessness were much more likely to visit EDs for hypothermia compared to non-homeless patients.

Table 2 Rate per 100,000 visits (95% CI) of emergency department visits to Toronto-based hospitals for cold-related injury, by group, subgroup and year

	Patients experiencing homelessness, Rate per 100,000 visits (95% CI)	Patients not experiencing homelessness, Rate per 100,000 visits (95% CI)	Rate ratio (95% CI)
Overall			
2018/2019	407.0	30.0	13.6 (10.8–17.0)
2019/2020	268.9	15.8	17.0 (12.9–22.5)
2020/2021	330.0	19.8	16.7 (12.7–21.9)
2021/2022	483.9	27.5	17.6 (14.1–21.9)
Female			
2018/2019	243.4	15.2	16.0 (9.2–30.0)
2019/2020	153.7	9.5	16.2 (8.3–31.6)
2020/2021	264.3	10.9	24.2 (13.8–42.7)
2021/2022	375.6	19.2	19.6 (12.5–30.6)
Male			
2018/2019	462.4	46.3	10.0 (7.8–12.8)
2019/2020	310.0	22.5	13.8 (10.1–18.8)
2020/2021	354.6	29.4	12.1 (8.8–16.5)
2021/2022	527.7	36.5	14.4 (11.2–18.7)

¹Years grouped from July 1st to June 30th the following year to group together winter seasons. CI = Confidence Interval. *95% confidence interval calculated from the gamma distribution. Source: Golding H, and Saskin R. Cold-related injuries among people experiencing homelessness visiting Toronto-area hospitals, Applied Health Research Questions (AHRQ) #0950 144 000. Toronto: Institute for Clinical Evaluative Sciences; 2023

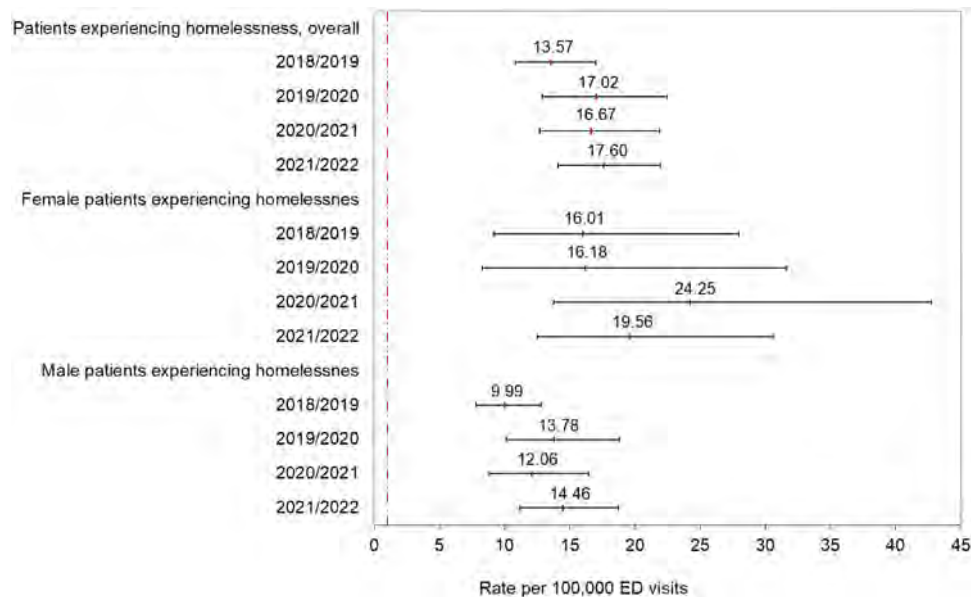


Fig. 1 Rate ratio¹ of cold-related injury visits among patients experiencing homelessness compared to patients not experiencing homelessness, overall and among male or female subgroups, by year. ¹Rate ratio is the rate (per 100,000 visits) of cold-related injury visits by people experiencing homelessness divided by the rate (per 100,000 visits) of cold-related injury visits by people not experiencing home-

lessness. The vertical axis (1.0) represents the point of parity between groups. Source: Golding H, and Saskin R. Cold-related injuries among people experiencing homelessness visiting Toronto-area hospitals, Applied Health Research Questions (AHRQ) #0950 144 000. Toronto: Institute for Clinical Evaluative Sciences; 2023

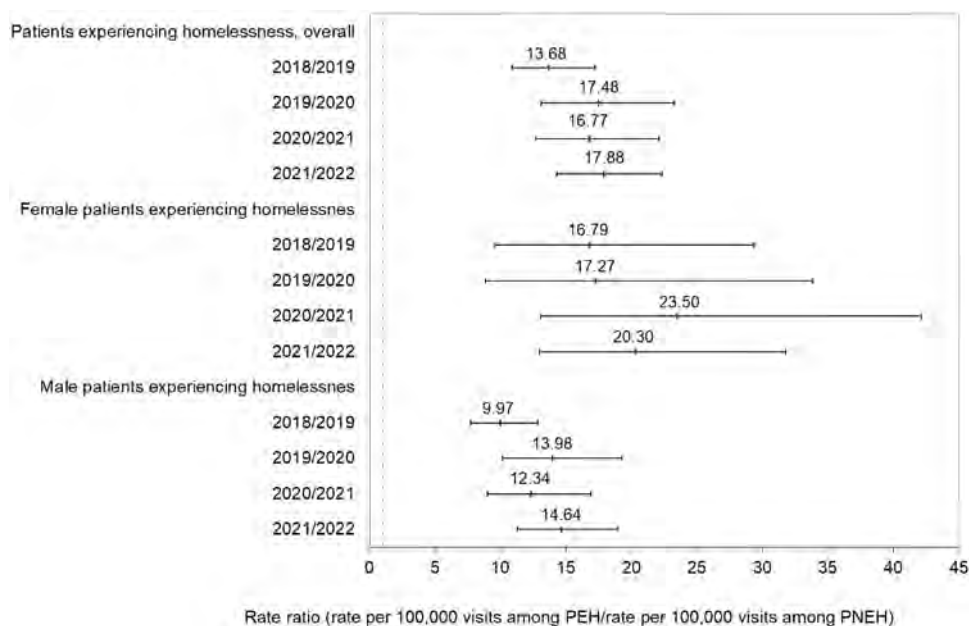


Fig. 2 Rate ratio¹ of hypothermia-related visits among patients experiencing homelessness compared to patients not experiencing homelessness, overall and among male or female subgroups, by year. ¹Rate ratio is the rate (per 100,000 visits) of hypothermia-related visits by people experiencing homelessness divided by the rate (per 100,000 visits) of hypothermia-related visits by people not experiencing

homelessness. The vertical axis (1.0) represents the point of parity between groups. Source: Golding H, and Saskin R. Cold-related injuries among people experiencing homelessness visiting Toronto-area hospitals, Applied Health Research Questions (AHRQ) #0950 144 000. Toronto: Institute for Clinical Evaluative Sciences; 2023

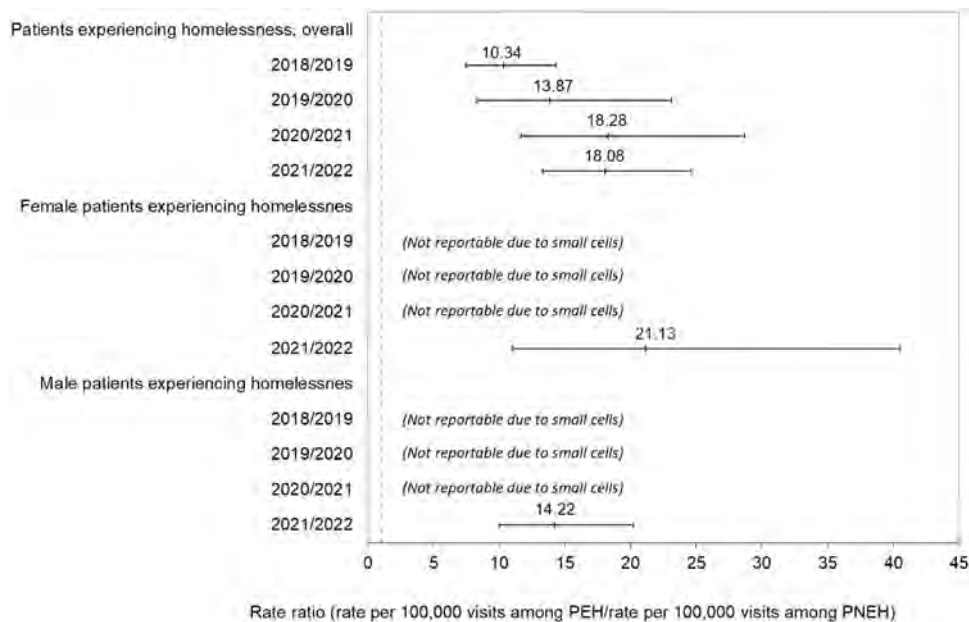


Fig. 3 Rate ratio¹ of frostbite-related visits among patients experiencing homelessness compared to patients not experiencing homelessness, by year, overall and among male or female subgroups. ¹Rate ratio is the rate (per 100,000 visits) of frostbite-related visits by people experiencing homelessness divided by the rate (per 100,000 visits) of frostbite-related visits by people not experiencing homeless-

ness. The vertical axis (1.0) represents the point of parity between groups. Source: Golding H, and Saskin R. Cold-related injuries among people experiencing homelessness visiting Toronto-area hospitals, Applied Health Research Questions (AHRQ) #0950 144 000. Toronto: Institute for Clinical Evaluative Sciences; 2023

Supplement table 4 and Fig. 3 summarize visits coded for frostbite. Fewer patients had visits coded with frostbite than for hypothermia; however, trends between groups persisted. Visit rates for patients experiencing homelessness ranged between 76.3 and 251.3 visits/100,000, compared to 5.5 and 18.2 visits/100,000 among non-homeless patients. Patients experiencing homelessness were between 10.3 and 18.3 times more likely to visit the ED for frostbite compared to non-homeless patients. In the final year (2021/2022), female patients experiencing homelessness were over 21 times more likely to receive care for frostbite compared to female non-homeless patients; Male patients experiencing homelessness were 14.2 times more likely to receive care for frostbite compared to male non-homeless patients.

Discussion

Interpretation

We found that ED visits for cold-related injuries were significantly higher (between 13.6 and 17.6 times higher) among patients experiencing homelessness than non-homeless patients between 2018 and 2022. Our findings suggest that homelessness is a major risk factor for this outcome, both due to the higher prevalence of underlying conditions exacerbating risk (for example, substance use or mental health concerns) and far greater exposure to environmental cold stress. We also found that male patients experiencing homelessness had higher visit rates, but that female patients experiencing homelessness have consistently higher rate ratios, indicating that inequity in the risk for females to be particularly acute. Finally, we found that rates increased in the final year of observation compared to the pre-pandemic period. This might have been due to the lower number of ED visits overall, as patients continued to be relatively avoidant of hospitals due to the perceived risk of COVID-19 infection [18]. It is also possible that 2021/2022 winter had particularly severe winter weather, although summary data does not suggest this to be likely [20]. Finally, recent changes to social and policy conditions in Toronto may have made avoiding cold-exposure increasingly challenging for people experiencing homelessness. Many indoor spaces, like 24-h drop-ins and Out Of The Cold programs, were shut down in response to pandemic-related safety guidelines [21]; distancing between shelter beds increased, which reduced shelter capacity until shelter hotels were leased [13]; and, numerous individuals resided in encampments as they felt unsafe in shelters and shelter hotels [11].

Previous studies

These results extend previous work showing disparities in Toronto existing in prior decades [1, 7], as well as elsewhere [3–6]. In France, 61.7% of medical charts with a primary diagnosis of hypothermia were for individuals experiencing homelessness [3], with 6.4 times risk of death from this injury [6]. In New York, three times more individuals experiencing homelessness were hospitalized for cold-related injury than housed comparators [4]. In Northeastern Poland, deaths caused by hypothermia were thirteen times more frequent among people experiencing homelessness than housed counterparts [5]. In Toronto between 2005 and 2009, there was on average 4.8 cold-related injury visits per 1000 person-years of observation [2]. Our results are not directly comparable to this literature, as our study denominator was ED visits by patients experiencing homelessness (rather than a cohort of participants experiencing homelessness who may not have used hospital-based care, or individuals who died). However, our annual rates expressed per 1000 visits (ranging between 2.7 per 1000 visits in 2019/2020 and 4.8 in 2021/2022) is in the same range as prior work in Toronto [2].

Strengths and limitations

This study benefits from the use of NACRS, which provides standardized ED abstracts across Toronto over the observation period. The use of administrative data to identify homelessness also dramatically increased our sample as compared to studies leveraging primary research data and prevented issues with participation bias common in studies involving people experiencing homelessness.

We also note the following limitations. First, our case definition of homelessness is highly specific but relatively insensitive [17]. Although we restricted our analysis to the period during which coding for homelessness became mandatory [17], it is possible the case definition undercounted visits where homelessness was not documented in the chart. Consequently, our results may underestimate cold-related injuries among patients experiencing homelessness and overestimate them among patients not experiencing homelessness.

Second, this analysis only considered ED care related to cold-related injuries. Every winter, an estimated 15% of ED visits by individuals experiencing homelessness in Toronto are for seeking warmth, and occur due to a lack of alternatives such as shelters and warming centres [22, 23]. As a result, the true level of ED usage for cold exposure by people experiencing homelessness is likely much higher than our analysis indicates.

Third, our results are limited to individuals receiving healthcare at emergency departments and is reflected in our

rate being per 100,000 visits as opposed to rates per 1000 person-years of observation. People experiencing homelessness are disproportionately likely to avoid hospital-based care due to previous stigmatizing experiences and other factors [24]. Thus, any injuries that might have been treated in outpatient clinic settings were missed. This is unlikely to have affected our measured rates and rate ratios; nevertheless, results should only be generalized to homeless patients who use hospital-based healthcare.

Finally, our finding that ED visits significantly increased during the pandemic is based on a post-hoc test that does not account for the large confidence intervals in our measured rates; therefore, this finding should be interpreted with caution until future work can substantiate the result.

Clinical implications

The disproportionate burden of cold-related injuries among people experiencing homelessness is an equity issue of significant relevance for emergency medicine. If we treat the rate of cold-related injuries among non-homeless patients as a baseline level, excess visits for people experiencing homelessness represent avoidable morbidity and strain on emergency departments. To mitigate the risk of recurring morbidity, particularly in cases of frostbite, clinicians treating these injuries must attempt to ensure continuity of services in the community prior to discharge. Yet, this presents a major challenge due to ED surge pressures and the severe, consistent shortage of shelter space to which to discharge patients. Ultimately, individuals experiencing homelessness and the emergency departments that treat them both bear the consequences of policy decisions that fail to prioritize the provision of sufficient, accessible emergency shelter services within the community, such as an adequate number of shelter beds and drop-in warming services. Addressing these issues is vital for the welfare of those experiencing homelessness and the effectiveness of emergency medical care.

Research implications

The use of emergency departments by people experiencing homelessness for avoiding cold exposure is a greatly under-explored topic given its relevance in the pandemic era in Canada. We show that cold-related injuries, acute clinical manifestations of cold-exposure, are vastly overrepresented among patients experiencing homelessness, with female patients bearing the worst inequities. To gain a comprehensive understanding of the impact of homelessness on the preventable use of ED resources, future studies should endeavor to estimate the overall and gender-specific ED usage related to all cold exposure. These studies should also estimate the economic costs associated with excess ED utilization for cold exposure; this measurement would enable meaningful

comparisons between the cost of avoidable healthcare for cold exposure and the cost of providing sufficient community-based services providing emergency shelter.

Conclusions

Cold-related injuries related to cold exposure are largely preventable. People experiencing homelessness in Toronto remain at much higher risk for such injuries compared to their housed counterparts, including after the onset of the COVID-19 pandemic. The findings of this study strongly suggest the need to provide additional alternative services such as shelter beds for all individuals experiencing homelessness seeking shelter and 24-h, accessible and low-barrier warming centres throughout the cold season.

Supplementary Information The online version contains supplementary material available at <https://doi.org/10.1007/s43678-023-00546-7>.

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Data availability The dataset from this study is held securely in coded form at ICES. While legal data sharing agreements between ICES and data providers (e.g., healthcare organizations and government) prohibit ICES from making the dataset publicly available, access may be granted to those who meet pre-specified criteria for confidential access, available at www.ices.on.ca/DAS (email: das@ices.on.ca). The full dataset creation plan and underlying analytic code are available from the authors upon request, understanding that the computer programs may rely upon coding templates or macros that are unique to ICES and are therefore either inaccessible or may require modification.

Declarations

Conflict of interest The study authors declare no competing interests.

References

1. Vohra N, Paudyal V, Price MJ. Homelessness and the use of emergency department as a source of healthcare: a systematic review. *Int J Emerg Med*. 2022;15(1):1–22. <https://doi.org/10.1186/s12245-022-00435-3>.
2. Zhang P, Bassil B, Gower S, et al. Cold-related injuries in a cohort of homeless adults. *J Soc Distress Homeless*. 2019;28(1):85–9. <https://doi.org/10.1080/10530789.2018.1523103>.
3. Rouquette A, Mandereau-Bruno L, Baffert E, et al. Winter surveillance of cold exposure effects on health among the homeless

- population in the Paris area: data from the coordinated health surveillance of emergency department network (organisation de la surveillance coordonnée des urgences [Oscour®]). *Revue d'Épidémiologie et de Santé Publique*. 2011;59(6):359–68.
4. Frencher SK, Benedicto CMB, Kendig TD, et al. A comparative analysis of serious injury and illness among homeless and housed low income residents of New York City. *J Trauma Acute Care Surg*. 2010;69(4):S191–9. <https://doi.org/10.1097/TA.0b013e3181f1d31e>.
 5. Romaszko J, Cymes I, Draganska E, et al. Mortality among the homeless : causes and meteorological relationships. *PLoS ONE*. 2017;12(12):e0189938. <https://doi.org/10.1371/journal.pone.0189938>.
 6. Vuillermoz C, Aouba A, Grout L, et al. Mortality among homeless people in France, 2008–10. *Eur J Pub Health*. 2016;26(6):1028–33. <https://doi.org/10.1093/eurpub/ckw083>.
 7. Zhang P, Wiens K, Wang R, et al. Cold weather conditions and risk of hypothermia among people experiencing homelessness: implications for prevention strategies. *Int J Environ Res Pub Health*. 2019;16:3259. <https://doi.org/10.3390/ijerph16183259>.
 8. City of Toronto. Extreme Cold Weather. 2023 [cited 2023 Feb 28]. Available from: <https://www.toronto.ca/community-people/health-wellness-care/health-programs-advice/extreme-cold-weather/>.
 9. Unity Health Toronto. A statement from Unity Health Toronto on winter, homelessness and the care we all deserve. 2023 [cited 2023 Feb 28]. Available from: <https://unityhealth.to/2023/01/state-ment-on-homelessness/>.
 10. Zaheer J., Snider C., von Vopelius-Feldt J., et al. [Letter to Mayor John Tory and Toronto City Council encouraging them to vote in favour of the motion allocating funds for expanding the number of 24-hour, accessible and low-barrier warming centres during winter months]. Retrieved from CAMH. 2023 [cited 2023 Feb 28]; Available from: <https://www.camh.ca/-/media/files/pdfs---public-policy-submissions/eds-letter-to-mayor-and-councillors---final2-pdf.pdf>.
 11. Inner City Health Associates. Statement by Inner City Health Associates: Toronto Homeless Encampments and the Right to Housing. 2021 [cited 2023 Feb 28]. Available from: <https://www.icha-toronto.ca/statement-by-inner-city-health-associates-toronto-homeless-encampments-and-the-right-to-housing>.
 12. Hayes M. Winter closing of Toronto shelter hotel presents impossible decision for residents. 2022 [cited 2023 Feb 28]. *Globe and Mail*. Available from: <https://www.theglobeandmail.com/canada/article-winter-closing-of-toronto-shelter-hotel-will-be-a-big-change-for/>.
 13. City of Toronto. Temporary Shelter Transition & Relocation Plan. 2022 [cited 2023 Feb 28]. Available from: <https://www.toronto.ca/community-people/community-partners/emergency-shelter-operators/about-torontos-shelter-system/new-shelter-locations/temporary-covid-19-shelter-sites/shelter-transition-relocation-plan/>.
 14. City of Toronto. City of Toronto's 2022/23 Winter Services Plan for people experiencing homelessness. 2022 [cited 2023 Feb 28]. Available from: <https://www.toronto.ca/news/city-of-torontos-2022-23-winter-services-plan-for-people-experiencing-homelessness/>.
 15. City of Toronto. 2023 Operating Budget & 2023–2032 Capital Budget & Plan: Shelter, Support and Housing Administration. 2023 [cited 2023 Feb 28]. Available from: <https://www.toronto.ca/legdocs/mmis/2023/bu/bgrd/backgroundfile-230766.pdf>.
 16. ICES Ontario. www.ices.on.ca/About-ICES.
 17. Richard L, Hwang SW, Forchuk C, et al. Validation study of health administrative data algorithms to identify individuals experiencing homelessness and estimate population prevalence of homelessness in Ontario, Canada. *BMJ Open*. 2019;9(10):e030221. <https://doi.org/10.1136/bmjopen-2019-030221>.
 18. Canadian Institute for Health Information. COVID-19's impact on emergency departments [story]. 2021 [cited 2023 Feb 28]. Available online: <https://www.cihi.ca/en/covid-19-resources/impact-of-covid-19-on-canadas-health-care-systems/emergency-departments>.
 19. SAS Institute Inc., SAS Enterprise Guide, v7.1. Cary, NC
 20. Toronto Weather Statistics Dashboard. Toronto Historical Number of Days with a Temperature < 0°C. [cited 2023 May 3]. Available from: https://toronto.weatherstats.ca/metrics/count_temp_0.html.
 21. Lavoie, J. Toronto's homeless community shares stories of struggles experienced during COVID-19 pandemic. *CTV News Toronto*. 2022 [cited 2023 Feb 28]. Available online: <https://toronto.ctvnews.ca/toronto-s-homeless-community-shares-stories-of-struggles-experienced-during-covid-19-pandemic-1.6147721>.
 22. Gibson, V. On the front lines of the homelessness crisis, a downtown ER tries a novel new approach. *Toronto Star*. 2023 [cited 2023 Mar 21]. Available online: <https://www.thestar.com/news/gta/2023/01/30/on-the-front-lines-of-the-homelessness-crisis-a-downtown-er-tries-a-novel-new-approach.html>.
 23. Rider D, Hasham A. Open warming centres 24–7, Toronto board of health urges. *Toronto Star*. 2023 [cited 2023 Feb 28]. Available online: https://www.thestar.com/news/city_hall/2023/01/16/open-warming-centres-24-7-toronto-board-of-health-urges-calling-lack-of-cold-weather-services-a-crisis.html?rf.
 24. Reilly J, Ho I, Williamson A. A systematic review of the effect of stigma on the health of people experiencing homelessness. *Health Soc Care Community*. 2022;30(6):2128–41. <https://doi.org/10.1111/hsc.13884>.

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DURING A ZOOM VIDEOCONFERENCE
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THIS 6TH DAY OF MAY, 2025



JOANNA MULLEN
A Commissioner, etc.,
Province of Ontario,
While a Barrister and Solicitor.
LSO # 64535V

SPECIAL FOCUS ISSUE: CARDIOVASCULAR HEALTH PROMOTION

THE PRESENT AND FUTURE: JACC REVIEW TOPIC OF THE WEEK

Cardiovascular Disease and Homelessness



Travis P. Baggett, MD, MPH,^{a,b,c} Samantha S. Liauw, MD,^d Stephen W. Hwang, MD, MPH^{d,e}

ABSTRACT

Cardiovascular disease (CVD) is a major cause of death among homeless adults, at rates that exceed those in nonhomeless individuals. A complex set of factors contributes to this disparity. In addition to a high prevalence of cigarette smoking and suboptimal control of traditional CVD risk factors such as hypertension and diabetes, a heavy burden of nontraditional psychosocial risk factors like chronic stress, depression, heavy alcohol use, and cocaine use may confer additional risk for adverse CVD outcomes beyond that predicted by conventional risk estimation methods. Poor health care access and logistical challenges to cardiac testing may lead to delays in presentation and diagnosis. The management of established CVD may be further challenged by barriers to medication adherence, communication, and timely follow-up. The authors present practical, patient-centered strategies for addressing these challenges, emphasizing the importance of multidisciplinary collaboration and partnership with homeless-tailored clinical programs to improve CVD outcomes in this population. (J Am Coll Cardiol 2018;71:2585-97) © 2018 by the American College of Cardiology Foundation.

Cardiovascular disease (CVD) is a major cause of death among homeless people and a contributor to excess mortality in this population. The constellation of complex comorbidities and adverse social circumstances seen frequently among homeless people makes the management of CVD in this population uniquely challenging and necessitates a flexible, creative, and multidisciplinary approach. This paper presents an integrated framework for understanding the basis of CVD disparities in homeless people and offers practical management suggestions tailored to the needs of this population, with emphasis on coronary artery disease prevention, diagnosis, and treatment.

OVERVIEW OF HOMELESSNESS

In 2005, the United Nations estimated that 100 million people were homeless worldwide (1). Estimates from

North America (2,3), Europe (4), and Australia (5) have illustrated the heavy footprint of homelessness in the developed world. In the United States, about 550,000 people are homeless on a given night (6), and an estimated 2.3 to 3.5 million people experience homelessness over the course of a year (2).

U.S. definitions of homelessness vary and continue to evolve. The 1987 Stewart B. McKinney Homeless Assistance Act defined a homeless person as someone who lacks a fixed, regular, and adequate nighttime residence and who lives in a shelter or a place not designed for human habitation (7). The 2009 Homelessness Emergency Assistance and Rapid Transition to Housing Act expanded this definition to include people at imminent risk of housing loss within the next 2 weeks and people fleeing from domestic violence with inadequate resources to obtain other permanent housing (8). People who are “doubled-up,” or staying with friends or family without paying



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**ABBREVIATIONS
AND ACRONYMS****CVD** = cardiovascular disease**HCH** = Health Care for the Homeless**HRSA** = Health Resources and Services Administration

rent because of not having a place of their own, are not included in these federal definitions of homelessness nor included in annual estimates of U.S. homelessness, but are considered homeless by the Health Resources and Services Administration (HRSA) (9) as well as by many advocacy organizations and academic researchers. The U.S. Department of Housing and Urban Development considers people to be *chronically* homeless if they have a disabling condition and have been either continuously homeless for ≥ 1 year or homeless 4 or more times in the past 3 years (10).

Nationally, 68% of homeless people in the United States reside in shelters, and 32% sleep “rough” in unsheltered locations (6). Although 22% of homeless people are children (6), the homeless population as a whole is growing older, with a median age now approaching 50 years (11,12). Men (60%) and African-American individuals (39%) are over-represented in the homeless population (6), as are a variety of marginalized groups such as gender and sexual minorities (13).

The causes of homelessness are wide-ranging and include structural factors such as poverty, unemployment, discrimination, incarceration, and high housing costs, in addition to personal factors such as substance use, mental illness, and traumatic life experiences. Indeed, “the homeless population” is not a single homogeneous entity, but rather a diverse collection of people from all walks of life with varying levels of disability, reflecting the multiple pathways into homelessness. Despite this heterogeneity, all homeless individuals share a common experience of vulnerability that comes with not having a physical place that is safe, reliable, and theirs.

**HOMELESSNESS AND
CARDIOVASCULAR MORTALITY**

Table 1 presents a summary of epidemiological studies reporting CVD mortality in homeless and marginally housed populations across diverse settings and countries (14-22). In an 11-year nationwide study of residents of shelters, rooming houses, and hotels in Canada, age-standardized mortality rates due to all cardiovascular causes were 61% to 71% higher than in the general population and 63% to 80% higher for ischemic heart disease specifically (15). This disparity is even starker among the growing segment of homeless adults ≥ 45 years of age, for whom heart disease is the second-leading cause of death, with mortality rates 2- to 3-fold higher than in similarly aged adults in the general population (14).

Factors contributing to disparities in CVD mortality in homeless populations include late presentation to care, fragmentation of care, competing psychosocial priorities, and a high burden of traditional and nontraditional CVD risk factors. Collectively, these issues contribute to myriad difficulties in predicting, diagnosing, and managing CVD in this vulnerable population. The **Central Illustration** displays an integrated framework for understanding the multiple contributors to CVD disparities in homeless people and serves as a roadmap for the remainder of this discussion.

RISK FACTOR BURDEN

Available evidence indicates that homeless populations may be more likely to have an adverse profile of both traditional and nontraditional CVD risk factors. These risks can be considered under the categories of demographic, medical, substance use, psychiatric, and social factors.

DEMOGRAPHIC FACTORS. As noted in the previous text, men and black individuals are over-represented in homeless populations (6), and these demographic groups experience higher CVD mortality rates (23). In addition, the aging of the homeless population (11,12) suggests that the burden of CVD in this group will likely increase over time. Furthermore, the chronological age of homeless individuals may underestimate their functional age, as several studies have demonstrated that the physical ailments and functional impairments of homeless adults often reflect a level of disability seen among much older individuals in the general population (24-26).

MEDICAL FACTORS. The prevalence of hypertension among homeless people is similar to that among nonhomeless people (27). However, hypertension among homeless individuals often goes undiagnosed or untreated (28), contributing to poorer blood pressure control than that seen in the general population (29). Similarly, although the prevalence of diabetes among homeless individuals is comparable to that in the general population (27,30), multiple barriers to effective glycemic management in the setting of homelessness result in generally worse disease control and greater complications (28,31-36). Although non-U.S. studies have suggested that overweight and obesity may be less common among homeless people (28,37), U.S.-based studies have found a prevalence similar to that in the general population (38-40). In addition, limited access to exercise facilities and constrained dietary options that are frequently lacking in nutritional quality (41-43) present

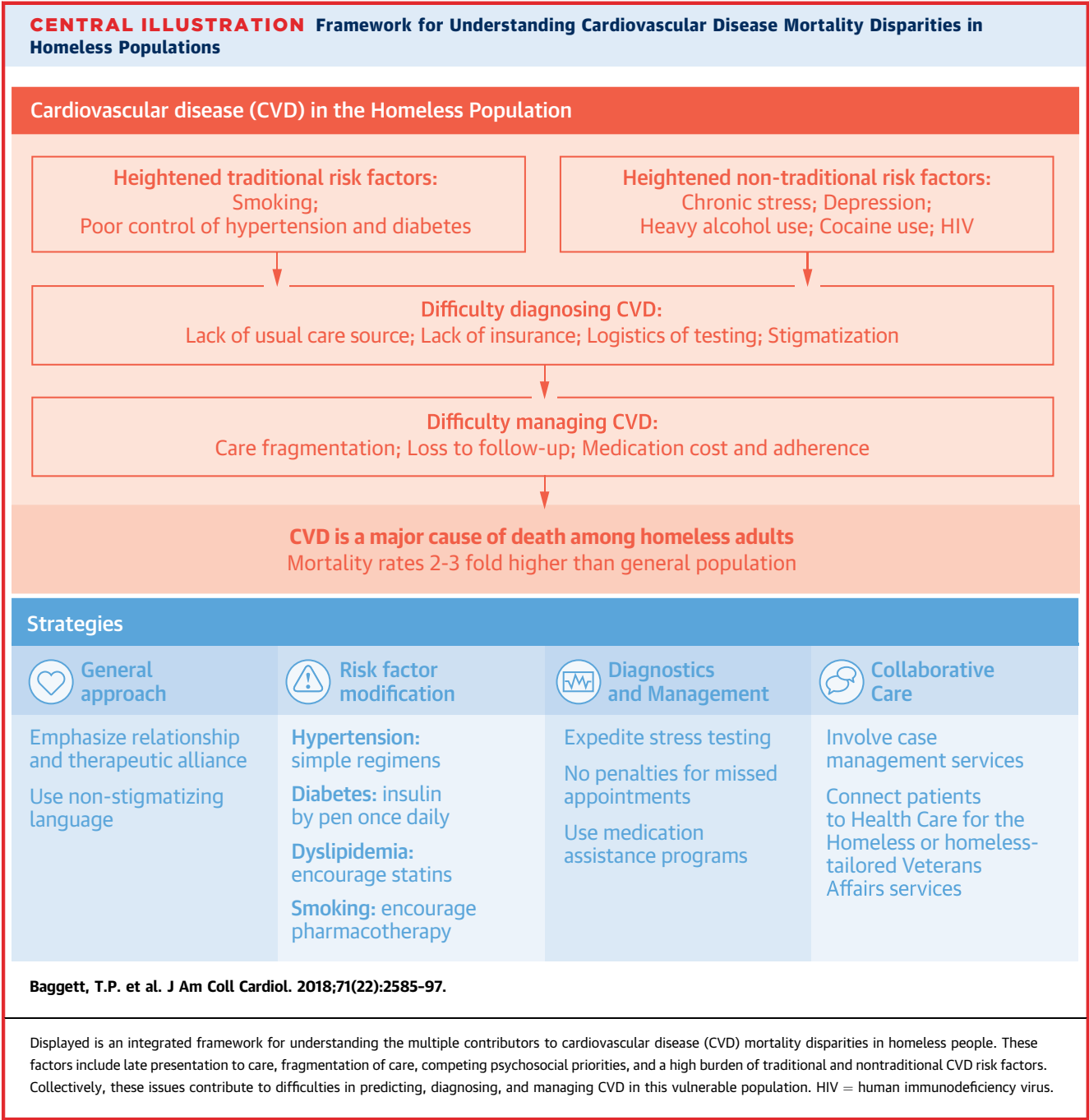
TABLE 1 Summary of Studies of Cardiovascular Mortality in Homeless Populations

Cause/Category	Data Source, Year (Ref. #)	Study Population	Setting	Years	Findings
Cardiovascular disease					
	Stenius-Ayoade et al., 2017 (21)	617 homeless men age ≥ 21 yrs	Helsinki, Finland	2004–2014	Age-adjusted HR: 2.5 (95% CI: 1.7–3.8)
	Schinka et al., 2016 (20)	4,475 homeless veterans age ≥ 55 yrs (99% male)	U.S. Veterans Health Administration	2000–2011	Leading category of death (33% of all deaths)
	Beijer et al., 2011 (18)	2,283 homeless people age ≥ 18 yrs (77% male)	Stockholm, Sweden	1995–2005	Men: ASMR RR: 2.6 (95% CI: 2.1–3.2) Women: ASMR RR: 3.3 (95% CI: 1.8–3.7)
	Morrison, 2009 (19)	6,757 homeless people age ≥ 18 yrs (65% male)	Glasgow, Scotland	2000–2005	Age- and sex-adjusted HR: 1.8 (95% CI: 1.1–2.9)
	Hwang et al., 2009 (15)	15,100 homeless and marginally housed adults age ≥ 25 yrs (70% male)	Canada	1991–2001	Men: Age-adjusted RR: 1.7 (95% CI: 1.6–1.8) Women: Age-adjusted RR: 1.6 (95% CI: 1.4–1.8)
Heart disease					
	Baggett et al., 2013 (14)	28,033 patients age ≥ 18 yrs (66% male) of a homeless health care program	Boston, Massachusetts	2003–2008	Men: 25–44 yrs: Race-adjusted RR: 5.1 (95% CI: 3.1–8.4) 45–64 yrs: Race-adjusted RR: 3.5 (95% CI: 2.8–4.3) ≥ 65 yrs: Race-adjusted RR: 1.4 (95% CI: 0.9–2.1) Women: 25–44 yrs: Race-adjusted RR: 3.6 (95% CI: 1.2–11.1) 45–64 yrs: Race-adjusted RR: 3.0 (95% CI: 1.5–6.1) ≥ 65 yrs: Race-adjusted RR: 1.1 (95% CI: 0.4–3.2)
	Hwang, 2000 (16)	8,933 homeless men age ≥ 18 yrs	Toronto, Ontario, Canada	1995–1997	25–44 yrs: RR: 2.4 (95% CI: 0.9–6.6) 45–64 yrs: RR: 1.4 (95% CI: 0.7–2.9)
	Hwang et al., 1997 (17)	17,292 patients age ≥ 18 yrs (68% male) of a homeless health care program	Boston, Massachusetts	1988–1993	Men: 25–44 yrs: Race-adjusted RR: 3.5 (95% CI: 2.1–5.6) 45–64 yrs: Race-adjusted RR: 1.5 (95% CI: 1.1–2.1) Women: 25–44 yrs: Race-adjusted RR: 2.4 (95% CI: 0.7–7.7) 45–64 yrs: Race-adjusted RR: 1.2 (95% CI: 0.4–3.3)
	Hibbs et al., 1994 (22)	10,715 homeless people age ≥ 15 yrs (63% male)	Philadelphia, PA	1985–1988	Second leading cause of death (19% of all deaths)
ASMR = age-standardized mortality rate; CI = confidence interval; HR = hazard ratio; RR = rate ratio.					

considerable challenges to weight reduction efforts and may independently contribute to CVD risk (44). Studies of lipid profiles among homeless individuals have yielded mixed findings around the prevalence of hypercholesterolemia (28,30,37,45,46). Although total cholesterol and triglyceride levels may be lower in some settings (37), potentially reflecting inadequate diet, high-density lipoprotein levels may also be lower in this population (28). Among those who qualify for lipid-lowering medications, few appear to be receiving them (28). Finally, depending on the subpopulation sampled, an estimated 1.5% to 10.5% of homeless individuals are infected with human immunodeficiency virus (47–49), and this may

contribute to elevated CVD risk through a variety of mechanisms (50).

SUBSTANCE USE FACTORS. The prevalence of cigarette smoking among homeless people is 68% to 80% (46,51–56). An estimated 60% of ischemic heart disease deaths among homeless people are tobacco-attributable (57), making smoking the single largest contributor to CVD mortality in homeless populations. Although light to moderate alcohol use may be protective against CVD (58), heavier drinking has been associated with multiple adverse cardiovascular outcomes, such as cardiomyopathy and congestive heart failure (CHF) (59–61) and is seen more



commonly in homeless populations (62-64). About one-quarter of homeless adults have a recent history of cocaine use (65), which has been linked to accelerated atherosclerosis, myocardial ischemia and infarction, and other cardiac complications such as aortic dissection and sudden cardiac death that may be related to dramatic drug-induced fluctuations in blood pressure (61,66-69). Similar cardiovascular effects may be induced by amphetamine use (61),

which is common among selected subgroups of homeless individuals (70,71). In addition to the pharmacological effects of specific drugs, the use of any drug by injection—a practice more common among homeless individuals (72) and especially prevalent during the current opioid crisis that has disproportionately affected this population (14,73)—heightens the risk of infective endocarditis and associated valvular complications.

PSYCHIATRIC FACTORS. Rates of depression (62,74), anxiety (74), and nonspecific psychological distress (72) are high in homeless populations, and these psychiatric conditions may contribute to CVD (75-78). Post-traumatic stress disorder, estimated to affect some 21% to 39% of homeless people (79-83), has also been associated with higher risk for CVD (84). As many as one-fourth of homeless people have chronic serious mental illnesses such as schizophrenia, bipolar disorder, or severe depression (74), and these disorders may complicate the presentation and diagnosis of CVD by interfering with individuals' reporting of symptoms, ability or motivation to seek care, and executive capacity for completing diagnostic testing. In addition, individuals with mental illness have generally high rates of smoking (85,86), and many psychotropic medications cause or exacerbate cardiometabolic risk factors for CVD, such as obesity, dyslipidemia, and diabetes (87,88). These considerations have led to the development of a CVD risk prediction model specific to people with serious mental illness (89), although its applicability to homeless individuals without major psychiatric illness is uncertain. No comparable homeless-specific risk prediction models exist.

SOCIAL FACTORS. A variety of social and environmental stressors commonly experienced by homeless people have been linked to a higher risk for CVD (90). Difficulty meeting needs for shelter, food, clothing, and other basic necessities (91); pervasive exposure to physical and sexual violence (92-96), and high levels of perceived stress (97) may contribute to high allostatic load, or the cumulative physiologic toll of chronic stress that is associated with multiple adverse health outcomes, including incident CVD (98-104). In a study of 25 homeless men, those with high levels of life stress had a lower density of lymphocyte beta-adrenergic receptors (105), introducing a physiological pathway through which the stressful life circumstance of homelessness might impact cardiovascular functioning. Adding to these stressful life circumstances, poor diet (39,41-43,45,106-108) and suboptimal sleep duration and quality (109) are intrinsic to the experience of homelessness and may also contribute to CVD risk (44,110).

BARRIERS TO DIAGNOSIS AND MANAGEMENT

The extreme circumstances of homelessness and unique profile of CVD risk factors among homeless people may contribute to difficulty predicting, diagnosing, and managing CVD in this population. This section presents a summary of these difficulties.

In subsequent sections, we will discuss strategies for overcoming some of these challenges.

DIFFICULTY PREDICTING DISEASE. Studies examining estimated CVD risk among homeless populations have yielded mixed results, with some finding risk scores comparable to those in the general population (28,111) and others finding higher-than-average CVD risk scores (97). To our knowledge, none of the CVD risk prediction models used in clinical practice have been validated in homeless populations. In addition, most CVD risk prediction models, including the pooled cohort risk estimator equation endorsed by the American College of Cardiology (112), do not incorporate the psychosocial risk factors discussed in the previous text that are common among homeless people, which may synergistically produce CVD risk exceeding that predicted based solely on more traditional CVD risk factors. Furthermore, these models may not adequately account for the generally worse control of traditional risk factors such as diabetes.

DIFFICULTY DIAGNOSING DISEASE. Establishing a diagnosis of CVD among homeless people presents several challenges due to health systems barriers in addition to logistical hurdles to diagnostic testing.

Health system barriers. As many as one-half of homeless individuals do not have a usual source of care (113), contributing to difficulty accessing primary and preventive care in a timely manner and high levels of unmet health care needs (72,96,114-117). Lack of health insurance, although less common following Medicaid expansion under the Affordable Care Act (118), is a major driver of these health care access problems (96,116,119,120). However, evidence from Canada suggests that homeless people experience difficulty meeting health care needs even within a system of universal health insurance (114,117). Competing priorities for meeting basic survival needs may be one explanation for this observation (91). Homeless patients may also feel unwelcome in traditional health care settings, prompting intense emotional responses that negatively affect their desire to seek further care (121). As a result, homeless individuals with CVD may present to care at later stages of illness or with "missed events."

Logistics of diagnostic testing. Even when patients can access care and present in a timely manner, diagnostic testing for CVD may be more difficult to accomplish in the setting of homelessness. Such testing may involve referral to hospitals or facilities that are unfamiliar to or inconvenient for homeless people. Diagnostic testing may not be affordable to individuals who lack health insurance. Additionally,

TABLE 2 Recommendations for Preventing, Diagnosing, and Managing Cardiovascular Disease in Homeless Patients

General approach	- Emphasize interpersonal relationship and therapeutic alliance - Assess living situation and personal health habits using nonstigmatizing language
Risk factor modification	- Diagnose and treat major CVD risk factors as per existing guidelines - Hypertension: emphasize simple medication regimens; educate patients on salt content of commonly encountered foods in shelter settings - Diabetes: when needed, once-daily insulin via pen device is preferred; may be stored at room temperature for 1 month. - Dyslipidemia: high-intensity statins can be safely started, unless there is advanced liver disease, monitoring transaminases in selected cases - Smoking: encourage pharmacotherapy; mobile phones can be used to access tobacco quitlines
Diagnostic work-up	- Aim for balanced pace of work-up that respects both clinical urgency and patient preference - Arrange stress testing as soon as possible to maximize the likelihood of completion - Carefully explain testing procedures to frame expectations
Management	- Schedule multiple clinic visits without penalty for missed appointments - Use once-daily medications when possible - Find information about medication assistance programs in your area: http://www.needymeds.org - Explore feasible nonpharmacological strategies, such as building physical activity into daily routine - Tailor decisions about PCI and stent selection to the clinical scenario; avoid litmus tests based solely on homelessness
Collaboration	- Address concurrent psychiatric and substance use disorders through multispecialty/multidisciplinary collaboration - Utilize case management services where available to coordinate medical, psychiatric, and social needs across multiple sectors - Locate a nearby Health Care for the Homeless clinic: http://findahealthcenter.hrsa.gov - Connect eligible patients to homeless-tailored Veterans Affairs services

CVD = cardiovascular disease; PCI = percutaneous coronary intervention.

same-day outpatient diagnostic testing, a strategy we use in general for homeless individuals when available, may not be available at many centers. Finally, certain diagnostic tests, such as those involving nuclear medicine perfusion scans, may involve a lengthy time commitment or require special preparation (e.g., fasting) that pose difficulties for some homeless patients.

DIFFICULTY MANAGING DISEASE. Once a diagnosis of CVD has been made, several practical barriers to management may emerge.

Communication and continuity. The itinerant nature of homelessness makes it difficult to communicate with homeless patients between visits or to recall them for follow-up visits, increasing the risk of loss to follow-up. Depending upon mobility patterns and shelter preferences, care may be fragmented across multiple institutions as homeless individuals move among different locations within a given geographic area. The problem of continuity may be further exacerbated by suboptimal patterns of health service utilization seen more commonly among homeless people, including higher rates of

emergency department use (116,122-126), hospitalization (116,124,125,127), and 30-day hospital readmissions (128), contributing to a cycle of acute care focused on immediate rather than longer-term management strategies.

Medication adherence. Homeless people experience several barriers to medication adherence (129,130). Lack of or inadequate insurance coverage creates an important financial barrier to obtaining prescription medications (96,116). Adherence may also be challenging for medications that require multiple doses per day. Diuretic agents may pose problems for those who lack routine access to bathroom facilities. Lost or stolen medications are also a common problem that may impede adherence (130). Our anecdotal experience suggests that concerns about medication adherence may impact decisions about percutaneous coronary intervention (PCI) and selection of bare-metal versus drug-eluting stents in the care of homeless people with acute coronary syndromes, similar to a phenomenon observed among individuals with drug or alcohol use disorders (131).

RECOMMENDATIONS

Our approach to addressing CVD and CVD risk factors among homeless people integrates evidence-based guidelines developed for the general population, evidence from homeless-specific studies, and our own clinical experience with this population. The resulting recommendations incorporate many of the management principles articulated by leading clinicians and researchers from diverse settings (132,133). An at-a-glance summary of these recommendations is presented in Table 2. Although the pathophysiology of CVD and the fundamentals of its treatment are the same as in any other population, the practical aspects of diagnosing and managing CVD in the setting of homelessness are made unique by the constellation of medical comorbidity, psychiatric complexity, and social vulnerability seen in this population, necessitating flexible, creative, and multidisciplinary approaches to accomplishing tasks that might be regarded as mundane in other settings.

DETERMINING WHO IS HOMELESS. Enacting the management strategies described in the following text requires first determining which patients encountered in clinical practice are homeless. Given the diversity and heterogeneity of homelessness, we favor a universal screening approach (134) over assumptions or conjectures based on how a patient looks. Because of the stigma associated with homelessness, we tend to avoid asking patients whether they consider themselves homeless and focus instead

on understanding and characterizing their living situation. We first ask patients whether they have a place to stay that they rent or own. For those who do not, we ask where they usually sleep at night. Those who report usually sleeping in a shelter, car, hotel or motel, or any public place are homeless. Those who stay with friends or family without paying rent are doubled-up; we approach these individuals in a fashion similar to how we approach those who are homeless.

THE ROLE OF HOUSING. Although the provision of stable housing is clearly an essential goal for people experiencing homelessness, the evidence base is currently insufficient to determine whether providing permanent supportive housing to homeless people favorably affects their cardiovascular health. In the United States, housing interventions for homeless people have been associated with improved residential stability (135), better human immunodeficiency virus outcomes (136), and in selected instances, reduced drug and alcohol use (137,138). These changes might plausibly lead to improved cardiovascular health. To date, however, no published randomized studies have specifically examined whether or not the provision of housing improves traditional CVD risk factors or CVD outcomes. In Canada, a large randomized trial of low-threshold housing for homeless people with mental illness demonstrated improvements in housing stability but found few effects on other health status measures over a 2-year follow-up period (139,140). An analysis of the effect of the housing intervention on CVD risk factors is currently underway. Although we wholeheartedly concur with policy recommendations calling for improved and immediate access to housing for homeless people (141), we cannot assume that housing alone will be sufficient to mitigate the CVD disparities documented in this population.

RISK FACTOR REDUCTION AND PRIMARY PREVENTION. To the greatest extent possible, we follow evidence-based guidelines for treating smoking, diabetes, hypertension, and dyslipidemia. Most homeless smokers want to quit smoking (39,52,142-145), but quit rates in this population are one-fifth of the national average (51). Although several studies have examined smoking cessation interventions for homeless smokers, the negative results (146) or pilot nature (147-151) of these studies means that the optimal approach to addressing tobacco use in this population is uncertain. We strongly encourage the use of pharmacotherapy for smoking cessation, and we offer quitline referrals to individuals with mobile phones.

Only a few pilot studies have examined management interventions for diabetes or its complications in homeless people (152-155), yielding a limited evidence base for tailoring practice to this population. As a result, we generally follow current practice guidelines, with modifications as appropriate to account for homeless patients' unique living circumstances. If insulin is necessary, we preferentially use once-daily long-acting formulations to minimize the risk of hypoglycemia when food supply is uncertain. We cautiously add prandial short-acting insulin only when needed and when the benefits outweigh the risks of doing so. We use insulin pen devices when possible to minimize the burden of carrying and disposing of syringes (155). Insulin can be stored at room temperature for up to 1 month.

No trials have directly addressed blood pressure management interventions for homeless people. We use once-daily medications whenever possible (156) and base initial medication selection on the likelihood of adherence to any needed follow-up testing, such as obtaining a basic metabolic panel following the initiation of a thiazide diuretic or angiotensin-converting enzyme inhibitor. We educate patients about the sodium content of commonly-encountered foods in shelter settings, such as soups and pre-packaged snacks, and explore alternatives to these options where feasible.

In the absence of a homeless-tailored CVD risk prediction model, we use standard CVD risk estimators in our own clinical practice. We supplement this information with our clinical impression of other nontraditional features (e.g., cocaine use, depression) that may additionally elevate risk. We prescribe statins for primary prevention of CVD according to current guidelines. We avoid statins in patients with known or suspected advanced liver disease.

We also advise homeless patients on non-pharmacological approaches to reduce their CVD risk. We encourage them to build physical activity into their daily routines, and we provide pragmatic tips on optimizing their dietary intake within the constraints of what their shelter or meal program offers. We counsel patients on the adverse cardiac effects of cocaine and other stimulant use and heavy alcohol use, and we treat these and other substance use disorders according to standard practice. We encourage injection drug users to make use of harm reduction services such as syringe exchange programs to lower their risk of infective endocarditis.

DIAGNOSTIC WORK-UP. When considering a diagnosis of CVD in homeless patients, we obtain a careful history eliciting both traditional and nontraditional

CVD risk factors, focusing particularly on those summarized in the previous text. If cardiac stress testing is warranted, we attempt to match the testing modality with patients' preferences and abilities. We carefully explain the test in advance, including any required preparation, the amount of time the test will take, whether an intravenous line will be required, and what they will be asked to do while there, so that patients know what to expect from the experience. When feasible, we arrange stress testing as soon as possible to maximize the likelihood of completion. Among patients presenting to the hospital with chest pain and unreliable follow-up, a brief admission for expedited cardiac stress testing may be warranted. In general, we aim to achieve a pace of work-up that respects patients' preferences and comfort level while being appropriate to the clinical urgency. In some cases where the pre-test probability of CVD is high and the patient declines diagnostic testing, we provide empiric medical treatment for CVD and monitor symptoms closely.

CVD MANAGEMENT. When a diagnosis of CVD is confirmed in homeless patients, we continue to aggressively treat contributory conditions (e.g., diabetes) and behaviors (e.g., smoking) in the manner described in the previous text while collaborating with consulting cardiologists to determine the next management steps.

If medical management is deemed most appropriate, we aim to achieve the simplest regimen that will be efficacious, using once-daily medications when possible. For patients who have difficulty affording their medications due to cost or lack of insurance, the use of assistance programs for obtaining discounted or free medications may be necessary. We suggest that clinicians familiarize themselves with medication assistance resources in their practice locations. NeedyMeds is an online nonprofit information resource that helps patients and providers locate medication assistance programs in their area.

We do not view homelessness as a contraindication to PCI or placement of drug-eluting stents if medically indicated. Rather, this decision should be tailored to the circumstances of each patient. Despite the challenges to medication adherence described in the previous text, we have cared for many homeless patients who successfully adhered to dual antiplatelet therapy following PCI with excellent cardiovascular outcomes. If coronary artery bypass grafting is needed, collaboration with a local medical respite program (see the following text) may be necessary to ensure discharge to a safe and supervised recovery environment.

Throughout all steps of the management process, we recommend close collaboration with psychiatric and addiction specialists, when relevant, to provide integrated care targeting these domains of health that can interfere with treatment adherence and increase the risk for adverse cardiovascular outcomes. Case management, an intervention geared toward assisting individuals in accessing services across multiple sectors, has been associated with improvements in psychiatric and substance use outcomes among homeless people (132,157,158) and may be an important component of a multidisciplinary care approach where available. For example, with a patient's consent, case managers can be given information about follow-up appointments, tests, and treatment plans to communicate the plan with the patient's support network and facilitate adherence.

FOLLOW-UP AND COMMUNICATION. Following a new diagnosis of a serious illness such as CVD, we schedule early and frequent follow-up with patients to minimize the risk of being lost to care, and we avoid penalizing patients for missed appointments. We document and regularly update contact information, as this often changes. Recent studies have suggested that 44% to 89% of homeless people have cell phones (159-165), although their allotment of minutes may vary depending upon the time of the month. Studies have suggested that appointment reminders delivered to homeless patients via text messaging may enhance follow-up and care retention (166).

TAILORED MODELS OF CARE

The care of homeless patients with complex health issues need not happen in isolation. Clinicians working in cardiac specialty settings may wish to collaborate with local programs that provide tailored health care services to individuals experiencing homelessness. Evidence from a U.S. study suggests that homeless individuals may have more favorable perceptions of their health care experiences at tailored clinical programs than at mainstream clinical sites (167).

HEALTH CARE FOR THE HOMELESS PROGRAM. The Health Care for the Homeless (HCH) program, administered by the HRSA Bureau of Primary Health Care, supports 295 health center grantees that serve over 934,000 people annually throughout all U.S. states, the District of Columbia, and Puerto Rico (168). Although HCH programs differ somewhat from location to location, these programs generally provide integrated, team-based care through colocated medical, mental health, and substance use treatment services. Several HCH programs embed these services within shelters, daytime drop-in centers, and other

facilities frequented by homeless individuals. Nearby HCH clinics can be located using the HRSA “Find a Health Center” website (169). The use of HCH services has been associated with reductions in inappropriate emergency department use among homeless adults (170).

Many HCH programs operate medical respite units that provide a medically-supervised environment for the care of homeless individuals who are too medically compromised to be on the streets or in a shelter but are not ill enough to require hospitalization (171). Medical respite units for homeless individuals have been associated with lower hospital readmission rates (172,173) and may be a valuable resource for supporting recovery after cardiac procedures or surgeries.

VETERANS AFFAIRS PROGRAMS. Homeless individuals who are veterans may be eligible for specialized services through Veterans Affairs. Since 2012, Veterans Affairs Homeless Patient Aligned Care Teams have provided team-oriented primary care to homeless veterans. These teams use a care model that resembles the HCH approach in emphasizing colocated services across a continuum of health and social needs, including housing placement (174).

SUMMARY AND CONCLUSIONS

Homeless people experience stark disparities in cardiovascular mortality, likely rooted in a unique profile of traditional and nontraditional risk factors combined with difficulties accessing care and adhering to evidence-based treatment. We suggest practical, patient-centered strategies for delivering preventive and therapeutic cardiovascular care to this vulnerable population. Multidisciplinary collaboration with primary care providers and behavioral health specialists may be needed to address homeless patients’ complex needs and to optimize their cardiovascular outcomes. Homeless-tailored care models exist in most U.S. cities and can be a valuable resource for achieving these goals and reducing the burden of CVD morbidity and mortality among those experiencing homelessness.

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REFERENCES

1. United Nations Commission on Human Rights. Report of the Special Rapporteur on adequate housing as a component of the right to an adequate standard of living, Miloon Kothari. UN document E/CN.4/2005/48. March 3, 2005.
2. Burt MR, Aron LY, Lee E, Valente J. How many homeless people are there?. In: *Helping America's Homeless: Emergency Shelter or Affordable Housing?* Washington, DC: Urban Institute, 2001: 23–54.
3. Gaetz S, Dej E, Richter T, Redman M. The State of Homelessness in Canada 2016. Toronto: Canadian Observatory on Homelessness Press, 2016.
4. The Foundation Abbe Pierre, FEANTSA. Second overview of housing exclusion in Europe 2017. March 2017. Available at: http://www.feantsa.org/download/gb_housing-exclusion-report_complete_20178613899107250251219.pdf. Accessed November 27, 2017.
5. Australian Bureau of Statistics. Census of population and housing: Estimating homelessness, 2011. Cat. no. 2049.0. 2012. Available at: www.abs.gov.au/AUSSTATS/abs@.nsf/Lookup/2049.0Main+Features12011. Accessed April 10, 2018.
6. Henry M, Watt R, Rosenthal L, Shivi A, for Abt Associates. The 2016 Annual Homeless Assessment Report (AHAR) to Congress: Part 1: Point-in-Time Estimates of Homelessness. Washington DC: U.S. Department of Housing and Urban Development, November 2016.
7. U.S. House of Representatives, Office of the Law Revision Counsel. General Definition of Homeless Individual, 42 USC ch 119f, §11302. Pub L No. 100-77, 101 Stat 485. July 22, 1987.
8. One Hundred Eleventh Congress of the United States of America. Definition of Homelessness. Homeless Emergency Assistance and Rapid Transition to Housing Act of 2009. S. 896, 34–5 §1003. January 6, 2009.
9. National Health Care for the Homeless Council. What is the official definition of homelessness? Available at: <https://www.nhchc.org/faq/official-definition-homelessness/>. Accessed August 22, 2017.
10. U.S. Department of Housing and Urban Development. Defining chronic homelessness: a technical guide for HUD programs. Washington, DC: Office of Community Planning and Development, Office of Special Needs Assistance Programs, U.S. Department of Housing and Urban Development, 2007.
11. Hahn JA, Kushel MB, Bangsberg DR, Riley E, Moss AR. Brief report: the aging of the homeless population: fourteen-year trends in San Francisco. *J Gen Intern Med* 2006;21:775–8.
12. Culhane DP, Metraux S, Byrne T, Stino M, Bainbridge J. The age structure of contemporary homelessness: evidence and implications for public policy. *Anal Soc Issues Public Policy* 2013;13:228–44.
13. Davidson C. Gender minority & homelessness: transgender population. In *Focus: A Quarterly Research Review of the National HCH Council*. September 2014;3(1).
14. Baggett TP, Hwang SW, O’Connell JJ, et al. Mortality among homeless adults in Boston: shifts in causes of death over a 15-year period. *JAMA Intern Med* 2013;173:189–95.
15. Hwang SW, Wilkins R, Tjepkema M, O’Campo PJ, Dunn JR. Mortality among residents of shelters, rooming houses, and hotels in Canada: 11 year follow-up study. *BMJ* 2009;339:b4036.
16. Hwang SW. Mortality among men using homeless shelters in Toronto, Ontario. *JAMA* 2000;283:2152–7.
17. Hwang SW, Orav EJ, O’Connell JJ, Lebow JM, Brennan TA. Causes of death in homeless adults in Boston. *Ann Intern Med* 1997;126:625–8.
18. Beijer U, Andreasson S, Agren G, Fugelstad A. Mortality and causes of death among homeless women and men in Stockholm. *Scand J Public Health* 2011;39:121–7.
19. Morrison DS. Homelessness as an independent risk factor for mortality: results from a retrospective cohort study. *Int J Epidemiol* 2009;38: 877–83.
20. Schinka JA, Bossarte RM, Curtiss G, Lapcevic WA, Casey RJ. Increased mortality among older veterans admitted to VA homelessness programs. *Psychiatr Serv* 2016;67:465–8.
21. Stenius-Ayoade A, Haaramo P, Kautiainen H, Gissler M, Wahlbeck K, Eriksson JG. Mortality and causes of death among homeless in Finland: a 10-year follow-up study. *J Epidemiol Community Health* 2017 Jul 24 [E-pub ahead of print].
22. Hibbs JR, Benner L, Klugman L, et al. Mortality in a cohort of homeless adults in Philadelphia. *N Engl J Med* 1994;331:304–9.

23. Benjamin EJ, Blaha MJ, Chiuve SE, et al. Heart disease and stroke statistics-2017 update: a report from the American Heart Association. *Circulation* 2017;135:e146-603.
24. Brown RT, Kiely DK, Bharel M, Mitchell SL. Geriatric syndromes in older homeless adults. *J Gen Intern Med* 2011;27:16-22.
25. Brown RT, Hemati K, Riley ED, et al. Geriatric conditions in a population-based sample of older homeless adults. *Gerontologist* 2017;57:757-66.
26. Gelberg L, Linn LS, Mayer-Oakes SA. Differences in health status between older and younger homeless adults. *J Am Geriatr Soc* 1990;38:1220-9.
27. Bernstein RS, Meurer LN, Plumb EJ, Jackson JL. Diabetes and hypertension prevalence in homeless adults in the United States: a systematic review and meta-analysis. *Am J Public Health* 2015;105:e46-60.
28. Lee TC, Hanlon JG, Ben-David J, et al. Risk factors for cardiovascular disease in homeless adults. *Circulation* 2005;111:2629-35.
29. Asgary R, Sckell B, Alcabes A, Naderi R, Schoenthaler A, Ogedegbe G. Rates and predictors of uncontrolled hypertension among hypertensive homeless adults using New York City shelter-based clinics. *Ann Fam Med* 2016;14:41-6.
30. Scott J, Gavin J, Egan AM, et al. The prevalence of diabetes, pre-diabetes and the metabolic syndrome in an Irish regional homeless population. *QJM* 2013;106:547-53.
31. Hwang SW, Bugeja AL. Barriers to appropriate diabetes management among homeless people in Toronto. *CMAJ* 2000;163:161-5.
32. Axon RN, Gebregziabher M, Dismuke CE, et al. differential impact of homelessness on glycemic control in veterans with type 2 diabetes mellitus. *J Gen Intern Med* 2016;31:1331-7.
33. Randall L, Begovic J, Hudson M, et al. Recurrent diabetic ketoacidosis in inner-city minority patients: behavioral, socioeconomic, and psychosocial factors. *Diabetes Care* 2011;34:1891-6.
34. Elder NC, Tubb MR. Diabetes in homeless persons: barriers and enablers to health as perceived by patients, medical, and social service providers. *Soc Work Public Health* 2014;29:220-31.
35. White BM, Logan A, Magwood GS. Access to diabetes care for populations experiencing homelessness: an integrated review. *Curr Diab Rep* 2016;16:112.
36. Arnaud A, Fagot-Campagna A, Reach G, Basin C, Laporte A. Prevalence and characteristics of diabetes among homeless people attending shelters in Paris, France, 2006. *Eur J Public Health* 2010;20:601-3.
37. Kubisova D, Adamkova V, Lanska V, Dlouhy P, Rambouskova J, Andel M. Higher prevalence of smoking and lower BMI, waist circumference, cholesterol and triacylglyceride levels in Prague's homeless compared to a majority of the Czech population. *BMC Public Health* 2007;7:51.
38. Baggett TP, Singer DE, Rao SR, O'Connell JJ, Bharel M, Rigotti NA. Food insufficiency and health services utilization in a national sample of homeless adults. *J Gen Intern Med* 2011;26:627-34.
39. Taylor EM, Kendzor DE, Reitzel LR, Businelle MS. Health risk factors and desire to change among homeless adults. *Am J Health Behav* 2016;40:455-60.
40. Koh KA, Hoy JS, O'Connell JJ, Montgomery P. The hunger-obesity paradox: obesity in the homeless. *J Urban Health* 2012;89:952-64.
41. Lyles CR, Drago-Ferguson S, Lopez A, Seligman HK. Nutritional assessment of free meal programs in San Francisco. *Prev Chronic Dis* 2013;10:E90.
42. Tse C, Tarasuk V. Nutritional assessment of charitable meal programmes serving homeless people in Toronto. *Public Health Nutr* 2008;11:1296-305.
43. Koh KA, Bharel M, Henderson DC. Nutrition for homeless populations: shelters and soup kitchens as opportunities for intervention. *Public Health Nutr* 2016;19:1312-4.
44. Yusuf S, Hawken S, Ounpuu S, et al. Effect of potentially modifiable risk factors associated with myocardial infarction in 52 countries (the INTERHEART study): case-control study. *Lancet* 2004;364:937-52.
45. Luder E, Ceysens-Okada E, Koren-Roth A, Martinez-Weber C. Health and nutrition survey in a group of urban homeless adults. *J Am Diet Assoc* 1990;90:1387-92.
46. Szerlip MI, Szerlip HM. Identification of cardiovascular risk factors in homeless adults. *Am J Med Sci* 2002;324:243-6.
47. Noska AJ, Belperio PS, Loomis TP, O'Toole TP, Backus LI. Prevalence of HIV, HCV and HBV among homeless and non-homeless United States veterans. *Clin Infect Dis* 2017;65:252-8.
48. Klinkenberg WD, Caslyn RJ, Morse GA, et al. Prevalence of human immunodeficiency virus, hepatitis B, and hepatitis C among homeless persons with co-occurring severe mental illness and substance use disorders. *Compr Psychiatry* 2003;44:293-302.
49. Robertson MJ, Clark RA, Charlebois ED, et al. HIV seroprevalence among homeless and marginally housed adults in San Francisco. *Am J Public Health* 2004;94:1207-17.
50. Triant VA. Cardiovascular disease and HIV infection. *Curr HIV/AIDS Rep* 2013;10:199-206.
51. Baggett TP, Rigotti NA. Cigarette smoking and advice to quit in a national sample of homeless adults. *Am J Prev Med* 2010;39:164-72.
52. Connor SE, Cook RL, Herbert MI, Neal SM, Williams JT. Smoking cessation in a homeless population: there is a will, but is there a way? *J Gen Intern Med* 2002;17:369-72.
53. Snyder LD, Eisner MD. Obstructive lung disease among the urban homeless. *Chest* 2004;125:1719-25.
54. Tsai J, Rosenheck RA. Smoking among chronically homeless adults: prevalence and correlates. *Psychiatr Serv* 2012;63:569-76.
55. Chau S, Chin M, Chang J, et al. Cancer risk behaviors and screening rates among homeless adults in Los Angeles County. *Cancer Epidemiol Biomarkers Prev* 2002;11:431-8.
56. Torchalla I, Strehlau V, Okoli CT, Li K, Schuetz C, Krausz M. Smoking and predictors of nicotine dependence in a homeless population. *Nicotine Tob Res* 2011;13:934-42.
57. Baggett TP, Chang Y, Singer DE, et al. Tobacco-, alcohol-, and drug-attributable deaths and their contribution to mortality disparities in a cohort of homeless adults in Boston. *Am J Public Health* 2015;105:1189-97.
58. Mukamal KJ, Chen CM, Rao SR, Breslow RA. Alcohol consumption and cardiovascular mortality among U.S. adults, 1987 to 2002. *J Am Coll Cardiol* 2010;55:1328-35.
59. Roerecke M, Rehm J. Irregular heavy drinking occasions and risk of ischemic heart disease: a systematic review and meta-analysis. *Am J Epidemiol* 2010;171:633-44.
60. Roerecke M, Greenfield TK, Kerr WC, Bondy S, Cohen J, Rehm J. Heavy drinking occasions in relation to ischaemic heart disease mortality—an 11-22 year follow-up of the 1984 and 1995 US National Alcohol Surveys. *Int J Epidemiol* 2011;40:1401-10.
61. Pfau S, Friedman HS. Cardiovascular consequences of alcohol and other drug use. In: Ries RK, Fiellin DA, Miller S, Saitz R, editors. *The ASAM Principles of Addiction Medicine*. 5th edition. Philadelphia, PA: Wolters Kluwer, 2014:1090-105.
62. Fazel S, Khosla V, Doll H, Geddes J. The prevalence of mental disorders among the homeless in western countries: systematic review and meta-regression analysis. *PLoS Med* 2008;5:e225.
63. Robertson MJ, Zlotnick C, Westerfelt A. Drug use disorders and treatment contact among homeless adults in Alameda County, California. *Am J Public Health* 1997;87:221-8.
64. Burt MR, Aron LY, Douglas T, et al. Homelessness: Programs and the People They Serve: Findings of the National Survey of Homeless Assistance Providers and Clients: Technical Report. Washington, DC: U.S. Department of Housing and Urban Development, Office of Policy Development and Research, 1999.
65. Grinman MN, Chiu S, Redelmeier DA, et al. Drug problems among homeless individuals in Toronto, Canada: prevalence, drugs of choice, and relation to health status. *BMC Public Health* 2010;10:94.
66. Lange RA, Hillis LD. Cardiovascular complications of cocaine use. *N Engl J Med* 2001;345:351-8.
67. Hsue PY, Salinas CL, Bolger AF, Benowitz NL, Waters DD. Acute aortic dissection related to crack cocaine. *Circulation* 2002;105:1592-5.
68. Hsue PY, McManus D, Selby V, et al. Cardiac arrest in patients who smoke crack cocaine. *Am J Cardiol* 2007;99:822-4.
69. Secemsky E, Lange D, Waters DD, Goldschlager NF, Hsue PY. Hemodynamic and arrhythmogenic effects of cocaine in hypertensive individuals. *J Clin Hypertens (Greenwich)* 2011;13:744-9.
70. Das-Douglas M, Colfax G, Moss AR, Bangsberg DR, Hahn JA. Tripling of

methamphetamine/amphetamine use among homeless and marginally housed persons, 1996-2003. *J Urban Health* 2008;85:239-49.

71. Fairbairn N, Kerr T, Buxton JA, Li K, Montaner JS, Wood E. Increasing use and associated harms of crystal methamphetamine injection in a Canadian setting. *Drug Alcohol Depend* 2007;88:313-6.

72. Lebrun-Harris LA, Baggett TP, Jenkins DM, et al. Health status and health care experiences among homeless patients in federally supported health centers: findings from the 2009 patient survey. *Health Serv Res* 2013;48:992-1017.

73. Ramos N, Allen E. Life and loss on methadone mile. *Boston Globe*. July 17, 2016. Available at: <https://apps.bostonglobe.com/graphics/2016/07/methadone-mile/>. Accessed April 10, 2018.

74. Koegel P, Burnam MA, Farr RK. The prevalence of specific psychiatric disorders among homeless individuals in the inner city of Los Angeles. *Arch Gen Psychiatry* 1988;45:1085-92.

75. Goodwin RD, Davidson KW, Keyes K. Mental disorders and cardiovascular disease among adults in the United States. *J Psychiatr Res* 2009;43:239-46.

76. Van der Kooy K, van Hout H, Marwijk H, Marten H, Stehouwer C, Beekman A. Depression and the risk for cardiovascular diseases: systematic review and meta analysis. *Int J Geriatr Psychiatry* 2007;22:613-26.

77. Suls J, Bunde J. Anger, anxiety, and depression as risk factors for cardiovascular disease: the problems and implications of overlapping affective dispositions. *Psychol Bull* 2005;131:260-300.

78. Rosengren A, Hawken S, Ounpuu S, et al. Association of psychosocial risk factors with risk of acute myocardial infarction in 11119 cases and 13648 controls from 52 countries (the INTERHEART study): case-control study. *Lancet* 2004;364:953-62.

79. Taylor KM, Sharpe L. Trauma and post-traumatic stress disorder among homeless adults in Sydney. *Aust N Z J Psychiatry* 2008;42:206-13.

80. Bender K, Ferguson K, Thompson S, Komlo C, Pollio D. Factors associated with trauma and posttraumatic stress disorder among homeless youth in three U.S. cities: the importance of transience. *J Trauma Stress* 2010;23:161-8.

81. Torchalla I, Strehlau V, Li K, Aube Linden I, Noel F, Krausz M. Posttraumatic stress disorder and substance use disorder comorbidity in homeless adults: prevalence, correlates, and sex differences. *Psychol Addict Behav* 2014;28:443-52.

82. Houston E, Sandfort TG, Watson KT, Caton CL. Psychological pathways from childhood sexual and physical abuse to HIV/sexually transmitted infection outcomes among homeless women: the role of posttraumatic stress disorder and borderline personality disorder symptoms. *J Health Psychol* 2012;18:1330-40.

83. Carlson EB, Garvert DW, Macia KS, Ruzek JI, Burling TA. Traumatic stressor exposure and post-traumatic symptoms in homeless veterans. *Mil Med* 2013;178:970-3.

84. Coughlin SS. Post-traumatic stress disorder and cardiovascular disease. *Open Cardiovasc Med J* 2011;5:164-70.

85. Lasser K, Boyd JW, Woolhandler S, Himmelstein DU, McCormick D, Bor DH. Smoking and mental illness: a population-based prevalence study. *JAMA* 2000;284:2606-10.

86. Lawrence D, Mitrou F, Zubrick SR. Smoking and mental illness: results from population surveys in Australia and the United States. *BMC Public Health* 2009;9:285.

87. Newcomer JW. Second-generation (atypical) antipsychotics and metabolic effects: a comprehensive literature review. *CNS Drugs* 2005;19 Suppl 1:1-93.

88. Rummel-Kluge C, Komossa K, Schwarz S, et al. Head-to-head comparisons of metabolic side effects of second generation antipsychotics in the treatment of schizophrenia: a systematic review and meta-analysis. *Schizophr Res* 2010;123:225-33.

89. Osborn DP, Hardoon S, Omar RZ, et al. Cardiovascular risk prediction models for people with severe mental illness: results from the prediction and management of cardiovascular risk in people with severe mental illnesses (PRIMROSE) research program. *JAMA Psychiatry* 2015;72:143-51.

90. Rozanski A. Behavioral cardiology: current advances and future directions. *J Am Coll Cardiol* 2014;64:100-10.

91. Gelberg L, Gallagher TC, Andersen RM, Koegel P. Competing priorities as a barrier to medical care among homeless adults in Los Angeles. *Am J Public Health* 1997;87:217-20.

92. Meinbresse M, Brinkley-Rubinstein L, Grassetto A, et al. Exploring the experiences of violence among individuals who are homeless using a consumer-led approach. *Violence Vict* 2014;29:122-36.

93. Kushel MB, Evans JL, Perry S, Robertson MJ, Moss AR. No door to lock: victimization among homeless and marginally housed persons. *Arch Intern Med* 2003;163:2492-9.

94. Wenzel SL, Koegel P, Gelberg L. Antecedents of physical and sexual victimization among homeless women: a comparison to homeless men. *Am J Community Psychol* 2000;28:367-90.

95. Weinreb L, Goldberg R, Perloff J. Health characteristics and medical service use patterns of sheltered homeless and low-income housed mothers. *J Gen Intern Med* 1998;13:389-97.

96. Baggett TP, O'Connell JJ, Singer DE, Rigotti NA. The unmet health care needs of homeless adults: a national study. *Am J Public Health* 2010;100:1326-33.

97. Gozdzik A, Salehi R, O'Campo P, Stergiopoulos V, Hwang SW. Cardiovascular risk factors and 30-year cardiovascular risk in homeless adults with mental illness. *BMC Public Health* 2015;15:165.

98. McEwen BS, Stellar E. Stress and the individual. Mechanisms leading to disease. *Arch Intern Med* 1993;153:2093-101.

99. Logan JG, Barksdale DJ. Allostasis and allostatic load: expanding the discourse on stress and cardiovascular disease. *J Clin Nurs* 2008;17:201-8.

100. Mattei J, Demissie S, Falcon LM, Ordovas JM, Tucker K. Allostatic load is associated with chronic conditions in the Boston Puerto Rican Health Study. *Soc Sci Med* 2010;70:1988-96.

101. Seeman TE, Singer BH, Rowe JW, Horwitz RI, McEwen BS. Price of adaptation—allostatic load and its health consequences. *MacArthur studies of successful aging. Arch Intern Med* 1997;157:2259-68.

102. Beckie TM. A systematic review of allostatic load, health, and health disparities. *Biol Res Nurs* 2012;14:311-46.

103. Seeman TE, McEwen BS, Rowe JW, Singer BH. Allostatic load as a marker of cumulative biological risk: MacArthur studies of successful aging. *Proc Natl Acad Sci U S A* 2001;98:4770-5.

104. Richardson S, Shaffer JA, Falzon L, Krupka D, Davidson KW, Edmondson D. Meta-analysis of perceived stress and its association with incident coronary heart disease. *Am J Cardiol* 2012;110:1711-6.

105. Dimsdale JE, Mills P, Patterson T, Ziegler M, Dillon E. Effects of chronic stress on beta-adrenergic receptors in the homeless. *Psychosom Med* 1994;56:290-5.

106. Davis LR, Weller NF, Jadhav M, Holleman WL. Dietary intake of homeless women residing at a transitional living center. *J Health Care Poor Underserved* 2008;19:952-62.

107. Malmauret L, Leblanc J, Cuvelier I, Verger P. Dietary intakes and vitamin status of a sample of homeless people in Paris. *Eur J Clin Nutr* 2002;56:313-20.

108. Kendzor DE, Reitzel LR, Businelle MS. Characterizing stressors and modifiable health risk factors among homeless smokers: an exploratory pilot study. *Health Educ Behav* 2015;42:642-7.

109. Chang HL, Fisher FD, Reitzel LR, Kendzor DE, Nguyen MA, Businelle MS. Subjective sleep inadequacy and self-rated health among homeless adults. *Am J Health Behav* 2015;39:14-21.

110. Cappuccio FP, Cooper D, D'Elia L, Strazzullo P, Miller MA. Sleep duration predicts cardiovascular outcomes: a systematic review and meta-analysis of prospective studies. *Eur Heart J* 2011;32:1484-92.

111. Kim DH, Daskalakis C, Plumb JD, et al. Modifiable cardiovascular risk factors among individuals in low socioeconomic communities and homeless shelters. *Fam Community Health* 2008;31:269-80.

112. Goff DC Jr., Lloyd-Jones DM, Bennett G, et al. 2013 ACC/AHA guideline on the assessment of cardiovascular risk: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines. *J Am Coll Cardiol* 2014;63 25 Pt B:2935-59.

113. Gallagher TC, Andersen RM, Koegel P, Gelberg L. Determinants of regular source of care among homeless adults in Los Angeles. *Med Care* 1997;35:814-30.

114. Hwang SW, Ueng JJ, Chiu S, et al. Universal health insurance and health care access for homeless persons. *Am J Public Health* 2010;100:1454-61.

115. Kertesz SG, Hwang SW, Irwin J, Ritchey FJ, Lagory ME. Rising inability to obtain needed health care among homeless persons in Birmingham, Alabama (1995-2005). *J Gen Intern Med* 2009;24:841-7.
116. Kushel MB, Vittinghoff E, Haas JS. Factors associated with the health care utilization of homeless persons. *JAMA* 2001;285:200-6.
117. Argintaru N, Chambers C, Gogosis E, et al. A cross-sectional observational study of unmet health needs among homeless and vulnerably housed adults in three Canadian cities. *BMC Public Health* 2013;13:577.
118. DiPietro B, Artiga S, Gates A. Early impacts of the Medicaid expansion for the homeless population. The Henry J. Kaiser Family Foundation, The Kaiser Commission on Medicaid and the Uninsured. November 13, 2014. Available at: <https://www.kff.org/uninsured/issue-brief/early-impacts-of-the-medicare-expansion-for-the-homeless-population/>. Accessed April 10, 2018.
119. O'Toole TP, Gibbon JL, Hanusa BH, Fine MJ. Preferences for sites of care among urban homeless and housed poor adults. *J Gen Intern Med* 1999;14:599-605.
120. Glied S, Hoven C, Moore RE, Garrett AB. Medicaid and service use among homeless adults. *Inquiry* 1998;35:380-8.
121. Wen CK, Hudak PL, Hwang SW. Homeless people's perceptions of welcomeness and unwelcomeness in healthcare encounters. *J Gen Intern Med* 2007;22:1011-7.
122. Kushel MB, Perry S, Bangsberg D, Clark R, Moss AR. Emergency department use among the homeless and marginally housed: results from a community-based study. *Am J Public Health* 2002;92:778-84.
123. Padgett DK, Struening EL, Andrews H, Pittman J. Predictors of emergency room use by homeless adults in New York City: the influence of predisposing, enabling and need factors. *Soc Sci Med* 1995;41:547-56.
124. Hwang SW, Chambers C, Chiu S, et al. A comprehensive assessment of health care utilization among homeless adults under a system of universal health insurance. *Am J Public Health* 2013;103 Suppl 2:S294-301.
125. Bharel M, Lin WC, Zhang J, O'Connell E, Taube R, Clark RE. Health care utilization patterns of homeless individuals in Boston: preparing for Medicaid expansion under the Affordable Care Act. *Am J Public Health* 2013;103 Suppl 2:S311-7.
126. Tsai J, Doran KM, Rosenheck RA. When health insurance is not a factor: national comparison of homeless and nonhomeless US veterans who use Veterans Affairs Emergency Departments. *Am J Public Health* 2013;103 Suppl 2:S225-31.
127. Martell JV, Seitz RS, Harada JK, Kobayashi J, Sasaki VK, Wong C. Hospitalization in an urban homeless population: the Honolulu Urban Homeless Project. *Ann Intern Med* 1992;116:299-303.
128. Saab D, Nisenbaum R, Dhalla I, Hwang SW. Hospital readmissions in a community-based sample of homeless adults: a matched-cohort study. *J Gen Intern Med* 2016;31:1011-8.
129. Hunter CE, Palepu A, Farrell S, Gogosis E, O'Brien K, Hwang SW. Barriers to prescription medication adherence among homeless and vulnerably housed adults in three Canadian cities. *J Prim Care Community Health* 2015;6:154-61.
130. Paudyal V, MacLure K, Buchanan C, Wilson L, Macleod J, Stewart D. 'When you are homeless, you are not thinking about your medication, but your food, shelter or heat for the night': behavioural determinants of homeless patients' adherence to prescribed medicines. *Public Health* 2017;148:1-8.
131. Chavez JF, Doll JA, Mediratta A, et al. Factors associated with the use of drug-eluting stents in patients presenting with acute ST-segment elevation myocardial infarction. *Cardiol Res Pract* 2015;2015:528753.
132. Hwang SW, Burns T. Health interventions for people who are homeless. *Lancet* 2014;384:1541-7.
133. Koh HK, O'Connell JJ. Improving health care for homeless people. *JAMA* 2016;316:2586-7.
134. Montgomery AE, Fargo JD, Byrne TH, Kane VR, Culhane DP. Universal screening for homelessness and risk for homelessness in the Veterans Health Administration. *Am J Public Health* 2013;103 Suppl 2:S210-1.
135. Tsemberis S, Gulcur L, Nakae M. Housing First, consumer choice, and harm reduction for homeless individuals with a dual diagnosis. *Am J Public Health* 2004;94:651-6.
136. Buchanan D, Kee R, Sadowski LS, Garcia D. The health impact of supportive housing for HIV-positive homeless patients: a randomized controlled trial. *Am J Public Health* 2009;99 Suppl 3:S675-80.
137. Schumacher JE, Milby JB, Wallace D, et al. Meta-analysis of day treatment and contingency-management dismantling research: Birmingham Homeless Cocaine Studies (1990-2006). *J Consult Clin Psychol* 2007;75:823-8.
138. Collins SE, Malone DK, Clifasefi SL, et al. Project-based Housing First for chronically homeless individuals with alcohol problems: within-subjects analyses of 2-year alcohol trajectories. *Am J Public Health* 2012;102:511-9.
139. Stergiopoulos V, Hwang SW, Gozdzik A, et al. Effect of scattered-site housing using rent supplements and intensive case management on housing stability among homeless adults with mental illness: a randomized trial. *JAMA* 2015;313:905-15.
140. Aubry T, Goering P, Veldhuizen S, et al. A multiple-city RCT of Housing First with assertive community treatment for homeless Canadians with serious mental illness. *Psychiatr Serv* 2016;67:275-81.
141. Kertesz SG, Baggett TP, O'Connell JJ, Buck DS, Kushel MB. Permanent supportive housing for homeless people - reframing the debate. *N Engl J Med* 2016;375:2115-7.
142. Butler J, Okuyemi KS, Jean S, Nazir N, Ahluwalia JS, Resnicow K. Smoking characteristics of a homeless population. *Subst Abuse* 2002;23:223-31.
143. Arnsten JH, Reid K, Bierer M, Rigotti N. Smoking behavior and interest in quitting among homeless smokers. *Addictive Behaviors* 2004;29:1155-61.
144. Baggett TP, Lebrun-Harris LA, Rigotti NA. Homelessness, cigarette smoking and desire to quit: results from a US national study. *Addiction* 2013;108:2009-18.
145. Vijayaraghavan M, Tieu L, Ponath C, Guzman D, Kushel M. Tobacco cessation behaviors among older homeless adults: results from the HOPE HOME Study. *Nicotine Tob Res* 2016;18:1733-9.
146. Okuyemi KS, Goldade K, Whembolua GL, et al. Motivational interviewing to enhance nicotine patch treatment for smoking cessation among homeless smokers: a randomized controlled trial. *Addiction* 2013;108:1136-44.
147. Okuyemi KS, Thomas JL, Hall S, et al. Smoking cessation in homeless populations: a pilot clinical trial. *Nicotine Tob Res* 2006;8:689-99.
148. Shelley D, Cantrell J, Wong S, Warn D. Smoking cessation among sheltered homeless: a pilot. *Am J Health Behav* 2010;34:544-52.
149. Businelle MS, Kendzor DE, Kesh A, et al. Small financial incentives increase smoking cessation in homeless smokers: a pilot study. *Addict Behav* 2014;39:717-20.
150. Carpenter VL, Hertzberg JS, Kirby AC, et al. Multicomponent smoking cessation treatment including mobile contingency management in homeless veterans. *J Clin Psychiatry* 2015;76:959-64.
151. Baggett TP, Chang Y, Yaqubi A, McGlave C, Higgins ST, Rigotti NA. Financial incentives for smoking abstinence in homeless smokers: a pilot randomized controlled trial. *Nicotine Tob Res* 2017 Aug 18 [E-pub ahead of print].
152. Davis S, Keep S, Edie A, Couzens S, Pereira K. A peer-led diabetes education program in a homeless community to improve diabetes knowledge and empowerment. *J Community Health Nurs* 2016;33:71-80.
153. Savage C, Xu Y, Richmond MM, Corbin A, Falciglia M, Gillespie G. A pilot study: retention of adults experiencing homelessness and feasibility of a CDSM diabetes program. *J Community Health Nurs* 2014;31:238-48.
154. Matteoli M, Scaringi C, Carella P, Fruttaldo L, Angeloni U, Laurenza M. A mobile health service to manage diabetic foot in homeless patients. *J Am Podiatr Med Assoc* 2015;105:424-8.
155. Wilk T, Mora PF, Chaney S, Shaw K. Use of an insulin pen by homeless patients with diabetes mellitus. *J Am Acad Nurse Pract* 2002;14:372-9.
156. Kinchen K, Wright JD. Hypertension management in health care for the homeless clinics: results from a survey. *Am J Public Health* 1991;81:1163-5.
157. de Vet R, van Luitelaar MJ, Brilleslijper-Kater SN, Vanderplasschen W, Beijersbergen MD, Wolf JR. Effectiveness of case management for homeless persons: a systematic review. *Am J Public Health* 2013;103:e13-26.
158. Hwang SW, Tolomiczenko G, Kouyoumdjian FG, Garner RE. Interventions to improve the health of

the homeless: a systematic review. *Am J Prev Med* 2005;29:311-9.

159. Moczygemba LR, Cox LS, Marks SA, Robinson MA, Goode JR, Jafari N. Homeless patients' perceptions about using cell phones to manage medications and attend appointments. *Int J Pharm Pract* 2017;25:220-30.

160. McInnes DK, Sawh L, Petrakis BA, et al. The potential for health-related uses of mobile phones and internet with homeless veterans: results from a multisite survey. *Telemed J E Health* 2014;20:801-9.

161. McInnes DK, Li AE, Hogan TP. Opportunities for engaging low-income, vulnerable populations in health care: a systematic review of homeless persons' access to and use of information technologies. *Am J Public Health* 2013;103 Suppl 2:e11-24.

162. Post LA, Vaca FE, Doran KM, et al. New media use by patients who are homeless: the potential of mHealth to build connectivity. *J Med Internet Res* 2013;15:e195.

163. Rice E, Lee A, Taitt S. Cell phone use among homeless youth: potential for new health interventions and research. *J Urban Health* 2011;88:1175-82.

164. Eyrich-Garg KM. Mobile phone technology: a new paradigm for the prevention, treatment, and

research of the non-sheltered "street" homeless? *J Urban Health* 2010;87:365-80.

165. Harpin S, Davis J, Low H, Gilroy C. Mobile phone and social media use of homeless youth in Denver, Colorado. *J Community Health Nurs* 2016;33:90-7.

166. McInnes DK, Petrakis BA, Gifford AL, et al. Retaining homeless veterans in outpatient care: a pilot study of mobile phone text message appointment reminders. *Am J Public Health* 2014;104 Suppl 4:S588-94.

167. Kertesz SG, Holt CL, Steward JL, et al. Comparing homeless persons' care experiences in tailored versus nontailored primary care programs. *Am J Public Health* 2013;103 Suppl 2:S331-9.

168. Health Resources and Services Administration, U.S. Department of Health & Human Services. 2016 Health Center Data: National Health Care for the Homeless Program Grantee Data. Available at: <https://bphc.hrsa.gov/uds/datacenter.aspx?fd=ho>. Accessed August 19, 2017.

169. Health Resources and Services Administration, U.S. Department of Health & Human Services. Find a health center. Available at: <https://findahealthcenter.hrsa.gov/>. Accessed April 10, 2018.

170. Han B, Wells BL. Inappropriate emergency department visits and use of the Health Care for the Homeless Program services by Homeless adults in the northeastern United States. *J Public Health Manag Pract* 2003;9:530-7.

171. O'Connell JJ, Oppenheimer SC, Judge CM, et al. The Boston Health Care for the Homeless Program: a public health framework. *Am J Public Health* 2010;100:1400-8.

172. Buchanan D, Doblin B, Sai T, Garcia P. The effects of respite care for homeless patients: a cohort study. *Am J Public Health* 2006;96:1278-81.

173. Kertesz SG, Posner MA, O'Connell JJ, et al. Post-hospital medical respite care and hospital readmission of homeless persons. *J Prev Interv Community* 2009;37:129-42.

174. U.S. Department of Veterans Affairs. Homeless patient aligned care teams. Available at: https://www.va.gov/homeless/h_pact.asp. Accessed August 19, 2017.

KEY WORDS cardiovascular diseases, health care disparities, health status disparities, homeless persons, risk factors

THIS IS **EXHIBIT "D"** REFERRED TO
IN THE AFFIDAVIT OF DR. STEPHEN HWANG
SWORN REMOTELY AT THE
CITY OF TORONTO BEFORE ME AT THE COUNTY OF WELLINGTON
DURING A ZOOM VIDEOCONFERENCE
IN ACCORDANCE WITH O.REG. 431/20,
ADMINISTERING OATH OR DECLARATION REMOTELY
THIS 6TH DAY OF MAY, 2025



JOANNA MULLEN
A Commissioner, etc.,
Province of Ontario,
While a Barrister and Solicitor.
LSO # 64535V

Healthcare Utilization, Legal Incidents, and Victimization Following Traumatic Brain Injury in Homeless and Vulnerably Housed Individuals: A Prospective Cohort Study

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Objective: To characterize the associations between a history of traumatic brain injury (TBI) and subsequent healthcare utilization, legal involvement, and victimization. **Setting:** Three major Canadian cities. **Participants:** A total of 1181 homeless and vulnerably housed adults who were single and 18 years or older. Data for 968 participants (82%) were available at 1-year follow-up. **Design:** Prospective cohort study. Data were collected using structured, in-person interviews at baseline in 2009 and approximately 1 year after baseline. **Main Measures:** Self-reported TBI, 12-item Short Form Health Survey, healthcare, and criminal justice use questionnaires. **Results:** The lifetime prevalence of TBI was 61%. A history of TBI was independently associated with emergency department (ED) use [adjusted odds ratio (AOR) = 1.5, 95% confidence interval (CI): 1.11–1.96], being arrested or incarcerated (AOR = 1.79, 95% CI: 1.3–2.48) and being a victim of physical assault (AOR = 2.81, 95% CI: 1.96–4.03) during the 1-year follow-up period. **Conclusions:** Homeless and vulnerably housed individuals with a lifetime history of TBI are more likely to be ED users, arrested or incarcerated, and victims of physical assault over a 1-year follow-up period even after adjustment for health status and other confounders. These findings have public health and criminal justice implications and highlight the need for effective screening, treatment, and rehabilitation for TBI in this population. **Key words:** healthcare utilization, homeless persons, traumatic brain injury, victimization, vulnerably housed

TRAUMATIC BRAIN INJURIES (TBIs) are common in homeless populations.^{1,2} In a study of

904 homeless individuals in Toronto, Canada, the lifetime prevalence of self-reported TBI was 53%, with 70% of participants' first TBI occurring before onset of homelessness.³ Among homeless individuals, a history of TBI was associated with many adverse health outcomes such as seizures, mental health problems, alcohol and drug misuse, and poorer physical and mental health status. Given their numerous health problems and lack of access to primary care, homeless individuals are also frequent users of healthcare facilities, particularly hospital emergency departments (EDs).^{4,5} However, whether a history of TBI is associated with subsequent healthcare utilization in homeless and vulnerably housed populations is unknown.

Previous studies have also linked TBI with aggressive and violent behaviors.^{6,7} In the largest study to date to investigate violent crime following TBI, Fazel et al⁸ found that individuals who had experienced a TBI were significantly more likely to have committed a violent

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crime compared with population controls. In a recent meta-analysis of 24 studies that investigated the lifetime prevalence of TBI in incarcerated populations, Farrer and Hedges⁹ found a significantly higher prevalence of TBI in incarcerated individuals than in the general population. A previous study also demonstrated that individuals who experience a TBI are more likely to be victims of violent crime.¹⁰ Although numerous studies have demonstrated an association between TBI and criminal incidents, the relations between a history of TBI and subsequent arrests, incarcerations, and experiences of victimization have not been previously investigated in homeless and vulnerably housed populations.

This article reports findings from the Health and Housing in Transition study, a prospective cohort study that is tracking the health and housing status of homeless and vulnerably housed individuals in 3 major Canadian cities.¹¹ The objectives of this article are to characterize the associations between a history of TBI and subsequent healthcare utilization, legal incidents, and victimization over a 1-year follow-up period in homeless and vulnerably housed individuals.

METHODS

Participants

Homeless and vulnerably housed persons 18 years or older who were not living with a dependent child were recruited in Vancouver, Toronto, and Ottawa from January to December 2009. Homelessness was defined as living within the last 7 days at a shelter, public space, vehicle, abandoned building, or someone else's home, and not having a home of one's own. Vulnerably housed was defined as currently living in one's own room or apartment, but having been homeless or had 2 or more moves in the past 12 months. Full-time students and individuals who were visiting the city for 3 months or less were excluded.

Recruitment

The sampling procedure for recruiting homeless participants was based on the design suggested by Ardilly and Le Blanc.¹² Study participants were recruited at homeless shelters and meal programs. Homeless participants who did not use shelters were recruited at meal programs proportionally to the estimated number of homeless persons that slept on the street in each respective city. Vulnerably housed participants were recruited from randomly selected rooming houses in Toronto and Ottawa and from SRO hotels in Vancouver. Because of difficulties in gaining access to some of these locations, the recruitment strategy for vulnerably housed individuals was modified to include meal programs, drop-in centers, and community health centers. All study partic-

ipants provided written informed consent and received CDN\$20 upon interview completion. This study was approved by the Research Ethics Boards at St Michael's Hospital, Toronto; the University of Ottawa; and the University of British Columbia, Vancouver.

Survey instrument

Full details of all survey instruments used in the study have been reported elsewhere.¹¹ Data on demographic characteristics, health status and health conditions, healthcare utilization, quality of life, social support, employment and income, and legal incidents were collected using structured, in-person interviews conducted by research personnel immediately following recruitment. Interviews took approximately 60 to 90 minutes to complete. Participants reported their ethnic background based on categories adapted from the Statistics Canada Ethnic Diversity Survey.¹³

Lifetime prevalence of TBI was determined using questions from a previous study on prison inmates.¹⁴ Participants were asked whether they had ever had "an injury to the head which knocked you out or at least left you dazed, confused, or disoriented?" and when the first such injury of this nature occurred. Health status was determined using the 12-item Short Form Health Survey (SF-12) to generate Physical Component Summary (PCS) and Mental Component Summary (MCS) subscale scores.¹⁵ Chronic health conditions listed in the survey tool were adapted from the Canadian Community Health Survey,¹⁶ and participants were asked to report any chronic health conditions that had lasted or were expected to last 6 months or more and had been diagnosed by a healthcare professional. Past and present mental health diagnoses were also identified by self-report. Alcohol abuse was assessed using the Alcohol Use Disorders Identification Test (AUDIT), with a score of 8 or more representing a positive screen indicative of hazardous or harmful drinking.¹⁷ Drug abuse and the extent of drug-related problems experienced by participants were assessed using the 10-item version of the Drug Abuse Screening Test (DAST-10).¹⁸ Scores of 3 or higher on the DAST-10 indicated moderate, substantial, or severe drug use problems resulting in a positive screen.

Participants provided contact information and secondary contact information during administration of the baseline survey so that they could be located for a follow-up survey administered approximately 1 year later with questions on the outcomes of interest—healthcare utilization (ED, frequent ED use, and hospital admission), legal incidents (arrests and/or incarcerations), and victimization (physical and sexual assault). A frequent ED user was defined as having 3 or more ED visits in the past year.

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Data analysis

Data analysis was conducted in 2012. Descriptive statistics were used to summarize all quantitative variables. Comparisons between participants with and without a history of TBI were performed using Student *t* tests for normally distributed continuous variables (SF-12 PCS and MCS scores), Wilcoxon–Mann–Whitney test for continuous variables that were not normally distributed (age, age at first homelessness, lifetime years of homelessness, and income), and χ^2 test or the Fisher exact test when necessary for categorical variables. Multivariate logistic regression models were developed to determine whether a history of TBI was associated with healthcare utilization and legal incidents after adjustment for age, gender, city of recruitment, country of origin, ethnic background, highest level of education, lifetime years of homelessness, housing status (homeless vs vulnerably housed), SF-12 PCS and MCS scores, DAST and AUDIT scores, and having a primary care provider. The multivariate logistic regression models were built using a purposeful selection strategy.¹⁹

Univariate logistic regression models were constructed to evaluate the effect of each covariate on each outcome. Models that met the inclusion criteria of $P \leq .25$ or were of theoretical importance were added into a full model. Through an iterative process, variables were removed or added back into the model if (a) the variable met the retention inclusion criteria of $P \leq .10$ and (b) the parameter estimates of at least 1 remaining variable was altered by 15% or more when a given variable was removed from the full model. When the iterative process of adding and removing variables from the full model was complete, variables that were dismissed at the univariate model stage were added back in to determine whether they had an effect on the final model. The goodness of fit for each model was ensured using the Hosmer–Lemeshow Test. Statistical tests were 2-tailed and $P < .05$ was considered statistically significant for the descriptive statistics and final multivariate models. All statistical analyses were performed using SAS statistical software version 9.3 (SAS Institute, Cary, North Carolina).

RESULTS

Data at baseline were available for 1181 homeless and vulnerably housed adults. Of these, 586 (49.7%) were homeless and 594 (50.3%) were vulnerably housed at baseline. Demographic characteristics of study participants are displayed in Table 1. Overall, the lifetime prevalence of self-reported TBI in the sample was 61% (69% in Vancouver, 64% in Ottawa, and 50% in Toronto). Those with a history of TBI were significantly more likely to be male, White, born in Canada, vulner-

ably housed at baseline, completed some high school, have first experienced homelessness at a younger age, and to have experienced more lifetime years of homelessness. The median age of the first TBI for participants who reported a history of TBI was 16 years, 58% of whom experienced their first TBI before 20 years of age.

Those with a history of TBI were significantly more likely than those without a history of TBI to be employed ($P < .05$) and to be receiving a higher monthly income ($P < .001$) during the year before the baseline survey. There were no significant differences between participants with and without a history of TBI in age, marital status, and having a primary healthcare provider. Compared with those without a history of TBI, participants with a history of TBI had lower SF-12 PCS scores ($P < .001$), lower SF-12 MCS scores ($P < .001$) and were more likely to be living with another chronic health condition (82.0% vs 66.9%, $P < .001$). Those with a history of TBI were also significantly more likely to have a history of a mental health diagnosis ($P < .05$), be currently smoking ($P < .001$), and have positive DAST ($P < .001$) and AUDIT ($P < .001$) screens.

One-year follow-up data were available for 968 (82%) participants. There was no significant difference between participants who did and did not complete the 1-year follow-up interview in the prevalence of history of TBI at baseline. Over the course of the follow-up period, participants who reported a history of TBI at baseline were significantly more likely to visit an ED ($P < .001$) and be a frequent ED user ($P < .05$). Participants with a history of TBI were also significantly more likely to have reported a hospital admission at follow-up ($P < .05$). At follow-up, participants with a history of TBI were significantly more likely than those without a history of TBI to have reported being arrested or incarcerated ($P < .001$) or to have been victims of physical assault ($P < .001$) in the past year. There were no significant differences in the reporting of sexual assaults between those with and without a history of TBI ($P = .081$).

The results of the multivariate logistic regression models are presented in Table 2. A history of TBI was independently associated with being an ED user at follow-up (AOR = 1.5, 95% CI: 1.11–1.96) but not with frequent ED use (AOR = 1.4, 95% CI: 0.96–2.09) or with hospital admission (AOR = 1.50, 95% CI: 0.99–2.29) at follow-up. In terms of legal incidents and victimization at follow-up, a history of TBI was independently associated with being arrested or incarcerated (AOR = 1.79, 95% CI: 1.3–2.48) and with being a victim of physical assault (AOR = 2.81, 95% CI: 1.96–4.03) but not with being a victim of sexual assault (AOR = 1.63, 95% CI: 0.86–3.09). Additional analyses revealed no evidence of effect modification by gender.

TABLE 1 *Baseline characteristics of 1181 homeless and vulnerably housed individuals with or without a history of traumatic brain injury*

Characteristic	Total participants (<i>N</i> = 1181), <i>n</i> (%)	Participants with traumatic brain injury, <i>n</i> (%)		<i>P</i>
		Present (<i>n</i> = 718)	Absent (<i>n</i> = 463)	
Age, median (IQR), y	43.0 (14.0)	43.0 (14.0)	42.0 (15.0)	.3071
Gender				
Male	782 (66.2)	512 (71.3)	270 (58.3)	<.0001
Female	382 (32.4)	195 (27.2)	187 (40.4)	
Transgendered	17 (1.4)	11 (1.5)	6 (1.3)	
City				
Toronto	396 (33.5)	199 (27.7)	197 (42.6)	<.0001
Ottawa	390 (33.0)	248 (34.5)	142 (30.7)	
Vancouver	395 (33.5)	271 (37.7)	124 (26.8)	
Ethnic background				
White	716 (62.5)	470 (67.5)	246 (54.8)	<.0001
Black/African-Canadian	105 (9.2)	33 (4.7)	72 (16.0)	
First Nations/Aboriginal	203 (17.7)	131 (18.8)	72 (16.0)	
Mixed ethnicity/other	121 (10.6)	62 (8.9)	59 (13.1)	
Country of origin				
Canada	994 (84.7)	638 (89.5)	356 (77.2)	<.0001
Other	180 (15.3)	75 (10.5)	105 (22.8)	
Highest level of education				
Some high school	522 (44.6)	312 (43.8)	210 (45.9)	.0176
Completed high school or equivalent	275 (23.5)	153 (21.5)	122 (26.6)	
Some postsecondary education or higher	374 (31.9)	248 (34.8)	126 (27.5)	
Marital status				
Currently not partnered	1016 (86.5)	618 (86.7)	398 (86.3)	.8669
Currently partnered	158 (13.5)	95 (13.3)	63 (13.7)	
Housing status				
Homeless	586 (49.7)	337 (47.0)	249 (53.8)	.0230
Vulnerably housed	594 (50.3)	380 (53.0)	214 (46.2)	
Age at first homelessness, median (IQR)	26.0 (24.0)	24.5 (23.0)	30.0 (24.0)	<.0001
Lifetime years of homelessness, median (IQR)	2.84 (5.57)	3.28 (5.92)	2.19 (5.02)	.0021
Employed in the past 12 mo				
Yes	469 (39.8)	301 (42.0)	168 (36.3)	.0487
No	710 (60.2)	415 (58.0)	295 (63.7)	
Monthly income, median (IQR)	900.0 (883.0)	966.3 (990.0)	797.5 (786.0)	.0001
SF-12 PCS, mean (SD)	44.51 (11.3)	43.23 (11.2)	46.49 (11.0)	<.0001
SF-12 MCS, mean (SD)	39.12 (13.0)	37.69 (12.9)	41.35 (12.9)	<.0001
Number of chronic health conditions ^a				
0	282 (23.9)	129 (18.0)	153 (33.1)	<.0001
1-2	469 (39.7)	273 (38.0)	196 (42.3)	
>3	430 (36.4)	316 (44.0)	114 (24.6)	
History of a mental health diagnosis	601 (51.6)	387 (54.5)	214 (47.1)	.0141
Currently smoking	1002 (85.2)	637 (89.2)	365 (79.0)	<.0001
Positive DAST screen	628 (53.5)	429 (60.1)	199 (43.2)	<.0001
DAST risk level				
No drug use in past 12 mo	336 (28.6)	158 (22.1)	178 (38.6)	<.0001
Low level	211 (18.0)	127 (17.8)	84 (18.2)	
Moderate level	287 (24.4)	195 (27.3)	92 (20.0)	
Substantial level	253 (21.5)	170 (23.8)	83 (18.0)	.0001
Severe level	88 (7.5)	64 (9.0)	24 (5.2)	
Positive AUDIT screen	443 (37.6)	301 (42.0)	142 (30.8)	

(continues)

TABLE 1 *Baseline characteristics of 1181 homeless and vulnerably housed individuals with or without a history of traumatic brain injury (Continued)*

Characteristic	Total participants (N = 1181), n (%)	Participants with traumatic brain injury, n (%)		P
		Present (n = 718)	Absent (n = 463)	
AUDIT risk level				
Low risk	734 (62.4)	415 (58.0)	319 (69.2)	<.0001
Hazardous level	196 (16.7)	121 (16.9)	75 (16.3)	
Harmful level	61 (5.2)	42 (5.9)	19 (4.1)	
High risk	186 (15.8)	138 (19.3)	48 (10.4)	
Primary healthcare provider				
Yes	715 (60.6)	433 (60.3)	282 (61.2)	.7667
No	464 (39.4)	285 (39.7)	179 (38.8)	

Abbreviations: AUDIT, Alcohol Use Disorders Identification Test; DAST, Drug Abuse Screening Test; IQR = interquartile range; MCS, Mental Component Summary; PCS, Physical Component Summary; SD = standard deviation.

^aChronic health conditions include high blood pressure; heart disease, asthma; COPD (includes emphysema and chronic bronchitis); cirrhosis; Hepatitis B and C; intestinal or stomach ulcers; urinary incontinence; bowel disorders; arthritis; problems walking, lost limb or other physical disability; HIV/AIDS; epilepsy; fetal alcohol spectrum disorder; glaucoma; cataracts; cancer; diabetes; or anemia.

TABLE 2 *Healthcare utilization, legal incidents, and victimization in 1-year follow-up period of 968 homeless and vulnerably housed individuals with or without a history of traumatic brain injury*

Characteristic	Participants, n (%)	Participants with traumatic brain injury, n (%)		Unadjusted odds ratios	Adjusted odds ratio ^a
		Present	Absent		
Visited emergency department (ED) ^b					
Yes	474 (49.3)	324 (54.6)	148 (40.8)	1.75 (1.34, 2.28)	1.478 (1.113, 1.963)
No	488 (50.7)	269 (45.4)	215 (59.2)		
Frequent ED user ^{b,c}					
Yes	173 (18.0)	122 (20.6)	51 (14.1)	1.58 (1.11, 2.26)	1.418 (0.961, 2.092)
No	789 (82.0)	471 (79.4)	312 (86.0)		
Hospital admission ^d					
Yes	147 (15.3)	103 (17.3)	44 (12.1)	1.52 (1.04, 2.22)	1.502 (0.987, 2.287)
No	816 (84.7)	491 (82.7)	319 (87.9)		
Arrested and/or incarcerated ^e					
Yes	300 (31.1)	217 (36.5)	81 (22.3)	2.01 (1.49, 2.71)	1.791 (1.295, 2.477)
No	664 (68.9)	377 (63.5)	283 (77.8)		
Physical assault victim ^d					
Yes	277 (28.8)	224 (37.7)	53 (14.6)	3.52 (2.52, 4.92)	2.808 (1.957, 4.031)
No	686 (71.2)	371 (62.4)	309 (85.4)		
Sexual assault victim ^d					
Yes	63 (6.5)	45 (7.6)	17 (4.7)	1.66 (0.94, 2.95)	1.629 (0.860, 3.086)
No	900 (93.5)	550 (92.4)	345 (95.3)		

^aIn a multivariable model with adjustment for age, gender, city of recruitment, country of origin, ethnic background, highest level of education, lifetime years of homelessness, housing status (homeless vs vulnerably housed), SF-12 PCS and MCS scores, DAST score, AUDIT score, and having a primary care provider (see text for details on model-building procedure).

^bData missing for 6 participants.

^cFrequent ED users were defined as individuals who had visited the ED 3 or more times in the past 12 months.

^dData missing for 5 participants.

^eData missing for 4 participants.

DISCUSSION

This article presents the findings from one of the largest studies to date investigating TBI in homeless and vulnerably housed populations. Consistent with previous studies, there was a high prevalence of TBI (61%) among homeless and vulnerably housed individuals in the 3 Canadian cities. Lifetime prevalence of TBI in homeless and vulnerably housed participants was 7 times higher than that in the general population (8.5%).²⁰ A higher proportion of participants in Vancouver and Ottawa reported a history of TBI compared to participants in Toronto, but the reasons for this are unclear. Like previous studies,^{3,21} participants who had a history of TBI were more likely to be male and White, and were also more likely to have experienced more years of homelessness over their lifetime.

Participants with a history of TBI were more likely to be in poorer health. Specifically, those with a history of TBI were more likely to be living with a higher number of chronic health conditions and had lower SF-12 PCS and MCS scores. Although this association does not necessarily demonstrate a causal relation between TBI and poor health, these findings are consistent with studies that demonstrated a link between TBI and an increased risk of many health problems such as seizures, dementia, parkinsonism, and depression.^{22,23}

To the authors' knowledge, this is one of the first studies of its kind to investigate healthcare utilization in homeless and vulnerably housed populations with a history of TBI. At follow-up, those with a history of TBI were approximately 1.5 times more likely to have visited an ED than those without a history of TBI, even after adjusting for gender, health status, substance use, primary care access, and other potential confounders. This finding could potentially be attributed to long-term effects of the original TBI, as previous research suggests that use of healthcare services remains high for individuals who have sustained a TBI up to 5 years after the original injury.²⁴ Increased ED use by homeless and vulnerably housed individuals with a history of TBI could be due to acute injuries precipitated by impaired cognition and emotional responses,^{25,26} poorer health as a result of living with multiple chronic health conditions,¹¹ lack of access to primary care,²⁷ and decreased neurocognitive and executive functioning following TBI.²⁸

This study adds to a growing body of literature that has linked TBI with arrests and incarceration.⁸ Participants with a history of TBI were almost twice as likely to be arrested or incarcerated during the year following their baseline interview. The higher prevalence of arrests or incarcerations in the TBI subgroup could possibly be explained by impaired cognition and personality disturbances including increased emotional lability and aggression following TBI.^{6,26,29} Moreover, those with a

history of TBI may have experienced higher rates of legal incidents because of greater difficulties in navigating the criminal justice system. An alternate explanation for these findings is that certain risk-taking behaviors may increase the risk of both TBI and these adverse events. Participants with a history of TBI were almost 3 times more likely to have experienced a physical assault in the follow-up year. This result is consistent with a previous study, which suggested that individuals with a history of TBI were more likely to be victims of violent crime.¹⁰ To the authors' knowledge, this study is one of the first studies of its kind in homeless and vulnerably housed populations to suggest that sustaining a TBI is an independent risk factor for becoming a future victim of physical assault.

TBI is a very common but understudied event that is often overlooked in homeless and vulnerably housed populations.² Given the high costs of ED visits and societal burden of crime, these findings have important public health and criminal justice implications. Targeted efforts to screen for TBI and manage associated neuropsychological sequelae would help to improve health and social outcomes for these individuals and could potentially reduce the use of costly healthcare services, involvement with the legal system, and incidents of victimization.

LIMITATIONS

This study has several limitations. The study sample was limited to adults, and the sampling strategy may not have produced a group that is fully representative of the entire homeless and vulnerably housed populations. Data on TBI, healthcare utilization, and legal incidents were collected retrospectively by self-report, the accuracy of which may have been affected by cognitive impairment, memory lapses, or other sources of reporting bias. In addition, the full history, nature, and severity of TBI among participants were not fully ascertained. Adjusting for the most recent TBI and injury severity in the analysis would have likely revealed an even stronger association between a history of TBI and subsequent healthcare use, legal incidents, and victimization.

CONCLUSIONS

This study is one of the largest studies to investigate TBI in homeless and vulnerably housed individuals. There was a high prevalence of TBI in the sample compared with previously reported rates in the general population. Participants with a history of TBI were more likely to be living with other chronic health conditions and to have lower physical and mental health functioning. In the year following the baseline interview, participants with a history of TBI were also more likely to be

users of the ED, arrested or incarcerated, and victims of physical assault. These findings have implications for service providers to homeless and vulnerably housed persons and highlight the importance of screening and treatment for TBI, given that this subgroup is at particularly high risk for adverse outcomes that might be prevented. These findings also highlight the importance of longitudinal assessment of neurocognitive function and rehabilitation, given that these patients face numerous challenges and are especially at risk for poor outcomes.

Future studies should consider examining TBI in this population in more depth to determine the history and severity of TBI and corroborate findings with medical records. Additional analyses should be conducted to determine the factors associated with poorer health and increased healthcare utilization in participants with a history of TBI. Finally, analyses of data from a longer follow-up period would help to clarify associations between a history of TBI and subsequent healthcare utilization and legal incidents.

REFERENCES

- Helvie C, Kunstmann W. *Homelessness in the United States, Europe and Russia: A Comparative Perspective*. Westport, CT: Bergin & Garvey; 1999.
- Topolovec-Vranic J, Ennis N, Colantonio A, et al. Traumatic brain injury among people who are homeless: a systematic review. *BMC Public Health*. 2012;12:1059.
- Hwang SW, Colantonio A, Chiu S, et al. The effect of traumatic brain injury on the health of homeless people. *Can Med Assoc J*. 2008;179:779–784.
- Kushel MB, Perry S, Bangsberg D, et al. Emergency department use among the homeless and marginally housed: results from a community-based study. *Am J Public Health*. 2002;92:778–784.
- Ku BS, Scott KC, Kertesz SG, et al. Factors associated with use of urban emergency departments by the U.S. homeless population. *Public Health Rep*. 2010;125:398–405.
- Baguley IJ, Cooper J, Felmingham K. Aggressive behavior following traumatic brain injury: how common is common? *J Head Trauma Rehabil*. 2006;21:45–56.
- Brower MC, Price BH. Neuropsychiatry of frontal lobe dysfunction in violent and criminal behaviour: a critical review. *J Neurol Neurosurg Psychiatry*. 2001;71:720–726.
- Fazel S, Lichtenstein P, Grann M, et al. Risk of violent crime in individuals with epilepsy and traumatic brain injury: a 35-year Swedish population study. *PLoS Med*. 2011;8:e1001150.
- Farrer TJ, Hedges DW. Prevalence of traumatic brain injury in incarcerated groups compared to the general population: a meta-analysis. *Prog Neuropsychopharmacol Biol Psychiatry*. 2011;35:390–394.
- Allgulander C, Nilsson B. Victims of criminal homicide in Sweden: a matched case-control study of health and social risk factors among all 1,739 cases during 1978–1994. *Am J Psychiatry*. 2000;157:244–247.
- Hwang SW, Aubry T, Palepu A, et al. The health and housing in transition study: a longitudinal study of the health of homeless and vulnerably housed adults in three Canadian cities. *Int J Public Health*. 2011;56:609–623.
- Ardilly P, Le Blanc D. Sampling and weighting a survey of homeless persons: a French example. *Surv Methodol*. 2001;27:109–118.
- Housing, Family and Social Statistics Division. *Ethnic Diversity Survey Questionnaire*. Ottawa, ON: Statistics Canada; 2002. <http://www5.statcan.gc.ca/bsolc/olc-cel/olc-cel?catno=89M0019XCB&lang=eng>. Accessed July 25, 2013.
- Slaughter B, Fann JR, Ehde D. Traumatic brain injury in a county jail population: prevalence, neuropsychological functioning and psychiatric disorders. *Brain Inj*. 2003;17:731–741.
- Ware JE, Kosinski M, Keller SD. *SF-12: How to Score the SF-12 Physical and Mental Health Summary Scales*. 2nd ed. Boston, MA: The Health Institute, New England Medical Center; 1995.
- Statistics Canada. Canadian community health survey (CCHS). <http://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=3226&lang=en&db=imdb&adm=8&dis=2>. Published 2012. Accessed 25 July 2013.
- Babor TF, Higgins-Biddle JC, Saunders JB. *AUDIT: The Alcohol Use Disorders Identification Test: Guidelines for Use in Primary Care*. Geneva, Switzerland: World Health Organization Department of Mental Health and Substance Dependence; 2001.
- French MT, Roebuck MC, McGeary KA, et al. Using the drug abuse screening test (DAST-10) to analyze health services utilization and cost for substance users in a community-based setting. *Subst Use Misuse*. 2001;36:925–946.
- Bursac Z, Gauss CH, Williams DK, et al. Purposeful selection of variables in logistic regression. *Source Code Biol Med*. 2008;3:17.
- Silver JM, Kramer R, Greenwald S, et al. The association between head injuries and psychiatric disorders: findings from the New Haven NIMH Epidemiologic Catchment Area Study. *Brain Inj*. 2001;15:935–945.
- Oddy M, Moir JF, Fortescue D, et al. The prevalence of traumatic brain injury in the homeless community in a UK city. *Brain Inj*. 2012;26:1058–1064.
- Ishibe N, Wlondarczyk RC, Fulco C. Overview of the institute of medicine's committee search strategy and review process for gulf war and health: long-term consequences of traumatic brain injury. *J Head Trauma Rehabil*. 2009;24:424–429.
- Konrad C, Geburek AJ, Rist F, et al. Long-term cognitive and emotional consequences of mild traumatic brain injury. *Psychol Med*. 2011;41:1197–1211.
- Willemse-vanSon AH, Ribbers GM, Stam HJ, et al. Is there equity in long-term healthcare utilization after traumatic brain injury? *J Rehabil Med*. 2009;41:59–65.
- Padgett DK, Struening EL, Andrews H, et al. Predictors of emergency room use by homeless adults in New York City: the influence of predisposing, enabling and need factors. *Soc Sci Med*. 1995;41:547–556.
- Kim E. Agitation, aggression, and disinhibition syndromes after traumatic brain injury. *Neuro Rehabilitation*. 2002;17:297–310.
- Baker DW, Stevens CD, Brook RH. Regular source of ambulatory care and medical care utilization by patients presenting to a public hospital emergency department. *JAMA*. 1994;271:1909–1912.
- MacReady N. Neurological deficits in the homeless: a downward spiral. *Lancet Neurol*. 2009;8:228–229.
- Prigatano GP. Personality disturbances associated with traumatic brain injury. *J Consult Clin Psychol*. 1992;60:360–368.

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DURING A ZOOM VIDEOCONFERENCE
IN ACCORDANCE WITH O.REG. 431/20,
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JOANNA MULLEN
A Commissioner, etc.,
Province of Ontario,
While a Barrister and Solicitor.
LSO # 64535V



Traumatic brain injury in homeless and marginally housed individuals: a systematic review and meta-analysis

Jacob L Stubbs, Allen E Thornton, Jessica M Sevick, Noah D Silverberg, Alasdair M Barr, William G Honer, William J Panenka

Summary

Background Homelessness is a global public health concern, and traumatic brain injury (TBI) could represent an underappreciated factor in the health trajectories of homeless and marginally housed individuals. We aimed to evaluate the lifetime prevalence of TBI in this population, and to summarise findings on TBI incidence and the association between TBI and health-related or functioning-related outcomes.

Methods For this systematic review and meta-analysis, we searched without date restrictions for original research studies in English that reported data on the prevalence or incidence of TBI, or the association between TBI and one or more health-related or function-related outcome measures. Studies were included if they had a group or clearly identifiable subgroup of individuals who were homeless, marginally housed, or seeking services for homeless people. With use of random-effects models, we calculated pooled estimates of the lifetime prevalence of any severity of TBI and the lifetime prevalence of moderate or severe TBI. We used meta-regression to evaluate potential moderators of prevalence estimates and the leave-one-out method for sensitivity analyses. We then summarised findings from all studies that evaluated TBI incidence and the association between TBI and health-related or functioning-related outcomes. All statistical analyses were done using R version 3.5.1. The study is registered with PROSPERO, number CRD42019119678.

Findings Of 463 potentially eligible studies identified by the search, 38 studies were included in the systematic review and 26 studies were included in the meta-analysis. The lifetime prevalence of any severity of TBI in homeless and marginally housed individuals (21 studies, $n=11417$ individuals) was 53.4% (95% CI 47.6–59.1; $I^2=97\%$) and the lifetime prevalence of moderate or severe TBI (12 studies, $n=6302$) was 24.9% (16.3–35.9; $I^2=98\%$). The definition of TBI, the method used to ascertain TBI history, and the age of the sample significantly moderated estimated lifetime prevalence of any severity of TBI. TBI was consistently associated with poorer self-reported physical and mental health, higher suicidality and suicide risk, memory concerns, and increased health service use and criminal justice system involvement.

Interpretation The lifetime prevalence of TBI is high among homeless and marginally housed individuals, and a history of TBI is associated with poorer health and general functioning. Health-care providers and public health officials should have an increased awareness of the burden of TBI in this population. Prospective and longitudinal studies are needed to better understand how the health of this population is affected by TBI.

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Introduction

More than 6 million people experience homelessness annually in the USA and the EU.¹ Homeless individuals experience markedly poorer mental and physical health than the general population, including a high prevalence of psychotic disorders, major depression, and drug and alcohol dependence,² and a high prevalence of infectious diseases, including HIV, hepatitis C, and tuberculosis.³ Homeless and similarly marginalised individuals also have substantially higher all-cause mortality than the general population.⁴ Traumatic brain injury (TBI) is a pervasive and under-recognised public health problem.⁵ TBI is associated with a number of deleterious outcomes, with meta-analytic evidence providing a link for the subsequent development of neurological and psychiatric

disorders.⁶ TBI is often preventable, and thus might represent a modifiable risk factor for serious psychiatric illness and neurodegenerative disease.

Obtaining reliable estimates of TBI incidence and lifetime prevalence in the homeless and marginally housed population, as well as in the general population, has been challenging. Reported incidence of TBI varies widely across counties,⁵ and the methods of sampling participants and defining TBI cases differ between reports. Considerably higher rates of TBI have been reported in population-based studies that capture injuries for which medical attention is not sought,^{7,8} as compared with studies that gather data from medical records or emergency departments.^{9,10} Additional sources of bias also exist, including in the common definitions of TBI,⁵

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Research in context

Evidence before this study

Previous studies and a previous systematic review have suggested that the lifetime prevalence and incidence of TBI might be considerably higher in homeless and marginally housed individuals than in the general population. Moreover, many of these studies report that TBI is associated with poorer health or functioning in these individuals. Marked methodological variation exists among previous studies, including in the tools used to ascertain a history of TBI, in the study-specific definitions of TBI, and in the outcome measures assessed. This variation limits our understanding of the prevalence, incidence, and impact of TBI in this population. To date, no meta-analyses have been done to evaluate the prevalence of TBI in homeless and marginally housed individuals, nor have any quantitative analyses of heterogeneity among previous studies been done. In preparation for this review, we did systematic searches in MEDLINE, Embase, PsycINFO, CINAHL, and Web of Science for studies that evaluated TBI in homeless or marginally housed study samples. Specific database search terms are outlined in the appendix. Studies were eligible for inclusion if they evaluated the prevalence or incidence of TBI, or the association between TBI and health-related or functioning-related outcome measures, and they were original peer-reviewed studies in the English language. No date restrictions were applied.

Added value of this study

To our knowledge, this is the first meta-analysis to evaluate the prevalence of TBI in homeless and marginally housed individuals and the first quantitative assessment of

heterogeneity among studies that assess TBI in this population. We show that homeless and marginally housed individuals experience a high lifetime prevalence of TBI, and notably, a lifetime prevalence of moderate or severe TBI that is approximately ten-times higher than estimates in the general population. We found high heterogeneity among studies and our meta-regression analyses identified several factors that moderated individual study findings. Our review also found that TBI is associated with poorer self-reported health, higher suicidality and suicide risk, increased health service use, and increased criminal justice system involvement.

Implications of all the available evidence

TBI is a pervasive and largely under-recognised factor associated with the poorer health and functioning experienced by homeless and marginally housed populations. Our findings suggest that health-care providers who work with these individuals should be aware of the high prevalence of TBI and associated effects on health and functioning. Additionally, given the high prevalence of moderate or severe TBI, and the considerable number of individuals with evidence of traumatically-induced lesions visible with MRI, the threshold for referral to neuroimaging specialists after head injury should be reduced in this population. Further research is urgently needed to address limitations to our understanding of the burden of TBI in at-risk and multimorbid populations. However, in light of the significant moderating factors that we identified, future studies should carefully consider and clearly describe all aspects of study design to maximise validity and clinical relevance.

and sampling or referral biases. Similarly, the method for ascertaining history of TBI has not been unanimously agreed upon and estimates of the lifetime prevalence of TBI vary considerably. Meta-analytic work has found that 12% of the general population reported at least one TBI over the lifespan.¹¹ A 2018 state-wide study in Ohio, USA, which used a modified version of the comprehensive Ohio State University TBI ascertainment method (a short, structured interview based on the Centers for Disease Control definition of TBI and endorsed by the National Institute of Neurological Disorders and Stroke),¹² found an estimated lifetime prevalence of TBI of 21.7% in the general population, and a lifetime prevalence of moderate or severe TBI of 2.6%.⁸ Although several tools designed to ascertain TBI history are available (eg, the Ohio State University TBI ascertainment method¹³ and the Brain Injury Screening Questionnaire¹⁴), these methods have been inconsistently used in studies of homeless and marginally housed individuals.

A previous systematic review that summarised eight studies published between 1996 and 2012 found that estimates of the lifetime prevalence of TBI in homeless populations ranged from 8% to 53%.¹⁵ The most commonly identified methodological limitations included

poor external validity and reporting of power calculations. The authors also noted that TBI was not a primary aim for the majority of studies, and that important factors, such as symptom burden and injury severity, were rarely evaluated. Only three studies identified by the previous review evaluated severity of TBI, precluding systematic evaluation of the effects of more clinically significant brain injuries. The authors concluded that there were considerable methodological limitations and heterogeneity across available studies, and that a strong need existed for larger studies with validated and comprehensive measures, and longitudinal designs.¹⁵ In subsequent years, as the potential importance of TBI in these vulnerable individuals has become increasingly recognised, a number of larger and more comprehensive studies have been published. Several of these more recent studies have specifically examined the impact of moderate or severe TBI in this population, and several have addressed other limitations highlighted by the previous review. However, to the best of our knowledge, no meta-analytic estimates of TBI prevalence in homeless or marginally housed individuals have been reported, nor has there been a comprehensive review of the association between TBI and health or functioning (eg, neurocognitive

function or day-to-day functioning, such as employment) in these individuals.

Evaluating the prevalence and burden of TBI in individuals who are homeless or marginally housed is critical to understanding the unique challenges and health-care needs of this population. Furthermore, identifying factors that contribute to heterogeneity across studies is integral to establishing standardised approaches for future research and in finding targets for the prevention of TBI and treatment of its sequelae in this population. In this study, we aimed to estimate the lifetime prevalence of TBI in homeless and marginally housed individuals, to quantitatively evaluate factors that moderate estimates of prevalence, and to systematically review the association between TBI and health and functioning-related outcome measures in this population.

Methods

Search strategy and selection criteria

We did a systematic review and meta-analysis following the PRISMA and MOOSE guidelines.^{16,17} Studies were included in the review if they had a sample that exclusively comprised individuals of any age who were homeless, marginally housed, or seeking services for homeless people at the time of assessment (or if there was a clearly identifiable subgroup of individuals who were homeless, marginally housed, or seeking services for homeless people at the time of assessment and data was able to be extracted for this subgroup), and if they examined the prevalence of TBI, the incidence of TBI, or the association between TBI and one or more health-related or functioning-related outcome measures. Our definition of functioning was deliberately broad to evaluate the full scope of the effects of TBI in this population, and was considered to be any non-health-related outcome measure or any outcome related to day-to-day functioning in society (eg, neurocognition or involvement in the criminal justice system). Studies were excluded from the review if they were not published in English, were not peer-reviewed, or were not original research studies with unique observational data (ie, reviews or meta-analyses).

The decision to conduct a meta-analysis was made after doing the literature search to ensure that a sufficient number of studies were available that had recorded lifetime prevalence of TBI. Studies were excluded from the meta-analysis if they did not have prevalence data that could be extracted or obtained through corresponding authors, had a sample size smaller than 25, or if they were judged to be from the same study sample as another study included in the analysis by consensus of two study authors (JLS and WJP). For studies that were identifiably from the same study sample, we included the study with the largest sample size in the meta-analysis.

We did a systematic search without date restrictions in MEDLINE, Embase, PsycINFO, CINAHL, and Web of Science using a search strategy developed in conjunction

with a librarian specialising in systematic review searches. The search strategy was piloted in MEDLINE by iteratively adding and refining relevant search terms and by ensuring that the included search terms returned studies we knew to exist on this topic. Our search strategy was consistent across all databases, and the strategy used in MEDLINE (Ovid interface) is reported in the appendix (p 1). Manual forward and backward reference searching was done on studies of particular importance in the opinion of JLS and WJP and on the previous review on this topic.¹⁵ Searches of all databases and retrieval of results from each database were done on Dec 14, 2018, with no date restrictions.

Screening of titles and abstracts of all records returned by the search strategy, screening of full texts eligible for inclusion, and the risk of bias assessment for included studies were independently conducted by two study authors (JLS and JMS). Inter-rater reliability for both the title and abstract and full text screening was calculated using Cohen's κ . Risk of bias for individual studies was assessed using the US National Heart, Lung, and Blood Institute's Quality Assessment Tool for Observational Cohort and Cross-Sectional Studies.¹⁸ Discrepancies were resolved through discussion between study authors to reach a consensus, or with a third study author (WJP) if necessary.

The protocol for our systematic review was registered in the PROSPERO database (CRD42019119678).

Data analysis

All variables of interest were independently extracted by two study authors (JLS and JMS) using a customised form. The form was piloted and refined on ten of the studies selected for inclusion. All extracted variables are described in the appendix (p 2).

For studies included in the meta-analysis, we quantitatively evaluated several potential moderators of estimated prevalence of TBI. First, we evaluated whether the measure of central tendency of age of the sample (subsequently referred to as age of the sample) or the total sample size was associated with estimated prevalence. Second, we assessed whether the method of ascertaining TBI history moderated estimated prevalence by stratifying TBI ascertainment methods into five categories: (1) a non-specific self-report question or series of questions to ascertain TBI; (2) medical record; (3) questionnaire or screening tool specifically designed to ascertain TBI; (4) structured interview designed to ascertain TBI; and (5) other ascertainment method. Third, we evaluated whether studies that used self-reported loss of consciousness as a minimum criterion for defining TBI, as opposed to a more liberal definition (eg, self-report of a period of being dazed or confused), were associated with lower estimated prevalence. Finally, we evaluated whether the site of participant recruitment—stratified into studies that recruited participants from a shelter or hostel versus studies that recruited participants from a service or clinic

See Online for appendix

For the study protocol see https://www.crd.york.ac.uk/prospero/display_record.php?RecordID=119678

for homeless individuals—was associated with different estimates of prevalence.

We did two separate analyses to evaluate the lifetime prevalence of TBI. The first aimed to measure the overall lifetime prevalence of TBI, encompassing all levels of severity, and including studies that did not stratify by severity. The second aimed to measure the lifetime prevalence of moderate or severe TBI, encompassing studies that stratified participants into moderate or severe TBI categories, studies that examined only moderate or severe TBI, or studies that assessed TBI without explicitly defining severity but which we deemed were predominantly focused on more significant brain injury. We deemed that two studies that did not explicitly evaluate TBI severity focused predominantly on moderate or severe TBI; one study assessed “definite TBI” on the basis of MRI evidence and persistent sequelae attributable to the TBI,¹⁹ and the other study defined TBI as brain injury resulting in lasting impairment or contributing to disability.²⁰ Therefore, we evaluated two studies alongside others that explicitly examined moderate or severe TBI. We used random-effects models for each analysis to calculate a pooled estimate of prevalence, with the Clopper-Pearson method used to generate 95% CIs for individual studies and the inverse variance method to weight each study. We also calculated 95% prediction intervals (PIs) for our summary estimates to provide a range for the predicted estimate of prevalence for new studies.²¹

Heterogeneity between studies was quantified with the I^2 statistic.²² For studies that did not report age of the sample, and for which these data could not be obtained from the corresponding author ($n=2$), we imputed the weighted mean age of participants from all other studies that were included in the analysis. We conducted sensitivity analyses using the leave-one-out method. We evaluated small-study effects visually with a funnel plot and statistically with Egger’s test.²³

Finally, we used subgroup analysis and meta-regression to evaluate moderators of individual study estimates of the lifetime prevalence of TBI. We used univariable meta-regression to evaluate unadjusted effects in the analyses of lifetime prevalence and the lifetime prevalence of moderate or severe TBI, and we included all potential moderators in a multivariable meta-regression to evaluate adjusted effects in the analysis of lifetime prevalence. We used mixed effects models for all meta-regression analyses.

All statistical analyses were performed in R (version 3.5.1) with the packages meta (version 4.9-4) and metafor (version 2.0-0).^{24–26}

Role of the funding source

The funder of the study had no role in study design, data collection, data analysis, data interpretation, or writing of the report. The corresponding author had full access to all the data in the study and had

final responsibility for the decision to submit for publication.

Results

Our database searches identified 463 potentially eligible studies. After removal of duplicates, 260 study titles and abstracts were screened (figure 1). We assessed 51 full text articles for eligibility, of which 13 were excluded from the systematic review (appendix p 1) and an additional 12 were excluded from the meta-analysis. There was a high inter-rater reliability for screening titles and abstracts ($\kappa=0.95$) and full texts ($\kappa=0.96$).

38 studies were included in the systematic review (table 1).^{19,20,27–62} The included studies were published between 1995 and 2018, and recruited participants from Australia, Canada, Japan, South Korea, the UK, and the USA. The predominant recruitment settings were through homeless shelters or hostels (18 studies) and services or clinics that serve homeless populations (16 studies). Six (16%) of 38 studies were conducted in populations of military service members who were homeless or seeking services for homeless people, and the remainder of studies recruited participants from civilian populations. Of the 38 studies included in the systematic review, we included 26 in the meta-analysis (figure 1). 21 (81%) of 26 studies ($n=11417$) assessed the lifetime prevalence of TBI, and 12 (46%, $n=6302$) assessed the lifetime prevalence of moderate or severe TBI.

The risk of bias assessment for all studies included in the systematic review is shown in the appendix (pp 2, 3). In general, studies had a clear research objective, recruited participants from similar populations, and clearly described dependent variables. However, 17 (45%) of 38 studies did not provide a clear definition of homelessness or marginal housing, and 23 (61%) did not report whether the participation rate of eligible persons was more than 50%. Of note, 20 (53%) of 38 studies did not clearly describe the specific definition used to categorise participants as having TBI. Studies were generally comprised of predominantly male samples, and eight studies were comprised of exclusively male samples.

The overall pooled estimate of the lifetime prevalence of TBI was 53.4% (95% CI 47.6–59.1, 95% PI 27.8–77.2; figure 2). There was a significant amount of heterogeneity between studies ($I^2=97\%$, $p<0.0001$). The funnel plot is reported in the appendix (p 4) and did not show evidence of small-study effects, which was supported by Egger’s test ($p=0.86$). The results of the leave-one-out sensitivity analyses are reported in the appendix (p 5), and show that no single study, nor the studies for which we imputed mean age, had a disproportionate effect on the pooled estimate of prevalence of TBI.

The results from our univariable and multivariable meta-regression analyses are reported in table 2, with raw coefficients reported in the appendix (p 6). The overall multivariable meta-regression model was significant and

accounted for 68.3% of the heterogeneity ($Q_3=64.04$, $p<0.0001$, $R^2=0.683$). Studies that used loss of consciousness as a minimum criterion for defining TBI ($p=0.014$) and used a screening tool to ascertain history of TBI ($p=0.0041$) were associated with lower estimated TBI prevalence. The age of the study sample ($p=0.0011$), total sample size ($p=0.028$), and using a structured interview (vs a single question or series of questions) to ascertain history of TBI ($p=0.0012$) were associated with higher estimated prevalence. Individual study and pooled estimates of lifetime TBI prevalence stratified by TBI ascertainment method and by whether or not studies used TBI as a minimum criterion for defining TBI are shown in the appendix (pp 7, 8). Heterogeneity among studies that ascertained history of TBI using structured interviews ($I^2=95\%$) and screening tools ($I^2=87\%$) was high, although it was lower than the heterogeneity observed across all studies ($I^2=97\%$). Studies that used loss of consciousness as a minimum criterion for defining TBI had non-significant between-study heterogeneity ($I^2=37\%$, $p=0.17$).

The pooled estimate of the lifetime prevalence of moderate or severe TBI was 24.9% (95% CI 16.3–35.9, 95% PI 4.2–71.7; figure 2). There was high heterogeneity between studies ($I^2=98\%$, $p<0.0001$). The funnel plot is reported in the appendix (p 9) and did not show evidence of small-study effects upon visual inspection; Egger's test showed no asymmetry ($p=0.67$). The leave-one-out sensitivity analyses are reported in the appendix (p 10), and show that no single study, nor the studies that did not explicitly evaluate severity but which we deemed to be focused predominantly on moderate or severe TBI, had a disproportionate effect on the pooled estimate of lifetime prevalence of moderate or severe TBI. None of the moderators (as previously described for overall lifetime prevalence of TBI) were statistically significantly associated with estimated prevalence of moderate or severe TBI in univariable meta-regression analyses.

In this review, 28 (74%) of 38 studies assessed the association between a history of TBI and health-related or functioning-related outcomes. A summary of results is reported in the panel, and a study-level breakdown of results is presented in the appendix (pp 10–13). The association between TBI and many outcome measures was equivocal, whereby findings were either mixed or the outcome was evaluated by only a small number of studies. However, despite the heterogeneity in study methodology and outcomes assessed, history of TBI was consistently associated with poorer self-reported physical^{39,53,58} and mental health,^{39,53,58} increased health service use^{43,58,60} and criminal justice involvement,^{43,53,58–60} and younger age at first experience of homelessness^{39,43,58} in all studies that evaluated TBI and these outcomes. Furthermore, history of TBI was associated with suicidal ideation and higher suicide risk^{31,43,49,51,60} in five of six studies⁵³ that evaluated suicidality, and self-reported memory concerns^{35,38,43,53,61} in five of six studies³⁴ that evaluated memory concerns. The most common mechanism of injury was assault

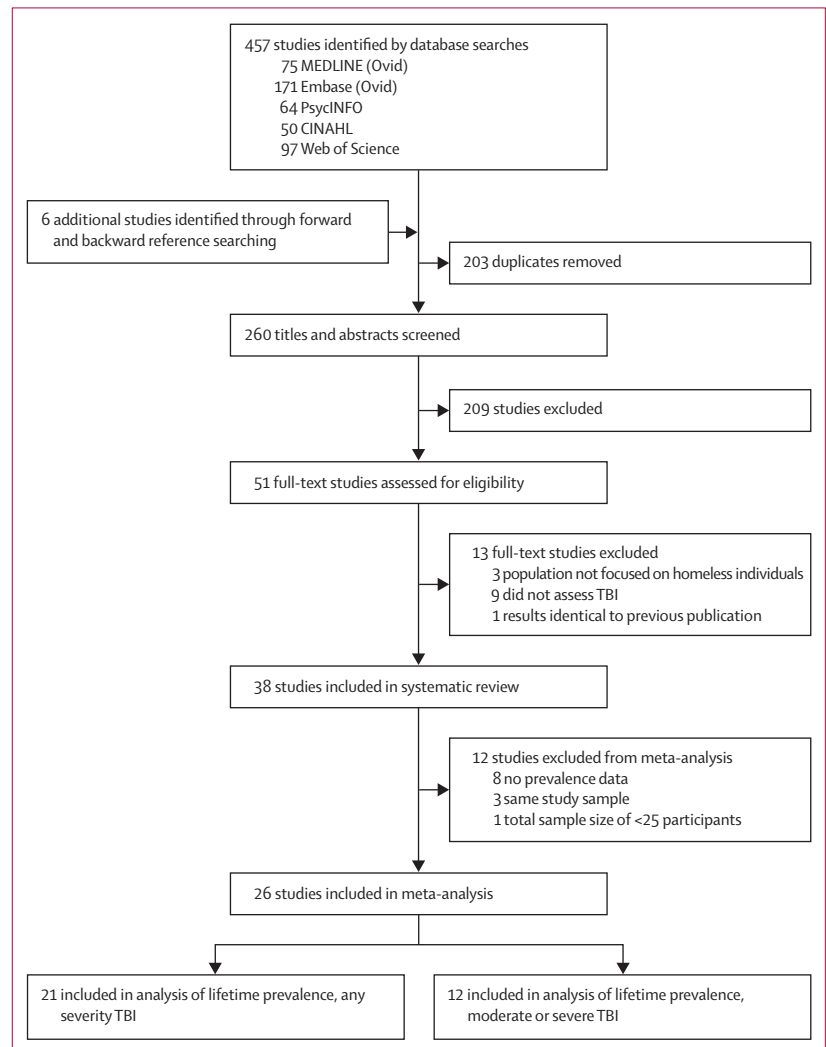


Figure 1: Study selection
TBI=traumatic brain injury.

across all five studies that evaluated mechanism of injury.^{29,33,35,53,59} Age at first TBI ranged from 15 years to 19.9 years, and we calculated a weighted mean age of first TBI of 15.8 years. In one large marginally housed cohort who underwent MRI scans, 28.0% of participants had incidental neuroimaging findings (eg, aneurysms or infarcts), with 6.9% in a largely overlapping sample showing evidence of previous brain trauma.^{19,53}

Only five studies included in this review assessed incident TBI, precluding a methodologically robust meta-analysis of the incidence of TBI in this population. Estimated incidence of TBI in homeless and marginally housed individuals varied considerably between studies and ranged from 0.5% over 1 year⁴² to 28.8% over 1 year.⁵⁶ Although we did not quantitatively assess moderators of these estimates, TBI ascertainment method appeared to be associated with estimated incidence. For example,

Country	Study design	Population description	Lifetime prevalence of TBI			Incidence of TBI	TBI ascertainment method
			Sample size	Age, years*	Female, n/N (%)	Any severity, n/N (%)	
Andersen et al (2014) ^{27,†‡}	Cross-sectional	Shelter for homeless men	34	58.8	0/34	12/34 (35.3%)	11/34 (32.4%)
Bacciardi et al (2017) ^{48,‡}	Cross-sectional	Community agencies that serve homeless individuals (shelters, drop-in centres, outreach teams, inpatient programmes, and criminal justice programmes)	416	39.9	117/416 (28.1%)	277/416 (66.6%)	108/198 (54.5%)§
Barnes et al (2015) ¹⁹	Cross-sectional	VA service clinics for veterans seeking homeless services	229	51.8	9/229 (3.9%)	207/229 (90.4%)	63/229 (27.5%)
Bremner et al (1996) ^{38,†}	Cross-sectional	Hostel for homeless men	62	NR	0/62	29/62 (46.8%)	..
Brenner et al (2017) ^{31,‡}	Cross-sectional	VA service clinics for veterans seeking homeless services	309	52.3	11/309 (3.6%)	282/309 (91.3%)	90/309 (29.1%)
Brown et al (2013) ^{33,†}	Cross-sectional	Emergency, transitional, and day shelters	250	56.2	48/250 (19.2%)	147/250 (58.8%)	..
Bymaster et al (2017) ^{33,†‡}	Cross-sectional	Health care clinic sites for a US county homeless programme	127	48	40/127 (31.5%)	97/127 (76.4%)	38/127 (29.9%)
Cotman et al (1997) ³⁴	Pre-test/post-test	Residential programme to assist recovery from homelessness	24	30.6	11/24 (45.8%)	2/24 (8.3%)	..
Garqaro et al (2016) ^{35,†}	Cross-sectional	Clients seeking support from an Assertive Community Treatment Team in a downtown urban setting	48	43.4	15/48 (31.3%)	27/48 (56.3%)	..
Gonzalez et al (2001) ^{36,†}	Cross-sectional	Health care clinic associated with community shelter and outreach programme for homeless individuals	60	39.8	24/60 (40.0%)	23/60 (38.3%)	..
Hurstak et al (2017) ^{37,†}	Cross-sectional	Overnight shelters, homeless encampments, meal programmes, and recycling centres	343	58	79/343 (23.0%)	149/343 (43.4%)	..
Hux et al (2009) ^{38,†}	Cross-sectional	Homeless shelters and domestic violence facility	282	34.8	248/282 (87.9%)	69/282 (24.5%)	..
Hwang et al (2008) ^{39,†‡}	Cross-sectional	Shelters and meal programmes	904	37.4	303/904 (33.5%)	475/904 (52.5%)	109/904 (12.1%)
Kim et al (2007) ⁴⁰	Retrospective case-control	Hospital neurosurgical department	76	53% were >50	5/76 (6.6%)	..	49/76 (64.5%)
Kozloff et al (2016) ^{41,†}	Cross-sectional	Community agencies that serve homeless individuals (shelters, drop-in centres, outreach teams, inpatient programmes, and criminal justice programmes) in five Canadian cities	2255	40.9	730/2255 (32.4%)	1475/2255 (65.4%)	..

(Table 1 continues on next page)

Country	Study design	Population description	Lifetime prevalence of TBI			Incidence of TBI	TBI ascertainment method		
			Setting	Sample size	Age, years*			Female, n/N (%)	Any severity, n/N (%)
(Continued from previous page)									
LePage et al (2014) ⁴²	USA	Retrospective case-control	VA North Texas Health Care System	2205	53.6	121/2205 (5.5%)	..	..	Medical record: ICD-9 codes
Mackelprang et al (2014) ^{45†}	USA	Cross-sectional	Homeless shelters, drop-in centres, domestic violence shelters, streets	2732	21.8	1730/2732 (63.3%)	1175/2732 (43.0%)	..	Single question or series of questions: "Have you ever been hit in the head so hard that you saw stars or were knocked unconscious—for example, from a blow, a fall, or a motor vehicle accident?" and "After your head injury, did you start having problems with headaches, concentration or memory, understanding, excessive worry, sleeping, or getting along with people?"
McCormick and White (2016) ⁴⁴	UK	Retrospective case-control	Hospital admissions records	7830	38.7	20% over study period	..	2.1% of hospital admissions (2010–11) in the homeless group were for head injury	Medical record: National Health Service hospital episode statistics in England
McMillan et al (2015) ⁴⁵	UK	Retrospective case-control	Hostels and other designated accommodations for homeless individuals	1590	40.5	347/1590 (21.8%)	..	13.5% over 30 years	Medical record: ICD-9 and ICD-10 codes
Montgomery et al (2015) ⁴⁶	USA	Retrospective case-control	Veterans Health Administration clinical and administrative systems	11 909	NR	NR	..	..	Medical record
Nielsen et al (2018) ^{46‡}	Australia	Retrospective chart review	Mental health clinics in three hostels for homeless individuals	2388	42.3	156/2388 (6.5%)	..	345/2388 (14.4%)	Medical record
Nikoo et al (2015) ^{47†}	Canada	Cross-sectional	Emergency shelters and streets	500	37.9	200/500 (40.0%)	318/500 (63.6%)	..	Single question or series of questions: specific questions NR
Nikoo et al (2017) ^{48†}	Canada	Prospective longitudinal	Shelters, meal programmes, community health centre, and drop-in centres in three Canadian cities	1190	42.2	385/1190 (32.4%)	718/1190 (60.3%)	19.4% at 1-year follow-up; 17.1% at 2-year follow-up; 17.9% at 3-year follow-up	Single question or series of questions: "Have you ever had an injury to the head which knocked you out or at least left you dazed, confused, or disoriented?"
Noël et al (2016) ⁴⁹	Canada	Prospective longitudinal	Community agencies that serve homeless individuals (shelters, drop-in centres, outreach teams, inpatient programmes, and criminal justice programmes) in five Canadian cities	497	40.8	138/497 (27.8%)	..	..	Single question or series of questions: "Have you ever had an injury to the head which knocked you out or at least left you dazed, confused, or disoriented?"
Oddy et al (2012) ^{48,†‡}	UK	Cross-sectional	Dry hostels, wet hostels, and day centres for homeless individuals	100	32.7	25/100 (25.0%)	48/100 (48.0%)	12/65 (18.5%)	Single question or series of questions: "Have you ever had an injury to the head which knocked you out or at least left you dazed, confused, or disoriented?", with additional questions regarding the number of injuries, LOC and whether participants went to the hospital for the first three injuries

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Country	Study design	Population description	Lifetime prevalence of TBI				Incidence of TBI	TBI ascertainment method	
			Setting	Sample size	Age, years*	Female, n/N (%)			Any severity, n/N (%)
(Continued from previous page)									
Palladino et al (2017) ⁵¹	USA	Cross-sectional	Homeless outreach services, including a VA medical centre and drop-in centre for veterans experiencing homelessness	103	53.7	0/103	..	..	Structured interview and questionnaire or screening tool: OSU TBI-ID and TBI-4 tools
Russell et al (2013) ^{52†}	USA	Cross-sectional	Metropolitan VA hospital	678	51.9	36/678 (5.3%)	285/313 (91.1%)	..	Structured interview and questionnaire or screening tool: OSU TBI-ID and TBI-4†
Schmitt et al (2017) ^{53††}	Canada	Cross-sectional	Single-room occupancy hotel rooms and downtown community court	283	43.5	47/205 (22.9%)	100/283 (35.3%)	49/283 (17.3%)	Single question or series of questions: "Have you ever had a serious head/face injury?", with additional questions regarding LOC, confusion, or memory loss post injury
Soliday-McRoy et al (2004) ^{54††}	USA	Cross-sectional	Homeless shelter	90	41	0/90	43/90 (47.8%)	16/90 (17.8%)	Other: NR
Song et al (2018) ^{55†}	Canada	Cross-sectional	Shelters, homeless outreach services, and streets in three Canadian cities	500	38	200/500 (40.0%)	318/500 (63.6%)	..	Single question or series of questions: "Have you ever had an injury to the head which knocked you out or at least left you dazed, confused, or disoriented?"
Steriopoulos et al (2015) ^{56‡}	Canada	Cross-sectional	Community agencies that serve homeless individuals (shelters, drop-in centres, outreach teams, inpatient programmes, and criminal justice programmes) in five Canadian cities	1500	41.1	477/1500 (31.8%)	..	688/1500 (45.9%)	Single question or series of questions: specific questions NR
Svoboda and Ramsay (2014) ⁵⁷	Canada	Retrospective cohort	Wet shelter programme, hostel for homeless individuals, and three low-income housing sites	170	43.7	0/170	..	..	Medical record: broad criteria to capture "head injury"
To et al (2015) ^{58†}	Canada	Prospective longitudinal	Shelters and meal programmes for homeless individuals	1181	43	381/1181 (32.3%)	718/1181 (60.8%)	..	Single question or series of questions: "Have you ever had an injury to the head which knocked you out or at least left you dazed, confused, or disoriented?"
Topolovec-Vranic et al (2014) ^{59††}	Canada	Cross-sectional	Shelter for homeless men	111	54.2	0/111	50/111 (45.0%)	46/111 (41.4%)	Questionnaire or screening tool: Brain Injury Screening Questionnaire
Topolovec-Vranic et al (2017) ⁶⁰	Canada	Cross-sectional	Community agencies that serve homeless individuals (shelters, drop-in centres, outreach teams, inpatient programmes, criminal justice programmes) in five Canadian cities	2088	40.9	657/2088 (31.5%)	1098/2088 (52.6%)	..	Single question or series of questions: "Have you ever had an injury to the head which knocked you out or at least left you dazed, confused, or disoriented?", "Were you, in fact, knocked out or unconscious after this (or any of these if more than 1 head injury(ies))?", and "About how long were you unconscious or knocked out after this head injury (if 1)/these head injuries (if >1)?" , with additional questions regarding the length of LOC for up to five injuries

(Table 1 continues on next page)

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Country	Study design	Population description	Lifetime prevalence of TBI				Incidence of TBI	TBI ascertainment method	
			Setting	Sample size	Age, years*	Female, n/N (%)			Any severity, n/N (%)
(Continued from previous page)									
Vila-Rodriguez et al (2013) ^{39,†}	Canada	Prospective longitudinal	Single-room occupancy hotel rooms	293	44.1	68/293 (23.2%)	..	31/293 (10.6%)	Other: evidence of previous TBI on MRI or history of TBI (LOC for ≥5 min or confusion for ≥1 day) and persistent symptoms referable to TBI, including seizures or organic personality disorder
Zieman et al (2017) ⁴¹	USA	Retrospective chart review	Central neurology clinic cohort of referred patients from homeless shelters with TBI as a result of domestic violence	115	37.9	109/115 (94.8%)	..	..	Questionnaire or screening tool: HELPS screening tool
Zlotnick et al (1995) ^{62,†}	USA	Cross-sectional	Rehabilitation programme for homeless individuals recovering from alcohol misuse	52	60% were >25	0/52	21/52 (40.4%)	..	Single question or series of questions: specific questions NR
TBI=traumatic brain injury. VA=US Department of Veterans Affairs. OSU TBI-ID=Ohio State TBI Identification method. NR=not reported. LOC=loss of consciousness. ICD=International Classification of Diseases. *Measure of central tendency (mean or median), unless otherwise stated. †Included in meta-analysis of lifetime prevalence. ‡Included in meta-analysis of lifetime prevalence of moderate or severe TBI. §218 (52.4%) of 416 participants were missing data on severe TBI. ¶Prevalence estimate from the OSU TBI-ID (n=313) used in meta-analysis.									
Table 1: Summary of included studies									

Table 1: Summary of included studies

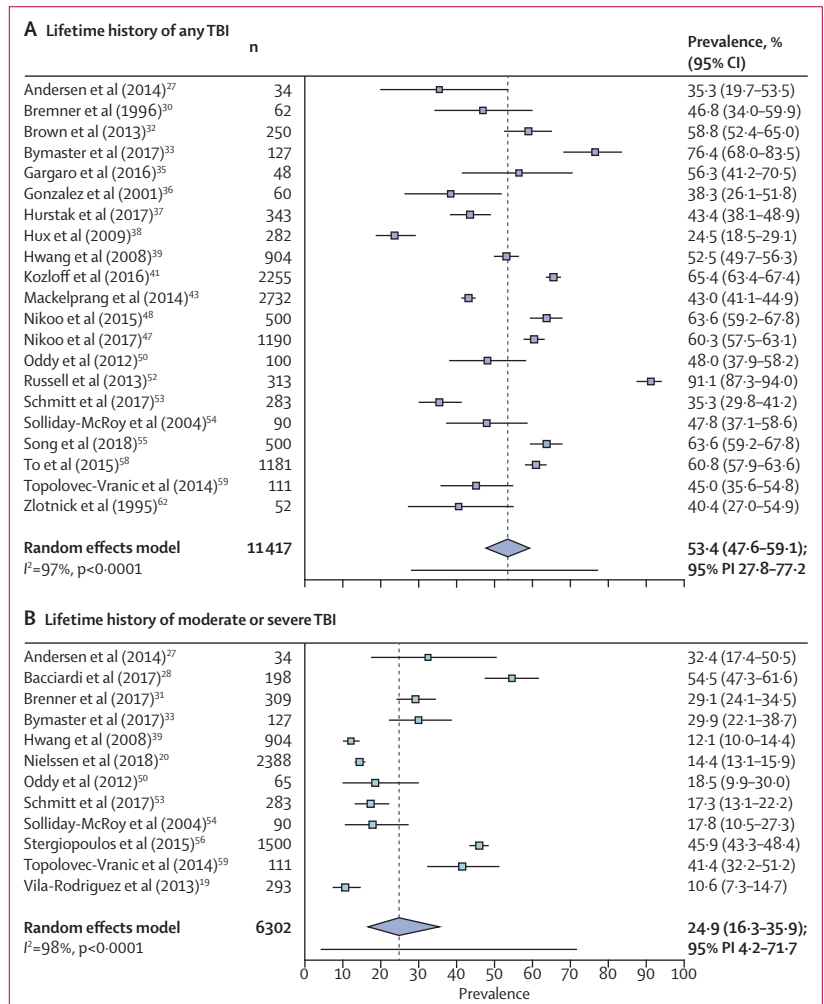


Figure 2: Forest plots of prevalence estimates for any severity of TBI and for moderate or severe TBI. Box size for each study is based on the weight for random-effects analysis, calculated using the inverse of the variance. TBI=traumatic brain injury. PI=prediction interval.

Nikoo and colleagues⁴⁸ did a comprehensive baseline interview with each participant and assessed incident TBI at yearly follow-up interviews, and found that 17.1–19.4% of participants sustained TBI per year.⁴⁸ By contrast, LePage and colleagues⁴² and McMillan and colleagues⁴⁵ used ICD-9 codes, ICD-10 codes, or both to ascertain TBI.^{42,45} LePage and colleagues found that 0.5% of participants sustained TBI over 1 year, and McMillan and colleagues found that 13.5% of participants sustained TBI over the 30-year study period (approximately 0.5% per year). A study-level summary of results from studies evaluating incidence of TBI is presented in the appendix (p 14). Homelessness was associated with a higher incidence of TBI in comparison with non-homeless control groups.^{42,44,45,57} Similarly, residential instability was associated with a higher incidence of TBI.⁴⁸ Lifetime history of TBI, receiving a TBI in the previous year, mental health diagnoses and

	Studies	Participants	Estimated prevalence, % (95% CI)	Heterogeneity		Change in estimated prevalence from univariable meta-regression analyses*		Change in estimated prevalence from multivariable meta-regression analysis*	
				I ²	p value	Change, % (95% CI)	p value	Change, % (95% CI)	p value
Measure of central tendency of age for the study sample	21	11 417	53.4% (47.6–59.1)	97%	<0.0001	–1.0% (–4.0 to 2.3)	0.16	1.7% (0.7 to 2.8)	0.0011
Sample size	21	11 417	53.4% (47.6–59.1)	97%	<0.0001	1.1 × 10 ^{–2} % (–1.0 × 10 ^{–2} to 3.2 × 10 ^{–2})	0.33	1.6 × 10 ^{–2} % (5.6 × 10 ^{–3} to 2.6 × 10 ^{–2})	0.028
LOC as minimum criterion for defining TBI									
No	16	10 558	56.9% (50.4–63.3)	97%	<0.0001	Reference	..	Reference	..
Yes	5	859	41.2% (36.7–45.7)	37%	0.17	–33.1% (–61.5 to –4.6)	0.023	–26.5% (–47.5 to –5.4)	0.014
Site of study recruitment									
Service or clinic	14	8 062	64.9% (54.1–74.3)	95%	<0.0001	Reference	..	Reference	..
Shelter or hostel	7	3 355	47.9% (42.0–53.8)	96%	<0.0001	–38.1% (–62.1 to –14.2)	0.0018	–8.7% (–29.2 to 11.8)	0.092
TBI ascertainment method									
Single question or series of questions	15	10 502	51.9% (46.3–57.5)	96%	<0.0001	Reference	..	Reference	..
Screening tool	3	427	34.2% (21.0–50.3)	87%	<0.0001	–49.0% (–83.8 to –14.1)	0.0059	–39.0% (–64.2 to –13.8)	0.0041
Structured interview	3	488	78.0% (53.4–91.6)	95%	<0.0001	71.4% (37.2 to 100.0)	<0.0001	46.8% (15.9 to 77.8)	0.0012

LOC=loss of consciousness. TBI=traumatic brain injury. *For a one-unit change in the predictor variable.

Table 2: Meta-regression results evaluating potential moderators of estimated lifetime TBI prevalence

poorer mental health, drug and alcohol misuse, and younger age were also associated with incident TBI over a 1-year period.^{48,57}

Discussion

The results of our systematic review and meta-analysis suggest that more than half of homeless and marginally housed individuals have a lifetime history of TBI, and that almost a quarter have a history of moderate or severe TBI. Thus, the lifetime prevalence of TBI in homeless and marginally housed individuals is between 2.5-times and 4.0-times higher than estimates in the general population.^{8,11} Moreover, the lifetime prevalence of moderate or severe TBI in this population is nearly ten-times higher than estimates in the general population.⁸ We also found that TBI was associated with increased suicidal ideation and suicide risk, poorer self-reported physical and mental health, and increased health service and criminal justice system involvement. However, heterogeneity across estimates limits our ability to establish the true prevalence of TBI in this population.

We identified high statistical heterogeneity and considerable methodological limitations across many of the included studies, which hinders a clear understanding of the magnitude of the impact of TBI in this population. This heterogeneity can be attributed in part to the age of

the study sample, because study samples with a higher proportion of older individuals evaluate individuals with a longer time at risk of TBI. This heterogeneity is also explained in part by study design factors (ie, the definition of TBI and the tool used to ascertain TBI history), which reflects that standardised and reproducible research methods were not always used in previous studies on this topic. Studies that used loss of consciousness as a minimum criterion for defining TBI had non-significant between-study heterogeneity, suggesting that this method could be a reproducible approach to studying TBI in this population. However, excluding individuals with a head injury and alteration (but not loss) of consciousness would miss approximately 80% of all injuries considered to be TBIs by commonly used definitions.^{5,63,64} Notably, the use of structured interviews (eg, OSU TBI-ID) to ascertain TBI history was associated with an estimated prevalence that was more than 40% higher than in studies that used a single question. Although they have inherent limitations, clinical interviews such as the OSU TBI-ID are considered to be the preferred method for ascertaining TBI history.⁶⁵ Clinical interviews also allow a trained researcher to use an approach tailored to the study population to obtain the level of detail required for an expert assessment of the evidence. Thus, ascertainment method might represent one of the most important design considerations in

Panel: Associations between history of TBI and health-related or functioning-related outcomes

Physical health (12 studies)

- Associated with having seizures in three studies^{19,39,60} and not associated with seizures in two studies^{53,59}
- Associated with poorer self-reported physical health in three studies^{39,53,58} and more chronic health conditions in one study⁵⁸
- Associated with dizziness in two studies^{38,53}
- Associated with headaches or migraine headaches in three studies^{38,53,60}
- Associated with memory problems in five studies^{35,38,43,53,61} and not associated with memory problems in one study³⁴
- Associated with evidence of traumatically induced lesions visible on structural MRI, lower fractional anisotropy, and lower total cortical grey matter in one study³³
- Not associated with geriatric syndromes in one study,³² Charlson comorbidity score in one study,⁵³ or active HIV or hepatitis C infection in one study⁵³

Mental health (11 studies)

- Associated with a diagnosis of schizophrenia in one study,⁴³ bipolar disorder in two studies,^{28,43} manic or hypomanic episodes in one study,⁶⁰ and panic disorder in one study⁶⁰
- Associated with a higher number of psychiatric diagnoses in three studies^{31,43,58}
- Associated with poorer self-reported mental health in three studies^{39,53,58} and a history of mental illness in one study⁵⁹
- Associated with lower odds of psychotic disorder in one study⁶⁰ and not associated with psychotic disorder in one study⁵³
- Associated with polysubstance use in one study³⁵
- Associated with drug misuse in four studies^{39,43,58,60} and not associated with drug misuse in four studies^{35,53,55,59}
- Associated with alcohol misuse in five studies,^{39,43,53,58,60} and not associated with alcohol misuse in two studies^{35,55}
- Associated with mood disorders in one study⁵³ and mood disorder with psychotic features in one study⁶⁰
- Associated with lower odds of self-reported depression in two studies^{35,38} and diagnosed depressive disorder in three studies^{28,43,60}
- Associated with self-reported anxiety in two studies^{35,38} and not associated with diagnosed anxiety disorder in one study⁵³
- Associated with post-traumatic stress disorder in two studies^{43,60} and not associated with post-traumatic stress disorder in one study⁵³
- Associated with trouble controlling violent behaviour in one study³⁵
- Associated with self-reported emotional problems in one study³⁵

Suicidality (seven studies)

- TBI-related symptoms or a history of TBI were associated with higher risk for suicide or suicidal ideation in

five studies,^{31,43,49,51,60} and not associated with suicidal ideation in one study⁵³

- Associated with suicide attempts in two studies^{43,60} and not associated with suicide attempts in one study³⁵

Mortality (two studies)

- The standardised mortality ratio was significantly higher in homeless participants admitted to hospital with head injury than in non-homeless participants in one study⁴⁵
- In another study, 30-day mortality for homeless participants recruited from a neurosurgical unit was not significantly different to that of non-homeless participants⁴⁰

Neurocognition (nine studies)

- Associated with poorer neurocognition in two studies^{27,53} and clinical cognitive impairment in two studies^{19,53}
- Not associated with neurocognition in six studies^{34,36,37,54,56,62}
- Lower neurocognitive scores were found to be associated with lower grey matter volume and poorer white matter integrity of the corpus callosum as assessed with neuroimaging⁵³

Temporal relationship to homelessness (six studies)

- Between 51% and 92% of participants experienced their first TBI before their first experience of homelessness or marginal housing^{29,39,43,50,53,59}

Other outcomes (seven studies)

- Associated with a higher likelihood of reporting victimisation in one study⁴³
- Associated with difficulties with activities of daily living in one study⁴³
- Associated with a history of childhood trauma, physical abuse, and emotional abuse in one study,⁵⁵ and associated with a history of childhood physical abuse, sexual abuse, and neglect in one study⁴³
- Associated with a history of intimate partner violence^{43,53}
- Associated with lower than expected educational attainment in one study⁴³ and a history of special education in one study;⁴³ not associated with education in two studies^{53,59}
- Associated with employment and a higher monthly income in one study⁵⁸ and not associated with employment in one study⁴³
- Associated with higher frequency of emergency room visits and hospital admissions in three studies^{43,58,60} and not associated with outpatient days or the number of emergency room visits in the previous 6 months in one study⁶⁰
- Associated with having access to a physician in two studies^{58,60}
- Associated with arrest, incarcerations, or criminal justice system involvement in five studies^{43,53,58-60}

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- Associated with being a victim of physical or sexual assault in two studies^{43,58}
- Associated with a parental history of substance abuse in one study⁵⁹
- Associated with so-called survival sex during homelessness in one study⁴³
- Associated with a history of foster care in one study⁴³
- Associated with a higher number of homeless episodes or a longer lifetime duration of homelessness in two studies,^{43,58} and not associated with lifetime duration of homelessness or marginal housing in two studies^{53,59}
- Associated with military service in one study⁴³
- Not associated with having a place to go when sick or in need of health advice in one study⁶⁰
- Not associated with marital status in one study⁴³
- Not associated with screening positive for homelessness in veterans in one study⁴⁶

studies evaluating history of TBI. Consequently, our summary estimate of prevalence in this population is limited by inadequate ascertainment methods that appear to underestimate the prevalence of TBI in this population. If prevalence estimates ascertained through structured interviews represent the most accurate estimate of prevalence, our pooled estimate of prevalence might be a considerable underestimate of the true prevalence of TBI in this population.

Despite considerable statistical and methodological heterogeneity between studies, we found that a history of TBI is associated with various aspects of poor health and functioning. Additionally, several characteristics of homeless and marginally housed populations (eg, residential instability or substance use) were associated with sustaining TBI. Some relationships might be bidirectional: for example, TBI could increase the risk for homelessness, and homelessness could increase the risk for incident TBI. Establishing whether TBI is a risk factor for poor outcomes (eg, homelessness or serious health conditions) will be important to understand and address the impact of TBI in this population.

Our results suggest that physicians and care providers working with homeless and marginally housed populations should have an increased awareness of TBI. Previous studies have shown that homeless and marginally housed individuals have a frequency of actionable incidental findings on brain MRI that substantially exceed that expected of the general population.¹⁹ For example, Vila-Rodriguez and colleagues¹⁹ reported that the prevalence of aneurysms was 8.6% and of brain infarcts was 11% in homeless and marginally housed individuals. By contrast, the expected rates in similarly aged samples from the general population are less than 1% for aneurysms and less than 3% for brain infarcts.⁶⁶ In an overlapping sample, Schmitt and colleagues⁵³ reported visible encephalomalacia on neuroimaging that was deemed likely to be caused by traumatic injury in 6.9% of the cohort, and found that evidence of trauma on neuroimaging was associated with poorer cognition and executive functioning in this population.⁵³ Clinicians might therefore consider lowering the threshold for referral to neuroimaging specialists after head injury in homeless and marginally housed patients, because depending on the resources available, an

assessment that complements self-reporting might be indicated. Confirmation of structural brain damage caused by TBI might facilitate triage and referral to specialised services, such as cognitive rehabilitation, which could improve functional outcomes.^{67,68} Furthermore, imaging findings might positively inform the patient-caregiver relationship (eg, by increasing understanding of challenging behaviours that might be attributable to damage visible on neuroimaging).

To our knowledge, this is the first study to quantitatively evaluate the lifetime prevalence of TBI and to comprehensively summarise the associations between TBI and health-related or functioning-related outcomes in homeless and marginally housed individuals. However, our study has some limitations. Firstly, the included studies were almost exclusively retrospective in design, which precludes interpretation about the directionality of the relationships. Future prospective studies are needed in order to adequately evaluate, for example, whether TBI leads to substance use or homelessness, or whether factors such as substance use or homelessness lead to TBI. Secondly, we limited our search to peer-reviewed publications and elected not to search the so-called grey literature. In the screening process for this study, we encountered several theses and book chapters; however, we elected to exclude these in order to limit our results to only peer-reviewed studies.

TBI is prevalent among homeless and marginally housed individuals and might be a common factor that contributes to poorer health and functioning than in the general population. Primary care providers and those working with this group should be aware of the prevalence and associated consequences of TBI. Evaluating history of TBI might be relevant to a comprehensive assessment of homeless and marginally housed patients, who often have complex comorbidities. In addition, public health research and practice should focus on TBI prevention and more accurately characterising the scope and effects of TBI in this vulnerable population. Although to our knowledge no studies have been done to evaluate whether incident TBI is reduced with housing interventions, randomised trial evidence shows that rent supplements in combination with intensive case management substantially improve

living situation, safety, and community functioning.⁶⁹ These findings suggest that the provision of stable housing might also lower the risk for TBI. High-quality studies are urgently needed to elucidate the true prevalence and incidence of TBI, and the directionality of the relationship between TBI and outcomes in the homeless and marginally housed population.

Contributors

JLS led the title and abstract screening, full-text screening, risk of bias assessment, data extraction, statistical analysis, and drafting of the manuscript. JMS participated in the title and abstract screening, full-text screening, risk of bias assessment, and data extraction. JLS, AET, NDS, AMB, WGH, and WJP interpreted the results and participated in the drafting of the manuscript. All authors approved the final manuscript.

Declaration of interests

NDS has sat on the paid advisory board of Highmark Interactive, received consulting or speaking fees from WorkSafeBC and Yukon WCB, the National Hockey League, and Major League Soccer, and has received fees for expert testimony in neuropsychology. WGH has received consulting fees or sat on paid advisory boards for the Canadian Agency for Drugs and Technology in Health, AlphaSights, Guidepoint, In Silico, Translational Life Sciences, Otsuka, Lundbeck, and Newron. WJP is the founder and chief executive officer of Translational Life Sciences, an early stage biotechnology company. He is also on the scientific advisory board of Medipure Pharmaceuticals and Vitality Biopharma, and in the past has been on the board of directors for Abattis Biocentials and on the advisory board for Vinergy Resources; these companies are early stage biotechnology enterprises with no relation to brain injury. All other authors declare no competing interests.

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References

- Fazel S, Geddes JR, Kushel M. The health of homeless people in high-income countries: descriptive epidemiology, health consequences, and clinical and policy recommendations. *Lancet* 2014; **384**: 1529–40.
- Fazel S, Khosla V, Doll H, Geddes J. The prevalence of mental disorders among the homeless in western countries: systematic review and meta-regression analysis. *PLoS Med* 2008; **5**: e225.
- Beijer U, Wolf A, Fazel S. Prevalence of tuberculosis, hepatitis C virus, and HIV in homeless people: a systematic review and meta-analysis. *Lancet Infect Dis* 2012; **12**: 859–70.
- Aldridge RW, Story A, Hwang SW, et al. Morbidity and mortality in homeless individuals, prisoners, sex workers, and individuals with substance use disorders in high-income countries: a systematic review and meta-analysis. *Lancet* 2018; **391**: 241–50.
- Maas AIR, Menon DK, Adelson PD, et al. Traumatic brain injury: integrated approaches to improve prevention, clinical care, and research. *Lancet Neurol* 2017; **16**: 987–1048.
- Perry DC, Sturm VE, Peterson MJ, et al. Association of traumatic brain injury with subsequent neurological and psychiatric disease: a meta-analysis. *J Neurosurg* 2016; **124**: 511–26.
- Feigin VL, Theadom A, Barker-Collo S, et al. Incidence of traumatic brain injury in New Zealand: a population-based study. *Lancet Neurol* 2013; **12**: 53–64.
- Corrigan JD, Yang J, Singichetti B, Manchester K, Bogner J. Lifetime prevalence of traumatic brain injury with loss of consciousness. *Inj Prev* 2018; **24**: 396–404.
- Majdan M, Plancikova D, Brazinova A, et al. Epidemiology of traumatic brain injuries in Europe: a cross-sectional analysis. *Lancet Public Health* 2016; **1**: e76–83.
- Colantonio A, Saverino C, Zagorski B, et al. Hospitalizations and emergency department visits for TBI in Ontario. *Can J Neurol Sci* 2010; **37**: 783–90.
- Frost RB, Farrer TJ, Primosch M, Hedges DW. Prevalence of traumatic brain injury in the general adult population: a meta-analysis. *Neuroepidemiology* 2013; **40**: 154–59.
- Maas AI, Harrison-Felix CL, Menon D, et al. Standardizing data collection in traumatic brain injury. *J Neurotrauma* 2011; **28**: 177–87.
- Corrigan JD, Bogner J. Initial reliability and validity of the Ohio State University TBI Identification Method. *J Head Trauma Rehabil* 2007; **22**: 318–29.
- Dams-O'Connor K, Cantor JB, Brown M, Dijkers MP, Spielman LA, Gordon WA. Screening for traumatic brain injury: findings and public health implications. *J Head Trauma Rehabil* 2014; **29**: 479–89.
- Topolovec-Vranic J, Ennis N, Colantonio A, et al. Traumatic brain injury among people who are homeless: a systematic review. *BMC Public Health* 2012; **12**: 1059.
- Moher D, Liberati A, Tetzlaff J, Altman DG, PRISMA Group. Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *BMJ* 2009; **339**: 1–8.
- Stroup DF, Berlin JA, Morton SC, et al. Meta-analysis of observational studies in epidemiology: a proposal for reporting. Meta-analysis Of Observational Studies in Epidemiology (MOOSE) group. *JAMA* 2000; **283**: 2008–12.
- National Heart, Lung, and Blood Institute. Study quality assessment tools: quality assessment tool for observational cohort and cross-sectional studies. 2014. <https://www.nhlbi.nih.gov/health-topics/study-quality-assessment-tools> (accessed Dec 14, 2018).
- Vila-Rodriguez F, Panenka WJ, Lang DJ, et al. The hotel study: multimorbidity in a community sample living in marginal housing. *Am J Psychiatry* 2013; **170**: 1413–22.
- Nielssen OB, Stone W, Jones NM, et al. Characteristics of people attending psychiatric clinics in inner Sydney homeless hostels. *Med J Aust* 2018; **208**: 169–73.
- Riley RD, Higgins JPT, Deeks JJ. Interpretation of random effects meta-analyses. *BMJ* 2011; **342**: d549.
- Higgins JPT, Thompson SG, Deeks JJ, Altman DG. Measuring inconsistency in meta-analyses. *BMJ* 2003; **327**: 557–60.
- Egger M, Davey Smith G, Schneider M, Minder C. Bias in meta-analysis detected by a simple, graphical test. *BMJ* 1997; **315**: 629–34.
- R Core Team. R: a language and environment for statistical computing. Vienna, Austria: R Foundation for Statistical Computing, 2019.
- Schwarzer G. meta: an R package for meta-analysis. *R News* 2007; **7**: 40–45.
- Viechtbauer W. Conducting meta-analyses in R with the metaphor package. *J Stat Softw* 2010; **36**: 1–48.
- Andersen J, Kot N, Ennis N, et al. Traumatic brain injury and cognitive impairment in men who are homeless. *Disabil Rehabil* 2014; **36**: 2210–15.
- Bacciardi S, Maremmanni AG, Nikoo N, et al. Is bipolar disorder associated with traumatic brain injury in the homeless? *Riv Psichiatr* 2017; **52**: 40–46.
- Barnes SM, Russell LM, Hostetter TA, Forster JE, Devore MD, Brenner LA. Characteristics of traumatic brain injuries sustained among veterans seeking homeless services. *J Health Care Poor Underserved* 2015; **26**: 92–105.
- Bremner AJ, Duke PJ, Nelson HE, Pantelis C, Barnes TRE. Cognitive function and duration of homelessness in entrants to a hostel for homeless men. *Br J Psychiatry* 1996; **169**: 434–39.
- Brenner LA, Hostetter TA, Barnes SM, et al. Traumatic brain injury, psychiatric diagnoses, and suicide risk among Veterans seeking services related to homelessness. *Brain Inj* 2017; **31**: 1731–35.
- Brown RT, Kiely DK, Bharel M, Mitchell SL. Factors associated with geriatric syndromes in older homeless adults. *J Health Care Poor Underserved* 2013; **24**: 456–68.
- Bymaster A, Chung J, Banke A, Choi HJ, Laird C. A pediatric profile of a homeless patient in San Jose, California. *J Health Care Poor Underserved* 2017; **28**: 582–95.
- Cotman A, Sandman C. Cognitive deficits and their remediation in the homeless. *J Cogn Rehabil* 1997; **15**: 16–23.
- Gargaro J, Gerber GJ, Nir P. Brain injury in persons with serious mental illness who have a history of chronic homelessness: could this impact how services are delivered? *Can J Commun Ment Health* 2016; **35**: 69–77.

- 36 Gonzalez EA, Dieter JN, Natale RA, Tanner SL. Neuropsychological evaluation of higher functioning homeless persons: a comparison of an abbreviated test battery to the mini-mental state exam. *J Nerv Ment Dis* 2001; **189**: 176–81.
- 37 Hurstak E, Johnson JK, Tieu L, et al. Factors associated with cognitive impairment in a cohort of older homeless adults: results from the HOPE HOME study. *Drug Alcohol Depend* 2017; **178**: 562–70.
- 38 Hux K, Schneider T, Bennett K. Screening for traumatic brain injury. *Brain Inj* 2009; **23**: 8–14.
- 39 Hwang SW, Colantonio A, Chiu S, et al. The effect of traumatic brain injury on the health of homeless people. *CMAJ* 2008; **179**: 779–84.
- 40 Kim DK, Jwa CS, Kim GH, Kang JK. An experience of management of homeless neurosurgical patients. *J Korean Neurosurg Soc* 2007; **42**: 191–94.
- 41 Kozloff N, Stergiopoulos V, Adair CE, et al. The unique needs of homeless youths with mental illness: baseline findings from a housing first trial. *Psychiatr Serv* 2016; **67**: 1083–90.
- 42 LePage JP, Bradshaw LD, Cipher DJ, Crawford AM, Hoosyar D. The effects of homelessness on Veterans' health care service use: an evaluation of independence from comorbidities. *Public Health* 2014; **128**: 985–92.
- 43 Mackelprang JL, Harpin SB, Grubenhoff JA, Rivara FP. Adverse outcomes among homeless adolescents and young adults who report a history of traumatic brain injury. *Am J Public Health* 2014; **104**: 1986–92.
- 44 McCormick B, White J. Hospital care and costs for homeless people. *Clin Med (Lond)* 2016; **16**: 506–10.
- 45 McMillan TM, Laurie M, Oddy M, Menzies M, Stewart E, Wainman-Lefley J. Head injury and mortality in the homeless. *J Neurotrauma* 2015; **32**: 116–19.
- 46 Montgomery AE, Dichter ME, Thomasson AM, Roberts CB, Byrne T. Disparities in housing status among veterans with general medical, cognitive, and behavioral health conditions. *Psychiatr Serv* 2015; **66**: 317–20.
- 47 Nikoo N, Motamed M, Nikoo MA, et al. Chronic physical health conditions among homeless. *J Health Dispar Res Pract* 2015; **8**: 81–97.
- 48 Nikoo M, Gadermann A, To MJ, Krausz M, Hwang SW, Palepu A. Incidence and associated risk factors of traumatic brain injury in a cohort of homeless and vulnerably housed adults in 3 Canadian cities. *J Head Trauma Rehabil* 2017; **32**: E19–26.
- 49 Noël F, Moniruzzaman A, Somers J, et al. A longitudinal study of suicidal ideation among homeless, mentally ill individuals. *Soc Psychiatry Psychiatr Epidemiol* 2016; **51**: 107–14.
- 50 Oddy M, Moir JF, Fortescue D, Chadwick S. The prevalence of traumatic brain injury in the homeless community in a UK city. *Brain Inj* 2012; **26**: 1058–64.
- 51 Palladino B, Montgomery AE, Sommers M, Fargo JD. Risk of suicide among veterans with traumatic brain injury experiencing homelessness. *J Mil Veterans Health* 2017; **25**: 34–38.
- 52 Russell LM, Devore MD, Barnes SM, et al. Challenges associated with screening for traumatic brain injury among US veterans seeking homeless services. *Am J Public Health* 2013; **103** (suppl 2): S211–12.
- 53 Schmitt T, Thornton AE, Rawtaer I, et al. Traumatic brain injury in a community-based cohort of homeless and vulnerably housed individuals. *J Neurotrauma* 2017; **34**: 3301–10.
- 54 Solliday-McRoy C, Campbell TC, Melchert TP, Young TJ, Cisler RA. Neuropsychological functioning of homeless men. *J Nerv Ment Dis* 2004; **192**: 471–78.
- 55 Song MJ, Nikoo M, Choi F, Schütz CG, Jang K, Krausz RM. Childhood trauma and lifetime traumatic brain injury among individuals who are homeless. *J Head Trauma Rehabil* 2018; **33**: 185–90.
- 56 Stergiopoulos V, Cusi A, Bekele T, et al. Neurocognitive impairment in a large sample of homeless adults with mental illness. *Acta Psychiatr Scand* 2015; **131**: 256–68.
- 57 Svoboda T, Ramsay JT. High rates of head injury among homeless and low-income housed men: a retrospective cohort study. *Emerg Med J* 2014; **31**: 571–75.
- 58 To MJ, O'Brien K, Palepu A, et al. Healthcare utilization, legal incidents, and victimization following traumatic brain injury in homeless and vulnerably housed individuals: a prospective cohort study. *J Head Trauma Rehabil* 2015; **30**: 270–76.
- 59 Topolovec-Vranic J, Ennis N, Howatt M, et al. Traumatic brain injury among men in an urban homeless shelter: observational study of rates and mechanisms of injury. *CMAJ Open* 2014; **2**: e69–76.
- 60 Topolovec-Vranic J, Schuler A, Gozdzik A, et al. The high burden of traumatic brain injury and comorbidities amongst homeless adults with mental illness. *J Psychiatr Res* 2017; **87**: 53–60.
- 61 Ziemann G, Bridwell A, Cárdenas JF. Traumatic brain injury in domestic violence victims: a retrospective study at the barrow neurological institute. *J Neurotrauma* 2017; **34**: 876–80.
- 62 Zlotnick C, Fischer PJ, Agnew J. Perceptuomotor function of homeless males in alcohol rehabilitation. *J Subst Abuse* 1995; **7**: 235–44.
- 63 Menon DK, Schwab K, Wright DW, Maas AI. Position statement: definition of traumatic brain injury. *Arch Phys Med Rehabil* 2010; **91**: 1637–40.
- 64 American Congress of Rehabilitation Medicine. Definition of mild traumatic brain injury. *J Head Trauma Rehabil* 1993; **8**: 86–87.
- 65 Walker WC, Cifu DX, Hudak AM, Goldberg G, Kunz RD, Sima AP. Structured interview for mild traumatic brain injury after military blast: inter-rater agreement and development of diagnostic algorithm. *J Neurotrauma* 2015; **32**: 464–73.
- 66 Morris Z, Whiteley WN, Longstreth WT, et al. Incidental findings on brain magnetic resonance imaging: systematic review and meta-analysis. *BMJ* 2009; **339**: 1–7.
- 67 Hallock H, Collins D, Lampit A, Deol K, Fleming J, Valenzuela M. Cognitive training for post-acute traumatic brain injury: a systematic review and meta-analysis. *Front Hum Neurosci* 2016; **10**: 537.
- 68 Cicerone KD, Langenbahn DM, Braden C, et al. Evidence-based cognitive rehabilitation: updated review of the literature from 2003 through 2008. *Arch Phys Med Rehabil* 2011; **92**: 519–30.
- 69 Stergiopoulos V, Hwang SW, Gozdzik A, et al. Effect of scattered-site housing using rent supplements and intensive case management on housing stability among homeless adults with mental illness: a randomized trial. *JAMA* 2015; **313**: 905–15.

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IN ACCORDANCE WITH O.REG. 431/20,
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While a Barrister and Solicitor.
LSO # 64535V

Bed Bug Infestations in an Urban Environment

Stephen W. Hwang,*† Tomislav J. Svoboda,*† Iain J. De Jong,‡ Karl J. Kabasele,§ and Evie Gogosis*

Until recently, bed bugs have been considered uncommon in the industrialized world. This study determined the extent of reemerging bed bug infestations in homeless shelters and other locations in Toronto, Canada. Toronto Public Health documented complaints of bed bug infestations from 46 locations in 2003, most commonly apartments (63%), shelters (15%), and rooming houses (11%). Pest control operators in Toronto (N = 34) reported treating bed bug infestations at 847 locations in 2003, most commonly single-family dwellings (70%), apartments (18%), and shelters (8%). Bed bug infestations were reported at 20 (31%) of 65 homeless shelters. At 1 affected shelter, 4% of residents reported having bed bug bites. Bed bug infestations can have an adverse effect on health and quality of life in the general population, particularly among homeless persons living in shelters.

The common bed bug (*Cimex lectularius*) is a wingless, red-brown, blood-sucking insect that grows up to 7 mm in length and has a lifespan from 4 months up to 1 year (Figure 1) (1). Bed bugs hide in cracks and crevices in beds, wooden furniture, floors, and walls during the daytime and emerge at night to feed on their preferred host, humans.

The common bed bug is found worldwide. Infestations are common in the developing world, occurring in settings of unsanitary living conditions and severe crowding (2,3). In North America and Western Europe, bed bug infestations became rare during the second half of the 20th century and have been viewed as a condition that occurs in travelers returning from developing countries (4). However, anecdotal reports suggest that bed bugs are increasingly common in the United States, Canada, and the United Kingdom (5–10). This study was conducted to document the magnitude and adverse effects of bed bug infestations in homeless shelters and other locations in Toronto.

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Ethical and scientific approval was obtained from Toronto Public Health and the St. Michael's Hospital Research Ethics Board. Shelter staff and residents gave informed consent before participation.

Methods

Toronto Public Health and Pest Control Operators Survey

The log of telephone calls made in 2003 to Toronto Public Health was reviewed to identify calls related to bed bug infestations, the types of locations affected, and the regions of the city where infestations were reported. Toronto is divided into 4 public health regions (north, east, south, and west); the south region includes the downtown core of the city. The population of each region was determined from 2001 census data and ranged from 500,000 to 700,000.

A telephone survey of all pest control operators listed in the Toronto telephone directory was conducted using a structured interview. The survey documented the number of bed bug–related calls received, the number of treatments provided by pest control operators in 2003, and the types of insecticides used to treat bed bug infestations. To protect the confidentiality of persons and establishments affected by bed bugs, we asked each pest control operator to report the number of different locations treated for bed bug infestations by general type (e.g., apartment, single-family dwelling, shelter) and not by specific name or address.

Survey of Homeless Shelter Staff

A telephone interview of the director or supervisor at each homeless shelter in Toronto was conducted to determine which shelters had experienced bed bug infestations. Interviewees were assured that the information they provided would be reported in a way that would not identify their shelter. At affected shelters, follow-up, in-person interviews were conducted with staff from December 2003 to May 2004. A predefined strategy was used to select

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Figure 1. Dorsal and lateral views of a bed bug (*Cimex lectularius*).

shelter managers, front-line staff, and healthcare professionals for interviews. The questionnaire included items on time course, manifestations, and extent of the infestation; control measures undertaken; and effects of the infestation on shelter residents and staff. Bed bug infestations were considered confirmed if an entomologist or pest control operator identified a specimen collected at the shelter as *C. lectularius*. Infestations were considered probable if shelter staff reported resident complaints consistent with bed bug infestations.

Homeless Shelter Resident Survey

As part of a separate study of bacterial colonization among shelter residents, a sample of 243 residents at 1 shelter affected by bed bugs was surveyed in July and August 2003. Participants were selected at random from among persons registered at the shelter, and 80% of those contacted agreed to participate. Participants were asked if they currently had any skin-related illness, injury, or condition, and if so, what type. We obtained permission from

the principal investigator of this study to review participant responses to determine the prevalence of self-reported bed bug bites (G. Bargh, pers. comm.).

Results

Calls to Toronto Public Health

In 2003, Toronto Public Health received insect-related calls from 82 different street addresses; 46 were complaints of bed bug infestations, 11 were requests for information about bed bugs, and 25 were unrelated to bed bugs. The 46 separate locations where infestations were reported are shown in Table 1. In response to these calls, public health staff spent a total of 27 hours providing information, and health inspectors spent a total of 78 hours conducting site visits to confirm complaints and offer assistance. More complaints of infestations were received in the last 6 months (31 calls) than in the first 6 months (15 calls) of 2003. In the south region, which includes the downtown core of the city, 4.7 complaint calls were received per

Table 1. Reports of bed bug infestations in Toronto, 2003

Type of location	Calls to pest control operators			Calls to Toronto Public Health
	No. locations treated (%) [*]	No. treatments (%)	Mean no. treatments per location	No. locations (%)
Single-family dwelling	588 (70)	641 (49)	1.1	2 (4)
Apartment unit	155 (18)	297 (23)	1.9	29 (63)
Homeless shelter	68 (8)	218 (17)	3.2	8 (17)
Hotel	19 (2)	96 (7)	5.1	1 (2)
Rooming house	6 (0.7)	16 (1)	2.7	5 (11)
Community center	5 (0.5)	5 (0.4)	1.0	1 (2) [†]
University dormitory	4 (0.5)	36 (3)	9.0	0 (0)
Restaurant	1 (0.1)	1 (0.1)	1.0	0 (0)
Other residential institution	1 (0.1)	5 (0.4)	5.0	0 (0)
Total	847 (100)	1,315 (100)	1.6	46 (100)

^{*}Figures in this column may reflect some double counting of locations (see details in Methods section).

[†]Infestation located at the clothing bank in a community center.

100,000 population; this rate was 6.1 times higher (95% confidence intervals [CI] 3.3–11.4) than the rate in the rest of the city. A total of 32 complaints (70%) were from locations in the south region.

Survey of Pest Control Operators

We interviewed 34 (89%) of 38 pest control operators listed in the Toronto phonebook; 20 (59%) had provided treatments for bed bugs in 2003. Among these pest control operators, 17 (85%) of 20 reported that they had received an increased number of calls related to bed bugs and had provided more treatments for bed bugs in 2003 than in 2002. The number of locations treated by pest control operators in 2003 and the number of treatments required are shown in Table 1. The mean number of treatments required per affected location was highest at dormitories, hotels, homeless shelters, and rooming houses.

Homeless Shelter Staff and Resident Survey

We contacted all 65 homeless shelters in Toronto and found that 20 (31%) shelters reported previous or current bed bug infestations. Permission was obtained to survey staff at 17 (85%) of 20 affected shelters. Three shelters reporting bed bug infestations either declined or did not respond to our request to interview shelter staff to obtain further information. Forty-three staff members (1–9 per shelter) were interviewed. The time course of the infestation at these shelters is shown in Figure 2. The number of shelters with active bed bug infestations increased steadily from spring 2001 to winter 2003 and then declined. At the end of spring 2004, infestations persisted at 10 shelters. These 10 shelters accounted for 30% of the total shelter bed capacity in the city of Toronto.

At the 17 affected shelters, staff became aware of bed bugs through resident complaints (16 shelters, 94%), visual sightings (14 shelters, 82%), and bite marks on residents (13 shelters, 76%). Staff at 1 shelter (6%) reported that a healthcare provider alerted them to the infestation. A pest control operator or entomologist made a positive identification of the common bed bug at 13 affected shelters (76%). At 3 shelters (18%), residents contacted Toronto Public Health and requested a visit by a health inspector. At 5 locations (29%), shelter staff complained of bed bug bites. Of 243 residents interviewed at an affected shelter in the summer of 2003, 9 persons (4%) had a skin condition that they described as bed bug bites.

The affected locations at homeless shelters and the chemical control measures implemented are shown in Table 2. Professional pest control operators applied insecticides (most commonly, cyfluthrin, bendiocarb, propoxur, and permethrin) at 12 shelters (71%). Shelter staff applied insecticides (most commonly, pyrethrin and propoxur) at 13 shelters (76%).

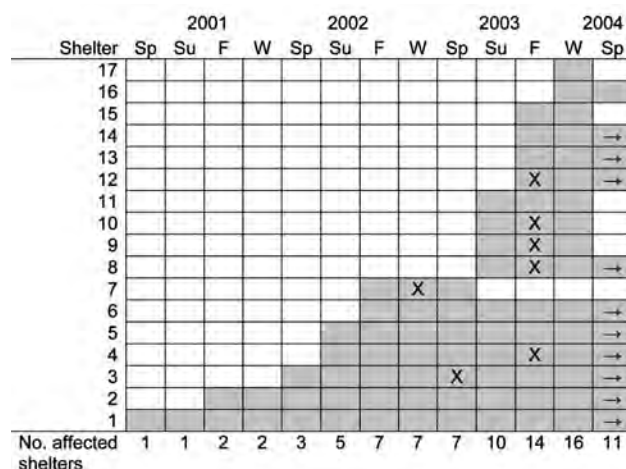


Figure 2. Time course of bed bug infestations in homeless shelters in Toronto. Shaded boxes indicate periods of infestation, X indicates peak period (if reported), and → indicates infestation ongoing as of spring 2004. Sp, spring (March, April, May); Su, summer (June, July, August); F, fall (September, October, November); W, winter (December, January, February).

Shelters implemented a number of environmental control measures (Table 2). To control bed bugs, 6 shelters (35%) made substantial building repairs, including removing floorboards, baseboards, or wood trim; replacing carpets; sealing floor cracks; and painting wooden floors. Two shelters (12%) installed additional washers and dryers to deal with increased laundry demands. The total cost incurred for bed bug control efforts at affected shelters was U.S.\$150–\$15,000, with a mean of U.S.\$3,085 per affected shelter.

Discussion

This study delineates the broad extent of a recent resurgence of bed bug infestations in an urban environment. In light of anecdotal reports from other localities (5–10), we believe that this phenomenon is likely occurring in cities across North America and Europe. The reasons for this resurgence are unknown, although some reports have suggested a role for increasing world travel, reluctance to use insecticides because of concerns regarding toxicity, and insecticide resistance (9,10). Although initial reports in Toronto indicated that bed bug infestations were occurring primarily in homeless shelters, our study showed that bed bugs are found in a wide variety of locations in the urban environment, including single-family dwellings, apartments, and rooming houses.

Data from public health officials and pest control operators provided markedly different perspectives on the extent and localization of infestations. This difference may reflect a tendency for persons experiencing bed bug infestations in single-family dwellings to rely on pest control

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Table 2. Locations at homeless shelters affected by bed bugs and chemical and environmental control measures implemented

Locations and control measures	No. shelters (%), N = 17
Affected locations	
Sleeping rooms	15 (88)
Bed or bed frames	15 (88)
Mattresses	13 (76)
Sheets	13 (76)
Floorboards or walls	9 (53)
Lockers	3 (18)
Other*	11 (65)
Nonsleeping rooms†	11 (65)
Chemical control measures (insecticides)	
Spot treatment only	4 (24)
Treatment of affected rooms	5 (29)
Treatment of entire building‡	8 (47)
All beds dismantled and treated	5 (29)
Environmental control measures	
Residents encouraged to shower and wash belongings	17 (100)
Increased room inspections to detect infestations	13 (76)
Ripped or torn mattresses discarded	8 (47)
Limits on amount of personal belongings	8 (47)
Beds and bedding steam cleaned and vacuumed	6 (35)
Building renovations§	6 (35)
Adhesive boards on the legs of beds to trap bugs	4 (24)
Replacing wooden beds with steel beds	3 (18)

*Other areas consisted of personal belongings, light fixtures, electrical switches and plugs, baseboards, carpeting, and other furniture.

†Affected nonsleeping rooms were the lounge, cafeteria, intake office, or storage room.

‡Treatment of the entire building entailed closing the shelter for 6 to 72 hours.

§See text for details.

operators, whereas apartment dwellers and homeless shelter staff may be more likely to contact public health authorities. The Toronto experience indicates that these calls place a substantial time demand on public health personnel, who in many cities are already struggling with limited resources.

Our data suggest that bed bugs can spread from shelter to shelter, presumably transported in the personal belongings of residents. At an affected homeless shelter, 4% of residents reported having bed bug bites; given the constant turnover of shelter residents, bed bugs could potentially affect a large number of homeless people over the course of a year. In our clinical experience, homeless persons with bed bug bites suffer a substantial degree of emotional distress.

Infestations in shelters are difficult and costly to eradicate. Our observation of a high mean number of pest control treatments per affected location (Table 1) points to the likelihood that infestations will be difficult to control in other communal living settings and in hotels. The pest control literature emphasizes the importance of combining insecticide treatments with environmental measures such as daily laundering of bed linens, vacuuming rooms, and steam cleaning and vacuuming mattresses. Bed bugs can be destroyed by freezing or by heat treatments at temperatures $>50^{\circ}\text{C}$, but these methods are inconvenient to implement (9,10).

Bed bug bites can result in clinical manifestations; the most common are small clusters of extremely pruritic, erythematous papules or wheals that represent repeated feedings by a single bed bug (1). Less common but more severe manifestations include grouped vesicles, giant urticaria, and hemorrhagic bullous eruptions (11). Bites should be managed symptomatically with topical emollients, topical corticosteroids, oral antihistamines, or some combination of these treatments.

Health professionals should be aware of this reemerging urban pest to facilitate prompt diagnosis of affected patients and treatment of the underlying environmental infestation. Bed bug bites must be differentiated from scabies, body lice, and other insect bites. Diagnostic clues include clustering and timing of bed bug bites. Unlike body lice, bed bugs are rarely found on affected persons or their clothing, and persons with good personal hygiene who enter an infested area are likely to be bitten.

Although bed bugs could theoretically act as a disease vector, as is the case with body lice, which transmit *Bartonella quintana* (the causal agent of trench fever) among homeless persons (12), bed bugs have never been shown to transmit disease in vivo (13). Hepatitis B viral DNA can be detected in bed bugs up to 6 weeks after they feed on infectious blood, but no transmission of hepatitis B infection was found in a chimpanzee model (14–19). Transmission of hepatitis C is unlikely, since hepatitis C

viral RNA is not detectable in bed bugs after an infectious blood meal (18). Live HIV can be recovered from bed bugs up to 1 hour after they feed on infected blood, but no epidemiologic evidence for HIV transmission by this route exists (20–22).

This study has certain limitations. Shelter data were based on self-reports from staff at affected shelters. Although we obtained data from multiple informants at each shelter when possible, we did not independently verify the accuracy of these reports. Affected shelters represented 30% of shelter beds in Toronto, but our methods did not determine how many rooms or beds within each shelter were affected. Shelter residents' reports of having bed bug bites were not independently confirmed, and some of these persons may have had other types of insect bites or delusions of parasitosis. The method we used to survey pest control operators may have resulted in double-counting locations that obtained treatments for bed bugs from >1 pest control operator in 2003. As a result, the number of affected locations may be overestimated. Furthermore, the reliability of reports from pest control operators is uncertain. Finally, our results, based on calls to public health and pest control operators, reflect self-initiated complaints from affected locations and therefore do not provide population-based data on the prevalence of bed bug infestations.

In conclusion, our study documents the broad extent of bed bug infestations in an urban environment. This problem could have a substantial adverse effect on health and quality of life, particularly among persons who use homeless shelters. Physicians should be aware of the typical dermatologic signs and symptoms of bed bug bites, which may become increasingly common in the future. Further research is needed to determine the geographic extent of the current reemergence of bed bugs in the industrialized world and the prevalence and risk factors for bed bug infestations in the general population, including those living in both congregate and noncongregate housing.

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Dr. Hwang is a research scientist at the Centre for Research on Inner City Health, St. Michael's Hospital, and an assistant professor in the Faculty of Medicine, University of Toronto. His research focuses on homelessness and health, access to health care among marginalized inner-city populations, and other issues related to poverty and health.

References

1. Elston DM, Stockwell S. What's eating you? Bed bugs. *Cutis*. 2000;65:262–4.
2. Gbakima AA, Terry BC, Kanja F, Korteque S, Dukuley I, Sahr F. High prevalence of bed bugs *Cimex hemipterus* and *Cimex lectularius* in camps for internally displaced persons in Freetown, Sierra Leone: a pilot humanitarian investigation. *West Afr J Med*. 2002;21:268–71.
3. Newberry K, Jansen EJ. The common bed bug *Cimex lectularius* in African huts. *Trans R Soc Trop Med Hyg*. 1986;80:653–8.
4. Ryan ET, Wilson ME, Kain KC. Illness after international travel. *N Engl J Med*. 2002;347:505–16.
5. Draper B. Bedbugs make a comeback [article on the Internet]. CBSNews.com. 2003 Sep 29 [cited 2004 Aug 24]. Available from <http://www.cbsnews.com/stories/2003/09/29/health/printable575757.shtml>
6. Paul J, Bates J. Is infestation with the common bed bug increasing? *BMJ*. 2000;320:1141.
7. Bugs crawling back into Canadian beds [article on the Internet]. CBC News. 2003 Nov 24 [cited 2004 Aug 24]. Available from http://www.cbc.ca/stories/2003/11/24/canada/bed_bugs031124
8. Sleeping with the enemy [article on the Internet]. CBSNews.com. 2001 Jul 25 [cited 2004 Aug 24]. Available from <http://www.cbsnews.com/stories/2001/07/25/national/main303300.shtml>
9. Boase C. Bed bugs—back from the brink. *Pesticide Outlook*. 2001;12:159–62.
10. Krueger L. Don't get bitten by the resurgence of bed bugs. *Pest Control*. 2000;68:58–64.
11. Thanakaram S. Bullous eruption due to *Cimex lectularius*. *Clin Exp Dermatol*. 1999;24:241–2.
12. Brouqui S, Lascola B, Roux V, Raoult D. Chronic *Bartonella quintana* bacteremia in homeless patients. *N Engl J Med*. 1999;340:184–9.
13. Goddard J. Bed bugs bounce back—but do they transmit disease? *Infect Med*. 2003;20:473–4.
14. Jupp PG, Prozesky OW, McElligott SE, Van Wyk LA. Infection of the common bed bug (*Cimex lectularius* L.) with hepatitis B virus in South Africa. *S Afr Med J*. 1978;53:598–600.
15. Jupp PG, McElligott SE. Transmission experiments with hepatitis B surface antigen and the common bed bug (*Cimex lectularius* L.). *S Afr Med J*. 1979;56:54–7.
16. Jupp PG, McElligott SE, Lecatsas G. The mechanical transmission of hepatitis B virus by the common bed bug (*Cimex lectularius* L.) in South Africa. *S Afr Med J*. 1983;63:77–81.
17. Jupp PG, Purcell RH, Phillips JM, Shapiro M, Gerin JL. Attempts to transmit hepatitis B virus to chimpanzees by arthropods. *S Afr Med J*. 1991;79:320–2.
18. Silverman AL, Qu LH, Blow J, Zitron IM, Gordon SC, Walker ED. Assessment of hepatitis B virus DNA and hepatitis C virus RNA in the common bed bug (*Cimex lectularius* L.) and kissing bug (*Rodnius prolixus*). *Am J Gastroenterol*. 2001;96:2194–8.
19. Mayans MV, Hall AJ, Inskip HM, Lindsay SW, Chotard J, Mendy M, et al. Do bed bugs transmit hepatitis B? *Lancet*. 1994;343:761–3.
20. Lyons SF, Jupp PG, Schoub BD. Survival of HIV in the common bed bug. *Lancet*. 1986;2:45.

RESEARCH

21. Jupp PG, Lyons SF. Experimental assessment of bed bugs (*Cimex lectularius* and *Cimex hemipterus*) and mosquitoes (*Aedes aegypti formosus*) as vectors of human immunodeficiency virus. *AIDS*. 1987;1:171-4.
22. Webb PA, Happ CM, Maupin GO, Johnson BJ, Ou CY, Monath TP. Potential for insect transmission of HIV: experimental exposure of *Cimex hemipterus* and *Toxorhynchites amboinensis* to human immunodeficiency virus. *J Infect Dis*. 1989;160:970-7.

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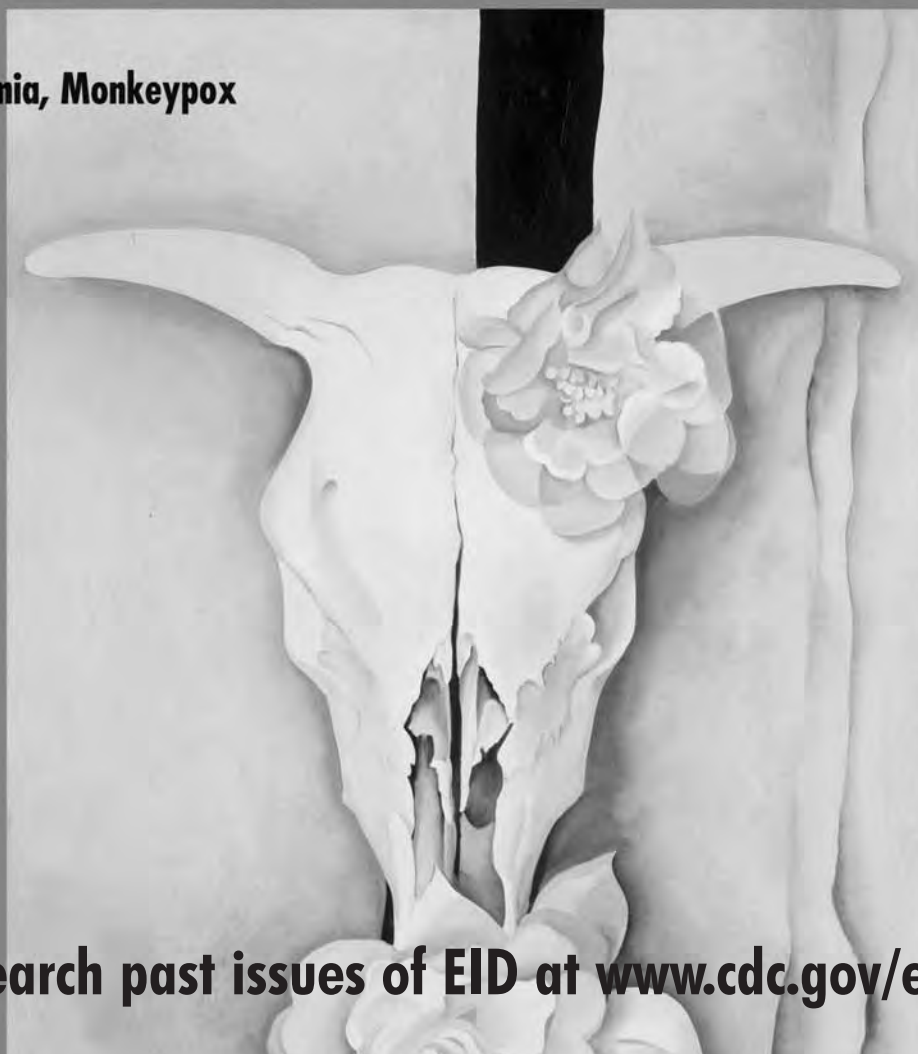
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Active Tuberculosis among Homeless Persons, Toronto, Ontario, Canada, 1998–2007

Kamran Khan, Elizabeth Rea, Cameron McDermaid, Rebecca Stuart, Catharine Chambers, Jun Wang, Angie Chan, Michael Gardam, Frances Jamieson, Jae Yang, and Stephen W. Hwang

While tuberculosis (TB) in Canadian cities is increasingly affecting foreign-born persons, homeless persons remain at high risk. To assess trends in TB, we studied all homeless persons in Toronto who had a diagnosis of active TB during 1998–2007. We compared Canada-born and foreign-born homeless persons and assessed changes over time. We identified 91 homeless persons with active TB; they typically had highly contagious, advanced disease, and 19% died within 12 months of diagnosis. The proportion of homeless persons who were foreign-born increased from 24% in 1998–2002 to 39% in 2003–2007. Among foreign-born homeless persons with TB, 56% of infections were caused by strains not known to circulate among homeless persons in Toronto. Only 2% of infections were resistant to first-line TB medications. The rise in foreign-born homeless persons with TB strains likely acquired overseas suggests that the risk for drug-resistant strains entering the homeless shelter system may be escalating.

In Canada's major cities, tuberculosis (TB) is increasingly becoming a disease of persons born outside Canada (foreign-born). In 2009 in the city of Toronto in Ontario, 94% of all persons with active TB were foreign-born (1). Although homeless and marginally housed persons represent a smaller proportion of TB case-patients, they remain a persistent high-risk population. Recent TB outbreaks and disease clusters among homeless persons

have been reported in many cities in the United States (2–5) and have been associated with transmission at shelters, single-room-occupancy hotels, and rooming houses (which provide inexpensive rooms with shared bathrooms), prisons, and bars (6–10).

Toronto is the largest city in Canada; among its population of 2.5 million persons, ≈50% were born outside Canada (11). Each year in Toronto, ≈29,000 persons use emergency shelters, and on any given night ≈5,000 are without homes (12). During 2001–2002, a large shelter-based TB outbreak occurred among homeless persons in Toronto. A coroner's inquest into the death of a homeless man in whom pulmonary TB developed during the course of this outbreak revealed the many challenges of diagnosing and managing TB in homeless populations (13). In response to the inquest and resulting jury recommendations, major changes to the management of homeless TB cases occurred in the public health and shelter systems, and local TB clinic capacity expanded. This case resulted in the creation of a public health team dedicated to case management, contact follow-up, advocacy, education, health promotion, and active case finding among the city's homeless and underhoused population.

A comprehensive review of the population and molecular epidemiology, clinical features, management and health outcomes of homeless persons with TB in Canada is needed but lacking. To better understand and address the extent of disease in this vulnerable population, we studied TB among Toronto's homeless persons over a 10-year period.

Methods

The study population included all persons in Toronto for whom active TB had been reported to Toronto Public Health from January 1, 1998, through December 31,

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2007. Data were extracted from the Reportable Disease Information System and the Integrated Public Health Information System for all case-patients with a risk setting of “shelter/rooming house” or a risk factor of “homeless.” Health case management files were reviewed to ensure accuracy of database entries; additional data were abstracted when necessary. Cases were included in the analysis for persons with active TB who met the following eligibility criteria in the year before diagnosis: 1) any shelter stay, 2) any rooming house stay, 3) no fixed address, or 4) use of services for homeless persons $>1\times$ per week. Cases were excluded for persons with active TB who 1) were foreign-born and received a diagnosis of active TB within 1 month of arrival in Canada, 2) received a diagnosis of active TB while in a shelter designed exclusively for resettlement of newly arrived refugees, 3) were not residents of Toronto when they received a diagnosis of active TB, or 4) had incomplete records.

We collected data on patient demographics, clinical features of TB disease, medical management and health outcomes of patients, and molecular fingerprinting of the TB bacterium. Case types were classified according to the Public Health Agency of Canada definition of new and re-treatment TB cases (14). All chest radiographs were interpreted by radiologists. Susceptibility testing for *Mycobacterium tuberculosis* was performed at the Central Public Health Laboratory of the Ontario Agency for Health Protection and Promotion. All isolates from new TB cases were tested for susceptibility to first-line drugs (isoniazid, rifampin, pyrazinamide, and ethambutol) according to recommended standard protocols, by using the commercial broth system, BACTEC MGIT 960 (Becton, Dickinson and Company, Sparks, MD, USA). Isolates resistant to rifampin or any 2 first-line drugs were also tested for susceptibility to second-line drugs (15). Restriction fragment-length polymorphism was performed for strain genotyping by using established methods (16). Genotypes were analyzed by using Bionumerics 5.0 (Applied Maths, Saint-Martens Latem, Belgium). HIV test results were recorded when available; information about use of antiretroviral therapy for HIV/TB-co-infected patients was not available.

Comparisons were made between Canada-born and foreign-born case-patients and between 5-year periods (1998–2002 and 2003–2007) using the 2-sided Fisher exact test or χ^2 test, as appropriate. Kaplan-Meier plots were generated to determine time to death from all causes during the 12 months after TB diagnosis. The log-rank test was used to compare survival curves between the 2 groups. Because of the small cohort size, multivariate regression analyses were not performed. All analyses were performed by using SAS version 9.1.3 (SAS Institute, Cary, NC, USA). Ethics approval was obtained from St. Michael's Hospital Research Ethics Board.

Results

From January 1, 1998, through December 31, 2007, a total of 3,685 active TB cases were reported to Toronto Public Health; among these, 102 (2.8%) met the study inclusion criteria. Incomplete records for 11 patients resulted in a final sample size of 91 (Figure 1). Most patients were absolutely homeless (i.e., living on the street or in a shelter); 86 (95%) patients reported staying in a shelter, having no fixed address, and/or using services for homeless persons $>1\times$ per week. Five (5%) patients did not fall into any of these categories but had lived in a rooming house during the past year. Birthplace was available for 88 patients; nearly one third ($n = 28$; 32%) were born outside Canada (Table 1). The proportion of foreign-born patients increased over time from 24% ($n = 10$) in 1998–2002 to 39% ($n = 18$) in 2003–2007 (Table 2). Among the Canada-born homeless persons with TB, 13 (22%) were Aboriginal. The number of reported cases of active TB over the study period by place of birth is shown in Figure 2. Approximately equal numbers of cases were reported during the 2 periods: 44 (48%) during 1998–2002 and 47 (52%) during 2003–2007.

Demographic information, clinical characteristics, and concurrent medical conditions for patients are presented in Tables 2 and 3. Homeless persons with TB were often highly contagious at the time of diagnosis, as demonstrated by the large proportion of patients who had cavitating pulmonary disease and sputum smears with numerous acid-fast bacilli. The median duration of symptoms for persons with pulmonary disease before diagnosis was 2.5 months (interquartile range 0.6–3.1 months). Pulmonary disease was found in 67 (74%) patients, among whom 29 (46%) showed numerous acid-fast bacilli in sputum smear. The proportion of pulmonary TB patients with cavitary disease

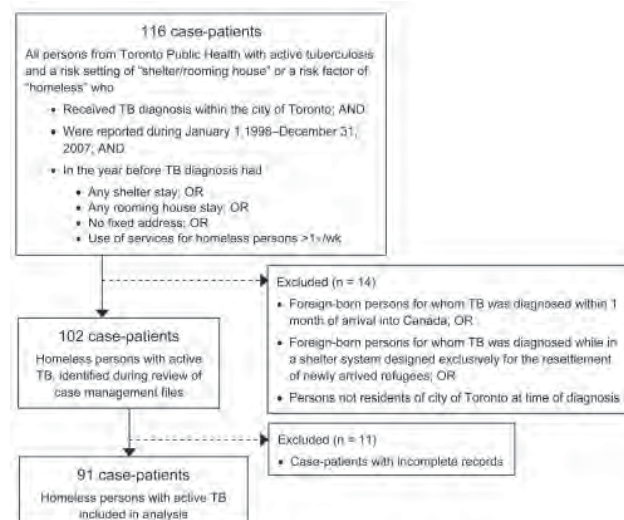


Figure 1. Inclusion–exclusion criteria for study of active tuberculosis (TB) in homeless persons, Toronto, Ontario, Canada, 1998–2007.

Table 1. Country of origin for 28 foreign-born homeless persons with tuberculosis, Toronto, Ontario, Canada, 1998–2007

Country	No.
Burundi	1
Chile	1
China*	1
Costa Rica	1
Ethiopia*	2
Germany	1
Guyana	2
India*	2
Iraq	1
Ireland	2
Nepal	1
Nigeria*	1
Philippines*	1
Poland	1
Somalia	2
Tanzania*	1
Tibet	1
Turkey	1
Uganda*	2
United Kingdom	1
Yemen	1
Former Yugoslavia	1
Zimbabwe*	2

*1 of 22 countries that account for 80% of all new of tuberculosis cases annually (high-burden countries).

increased over time from 14% (n = 5) in 1998–2002 to 32% (n = 11) in 2003–2007.

In terms of treatment information and outcomes, 75% of homeless persons with TB started treatment within 4 days of diagnosis (median 1 day; interquartile range 0–4 days) (Table 4). Most patients received closely monitored treatment within hospitals or as outpatients under directly observed therapy (DOT) (median treatment duration 2.0 and 6.2 months, respectively); few received self-administered therapy for any substantial period of time. Only 1 patient required a court order for treatment in a TB sanitarium.

Almost 1 of 5 (n = 17; 19%) patients died (from any cause) within 12 months of diagnosis (Table 4); most (n = 12; 86%) patients who died were born in Canada; 4 were HIV positive, 1 was HIV negative, and the remaining 12 had unknown HIV status. Among patients who survived, most (n = 70; 96%) homeless persons with TB successfully completed treatment and only 3 were lost to follow-up or refused further care. Probability of survival during the 12 months after diagnosis was lower for Canada-born versus foreign-born homeless persons (p = 0.06; Figure 3). No changes in survival probabilities were seen between the 2 periods, 1998–2002 and 2003–2007 (data not shown).

TB isolates were genotyped and tested for antimicrobial drug resistance (Table 5). Of the 4 strains known to circulate among Toronto's homeless population (A, B, C, or D), isolates from ~90% of Canada-born patients belonged to one of these strains, and isolates from >50% of foreign-

born patients belonged to none of them. The proportion of isolates not belonging to these 4 strains increased over time, from 14% (n = 4) during 1998–2002 to 32% (n = 12) during 2003–2007. Almost all (n = 84; 98%) isolates were susceptible to first-line TB medications. Only 2 isolates demonstrated evidence of antimicrobial drug resistance: 1, from a Canada-born patient, was resistant to ethambutol only, and 1, from a foreign-born patient, was resistant to isoniazid only.

Discussion

Homeless persons in our cohort received nearly all health care services for TB in hospital or under careful observation in the outpatient environment. All outpatients received DOT, were accompanied by public health staff to all clinic visits, and received intensive social assistance. Despite these efforts, all-cause mortality rates for our cohort were extremely high. Among Canada-born homeless persons with TB in our study, 20% died within 1 year of their diagnosis; in comparison, among all persons with TB in Toronto during 1999–2002, only 7.4% died (17). All-cause mortality rates for homeless populations in general are disproportionately high; rates among men who use shelters in Toronto are 2–8× higher than rates for the general population (18). Homeless persons often have more concurrent medical conditions (e.g., HIV, liver disease), mental health conditions (e.g., schizophrenia), and/or dependence on substances, any of which may raise their risk for primary or reactivated TB, complicate delivery of health services, and negatively affect treatment outcomes.

Our findings reflect the increased rates of illness and death among homeless persons and suggest that urgent measures are needed to improve TB treatment outcomes for this vulnerable population. Recent research suggests that homeless immigrants in Toronto are in general healthier and possess fewer concurrent illnesses than Canada-born homeless persons, which may explain the lower prevalence of concurrent illnesses among foreign-born TB patients and the differences in mortality rates according to place of birth (19).

Homeless TB patients represent ~3% of all TB patients in Toronto, of which a growing proportion are foreign-born, likely reflecting the changing demographics in the city overall and in the homeless population itself. Our findings suggest that Canada-born patients with TB were more likely to be infected with strains known to circulate within shelters and other social networks in Toronto. In contrast, active TB in foreign-born patients was more likely to result from reactivation of latent infection with strains acquired overseas (20,21).

To date, drug resistance among homeless TB patients is rare; laboratory evidence of drug resistance

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Table 2. Demographic and clinical characteristics of 91 homeless persons with tuberculosis, Toronto, Ontario, Canada, 1998–2007*

Characteristic	All persons, no. (%)	Canada born, no. (%)	Foreign born, no. (%)	p value†	1998–2002, no. (%)	2003–2007, no. (%)	p value‡
Median age, y (IQR)	47 (38–56)	49 (42–58)	38 (30–50)	–	45 (38–59)	48 (40–54)	–
Male sex	81 (89)	53 (88)	25 (89)	1.00	40 (91)	41 (87)	0.74
Origin							0.15
Canada born, not Aboriginal	47 (53)	47 (78)	NA		27 (64)	20 (43)	
Canada born, Aboriginal	13 (15)	13 (22)	NA		5 (12)	8 (17)	
Foreign born	28 (32)	NA	28 (100)		10 (24)	18 (39)	
Case type				0.43			1.00
New	83 (91)	53 (88)	27 (96)		40 (91)	43 (91)	
Re-treated§	8 (9)	7 (12)	1 (4)		4 (9)	4 (9)	
Method of detection				–			–
Signs and symptoms	51 (56)	30 (50)	18 (64)		23 (52)	28 (60)	
Contact tracing	19 (21)	16 (27)	3 (11)		11 (25)	8 (17)	
Diagnosis while under care for other condition	8 (9)	8 (13)	0		4 (9)	4 (9)	
Immigration screening	6 (7)	NA	6 (21)		6 (14)	0	
Active case finding (sputum screening)	3 (3)	3 (5)	0		NA	3 (6)	
Jail	1 (1)	1 (2)	0		0	1 (2)	
Other¶	3 (3)	2 (3)	1 (4)		0	3 (6)	
Site(s) of infection				1.00			0.15
Pulmonary only	67 (74)	45 (75)	21 (75)		33 (75)	34 (72)	
Extrapulmonary only	21 (23)	13 (22)	6 (21)		8 (18)	13 (28)	
Pulmonary and extrapulmonary	3 (3)	2 (3)	1 (4)		3 (7)	0	
Chest radiograph at diagnosis#							0.08
No abnormalities	9 (13)	7 (15)	2 (9)	0.86	7 (19)	2 (5)	
Abnormal without cavitation	45 (65)	30 (64)	15 (68)		24 (67)	21 (62)	
Abnormal with cavitation	15 (22)	10 (21)	5 (23)		5 (14)	11 (32)	
Self-reported symptoms	73 (80)	50 (83)	20 (71)	0.26	34 (77)	39 (83)	0.60
Median time from symptom onset to diagnosis, mo (IQR)	1.9 (0.6–3.1)	1.8 (0.6–2.6)	2.6 (0.8–5.8)	–	1.8 (0.6–3.1)	2.2 (0.6–3.2)	–
Sputum smear results at diagnosis**				0.39			0.58
Negative	21 (33)	12 (29)	9 (43)		12 (40)	9 (27)	
Scarce/moderate	13 (21)	8 (20)	5 (24)		5 (17)	8 (24)	
Numerous	29 (46)	21 (51)	7 (33)		13 (43)	16 (49)	
Method of diagnosis				0.59			0.18
Positive culture	86 (95)	55 (92)	28 (100)		40 (91)	46 (98)	
Positive AMTD	3 (3)	3 (5)	0		3 (7)	0	
Clinical	2 (2)	2 (3)	0		1 (2)	1 (2)	

*Birthplace information available for 88 persons. IQR, interquartile range; NA, not applicable; –, no statistical test performed; AMTD, amplified *Mycobacterium tuberculosis* direct test.

†Probability of a significant difference between Canada-born and foreign-born persons for each variable; calculated by using the 2-sided Fisher exact test or χ^2 test, as appropriate.

‡Probability of a significant difference between the 2 periods for each variable; calculated by using the 2-sided Fisher exact test or χ^2 test, as appropriate.

§Public Health Agency of Canada definition: documented evidence or adequate history of previously active tuberculosis (TB) that was declared cured or treatment completed by current standards, AND at least 6 mo have passed since the last day of previous treatment, AND a diagnosis with a subsequent episode of TB that meets the active TB case definition.

¶Includes shelter screening, routine screening at other centers, and other detection methods.

#Results for only the 70 persons with pulmonary disease.

**Sputum smears available for 63 patients with pulmonary disease.

was demonstrated for only 2% of homeless TB patients compared with 14% of all culture-positive TB patients in Toronto (1). Because being born outside Canada is a known risk factor for drug-resistant TB, the rise in foreign-born homeless TB patients and the corresponding increase in heterogeneity of strain genotypes are concerning and may pose serious and growing threats to the homeless shelter system (20,22–25). The outbreaks of multidrug

resistant TB in New York City during the 1980s and early 1990s highlight the potential dangers of introducing drug-resistant infections into the shelter system and call for increased prevention and control efforts (26).

Despite the increase in foreign-born homeless persons with TB over time, most homeless TB patients in our sample were Canada-born (68%), a substantial proportion of whom were of Aboriginal origin (22%). By comparison,

Active Tuberculosis among Homeless Persons, Toronto

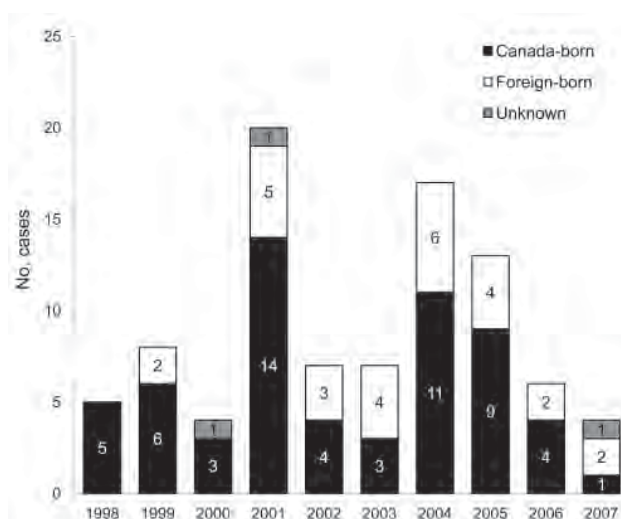


Figure 2. Number of reported cases of active tuberculosis in homeless persons, Toronto, Ontario, Canada, 1998–2007.

in 2008, only 6% of persons with active TB in Toronto were Canada-born (1). Although TB in Canada is primarily a disease of foreign-born persons (14), our results suggest that TB transmission persists among Canada-born inner city homeless populations. These findings also underscore the need to address TB transmission within the homeless shelter system. Furthermore, the disproportionately high prevalence of Canada-born Aboriginal persons in our sample suggests that further efforts are needed to address the high incidence of TB in this population.

Homeless TB patients tend to seek care when disease is advanced and highly contagious, defined by abnormal chest radiographic findings (cavitation) and numerous

acid-fast bacilli in sputum smear. Although many homeless patients had pulmonary disease, the number was proportional to the prevalence of pulmonary disease among all TB patients in Toronto (1). In patients with pulmonary TB, nearly half had numerous acid-fast bacilli in sputum smear. An increasing prevalence of cavitory disease on chest radiographs was observed over time, despite increasing intervention and active case-finding initiatives during the more recent 5-year period of this study. However, the increase in cavitory disease could be related to delays in seeking health care, as indicated by the increase in median time from symptom onset to diagnosis over the 2 periods of the study.

Homeless TB patients often have difficulty accessing the health care system and may prioritize subsistence needs such as food and shelter over health services, especially those perceived as discretionary (27). These factors, as well as cultural and language barriers among foreign-born patients (28,29), may contribute to delays in seeking health care, which lead to advanced disease and hospitalization (27,30,31). For our sample, hospitalization rates were high; >80% of patients were hospitalized. This is noteworthy in Canada, where most TB patients are treated as outpatients, even at the time of diagnosis (32). The inability to isolate infectious homeless patients in outpatient settings such as shelters largely explains the high rate of hospitalization for patients in our sample.

Adherence to treatment is often challenging for patients who are homeless or living in transient, substandard housing and who may have concurrent substance use or mental health problems. Consequently, DOT is usually implemented for homeless persons with TB in Canada (32). In the province of Ontario, all patients with active

Table 3. Concurrent conditions of 91 homeless persons with tuberculosis, Toronto, Ontario, Canada, 1998–2007*

Condition	All persons, no. (%)	Canada born, no. (%)	Foreign born, no. (%)	p value†	1998–2002, no. (%)	2003–2007, no. (%)	p value‡
HIV infection				0.52			0.33
Positive	11 (12)	9 (15)	1 (4)		5 (11)	6 (13)	
Negative	6 (7)	4 (7)	2 (7)		1 (2)	5 (10)	
Unknown	74 (81)	47 (78)	25 (89)		38 (87)	36 (77)	
Psychiatric disease§	10 (11)	7 (12)	2 (7)	0.71	2 (5)	8 (17)	0.09
COPD	8 (9)	7 (12)	0	0.09	6 (14)	2 (4)	0.15
Liver disease¶	29 (32)	24 (40)	4 (14)	0.03	12 (27)	17 (36)	0.38
Cancer	5 (5)	4 (7)	1 (4)	1.00	3 (7)	2 (4)	0.67
Congestive heart failure	1 (1)	0	0	—	1 (2)	0	0.48
Diabetes	11 (12)	5 (8)	5 (18)	0.28	1 (2)	10 (21)	0.01
Chronic alcohol abuse	29 (32)	23 (38)	6 (21)	0.15	12 (27)	17 (36)	0.38
Injection drug use	12 (13)	10 (17)	1 (4)	0.16	6 (14)	6 (13)	1.00
Noninjection drug use	6 (7)	6 (10)	0	0.17	0	6 (13)	0.03
Other	1 (1)	0	1 (4)	0.32	0	1 (2)	1.00

*Birthplace information available for 88 persons. —, no statistical test performed; COPD, chronic obstructive pulmonary disease.

†Probability of a significant difference between Canada-born and foreign-born persons for each variable; calculated by using the 2-sided Fisher exact test or χ^2 test, as appropriate.

‡Probability of a significant difference between the 2 periods for each variable; calculated by using the 2-sided Fisher exact test or χ^2 test, as appropriate.

§Includes schizophrenia, severe mental illness, and dementia.

¶Includes cirrhosis, viral hepatitis B or C.

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Table 4. Treatment-associated characteristics of 91 homeless persons with tuberculosis, Toronto, Ontario, Canada, 1998–2007*

Characteristic	All persons, no. (%)	Canada-born, no. (%)	Foreign born, no. (%)	p value†	1998–2002, no. (%)	2003–2007, no. (%)	p value‡
Days from diagnosis to initiation of treatment, median (IQR)	1 (0–4)	0.5 (0–4)	1 (0–6)	–	1 (0–3)	1 (0–4)	–
Duration of treatment, mo, median (IQR)							
Total	9.9 (6.5–12.7)	10.0 (6.8–12.5)	8.6 (6.0–12.9)	–	9.0 (6.1–12.2)	10.8 (6.7–13.1)	–
Treatment in institution	2.0 (0.2–4.0)	2.4 (0.5–3.9)	0.6 (0–4.2)		0.9 (0.2–3.9)	2.2 (0.0–4.1)	
Treatment under directly observed therapy	6.2 (0.8–8.8)	6.4 (0.9–9.0)	6.0 (2.4–7.2)		5.7 (0.2–7.0)	6.6 (4.5–9.0)	
Treatment by self-administered therapy	0.1 (0.1–0.9)	0.1 (0.1–0.6)	0.3 (0.1–2.1)		0.2 (0.0–1.1)	0.1 (0.1–0.6)	
Admission to hospital	76 (84)	55 (92)	19 (68)	0.01	35 (80)	41 (87)	0.40
Treatment under public health order§	15 (16)	9 (15)	6 (21)	0.55	4 (9)	11 (23)	0.09
Court-ordered detention for treatment¶	1 (1)	1 (2)	0	–	1 (2)	0	–
Outcome#				0.13			0.74
Treatment completed	70 (78)	45 (75)	25 (93)		33 (75)	37 (80)	
Died while receiving treatment**	17 (19)	12 (20)	2 (7)		9 (20)	7 (16)	
Lost to follow-up	2 (2)	2 (3)	0		1 (2)	1 (2)	
Refused further care	1 (1)	1 (2)	0		1 (2)	0	

*Birthplace information available for 88 persons. IQR, interquartile range; –, no statistical test performed.

†Probability of a significant difference between Canada-born and foreign-born persons for each variable; calculated by using the 2-sided Fisher exact test or χ^2 test, as appropriate.‡Probability of a significant difference between the 2 periods for each variable; calculated by using the 2-sided Fisher exact test or χ^2 test, as appropriate.

§Referred to in Ontario as a Section 22.

¶Referred to in Ontario as a Section 35.

#1 patient continues treatment at the time of this report.

**One foreign-born case-patient from 2003–2007 period died 14 mo after onset of treatment. Study considers death from all causes within 12 mo of TB diagnosis. After 12 mo, causes of death other than TB become more relevant; therefore, deaths occurring after 12 mo are not included in this estimate.

TB are eligible to receive either inpatient or outpatient TB treatment, regardless of their insurance coverage. Most patients in our sample received their entire treatment closely monitored within hospitals, with outpatient DOT, or both. A few patients self-administered treatment for short periods. Despite the common perception that homeless TB patients are noncompliant with treatment (33–35), ~80% of patients in our sample completed treatment, which is equivalent to the treatment completion rate for all TB patients in Toronto receiving DOT (1). Intensive case management by public health and clinic staff as well as small incentives and enablers (e.g., food vouchers or cash) helped ensure high completion rates for this population. For most homeless TB patients who did not complete treatment, the reason was that they died; only a few were lost to follow-up or refused further care.

The strength of this study is that it provides a comprehensive description of all cases of TB among homeless persons in a large, ethnically diverse city in Canada over a 10-year period. However, the study also has limitations. Only patients who were residents of the city of Toronto at the time of diagnosis were included in the analysis; consequently, homeless persons with active TB who may have been exposed in Toronto shelters or

rooming houses and later moved elsewhere were not detected. Furthermore, homeless persons with TB were not included in the analysis if they had a history of shelter use >1 year before diagnosis with active TB. As a result, some patients who acquired TB infection while homeless but who subsequently acquired housing may have been missed. Furthermore, our retrospective study used public health surveillance data; consequently, our analyses are subject to limitations in how the data were originally collected. We excluded 14 patients with active TB because their records were incomplete; hence, we were unable to determine whether they differed demographically from included patients. This limitation could have influenced the results of our analyses that were stratified by birthplace.

Molecular fingerprinting data were unavailable for 20 isolates, which may have influenced the genotyping trends we observed over time. Because we were unable to definitively determine the number of patients who died directly or indirectly as a result of TB, the mortality rates represent death from all causes in the year after TB diagnosis. Although our study was conducted in a single metropolitan urban center, our findings and recommendations may be relevant to other large cities where levels of immigration and poverty are high.

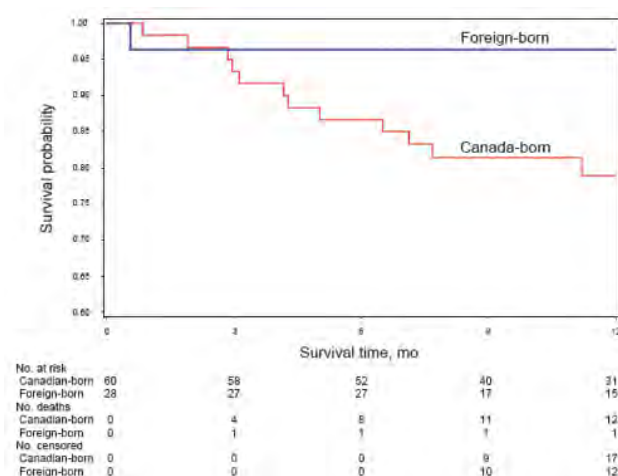


Figure 3. Probability of death from all causes during the 12-month period after tuberculosis diagnosis among Canada-born and foreign-born homeless persons with active tuberculosis, Toronto, Ontario, Canada, 1998–2007. Birthplace information available for 88 persons. Censored are patients who completed treatment for tuberculosis or were lost to follow up.

Prior research among homeless persons in New York City shows decreasing trends in rates of active TB during 1992–2006 and demonstrates that public health prevention and control efforts (e.g., latent TB infection screening) in this population can be effective (36). In our study, several homeless patients were originally identified as tuberculin skin test–positive contacts before active TB developed, but they were unwilling to start treatment for latent TB infection, were deemed poor candidates for treatment because of serious underlying medical or mental health conditions, or could not complete a course of treatment because of adverse drug reactions. Lack of treatment for latent TB occurred despite substantial incentives and enablers for persons to initiate and continue therapy (e.g., cash for attending clinic visits, free passes for taxis or public

transit, use of DOT for latent TB infection). Hence, for this cohort the opportunity to mitigate the risk for development of active TB through the treatment of latent TB infection was limited by the above challenges.

Primary prevention efforts should focus on shelter-based control measures, which have proven effective at reducing person-to-person spread of drug-resistant TB in other urban centers (37). Improved ventilation systems at shelters will help reduce the spread of TB during an outbreak (38,39). Smaller shelter sizes and strategies to reduce mobility (e.g., eliminating length of stay restrictions at shelters) may also help limit the extent of transmission. Additionally, expansion of sustainable housing program for homeless and marginally housed populations will help reduce the number of persons needing to use shelters, subsequently decreasing the likelihood of TB exposure at these congregate settings.

Control of TB in homeless populations within Canada will require further progress in primary prevention (e.g., improved ventilation and other infection control measures in shelters), secondary prevention (e.g., earlier detection and treatment of TB infection or disease through greater access to primary care), and tertiary prevention (e.g., treatment of active TB by health care providers with experience treating TB in homeless persons) (17). Furthermore, Canada's interconnectedness with the global community, and consequent interdependence with global TB, necessitates continued vigilance to confront the emerging threat of drug-resistant TB in the world (40).

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Table 5. Characteristics of isolates from 91 homeless persons with tuberculosis, Toronto, Ontario, Canada, 1998–2007*

Characteristic	Culture-confirmed case, no. (%)	Canada-born, no. (%)	Foreign born, no. (%)	p value†	1998–2002, no. (%)	2003–2007, no. (%)	p value‡
RFLP type				<0.001			0.13
Strain A	32 (48)	25 (52)	6 (38)		17 (59)	15 (41)	
Strain B	8 (12)	7 (15)	1 (6)		3 (10)	5 (14)	
Strain C	7 (11)	7 (15)	0		5 (17)	2 (5)	
Strain D	3 (5)	3 (6)	0		0	3 (8)	
Other strain	16 (24)	6 (13)	9 (56)		4 (14)	12 (32)	
Not tested	20	7	12		11	9	
Antimicrobial drug resistance				1.00			0.21
No	84 (98)	54 (98)	27 (96)		38 (95)	46 (100)	
Yes§	2 (2)	1 (2)	1 (4)		2 (5)	0	

*Birthplace information available for 88 persons. RFLP, restriction fragment-length polymorphism.

†Probability of a significant difference between Canada-born and foreign-born persons for each variable; calculated by using the 2-sided Fisher exact test or χ^2 test, as appropriate.

‡Probability of a significant difference between the 2 periods for each variable; calculated by using the 2-sided Fisher exact test or χ^2 test, as appropriate.

§Represents 1 Canada-born person whose isolate was resistant to ethambutol only and 1 foreign-born case whose isolate was resistant to isoniazid only.

RESEARCH

Toronto. His clinical and research interests pertain to TB and other infectious diseases affecting immigrant and refugee populations.

References

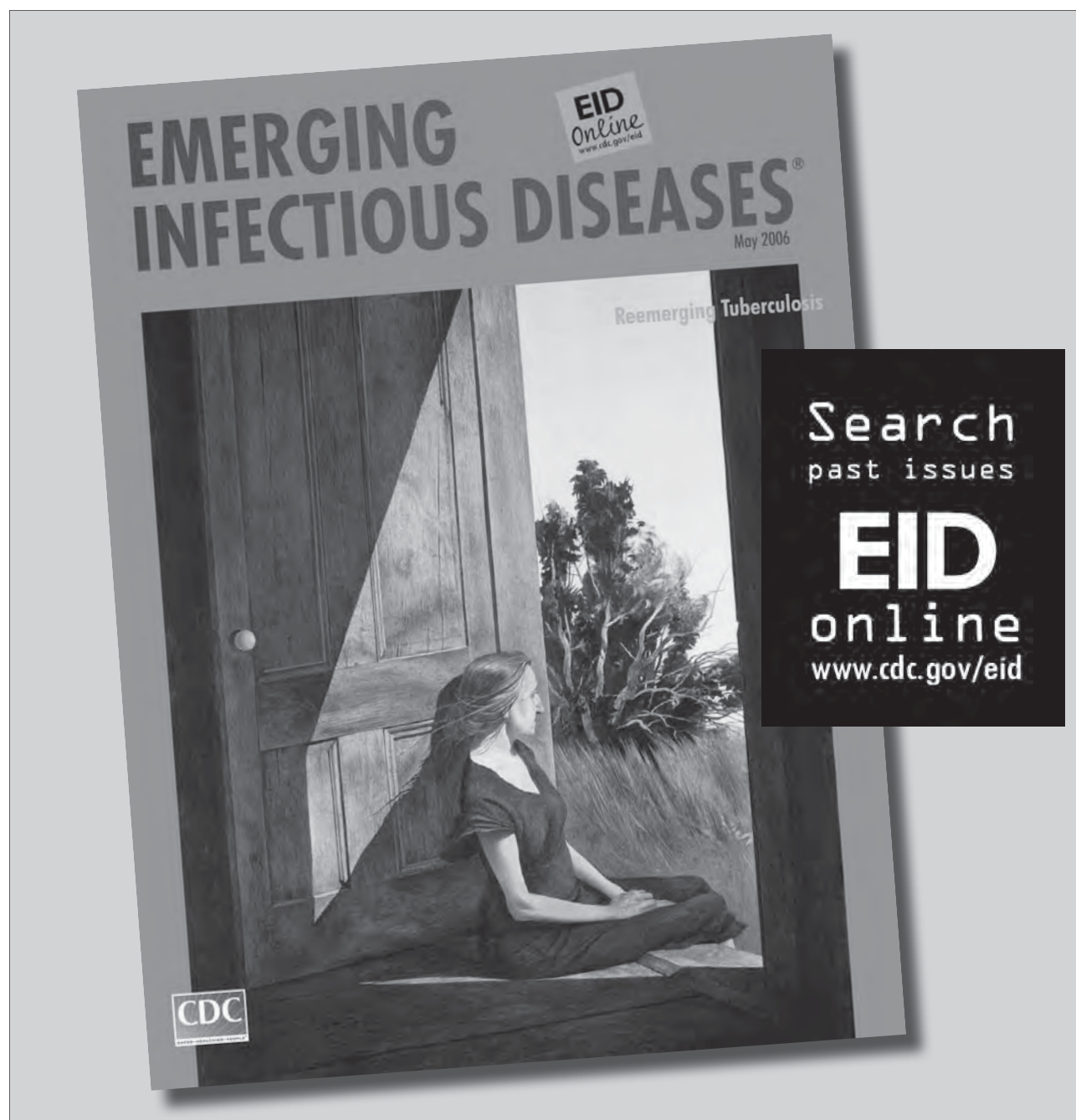
1. Diseases transmitted by direct contact and respiratory routes. Communicable diseases in Toronto, 2009. Toronto: Toronto Public Health; 2009 [cited 2011 Jan 11]. http://www.toronto.ca/health/cdc/communicable_disease_surveillance/statistics_and_reports/annual_reports/pdf/2009/2009_direct_contact_resp_report.pdf
2. Centers for Disease Control and Prevention. Public health dispatch: tuberculosis outbreak among homeless persons—King County, Washington, 2002–2003. *MMWR Morb Mortal Wkly Rep.* 2003;52:1209–10.
3. Centers for Disease Control and Prevention. Public health dispatch: tuberculosis outbreak in a homeless population—Portland, Maine, 2002–2003. *MMWR Morb Mortal Wkly Rep.* 2003;52:1184.
4. Centers for Disease Control and Prevention. Tuberculosis transmission in a homeless shelter population—New York, 2000–2003. *MMWR Morb Mortal Wkly Rep.* 2005;54:149–52.
5. McElroy PD, Southwick KL, Fortenberry ER, Levine EC, Diem LA, Woodley CL, et al. Outbreak of tuberculosis among homeless persons coinfecting with human immunodeficiency virus. *Clin Infect Dis.* 2003;36:1305–12. DOI: 10.1086/374836
6. Lathan M, Mukasa LN, Hooper N, Golub J, Baruch N, Mulcahy D, et al. Cross-jurisdictional transmission of *Mycobacterium tuberculosis* in Maryland and Washington, DC, 1996–2000, linked to the homeless. *Emerg Infect Dis.* 2002;8:1249–51.
7. Lukacs J, Tubak V, Mester J, David S, Bartfai Z, Kubica T, et al. Conventional and molecular epidemiology of tuberculosis in homeless patients in Budapest, Hungary. *J Clin Microbiol.* 2004;42:5931–4. DOI: 10.1128/JCM.42.12.5931-5934.2004
8. Macarraig M, Agerton T, Driver CR, Munsiff SS, Abdelwahab J, Park J, et al. Strain-specific differences in two large *Mycobacterium tuberculosis* genotype clusters in isolates collected from homeless patients in New York City from 2001 to 2004. *J Clin Microbiol.* 2006;44:2890–6. DOI: 10.1128/JCM.00160-06
9. Moss AR, Hahn JA, Tulsy JP, Daley CL, Small PM, Hopewell PC. Tuberculosis in the homeless. A prospective study. *Am J Respir Crit Care Med.* 2000;162:460–4.
10. Barnes PF, Yang Z, Pogoda JM, Preston-Martin S, Jones BE, Otaya M, et al. Foci of tuberculosis transmission in central Los Angeles. *Am J Respir Crit Care Med.* 1999;159:1081–6.
11. 2006 Census: immigration and citizenship. Release no. 4. Ottawa (Canada): Statistics Canada; 2007 Dec 31 [cited 2010 Jan 21]. <http://www12.statcan.gc.ca/census-recensement/2006/rt-td/immcit-eng.cfm>
12. The City of Toronto. The Toronto report card on housing and homelessness 2003 [cited 2010 Dec 31]. <http://www.toronto.ca/homelessness/pdf/reportcard2003.pdf>
13. Government of Ontario. Verdict of coroner's jury. Teigesser, Joseph. Nov 17, 2003– May 7, 2004. Toronto: Office of the Chief Coroner, Ministry of Community Safety and Correctional Services, Government of Ontario; 2004.
14. Ellis E, Dawson K, Gallant V, Saunders A, Scholten D. Tuberculosis in Canada. Ottawa (Ontario, Canada): Public Health Agency of Canada; 2007.
15. Clinical and Laboratory Standards Institute (CLSI, formerly NCCLS). Susceptibility testing of mycobacteria, nocardiae, and other aerobic actinomycetes; approved standard. NCCLS document M24-A. Wayne (PA): The Institute; 2003.
16. Van Embden JD, Cave MD, Crawford JT, Dale JW, Eisenach KD, Gicquel B, et al. Strain identification of *Mycobacterium tuberculosis* by DNA fingerprinting: recommendations for a standardized methodology. *J Clin Microbiol.* 1993;31:406.
17. Khan K, Campbell A, Wallington T, Gardam M. The impact of physician training and experience on the survival of patients with active tuberculosis. *CMAJ.* 2006;175:749–53. DOI: 10.1503/cmaj.060124
18. Hwang SW. Mortality among men using homeless shelters in Toronto, Ontario. *JAMA.* 2000;283:2152–7. DOI: 10.1001/jama.283.16.2152
19. Chiu S, Redelmeier DA, Tolomiczenko G, Kiss A, Hwang SW. The health of homeless immigrants. *J Epidemiol Community Health.* 2009;63:943–8. DOI: 10.1136/jech.2009.088468
20. Long R, Sutherland K, Kunitomo D, Cowie R, Manfreda J. The epidemiology of tuberculosis among foreign-born persons in Alberta, Canada, 1989–1998: identification of high-risk groups. *Int J Tuberc Lung Dis.* 2002;6:615–21.
21. McKenna MT, McCray E, Onorato I. The epidemiology of tuberculosis among foreign-born persons in the United States, 1986 to 1993. *N Engl J Med.* 1995;332:1071–6. DOI: 10.1056/NEJM199504203321606
22. Rivest P, Tannenbaum T, Bedard L. Epidemiology of tuberculosis in Montreal. *CMAJ.* 1998;158:605–9.
23. Hersi A, Elwood K, Cowie R, Kunitomo D, Long R. Multidrug-resistant tuberculosis in Alberta and British Columbia, 1989 to 1998. *Can Respir J.* 1999;6:155–60.
24. Tuberculosis Prevention and Control, Public Health Agency of Canada. Drug-resistant tuberculosis among the foreign-born in Canada. *Can Commun Dis Rep.* 2005;31:4446–52.
25. Long R, Fanning EA, Cowie RL, Hoepfner V, Fitzgerald M. Anti-tuberculosis drug resistance in western Canada (1993 to 1994). *Can Respir J.* 1997;4:71–5.
26. Frieden TR, Sterling T, Pablos-Mendez A, Kilburn JO, Cauthen GM, Dooley SW. The emergence of drug-resistant tuberculosis in New York City. *N Engl J Med.* 1993;328:521. DOI: 10.1056/NEJM199302253280801
27. Gelberg L, Gallagher TC, Andersen RM, Koegel P. Competing priorities as a barrier to medical care among homeless adults in Los Angeles. *Am J Public Health.* 1997;87:217–20. DOI: 10.2105/AJPH.87.2.217
28. Sherman LF, Fujiwara PI, Cook SV, Bazerman LB, Frieden TR. Patient and health care system delays in the diagnosis and treatment of tuberculosis. *Int J Tuberc Lung Dis.* 1999;3:1088–95.
29. Gardam M, Verma G, Campbell A, Wang J, Khan K. Impact of the patient–provider relationship on the survival of foreign-born outpatients with tuberculosis. *J Immigr Minor Health.* 2009;11:437–45. DOI: 10.1007/s10903-008-9221-8
30. Marks SM, Taylor Z, Burrows NR, Qayad MG, Miller B. Hospitalization of homeless persons with tuberculosis in the United States. *Am J Public Health.* 2000;90:435–8. DOI: 10.2105/AJPH.90.3.435
31. Martell JV, Seitz RS, Harada JK, Kobayashi J, Sasaki VK, Wong C. Hospitalization in an urban homeless population: the Honolulu Urban Homeless Project. *Ann Intern Med.* 1992;116:299–303.
32. Hoepfner VH, Ward H, Elwood K. Treatment of tuberculosis disease and infection. In: Long R, Ellis E, editors. Canadian tuberculosis standards. 6th ed. Ottawa (Ontario, Canada): Tuberculosis Prevention and Control, Public Health Agency of Canada and Canadian Lung Association/Canadian Thoracic Society; 2007. p. 114–143.
33. Borgdorff MW, Veen J, Kalisvaart NA, Broekmans JF, Nagelkerke NJ. Defaulting from tuberculosis treatment in the Netherlands: rates, risk factors and trend in the period 1993–1997. *Eur Respir J.* 2000;16:209–13. DOI: 10.1034/j.1399-3003.2000.16b05.x
34. Burman WJ, Cohn DL, Rietmeijer CA, Judson FN, Sbarbaro JA, Reves RR. Noncompliance with directly observed therapy for tuberculosis. Epidemiology and effect on the outcome of treatment. *Chest.* 1997;111:1168–73. DOI: 10.1378/chest.111.5.1168
35. LoBue PA, Moser KS. Use of isoniazid for latent tuberculosis infection in a public health clinic. *Am J Respir Crit Care Med.* 2003;168:443–7. DOI: 10.1164/rccm.200303-390OC

Active Tuberculosis among Homeless Persons, Toronto

36. McAdam JM, Bucher SJ, Brickner PW, Vincent RL, Lascher S. Latent tuberculosis and active tuberculosis disease rates among the homeless, New York, New York, USA, 1992–2006. *Emerg Infect Dis.* 2009;15:1109–11. DOI: 10.3201/eid1507.080410
37. Frieden TR, Fujiwara PI, Washko RM, Hamburg MA. Tuberculosis in New York City: turning the tide. *N Engl J Med.* 1995;333:229–33. DOI: 10.1056/NEJM199507273330406
38. Canadian Tuberculosis Committee. Housing conditions that serve as risk factors for tuberculosis infection and disease. An Advisory Committee Statement (ACS). *Can Commun Dis Rep.* 2007;33:1–13.
39. Menzies D, Fanning A, Yuan L, FitzGerald JM. Hospital ventilation and risk for tuberculous infection in Canadian health care workers. *Ann Intern Med.* 2000;133:779–89.
40. World Health Organization. The WHO/IUATLD global project on anti-tuberculosis drug resistance surveillance, 2002–2007. Anti-tuberculosis drug resistance in the world. Fourth global report. Geneva: The Organization; 2008 [cited 2011 Jan 11]. http://www.who.int/tb/publications/2008/drs_report4_26feb08.pdf

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Use of trade names is for identification only and does not imply endorsement by the Public Health Service or by the US Department of Health and Human Services.



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ANALYSIS ■ VULNERABLE POPULATIONS

COVID-19 and people experiencing homelessness: challenges and mitigation strategies

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Infectious disease epidemics and pandemics have a disproportionate impact on people experiencing poverty, marginalization, stigmatization and discrimination.¹⁻³ Amid the current coronavirus disease 2019 (COVID-19) pandemic, this disparity is particularly relevant for individuals who experience homelessness. Homeless shelters are an ideal environment for transmission of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) because of shared living spaces, crowding, difficulty achieving physical distancing and high population turnover.⁴ People who are homeless also have a high prevalence of chronic health conditions that increase the risk of poor outcomes if they develop COVID-19.⁵

We discuss the unique effects of COVID-19 on those experiencing homelessness, specific challenges to be addressed and strategies to mitigate disease spread within the homeless population, focusing on emerging trends in North America from the perspective of equity-informed action. We highlight interventions and adaptations that may lessen the adverse impact of the COVID-19 pandemic on people experiencing homelessness.

How has COVID-19 affected the homeless population and its service providers?

Homeless individuals are at increased risk of infection with SARS-CoV-2 owing to their lack of safe housing and conditions in shelter and drop-in facilities.^{1,6} In a shelter population, spread of SARS-CoV-2 may be rapid and the detection of illness delayed because of limited access to health care and social services.^{7,8} The risk of severe COVID-19 is increased for people experiencing homelessness owing to the high prevalence of medical comorbidities including heart disease, respiratory conditions, liver disease and high rates of smoking in homeless populations.⁹⁻¹¹ An increasing proportion of people experiencing homelessness are older than 65 years, a factor that also exacerbates the risk of developing severe COVID-19.¹²

Given these factors, modelling of the potential effect of SARS-CoV-2 among the US homeless population showed a potential peak infection rate of 40%, with an estimated 4.3% of individuals who experience homelessness likely to require admission to

KEY POINTS

- Individuals experiencing homelessness are at increased risk of infection with severe acute respiratory syndrome coronavirus 2 owing to their lack of safe housing and are also at higher risk of severe coronavirus disease 2019 (COVID-19), given the high prevalence of risk factors in homeless populations.
- People experiencing homelessness often find it difficult to adhere to public health directives such as physical distancing, isolation and quarantine because of shelter conditions and other challenges.
- Several cities and regions have taken measures to provide spaces for people experiencing homelessness, to ensure physical distancing, isolation or quarantine; however, service providers must focus on building relationships and rapport, and take a trauma-informed approach to care, to persuade individuals to follow advice.
- Closure of regular services may put people experiencing homelessness at risk of other harms, such as those related to unsafe substance use and intimate partner violence.
- The COVID-19 pandemic has highlighted the importance of housing as a social determinant of health and raises the question of whether current approaches to addressing homelessness should be re-evaluated.

hospital.⁶ Among 408 individuals experiencing homelessness who were in shelters in Boston, Massachusetts, 36% tested positive for SARS-CoV-2.¹³ Rapid transmission has also been reported among staff at shelters, with 1 study showing that 30% of staff working in a Boston shelter tested positive for COVID-19.¹⁴ Projected COVID-19 mortality rates among individuals experiencing homelessness range from 0.3% to 1.9%, which is higher than population averages.⁶

Staff and organizations that provide services for people experiencing homelessness have identified the following particular problems: lack of timely and ongoing public health communications, difficulties in maintaining adequate infection control measures because of limitations in staffing and physical facilities, lack of sufficient personal protective equipment, and challenges to achieving effective screening of clients.¹ Furthermore, the obvious difficulty of maintaining self-isolation or

quarantine in shelters or drop-in sites makes it essential to plan early and proactively to create isolation sites for people experiencing homelessness.¹

What changes to the homeless services sector may reduce the spread of COVID-19?

A framework created by the Canadian Network for Health and Housing for People Experiencing Homelessness notes 6 essential pillars in response to this pandemic: enhanced screening methods, sentinel surveillance, coordination of health and shelter systems, COVID-19 risk stratification, isolation shelters for persons under investigation and cohorting SARS-CoV-2-positive cases for community-based shelter care.¹⁵ Given that homeless people represent a group that is particularly vulnerable to COVID-19, it is prudent to offer homeless people priority testing for SARS-CoV-2.

In keeping with general public health recommendations to prevent the spread of SARS-CoV-2, shelters, meal programs and other organizations that serve individuals experiencing homelessness must create conditions that enable physical distancing. Opening new shelter spaces and increasing spacing between beds has the potential to reduce the risk of spread of SARS-CoV-2.^{7,16} Additional strategies to allow for physical distancing in shelters and drop-in sites include moving individuals who experience homelessness into hotels and motels, which has been implemented by government and shelter personnel in locations such as Montréal, Calgary, Los Angeles and the Region of Peel in Ontario.¹⁷⁻²⁰ Such efforts require commitment to additional funding and human resources.

Seattle reportedly created 1893 new spaces in shelter services to address the unique needs of individuals experiencing homelessness,¹⁶ including increased number of beds in emergency shelters (95 beds), access to areas for physical distancing (709 expansion spaces), areas for isolation or quarantine (432 beds) and areas designed for recovery (612 beds).¹⁶ A dedicated site for individuals with COVID-19 and experiencing homelessness was created in the Region of Peel and in Toronto, Canada, to allow for isolation along with health and social support care.^{7,20}

What special challenges arise in the management of people who are suspected of having or confirmed to have COVID-19?

Intersecting factors such as mental illness, substance use, involvement in sex work and distrust of service providers may contribute substantially to difficulties faced by individuals in engaging with pandemic-specific protocols.⁴ Additional challenges include limited access to health or social services.⁴ Screening and treatment services such as primary care clinics may have been less accessible for individuals experiencing homelessness. The transient nature of homeless populations adds further complexities with respect to contact tracing to contain the spread of SARS-CoV-2 and reduce community transmission.⁴ Additionally, the limited availability of services relative to the needs of the population poses major constraints on control

efforts, as inadequate resources (e.g., space and personal protective equipment) make enforcing public health protocols extremely difficult at many shelters.^{7,8}

Individuals experiencing homelessness who do not adhere to advice to self-isolate or quarantine pose a particular challenge. When individuals with SARS-CoV-2 re-enter the community, risk of disease transmission is high. Absent legal and restrictive measures to address this issue, health and social homeless service providers must focus on building relationships and rapport, and take a trauma-informed approach to care, to persuade individuals to follow advice.

As discussed, individuals experiencing homelessness are likely to be at high risk for clinically severe COVID-19 yet are also unlikely to have engaged in any advance care planning. However, as a result of alienation from the health care system, many individuals experiencing homelessness may resist transfer to hospital if their condition deteriorates. Work is under way to establish consistent protocols for advance care planning for homeless people before admission to COVID-19 sites. Clinicians caring for this population should be trained and equipped to provide pandemic palliative care, including compassionate and trauma-informed end-of-life care.²¹

How might physical distancing and isolation interventions negatively affect individuals experiencing homelessness?

Physical distancing has substantial negative implications for individuals who are homeless or precariously housed. Abrupt closure of drop-in services and community centres, and resulting disruption in social relationships and support, may lead to deterioration in mental health for many. Similarly, reduced access to public spaces such as libraries, community centres and malls, and a reduction in resources such as peer counselling services, disproportionately affect individuals experiencing homelessness.

Among individuals who are experiencing homelessness and have substance use disorders, the added stress imposed by the closures of related services may contribute to increased alcohol or drug use and high rates of substance-related morbidity or mortality.^{22,23} For individuals who are opioid dependent, experiences of physical distancing and the resulting limited supply of opioid products may increase risks of overdose because of intermittent use and loss of drug tolerance. Reduced access to supervised consumption services increases risk of harms associated with unsafe drug use, including acquisition of blood-borne infections such as HIV and hepatitis C.²³

For many individuals who experience homelessness, sources of income include activities such as panhandling or sex work. Among women, girls and gender-diverse people, engaging in sex work or survival sex is often necessary to maintain shelter or to avoid intimate partner violence.²⁴ With physical distancing in place, individuals may have a reduced ability to engage in these activities and therefore may suffer substantial loss of income. Furthermore, homeless women and gender-diverse people may be at increased risk of experiencing intimate partner violence during the pandemic.

Individuals who experience homelessness are also likely to face criminalization of their daily life. For example, it is difficult, if not impossible, for homeless individuals to avoid infractions of physical distancing orders when they line up to enter a shelter or meal program or when they sit on a park bench. Homeless people in both Canada and the US have reportedly received fines ranging from \$500 to \$10 000 for such violations,²⁵ which is highly problematic.²⁵

How can COVID-19 care for individuals who experience homelessness be made more equitable?

As described above, interventions that are designed to house, isolate and treat people experiencing homelessness can begin to address the challenges, yet gaps remain. Programs and policies for addressing COVID-19 should be developed with and by Indigenous organizations to ensure that stigmatization, racism and ongoing colonialization experienced by Indigenous people is not compounded by public health approaches to the pandemic and that the unique needs of Indigenous people experiencing homelessness are met.

Health, social and government agencies must collaborate in a coordinated approach when developing and implementing services within the homeless sector. Funding is needed to ensure adequate supply of resources such as personal protective equipment, to enhance shelter space and to ensure harm reduction approaches in isolation and quarantine facilities for individuals experiencing homelessness. The latter includes providing managed alcohol programs, overdose prevention support and access to opioid antagonist therapy or safer supply.

Finally, as the pandemic wanes and is ultimately controlled, governments and service providers should take the opportunity to overhaul the way that people experiencing homelessness are treated and sheltered, and to transition to approaches that focus on long-term recovery through permanent housing and supports.^{8,25} The feasibility of the latter approach will be influenced by ongoing shifts in the housing market, public priorities and government budgets as a result of the COVID-19 pandemic.

Conclusion

COVID-19 and associated public health control measures pose particular challenges and increased risks of harm for people experiencing homelessness. Measures have been implemented across the US and Canada to increase capacity to allow safe physical distancing for homeless people, including arranging temporary housing, enlarging shelter spaces and creating isolation sites for homeless people with COVID-19. However, the diverse needs of various subgroups of people experiencing homelessness must be considered to ensure implementation of effective and equity-focused interventions. The COVID-19 pandemic has highlighted the importance of housing as a social determinant of health and raises the question of whether current approaches to addressing homelessness should be re-evaluated.

References

1. Leung CS, Ho MM, Kiss A, et al. Homelessness and the response to emerging infectious disease outbreaks: lessons from SARS. *J Urban Health* 2008;85: 402-10.
2. Madhav N, Oppenheim B, Gallivan M, et al. Pandemics: risks, impacts, and mitigation. In: *Disease Control Priorities: Improving Health and Reducing Poverty*. 3rd ed. Vol 9: Improving Health and Reducing Poverty. Washington (DC): World Bank; 2017.
3. Bedford J, Enria D, Giesecke J, et al.; WHO Strategic and Technical Advisory Group for Infectious Hazards. COVID-19: towards controlling of a pandemic. *Lancet* 2020;395:1015-8.
4. Tsai J, Wilson M. COVID-19: a potential public health problem for homeless populations. *Lancet Public Health* 2020;5:e186-7.
5. Aldridge RW, Story A, Hwang SW, et al. Morbidity and mortality in homeless individuals, prisoners, sex workers, and individuals with substance use disorders in high-income countries: a systematic review and meta-analysis. *Lancet* 2018;391:241-50.
6. Culhane D, Steif K, Kuhn R, et al. *Estimated emergency and observational/quarantine capacity need for the US homeless population related to COVID-19 exposure by county; projected hospitalizations, intensive care units and mortality*. Washington (DC): National Alliance to End Homelessness; 2020. Available: https://endhomelessness.org/wp-content/uploads/2020/03/COVID-paper_clean-636pm.pdf (accessed 2020 Apr. 10).
7. Khangura J, Burns M, Dosani N, et al. Why communities need to move fast, get creative to protect homeless from COVID-19. *CBC News* 2020 Apr. 2. Available: www.cbc.ca/news/opinion/opinion-covid-19-homeless-1.5516075 (accessed 2020 Apr. 10).
8. Perri M. Potential coronavirus outbreak in shelter system poses “daunting” task. *NOW Magazine* [Toronto] 2020 Mar. 11. Available: <https://nowtoronto.com/news/coronavirus-homelessness-shelter-system/> (accessed 2020 Apr. 10).
9. Tibbetts KK, Ottoson RA, Tsukayama DT. Public health response to tuberculosis outbreak among persons experiencing homelessness, Minneapolis, Minnesota, USA, 2017–2018. *Emerg Infect Dis* 2020;26:420-6.
10. Baggett TP, Liauw SS, Hwang SW. Cardiovascular disease and homelessness. *J Am Coll Cardiol* 2018;71:2585-97.
11. Peak CM, Stous SS, Healy JM, et al. Homelessness and hepatitis A — San Diego County, 2016–2018. *Clin Infect Dis* 2019 Aug. 15 [Epub ahead of print]. [doi: 10.1093/cid/ciz788](https://doi.org/10.1093/cid/ciz788).
12. Hahn JA, Kushel MB, Bangsberg DR, et al. Brief report: The aging of the homeless population — fourteen-year trends in San Francisco. *J Gen Intern Med* 2006;21: 775-8.
13. Baggett TP, Keyes H, Sporn N, et al. Prevalence of SARS-CoV-2 infection in residents of a large homeless shelter in Boston. *JAMA* 2020;323:2191-2.
14. Mosites E, Park EM, Clarke KEN, et al.; COVID-19 Homelessness Team. Assessment of SARS-CoV-2 infection prevalence in homeless shelters — four U.S. cities, March 27–April 15, 2020. *MMWR Morb Mortal Wkly Rep* 2020;69:521-2.
15. *Re: COVID-19 response framework for people experiencing homelessness*. Toronto: Canadian Network for the Health and Housing of People who Experience Homelessness; 2020. Available: <http://cnh3.ca/wp-content/uploads/2020-19-Planning-Final-1-1.pdf> (accessed 2020 Apr. 10).
16. King County and Seattle expand COVID-19 emergency shelter and housing response: additional sites throughout county. *Seattle Weekly* 2020 Mar. 26. Available: www.seattleweekly.com/news/king-county-and-seattle-expand-covid-19-emergency-shelter-and-housing-response/ (accessed 2020 Apr. 10).
17. Leavitt S. Homeless Montrealers tested for COVID-19 will be housed in hotel for now. *CBC News* 2020 Mar. 25. Available: www.cbc.ca/news/canada/montreal/montreal-homeless-covid19-1.5509806 (accessed 2020 Apr. 10).
18. Smith D. Inside L.A.’s scramble to open shelters and find hotel rooms for coronavirus patients. *Los Angeles Times* 2020 Apr. 2. Available: www.latimes.com/california/story/2020-04-02/coronavirus-quarantine-isolation-hotel-motel-room-shelter (accessed 2020 Apr. 10).
19. Smith M. Some of Calgary’s homeless to be sheltered in hotel, motel rooms during COVID-19 outbreak. *Calgary Herald* 2020 Mar. 21. Available: <https://calgaryherald.com/news/local-news/some-of-calgarys-homeless-to-be-sheltered-in-hotel-motel-rooms-during-covid-19-outbreak/> (accessed 2020 Apr. 10).

20. Peel implements COVID-19 prevention measures in shelter system and collaborates with community partners to create isolation and recovery programs. Brampton (ON): Region of Peel; 2020. Available: <https://peelregion.ca/news/archiveitem.asp?year=2020&month=3&day=23&file=2020323.xml> (accessed 2020 Apr. 27).
21. Arya A, Buchman S, Gagnon B, et al. Pandemic palliative care: beyond ventilators and saving lives. *CMAJ* 2020;192:E400-4.
22. Volkow ND. Collision of the COVID-19 and addiction epidemics. *Ann Intern Med* 2020 Apr. 2 [Epub ahead of print]. M20-1212. doi: 10.7326/M20-1212.
23. Hayle S. A tale of two Canadian cities: Comparing supervised consumption site (SCS) policy making in Toronto and Vancouver. *Drugs Educ Prev Policy* 2018;25: 397-407. doi: 10.1080/09687637.2017.1292215.
24. Van Berkum A, Oudshoorn A. *Best practice guideline for ending women's and girl's homelessness*. London (ON): London Homeless Coalition; 2015. Available: <http://londonhomeless.ca/wp-content/uploads/2012/12/Best-Practice-Guideline-for-Ending-Womens-and-Girls-Homelessness.pdf> (accessed 2020 Apr. 10).
25. Sullivan N. Nova Scotia police getting calls under COVID-19 state of emergency measures. *The Chronicle Herald* [Halifax] 2020 Mar. 26. Available: www.thechronicleherald.ca/news/provincial/nova-scotia-police-getting-calls-under-covid-19-state-of-emergency-measures-430171/ (accessed 2020 Apr. 10).

Competing interests: Stephen Hwang and Naheed Dosani receive sessional payments from Inner City Health Associates for providing and directing medical care for people experiencing homelessness in Toronto. No other competing interests were declared.

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A Commissioner, etc.,
Province of Ontario,
While a Barrister and Solicitor.
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The health and housing in transition study: a longitudinal study of the health of homeless and vulnerably housed adults in three Canadian cities

Stephen W. Hwang · Tim Aubry · Anita Palepu · Susan Farrell ·
 Rosane Nisenbaum · Anita M. Hubley · Fran Klodawsky · Evie Gogosis ·
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Abstract

Objectives While substantial research has demonstrated the poor health status of homeless populations, the health status of vulnerably housed individuals is largely unknown. Furthermore, few longitudinal studies have assessed the impact of housing transitions on health. The health and housing in transition (HHiT) study is a prospective cohort study that aims to track the health and housing status of a representative sample of homeless and vulnerably housed single adults in three Canadian cities (Toronto, Ottawa, and Vancouver). This paper discusses the HHiT study methodological recruitment strategies and follow-up procedures, including a discussion of the limitations and challenges experienced to date.

Methods Participants ($n = 1,192$) were randomly selected at shelters, meal programmes, community health centres, drop-in centres, rooming houses, and single-room occupancy hotels from January to December 2009 and are being re-interviewed every 12 months for a 2-year period. **Results** At baseline, over 85% of participants reported having at least one chronic health condition, and over 50% reported being diagnosed with a mental health problem. **Conclusions** Our findings suggest that, regardless of housing status, participants had extremely poor overall health.

Keywords Homeless persons · Vulnerable populations · Housing · Health · Mental health · Quality of life · Longitudinal studies

This paper belongs to the special issue ‘Housing for health promotion’.

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Introduction

Homelessness, defined as living in a shelter, on the street, in other places not intended for human habitation, or in temporary accommodations with family or friends, is an increasingly visible problem that affects thousands of Canadians (Hwang 2001). On any given night, about 5,000 people in Toronto, 900 people in Ottawa, and 2,700 people in Vancouver are homeless (City of Toronto 2009; Dinning and Davis 2008; SPARC BC et al. 2008). Over the course of a year, an estimated 150,000–300,000 Canadians will experience homelessness (Laird 2007; Human Resources and Skills Development Canada 2010). Less visible, but equally important, are the large number of people in Canada who are ‘vulnerably housed’, a term that includes low-income, socially marginalized individuals living in single room occupancy (SRO) hotels and rooming houses. These individuals often have unstable living arrangements, resulting in frequent transitions between homelessness and vulnerable housing. For many, homelessness is an episodic, often temporary, experience as opposed to a chronic state (Aubry and Klodawsky 2003; Culhane et al. 1994).

Housing is a key social determinant of health. A substantial body of research over the last two decades has shown that single adults who experience episodes of homelessness suffer from high rates of physical and mental illness, substance abuse, injuries and assaults, and mortality (Aubry et al. 2011; Frankish et al. 2005; Hwang and Dunn 2005). A recent longitudinal study of Canadian adults found that mortality rates from all causes were 2.01 times higher among men living in shelters, rooming houses, and hotels compared to men in the general population and 1.79 times higher among women (Hwang et al. 2009).

The majority of studies on housing and health among homeless and vulnerably housed populations have used a cross-sectional design, despite the fact that housing status is a dynamic state with frequent transitions between homelessness and vulnerable housing. We identified a relatively small number of studies that accounted for longitudinal changes in the health and housing status of representative samples of homeless populations over time (Table 1).

Overall, previous research demonstrates that a substantial number of homeless individuals make a transition into some form of housing over follow-up periods ranging from 18 to 60 months. However, most of these studies have been conducted in the United States, and extrapolation of these findings to others settings is problematic for a number of reasons, not the least of which is the different health care systems that operate in the two countries. In Canada, homeless individuals retain their access to health care, in contrast to the United States, where more than half of all homeless people do not have health insurance (Kushel et al. 2001). Other factors that highlight the need for

additional data include the substantial differences between the United States and other countries in terms of ethnicity and race, climate, housing markets, social housing policies, extent of the social safety net, and severity of geographic concentration of extreme urban poverty (Dunn et al. 2005; Ross et al. 2000, 2005). For these reasons, longitudinal research of homeless and vulnerably housed people from settings such as Canada is needed to better understand the complex connections between housing and health.

The health and housing in transition (HHiT) study is a longitudinal cohort study that aims to track the health and housing status of a representative sample of homeless and vulnerably housed single adults in three Canadian cities (Toronto, Ottawa, and Vancouver) over a two-year follow-up period. The specific objectives of this study are:

1. To determine the incidence of housing transitions in these populations, defined as (a) the rate at which homeless individuals exit homelessness, (b) the rate at which vulnerably housed individuals become homeless, and (c) the rate at which vulnerably housed individuals attain residential stability by the end of the follow-up period;
2. To identify risk factors and individual, interpersonal, and community-level resources associated with (a) the attainment of residential stability among homeless individuals, (b) the onset of homelessness among vulnerably housed individuals, and (c) the attainment of residential stability among vulnerably housed individuals; and
3. To ascertain whether changes in housing status are associated with subsequent changes in physical and mental health functioning and major health determinants (including access to health care, alcohol and drug use, food security, and social supports).

Methods

Study setting

Toronto, Ottawa, and Vancouver are large, urban cities in Canada that vary in terms of their climate, geographic location, population size, and housing markets. Vancouver (pop. 2.2 million) is located in the province of British Columbia, on the west coast of Canada. Toronto (pop. 5.4 million) and Ottawa (pop. 1.2 million) are located in the province of Ontario in eastern Canada, approximately 3,500 km from British Columbia. Average monthly rents for a private one-bedroom apartment in these three cities range from \$853 to \$926 CDN, while vacancy rates range from 1.4 to 3.0% (Canada Mortgage and Housing Corporation 2009). Social assistance rates range between \$585 and \$610 CDN per month for a single adult and between

Table 1 Summary of longitudinal studies (follow-up ≥ 12 months) of representative samples of homeless single adults

Author (year)	Citation	City	Population description (n)	Follow-up duration	Follow-up rate	Housing status at the end of follow-up	Observed housing and health associations
<i>U.S. studies</i>							
Buchanan et al. (2009) ^a	Am J Public Health 99 Suppl 3: S675–S680	Chicago, IL	HIV-positive homeless inpatients (n = 105) Race/ethnicity: 88% African-American, 4% Latino, 3% White, 4% Other	12 months	83%	Among the 54 participants in the intervention group, 39 (72%) reached interim housing and 35 (65%) reached permanent housing	Survival with intact immunity was higher among participants receiving permanent housing with intensive case management (vs. usual care) at 12-month follow-up A significantly higher proportion of participants in the intervention group had undetectable viral loads at the end of follow-up
Caton et al. (2005); Schanzer et al. (2007)	Am J Public Health 95:1753–1759; Am J Public Health 97:464–469	New York City, NY	Newly homeless adults (n = 445) Race/ethnicity: 62% African-American, 18% Hispanic, 20% White or Other	18 months	85%	307 participants (81%) returned to community housing during the follow-up period	Younger age, better psychosocial adjustment, recent or current employment, adequate family support, earned income, no current drug treatment, and no arrest history were associated with shorter duration of homelessness Significant improvements in health status (visual, dental, podiatric, and blood pressure) were observed over the follow-up period. The use of health care services was comparable among those who found housing and those who remained homeless
Cohen et al. (1997)	Gerontologist 37:67–74	New York City, NY	Older homeless female adults (n = 237) Race/ethnicity: 51% African-American, 34% White, 10% Hispanic	24 months	85%	94 participants (47%) achieved stable housing	Higher perceived social supports and greater contact with community agencies were associated with achievement of stable housing
Dasinger and Speigman (2007)	AIDS Behav 11:128–139	San Francisco Bay Area, CA	Very low income people with HIV or AIDS and their families (n = 185); eligible controls (n = 218) Race/ethnicity: 60% Black, 28% White, 8% Hispanic, 4% Asian/Pacific Islander, 1% Native American	Max. 4 years, 8 months	Not reported	99% of participants (vs. 65% of controls) maintained rental housing at 6 month follow-up; 99% (vs. 32%) at 1 year follow-up; 96% of participants (vs. 10%) at 2 year follow-up	Adjusted hazard ratio for time spent in independent rental housing was 3.8 times higher among participants vs. controls; time spent in rental housing significantly lower among individuals with mental health issues or hepatitis
Sadowski et al. (2009)	JAMA 301:1771–1778	Chicago, IL	Homeless adults with chronic medical illnesses (n = 405) Race/ethnicity: 78% African-American, 8% Hispanic, 8% White, 5% Mixed or other	18 months	90% for intervention group and 73% for usual care group (excl. deaths)	116 participants (66%) in the intervention group (vs. 10 in usual care group) reached stable housing	Compared to the usual care group, participants receiving housing and case management had reduced hospitalizations, hospital days, and emergency department visits during the follow-up period

Table 1 continued

Author (year)	Citation	City	Population description (n)	Follow-up duration	Follow-up rate	Housing status at the end of follow-up	Observed housing and health associations
Schwarz et al. (2009)	BMC Public Health 9:220	San Francisco, CA	Homeless adults and adolescents (≥ 13 years old) diagnosed with AIDS ($n = 676$) Race/ethnicity: 41% White, 39% Black, 16% Latino, 4% Other	Various (over a 10-year period)	Not reported	70 participants (10%) received stable housing	Obtaining stable housing was associated with an 80% reduction in mortality
Toro et al. (1997) ^a	J Consult Clin Psychol 65:476–484	Buffalo, NY	Homeless adults and families ($n = 202$), of whom 158 were single adults Race/ethnicity: 54% African-American, 34% White, 11% Other	18 months	49%	Controlled study of an intervention (intensive case management). In the control group, number of days homeless in the last 6 months decreased from 95 to 10 days	In the control group, little change was observed in housing quality despite a decrease in number of days homeless In the intervention and control groups combined, significant improvements were observed over time in physical health and stressful life events
Weinreb et al. (2006)	J Health Care Poor Underserved 17:180–199	Worcester, MA	Low-income housed and homeless female adults ($n = 436$) Race/ethnicity: 41% White, 32% Hispanic, 19% African-American	24 months	70%	Not reported	Associations between housing and health status were not reported Poor health status, non-white race, and few social supports were associated with frequent emergency department visits
Wolitski et al. (2010); ^a	AIDS Behav 14:493–503;	Baltimore, MD; Chicago, IL;	Homeless and unstably housed persons living with HIV/AIDS ($n = 630$)	18 months	85%	82% of participants in the intervention group (rental assistance with case management) were in stable housing in the past 90 days compared to 51% for participants in control group (usual care with case management)	Significantly greater improvements in housing stability in intervention vs. control group. Significant treatment effect observed for depression, perceived stress, and SF-12 physical health
Kidder et al. (2007) ^a	AIDS Behav 11:149–161	Los Angeles, CA	Race/Ethnicity: 78% Black, 22% Other				Being homeless for at least 1 night in the past 90 days was associated with more ER visits, higher perceived stress, and higher detectable viral load
Zlotnick et al. (1999);	J Community Psychol 27:209–224;	Alameda County, CA	Homeless adults ($n = 564$) Race/ethnicity: 68% African-American, 22% White, 9% Other	15 months	70%	80% of participants exited from homelessness at least once, but only 15% obtained stable housing	Shorter duration of homelessness, consistent receipt of entitlement benefits, and obtaining government subsidized housing were associated with obtaining stable housing
Zlotnick et al. (2003)	Subst Use Misuse 38:577–599						
<i>Canadian studies</i>							
Aubry et al. (2003);	City of Ottawa;	Ottawa, ON	Mixed population of homeless youth, single adults, and families ($n = 412$), of whom 160 were single adults	24 months	62%	47% of single men and 73% of single women obtained housing	Physical and mental health did not change significantly among people who obtained housing
Aubry et al. (2007);	University of Ottawa;					Only 10% of housed single men were in subsidized housing	Higher quality of housing, as perceived by respondents at follow-up, was related to positive changes in mental health functioning
Aubry et al. (2011)	Am J Community Psychol 2011 May 10 [Epub ahead of print]						

Table 1 continued

Author (year)	Citation	City	Population description (n)	Follow-up duration	Follow-up rate	Housing status at the end of follow-up	Observed housing and health associations
Palepu et al. (2010)	PLoS One 5:e11697	Vancouver, BC	Homeless and vulnerably-housed injection drug users (n = 992)	Min. 12 months; Max. 48 months	Not reported	211 participants (21%) attained stable housing during the follow-up period	Daily crack use, daily heroine injection use, and current enrolment in addiction treatment at baseline were negatively associated with attaining stable housing
Roy et al. (2003);	J Urban Health 80:92–105;	Montreal, QC	Cohort 1: Street youth, aged 14–25 years; Cohort 2: Street youth aged 14–23 years (n = 1,687)	Average of 33 months (Cohort 1)	87% completed at least 1 follow-up (Cohort 1)	Not reported	Youths who reported recent homelessness at a follow-up visit had an adjusted mortality hazard ratio of 3.0 during the subsequent observation period for Cohort 1 and 2.8 for Cohort 2. Standardized mortality ratios compared to the general population were 11.6 for Cohort 1 and 3.0 for Cohort 2. Mortality rates were significantly lower among Cohort 2
Roy et al. (2010)	J Urban Health 87:95–101						
<i>International studies</i>							
Fichter and Quadflieg (2003);	Subst Use Misuse 38:395–427;	Munich, Germany	Homeless male adults (n = 265)	36 months	75%	103 participants (56%) achieved stable housing	Men with lower education, history of inpatient alcohol treatment, no history of inpatient psychiatric hospitalization, and shorter duration of homelessness were more likely to remain homeless
Fichter and Quadflieg (2005)	Eur Arch Psychiatry 255:111–120		Race/ethnicity: Not reported				
Solorio et al. (2008);	J Adolesc Health 42:401–409;	Los Angeles, CA;	Newly homeless youth aged 12–20 (n = 261 in Los Angeles; n = 165 in Melbourne)	24 months	Los Angeles: 70% Melbourne: 79%	59 (32%) youth in Los Angeles and 31 youth (24%) in Australia had experienced ≥5 moves during follow-up	Drug use at the 24 month assessment was associated with an increased number of moves during follow-up
Rosenthal et al. (2007)	AIDS Behav 11:831–841	Melbourne, Australia	Race/ethnicity (Los Angeles data only): 47% Hispanic, 21% African American, 17% White, 15% other ethnicities				Among males, living in a non-family setting was associated with more sexual partners and among females living in a non-family setting was associated with decreased odds of always using condoms (Los Angeles data only)

^a Studies that examined the effects of an intervention

\$906 and \$1,053 CDN per month for a single adult with a disability (City of Toronto 2010; Ministry of Housing and Social Development 2007). As can be seen in these figures, affording a market-rent unit is moderately to extremely difficult for an individual living on social assistance. As a result, many marginalized individuals depend on a limited supply of lower-cost alternative housing, such as SRO hotels (in Vancouver) and rooming houses (in Toronto and Ottawa) to meet their shelter needs.

Target populations

Participants were eligible for the study if they were age 18 years or older and did not live with a partner or dependent child (i.e. were single adults). Participants were considered homeless if they were currently living in a shelter, public place, vehicle, abandoned building, or someone else's place and did not have their own place. Participants were considered vulnerably housed if they reported living in their own room, apartment, or place *and* had been homeless in the past 12 months and/or had two or more moves in the past 12 months. Participants who were temporarily living with friends and family and were paying rent were considered vulnerably housed, while those who were not paying rent were considered homeless. Full-time students and individuals who were visiting the city for less than or equal to 3 months were excluded.

Recruitment strategy

Participants were recruited between January and December 2009. We aimed to recruit 600 homeless and 600 vulnerably housed single adults in total (200 homeless and 200 vulnerably housed participants in each of the three cities); however, due to some participants completing more than one interview (using a different name), our final sample was 1,192 participants. In instances where duplicate interviews were identified, we included the first interview only.

Our sampling plan for recruiting homeless adults was adapted from the design proposed by Ardilly and Le Blanc (2001). Recruitment of homeless adults took place at both shelters and meal programmes. Because the purpose of recruitment at meal programmes was to recruit homeless people who did not use shelters, single adults at meal programmes were eligible if they were homeless but had not stayed at a shelter more than three nights in the last 7 days. The target number of homeless participants recruited at meal programmes was proportional to the approximate number of homeless adults in each city who slept on the street.

Homeless participants were sampled using a two-stage cluster strategy. Primary sampling units included all

shelters and meal programmes in each city. In the first stage of sampling, shelters were randomly selected according to probabilities proportional to the number of shelter beds (Kish 1995). Meal programmes were selected through a similar process based on location and the estimated number of individuals who were served meals each week. At shelters, participants were selected on the basis of their bed number using a random number list. At meal programmes, research and agency staff screened individuals who were in the meal line or had used the meal programme and were in the vicinity of the site and invited those eligible to participate.

The sampling frame for recruiting vulnerably housed participants included all official SROs in Vancouver and licensed rooming houses in Toronto and Ottawa. At SROs and rooming houses where our research team could gain access, we approached all individuals who were living at the site and who were available at the time of the site visit. Due to feasibility challenges associated with sampling at SROs and rooming houses (see 'Discussion'), the target number of vulnerably housed participants (200 in each city) could not be recruited at these sites. Our sampling strategy for recruitment of vulnerably housed participants was therefore modified to include meal programmes, drop-ins centres, and community health centres in the sampling frame.

Selected individuals were told about the nature of the study and assessed for their eligibility and willingness to participate. Individuals who declined to participate or who were not available at the time of recruitment were not re-contacted and were replaced by another randomly selected individual at that site. Duplicate interviews that were identified during the recruitment period were replaced with interviews from another randomly selected individual. All eligible and willing participants provided informed consent and were reimbursed for their time (\$20 CDN) following the baseline interview and at each subsequent interview. Ethical approval for this study was obtained from the Research Ethics Board at St. Michael's Hospital (Toronto), the University of Ottawa, and the University of British Columbia (Vancouver).

Follow-up procedures

At the present time, participants are being re-interviewed approximately every 12 months over the 2-year period following their baseline interview. The goal of our study is to achieve an 80% retention rate, using methods shown to be effective at tracking and retaining homeless and vulnerably housed participants (McKenzie et al. 1999). Efforts were made to establish trust and rapport with participants at first contact and to explain the importance of their participation in follow-up interviews. At the time of enrolment,

participants were asked to provide contact information not only for themselves but also for friends, relatives, service providers, and case workers who were most likely to know their future whereabouts and who could be contacted in order to locate them. Participants were asked to give consent for municipal social services departments, hospitals, homeless shelters, prisons, and treatment centres to disclose their updated contact information to the research team (Aubry et al. 2004, 2007; Aubry and Klodawsky 2003). Tracking efforts were modified during the study period and were further tailored to the individual circumstances in each city.

Survey instrument

Data were obtained using structured in-person interviews, which took approximately 60–90 min to complete. The survey instrument (Table 2) contains validated scales and questions that were selected on the basis of relevance to and previous successful use among homeless and vulnerably housed people, having very good to excellent psychometric properties, being sensitive to change over time, and being easy to administer. Open-ended questions were also included to further probe participants' understandings of causal interactions between homelessness and health. A pilot study conducted in 2007 included 55 participants and demonstrated the feasibility of sampling, recruitment, and survey administration strategies. Based on our experiences during pilot testing, the questionnaire was shortened and revised for greater reliability and ease of administration.

Age was calculated by subtracting the participants' reported date of birth from their date of interview. Health status was assessed using the Short Form 12-item health survey (SF-12), which provided reliable physical and mental health summary measures, according to the publishers' specifications (Ware et al. 1995). SF-12 Summary Component Scores range continuously from 13 to 69 for physical health (PCS) and 10 to 70 for mental health (MCS) and are standardized to the general population in the United States (mean score of 50 and standard deviation of 10) (Ware et al. 1995). Higher scores represent better overall health status. Health conditions, use of health services, and barriers to accessing health care were assessed using self-report items adapted from the National Survey of Homeless Assistance Providers and Clients (Burt et al. 1999) and the Canadian Community Health Survey (Statistics Canada 2010). A history of previous mental health diagnoses was assessed through self-report.

Alcohol abuse was assessed using the Alcohol Use Disorders Identification Test (AUDIT), which is used to identify the preliminary signs of hazardous drinking and mild dependence, and scores were calculated according to

the publisher's specifications (Babor et al. 2001; Piccinelli et al. 1997). AUDIT scores of eight or more were considered indicative of hazardous or harmful alcohol use, as well as possible alcohol dependence. Drug abuse and the degree of problems related to drug use were assessed using the 10-item version of the Drug Abuse Screening Test (DAST-10), and scores were calculated according to the publisher's specifications (Gavin et al. 1989). DAST-10 scores of three or higher were considered indicative of moderate, substantial, or severe drug use problems. The use of injection and non-injection drugs was assessed using items developed by Roy et al. (2004). Smoking was assessed using items from the Canadian Community Health Survey (Statistics Canada 2010).

Quality of life was assessed using two complementary instruments. The Quality of Life for Homeless and Hard to House Individuals (QoLHHI) Instrument addresses general and specific quality of life issues that have been identified as important to homeless people (Hubley et al. 2009; Russell et al. 2008). The EuroQol (EQ-5D) is a standardized health-related quality of life instrument that generates a weighted composite score reflecting the preference value associated with a given health state, and a global rating of current health using a visual analogue scale (VAS) (Krabbe and Weijnen 2003; Rabin and de Charro 2001). EQ-5D scores range between −0.11 and 1.00 for the U.S. general population, where a score of 0.0 represents death and 1.0 represents perfect health (Shaw et al. 2005). VAS scores range from 0 to 100. Further details regarding participants' perceptions and experiences about various aspects of their lives (e.g. food quality/availability, neighbourhood, etc.) were obtained through open-ended questions.

Social support was assessed using two instruments: (1) the Social Provisions Scale, which examines the provision of social relationships (Cutrona and Russell 1987) and (2) the Social Support Network Inventory (SSNI), a self-report questionnaire that measures the size of a person's social network and perceived social support (Flaherty et al. 1983). Social services utilization in the past 12 months was assessed through self-report.

Housing status over the preceding 2 years was determined using the Housing Timeline Follow-Back Calendar (HTFBC), a validated method that allows for the collection of detailed and accurate information on housing history (Tsemberis et al. 2007). The Housing Quality Score developed by Toro et al. (1995) was used to determine the self-reported quality of the current living environment in terms of comfort, safety, spaciousness, privacy, friendliness, and overall quality. If the participant was housed, we determined whether they were living in market-rent or subsidized rent-gear-to-income housing using questions developed for the Ontario Community Mental Health Evaluation Initiative (Dewa et al. 2002; Dewa et al. 2004).

Table 2 Components of baseline survey instrument for the health and housing in transition (HHiT) study

Category/variable	Measure(s) utilized	Selected survey question(s)	Values	Scales
<i>Demographics</i>				
Sex	Self-report	Your gender is...?	Male/Female/Transgendered	
Age	Self-report	What is your date of birth?	Years	
Marital status	Self-report	What is your marital status?	Single, never married/Separated, divorced/Widowed/Married, incl. common law/Partnered	
Relationship status	Self-report	Do you have a partner?	Yes/No	
Race	Self-report	To which racial or cultural group(s) do you belong?	White/Black/First Nations/East Asian/South Asian/Southeast Asian/West Asian/Hispanic/Other	
Country of birth	Self-report	What country were you born in?		
Citizenship	Self-report	What is your citizenship status?	Citizen/Landed Immigrant/Refugee	
Length of time in [Toronto, Ottawa, Vancouver]	Self-report	How long have you lived in [Toronto, Ottawa, Vancouver]?	Days/Weeks/Months/Years	
Language first learned at home	Self-report	What is the language that you first learned at home and still understand?	English/French/Other	
<i>Housing</i>				
Proportion of time housed	HTFBC ^a	Tell me where you have been living for the past 2 years	Detailed housing history	
History of homelessness	Self-report	Have you ever been homeless?	Yes/No	
		How old were you the first time you were homeless?	Age	
		Excluding the past 2 years, how many days, weeks, months, or years have you been homeless?	Length of time	
		Were you homeless with your family?	Yes/No	
<i>Individual resources</i>				
Education	Self-report	How much school have you completed?	Elementary/Middle school/High school/Post-secondary	
		Are you currently enrolled in a school or training programme?	Full-time/Part-time	
Employment	Self-report	Have you worked at a paid job?	Yes/No	
		Hours/week	Number of hours	
		How many different paid jobs did you have?	Number of paid jobs	
		What are your sources of income?	Type and amount per month	
Income	Self-report			
<i>Interpersonal resources</i>				
Social network size	SSNI ^b	Are there any people with whom you feel at ease and can talk to about personal issues?	Number of persons identified and relationship to individual	Count
Provision of social relationships	SPS ^c (8 items)	If something went wrong, no one would help me	Strongly Agree/Agree/Disagree/Strongly Disagree	Total score (range: 8–32)

Table 2 continued

Category/variable	Measure(s) utilized	Selected survey question(s)	Values	Scales
<i>Community resources</i>				
Social service use	Self-report	Which services did you use?	Type and services used	
Subsidized housing	Self-report	Is your rent subsidized?	Number of times used	
	Cross-reference municipal list		Yes/No	
<i>Risk factors</i>				
Physical health	SF-12 ^d (12 items)	In general, would you say your health is...?	Excellent/Very good/Good/Fair/Poor	Weighted score (range: 13–69)
	EQ-5D ^e (5 items)	Describe your health in terms of mobility, self-care, usual activities, pain, anxiety	No problems/Some problems/Unable	Weighted score (range: –0.11–1.00)
	VAS ^f	Rate your state of health	Yes/No	Range: 0–100
	NSHAPC ^g	Do you have any of the following medical conditions?	Yes/No	
	CCHS ^h	Have you had a... Toothache? Pain in/around the jaw joints? Other pain in the mouth?	Yes/No	
Overall satisfaction (quality of life)	QoLHHI ⁱ (13 items)	How do you feel about your current health	Very dissatisfied–Very satisfied	Average score (range: 1–7)
Impact of current health	QoLHHI ⁱ (12 items)	Rate the impact of your physical health on you	Large negative impact–Large positive impact	Average score (range: 1–7)
Mental health	SF-12 ^d (12 items)	How much of the time have you felt down?	All of the time–None of the time	Weighted score (range: 10–70)
	Self-report	Have you been diagnosed with a mental health problem?	Yes/No	
		If yes, what was the diagnosis?	List of diagnoses	
Unmet need for care	Self-report	Do you have a regular medical doctor?	Yes/No	
		Have you needed care but were not able to get help?	Yes/No	
		What were the reasons you were unable to get help?	List of reasons	
Cigarette smoking	CCHS ^h	How often do you smoke?	Daily/Occasionally/Not at all	
Substance use	Self-report	Which drugs have you used/injected?	List of drugs used, frequency of use, and injected use	
	AUDIT ^j (10 items)	How often did you have a drink containing alcohol?	Never–4 or more times per week	Total score (range: 0–40)
	DAST-10 ^k (10 items)	Did you abuse more than one drug at a time?	Yes/No	Total score (range: 0–10)
Legal and other events	Montreal Street Youth Study	What types of resources did you use for your alcohol/drug use problems?	List of resources and frequency of use	
	Self-report	Were you...Arrested by the police? Incarcerated? Beaten or physically attacked? Forced into unwanted sex?	Yes/No	
		How would you rate the place where you currently live in terms of...Comfort? Safety? Spaciousness? Privacy? Friendliness? Quality?	Number of times	
Housing and neighbourhood quality	HIST ^l (6 items)		Very bad/Bad/Somewhat bad/Neither good nor bad/Somewhat good/Good/Very good	Total score (range: 7–49)

Table 2 continued

Category/variable	Measure(s) utilized	Selected survey question(s)	Values	Scales
Satisfaction with place currently living or staying	QoLHHI ⁱ (14 items)	How do you feel about the place you currently live or stay?	Very dissatisfied–Very satisfied	Total score (range: 0–28)
Impact of place currently living or staying	QoLHHI ⁱ (1 item)	Rate the impact of the place where you live or stay on you	Large negative impact–Large positive impact	
Satisfaction with neighbourhood	QoLHHI ⁱ (5 items)	Do you feel safe in your neighbourhood?	Yes/No/Yes and No	Total score (range: 0–10)
Impact of neighbourhood	QoLHHI ⁱ (1 item)	Rate the impact of your neighbourhood on you	Large negative impact–Large positive impact	
Satisfaction with food	QoLHHI ⁱ (5 items)	Are you usually able to get food that you like?	Yes/No/Yes and No	Total score (range: 0–10)
Impact of food	QoLHHI ⁱ (1 item)	Rate the impact that the food you eat has on you	Large negative impact–Large positive impact	

^a Housing Timeline Follow-Back Calendar^b Social Support Network Instrument^c Social Provisions Scale^d 12-item Short Form Health Survey^e EuroQoL 5-Dimension Questionnaire^f EuroQoL 5-Dimension Visual Analogue Scale^g National Survey of Homeless Assistance Providers and Clients^h Canadian Community Health Surveyⁱ Quality of Life for Homeless and Hard-to-House Individuals Instrument^j Alcohol Use Disorders Identification Test^k 10-item Drug Abuse Screen Test^l Toro's Housing, Income, and Services Timeline (HIST) Instrument

Additional open-ended questions were included to explore participants' past experiences of housing and homelessness, and their perception of the links between housing and health.

Statistical analyses

Comparisons were made between participants who were homeless at baseline to those who were vulnerably housed. The two-sample *t* test was used for continuous variables, and Chi-square test was used for categorical variables. In instances where distributions for continuous variables were skewed, the nonparametric Wilcoxon rank-sum test was used. All analyses were performed using SAS statistical software version 9.2 (SAS Institute, Cary, NC).

Results

In total, 1,192 participants were recruited into our study: 396 (33.2%) in Vancouver, 399 (33.5%) in Toronto, and 397 (33.3%) in Ottawa. Our final sample consisted of 595 (49.9%) homeless participants and 597 (50.1%) vulnerably housed participants. Selected baseline comparisons between homeless and vulnerably housed participants are provided in Table 3. Significant differences between the two groups were noted for certain demographic characteristics. Compared to homeless participants in our sample, vulnerably housed participants were more likely to be born in Canada, be of First Nations/Aboriginal ethnicity, and have lower education levels. Vulnerably housed participants were less likely to be female; however, this difference likely results from our sampling design, which over-sampled females at homeless shelters to ensure adequate sample size, rather than a true difference in population characteristics.

Among the vulnerably housed sample, 222 (40.0%) reported living in subsidized housing. Participants who were vulnerably housed reported spending a median of \$388 Canadian dollars per month on rent, which corresponds to approximately 43% of the median monthly income for this sample. However, we expect that, in reality, this proportion is even higher, as many participants may have been unaware that they were living in subsidized housing and/or were unaware of what portion of their income was being put towards their housing subsidies. Both samples reported spending a considerable amount of time without housing in their lifetimes; the median lifetime duration of homelessness among all participants was 2.8 years.

In terms of baseline health status, over 85% of participants reported having at least one chronic health condition, and over 50% reported being diagnosed with a mental

health problem. The mean health composite scores from the SF-12 health survey were 44.5 (standard deviation = 11.3) for physical health and 39.1 (standard deviation = 13.0) for mental health. Vulnerably housed participants had slightly lower SF-12 PCS and were more likely to report a greater number of chronic health conditions than homeless participants, whereas homeless participants reported very slightly lower SF-12 MCS than vulnerably housed participants.

Discussion

Our baseline findings suggest that—regardless of housing status—participants had extremely poor overall health. Compared to the U.S. general population, SF-12 PCS were 0.5 standard deviations lower than expected, and MCS were more than one standard deviation lower than expected (Ware et al. 1995). While substantial prior research has demonstrated the poor health status of homeless populations in Canada (Aubry et al. 2011; Frankish et al. 2005; Hwang and Dunn 2005), minimal research is available regarding the health status of individuals living in socially marginalized, inadequate housing. In our study, we show that vulnerably housed participants had equally poor, and in some cases worse, health status than individuals who had no housing at all.

The HHiT study is an ambitious multi-site study that aims to address a gap in the research around the impact of housing transitions on health. The strengths of this study include the longitudinal design, the multi-site approach, the relatively large sample size, the inclusion of both homeless and vulnerably housed populations, and the use of validated survey instruments and scales. Additionally, we are using recruitment and tracking methods that have been shown to be effective for these populations and that have been used previously by our research team (Ardilly and Le Blanc 2001; Aubry et al. 2004).

However, despite these strengths, a number of challenges have been encountered to date. Among our biggest challenges has been gaining access to SROs and rooming houses to recruit vulnerably housed participants. These challenges include the following: difficulties obtaining up-to-date, accurate lists of SROs and rooming houses from municipal sources; physical barriers such as missing buzzers or inaccurate tenant lists; landlords who would not respond to multiple requests to visit the site for the purpose of recruiting participants; and sites no longer being in operation at the time of recruitment. Furthermore, at sites that were accessible, very few residents were available, willing, or eligible to participate, despite multiple visits on different days and times. Many individuals who were located at SROs and rooming houses had lived at these

Table 3 Characteristics of homeless and vulnerably housed participants at baseline in Vancouver, Toronto, and Ottawa, Canada, 2009

Variable	All participants (<i>n</i> = 1,192)	Homeless (<i>n</i> = 595)	Vulnerably housed (<i>n</i> = 597)	<i>P</i> value
Age group (years), <i>n</i> (%)				0.171
<30	160 (13.5)	91 (15.4)	69 (11.6)	
30–39	295 (24.8)	150 (25.3)	145 (24.3)	
40–49	443 (37.2)	207 (34.9)	236 (39.5)	
≥50	292 (24.5)	145 (24.5)	147 (24.6)	
Gender, <i>n</i> (%)				0.034
Male	781 (65.7)	373 (62.7)	408 (68.8)	
Female	389 (32.7)	215 (36.1)	174 (29.3)	
Transgender	18 (1.5)	7 (1.2)	11 (1.9)	
Marital status, <i>n</i> (%)				0.301
Single/never married	687 (58.0)	339 (57.4)	348 (58.6)	
Divorced/separated	309 (26.1)	164 (27.8)	145 (24.4)	
Widowed	30 (2.5)	18 (3.1)	12 (2.0)	
Married/common law	82 (6.9)	35 (5.9)	47 (7.9)	
Partnered, not married	77 (6.5)	35 (5.9)	40 (7.1)	
Born in Canada, <i>n</i> (%)	1,002 (84.6)	474 (79.8)	528 (89.3)	<0.001
Racial/cultural group, <i>n</i> (%)				<0.001
White	722 (62.5)	358 (62.1)	364 (62.9)	
Black/African–Canadian	106 (9.2)	66 (11.4)	40 (6.9)	
First Nations/Aboriginal	205 (17.7)	74 (12.8)	131 (22.6)	
Mixed ethnicity	64 (5.5)	38 (6.6)	26 (4.5)	
Other	59 (5.1)	41 (7.1)	18 (3.1)	
Highest level of education, <i>n</i> (%)				<0.001
Some high school	529 (44.7)	231 (39.0)	298 (50.5)	
Completed high school or equivalent	277 (23.4)	146 (24.6)	131 (22.2)	
Some post-secondary education or higher	377 (31.9)	216 (36.4)	161 (27.3)	
Employed in past 12 months, <i>n</i> (%)	474 (39.8)	245 (41.3)	229 (38.4)	0.320
Monthly income, (CDN dollars) median (Q1–Q3)	900 (543–1,427)	900 (385–1,600)	900 (600–1,330)	0.078
Current monthly rent, (CDN dollars) median (Q1–Q3)	— ^a	— ^a	388 (343–450)	
Currently living in subsidized housing, <i>n</i> (%)	— ^a	— ^a	222 (40.0)	
Lifetime duration of homelessness (in years), median (Q1–Q3)	2.8 (1.1–6.6)	2.7 (1.1–6.6)	3.0 (1.0–6.6)	0.992
SF-12 PCS, ^b mean (SD)	44.5 (11.3)	45.3 (11.8)	43.7 (10.7)	0.016
SF-12 MCS, ^b mean (SD)	39.1 (13.0)	38.3 (13.1)	39.9 (13.0)	0.040
Number of chronic health conditions, ^c <i>n</i> (%)				<0.001
0	151 (12.7)	94 (15.8)	57 (9.6)	
1	250 (21.0)	138 (23.2)	112 (18.8)	
2	198 (16.6)	91 (15.3)	107 (17.9)	
≥3	593 (49.8)	272 (45.7)	321 (53.8)	
Ever diagnosed with a mental health problem, <i>n</i> (%)	607 (51.7)	288 (49.0)	319 (54.3)	0.066

^a Not applicable^b On a scale where 50 is the mean and 10 is the standard deviation in the US general population^c Chronic health conditions include high blood pressure; heart disease; asthma; COPD (includes emphysema and chronic bronchitis); cirrhosis; Hepatitis B or C; intestinal or stomach ulcers; urinary incontinence; bowel disorders; arthritis; problems walking, lost limb, or other physical handicap; HIV/AIDS; epilepsy; foetal alcohol syndrome or foetal alcohol spectrum disorder; head injury; glaucoma; cataracts; cancer, diabetes; or anaemia

residences for numerous years and, in this sense, were stably housed and deemed ineligible for our study. For these reasons, we modified our sampling strategy to include

sampling of vulnerably housed participants at meal programmes, community health centres, and drop-in centres, which proved to be more accessible for our research staff.

Additional challenges included participants not arriving at scheduled interview times, difficulty in finding private and safe locations to conduct interviews, shelter restrictions that limited the times when participants were present at the site, and identification of individuals who completed the interview more than once, as some participants gave false names so that they could participate multiple times. In order to overcome these challenges, whenever possible, we conducted interviews immediately after a participant was recruited and deemed eligible, used nearby community-based locations to conduct interviews, and cooperated with shelter staff to help with random selection of homeless participants at shelters. Thorough checks based on name, sex, date of birth, and health card number were performed each day; however, despite these efforts, we identified 8 individuals who were interviewed more than once following the end of our recruitment period, resulting in a lower sample size than originally planned.

This study has certain limitations that should be acknowledged. Our study design does not sample homeless populations who do not use either shelters, meal programmes, community health centres, or drop-in centres; however, prior research suggests that this subgroup of homeless people is very small (Crowe and Hardill 1993; Hardill 1993). As well, due to the recruitment issues noted above, our study does not include a random sample of vulnerably housed participants. Individuals considered vulnerably housed who do not use meal programmes, drop-in centres, or community health centres and/or who reside in inaccessible or unidentified SROs or rooming houses may have been missed. In this sense, our sampling strategy may have overlooked extremely marginalized or hard-to-reach populations. We also restricted our sample to single adults who were not living with a partner or dependent children. However, as this study was meant to examine the effect of housing transitions on health over time rather than provide an overall assessment of the health status of vulnerably housed populations in Canada, concerns over the generalizability of our sample are lessened. Our sample may be biased towards only those individuals who are fluent in English or French (the two official languages in Canada). Although interpretation services for other languages were available, it was often not possible to determine a potential participants' preferred language and frequently difficult to re-locate the participant when the interviewer returned with an interpreter.

While we made efforts to ensure that participants were unaware of our eligibility criteria, some participants may have lied about their housing status in order to participate. This issue was especially true during recruitment at meal programmes where potential participants were approached within a common area. While this study attempts to explore individual-level factors associated with housing transitions,

contextual factors such as concurrent programmes and policies occurring at the municipal- or provincial-levels that differ across study sites may influence our incidence rate calculations. For example, the 2010 Olympic Games in Vancouver may have resulted in a precipitous loss of low-cost housing options during our follow-up period, as developers sought to provide profitable accommodations for Olympic visitors and gentrify the neighbourhoods where affordable housing was located (Lenskyj 2002). In order to address this issue, we will stratify our incidence rate calculations by study site.

The paucity of longitudinal research on homelessness and health in Canada restricts our understanding of the course of homelessness, the factors that help individuals escape homelessness, and the effectiveness of services and supports to address homelessness. Identification of these factors holds significant promise as a source of information to guide the creation of effective social and health programmes and policies (Hartig and Lawrence 2003). This multi-site longitudinal study of the health and housing status of homeless and vulnerably housed adults in Canada will provide important insights into the role of housing as a social determinant of health for disadvantaged populations. Data from this study will be used to determine the incidence of housing transitions among homeless and vulnerably housed adults over a 2-year period, the resources and risk factors associated with the attainment of stable housing and the onset of homelessness, and whether changes in housing status are associated with changes in health status, quality of life, and major health determinants.

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References

- Ardilly P, Le Blanc D (2001) Sampling and weighting a survey of homeless persons: a French example. *Surv Methodol* 27:109–118
- Aubry T, Klodawsky F (2003) Panel study on persons who are homeless in Ottawa: phase one results. City of Ottawa, Ottawa
- Aubry T, Klodawsky F, Hay E, Nemiroff R, Hyman S (2004) Developing a methodology for tracking person who are homeless

- over time. Final Report Canada Mortgage and Housing Corporation, Ottawa
- Aubry T, Klodawsky F, Nemiroff R, Birnie S, Bonetta C (2007) Panel study on persons who are homeless in Ottawa: phase two results. Centre for Research on Community Services, University of Ottawa, Ottawa
- Aubry T, Klodawsky F, Coulombe D (2011) Comparing the housing trajectories of different clusters within a diverse homeless population. *Am J Commun Psychol* [Epub ahead of print]
- Babor TF, Higgins-Biddle JC, Saunders JB (2001) AUDIT: the alcohol use disorders identification test: guidelines for use in primary care. World Health Organization Department of Mental Health and Substance Dependence, Geneva
- Burt MR, Aron LY, Douglas T, Valente J, Lee E, Iwen B (1999) Homelessness: programs and the people they serve. Findings of the national survey of homeless assistance providers and clients. Interagency Council on the Homeless, Washington, DC
- Canada Mortgage and Housing Corporation (2009) Housing market information. Rental market reports—major centres. <https://www03.cmhc-schl.gc.ca/catalog/productList.cfm?cat=79&lang=en&fr=1287667818008>. Accessed 21 October 2010
- City of Toronto (2009) Street needs assessment results. Shelter, support, and housing administration. City of Toronto, Toronto
- City of Toronto (2010) Employment and social services. <http://www.toronto.ca/socialservices/>. Accessed 21 October 2010
- Crowe C, Hardill K (1993) Nursing research and political change: the Street Health report. *Can Nurse* 89:21–24
- Culhane D, Dejowski EF, Ibanez J, Needham E, Macchina I (1994) Public shelter admission rates in Philadelphia and New York City: the implications of turnover for sheltered population counts. *Housing Policy Debate* 5:107–140
- Cutrona CE, Russell D (1987) The provisions of social relationships and adaptation to stress. In: Jones WH, Perlman D (eds) *Advances in personal relationships*, vol 1. JAI Press, Greenwich, pp 37–67
- Dewa CS, Durbin J, Eastabrook S, Ochoka J, Boydell K, Wasylenko D et al (2002) Considering a multi-site study? Taking the leap and having a soft landing. *J Commun Psychol* 30:1–15
- Dewa CS, Butterill D, Durbin J, Goering P (2004) No matter how you land: challenges of a longitudinal multi-site study. *Can J Program Eval* 19(3 Special Issue):1–28
- Dinning LB, Davis C (2008) Community action plan on homelessness: 2009–2014. The road to ending homelessness in Ottawa. The Homelessness Community Capacity Building Steering Committee, Ottawa
- Dunn JR, Burgess B, Ross NA (2005) Income distribution, public services expenditures, and all cause mortality in US States. *J Epidemiol Commun Health* 59:768–774
- Flaherty JA, Gaviria FM, Pathak DS (1983) The measurement of social support: the social support network inventory. *Compr Psychiatry* 24:521–529
- Frankish CJ, Hwang SW, Quantz D (2005) Homelessness and health in Canada. *Can J Public Health* 96:23–29
- Gavin DR, Ross HE, Skinner HA (1989) Diagnostic validity of the drug abuse screening test in the assessment of DSM-III drug disorders. *Br J Addict* 84:301–307
- Hardill K (1993) How the Street Health survey was one: developing a methodology for survey research with homeless women and men. Street Health, Toronto
- Hartig T, Lawrence RJ (2003) Introduction: the residential context of health. *J Soc Issues* 59:455–473
- Hubley AM, Russell LB, Gadermann AM, Palepu A (2009) Quality of life for homeless and hard-to-house individuals (QoLHHI) inventory: administration and scoring manual. Vancouver. <http://educ.ubc.ca/faculty/hubley/qolhhi/QoLHHI%20Manual.pdf>
- Human Resources and Skills Development Canada (2010) The homelessness partnering strategy. <http://www.hrsdc.gc.ca/eng/homelessness/index.shtml>. Accessed 16 September 2010
- Hwang SW (2001) Homelessness and health. *CMAJ* 164:229–233
- Hwang SW, Dunn JR (2005) Homeless people. In: Galea S, Vlahov D (eds) *Handbook of urban health: populations methods and practice*. Kluwer/Plenum, New York, pp 19–42
- Hwang SW, Wilkins R, Tjepkema M, O'Campo PJ, Dunn JR (2009) Mortality among residents of shelters, rooming houses, and hotels in Canada: 11 year follow-up study. *BMJ* 339:b4036
- Kish L (1995) Survey sampling. Wiley, New York
- Krabbe P, Weijnen T (2003) Guidelines for analyzing and reporting EQ-5D outcomes. In: Brooks R, Rabin RE, de Charro F (eds) *The measurement and valuation of health status using EQ-5D: a European perspective*. Kluwer, Boston, pp 7–20
- Kushel MB, Vittinghoff E, Haas JS (2001) Factors associated with the health care utilization of homeless persons. *JAMA* 285:200–206
- Laird G (2007) Shelter. Homelessness in a growth economy: Canada's 21st century paradox. A report for the Sheldon Chumir Foundation for Ethics in Leadership and Gordon Laird, Calgary
- Lenskyj HJ (2002) Best Olympics ever? Social impacts of Sydney 2000. State University of New York Press, Albany
- McKenzie M, Tulskey JP, Long HL, Chesney M, Moss A (1999) Tracking and follow-up of marginalized populations: a review. *J Health Care Poor Underserved* 10:409–429
- Ministry of Housing and Social Development (2007) BC employment and assistance rates tables (effective July 1, 2007). <http://www.eia.gov.bc.ca/mhr/rates.htm>. Accessed 21 October 2010
- Piccinelli M, Tessari E, Bortolomasi M, Piasere O, Semenzin M, Garzotto N et al (1997) Efficacy of the alcohol use disorders identification test as a screening tool for hazardous alcohol intake and related disorders in primary care: a validity study. *BMJ* 314:420–424
- Rabin R, de Charro F (2001) EQ-5D: a measure of health status from the EuroQol Group. *Ann Med* 33:337–343
- Ross NA, Wolfson MC, Dunn JR, Berthelot JM, Kaplan GA, Lynch JW (2000) Relation between income inequality and mortality in Canada and in the United States: cross sectional assessment using census data and vital statistics. *BMJ* 320:898–902
- Ross NA, Dorling D, Dunn JR, Henriksson G, Glover J, Lynch J et al (2005) Metropolitan income inequality and working-age mortality: a cross-sectional analysis using comparable data from five countries. *J Urban Health* 82:101–110
- Roy E, Haley N, Boudreau JF, Leclerc P, Boivin JF (2004) Mortality in a cohort of street youth in Montreal. *JAMA* 292:569–574
- Russell LB, Gadermann A, Hubley AM, Palepu A (2008) A new measure of quality of life: results from a pilot study of the health section of the quality of life for homeless and hard-to-house individuals (QoLHHI) survey. Presented at the international conference on urban health (ICUH), Vancouver, Canada. <http://educ.ubc.ca/faculty/hubley/icuh2008/mdt.pdf>
- Shaw JW, Johnson JA, Coon SJ (2005) US valuation of the EQ-5D health states: development and testing of the D1 valuation model. *Med Care* 43:203–220
- Social Planning and Research Council of BC (SPARC BC), Eberle Planning and Research, Jim Woodward & Associates Inc., Graves J, Huhtala K, Campbell K, In Focus Consulting, Goldberg M (2008) Still on our streets. Results of the 2008 Metro Vancouver homeless count. Greater Vancouver Regional Steering Committee on Homelessness, 3 Ways to Home, Vancouver
- Statistics Canada (2010) Canadian community health survey (CCHS). <http://www.statcan.gc.ca/cgi-bin/imdb/p2SV.pl?Function=getSurvey&SDDS=3226&lang=en&db=imdb&adm=8&dis=2>. Accessed 21 October 2010

- Toro PA, Bellavia CW, Daeschler CV, Owens BJ, Wall DD, Passero JM et al (1995) Distinguishing homelessness from poverty: a comparative study. *J Consult Clin Psychol* 63:280–289
- Tsemberis S, McHugo G, Williams V, Hanrahan P, Stefancic A (2007) Measuring homelessness and residential stability: the residential time-line follow-back inventory. *J Commun Psychol* 35:29–42
- Ware JE, Kosinski M, Keller D (1995) SF-12: how to score the SF-12 physical and mental health summary scales, 2nd edn. The Health Institute New England Medical Center, Boston

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Harms of encampment abatements on the health of unhoused people

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A B S T R A C T

Introduction: Abatements, or “sweeps,” are key instruments used by local governments to address increasing numbers of homeless encampments, but they are controversial, underdocumented, and understudied. To examine how social policies, such as abatements, impact the health of people who are unhoused, we interviewed unhoused people on their recent experiences with local abatement practices.

Materials and methods: Between 2018 and 2020, we used community-based participatory research approaches and the docent method to conduct participant-guided, in-depth, semi-structured interviews with unhoused people in Santa Clara County (n = 29). We used grounded theory approaches to analyze interview data.

Results: Abatements harmed unhoused people's health through four key mechanisms. First, forced relocation and property seizures stripped people of health resources and necessities (e.g., personal belongings, social support) required to survive unhoused. Second, abatements drove unhoused people into hazardous, isolated, less visible spaces, which increased health risks while reducing access to health outreach workers and support systems. Third, abatements were the grounds for frequent negative encounters between unhoused people and authorities such as law enforcement - interactions that produced anger, stress, and distrust. Finally, distrust of authorities and law enforcement led to people's reluctance to seek or accept formal forms of support and protection. The necessity of self-policing in encampments created cycles of interpersonal violence that resulted in suffering, injury, and premature death.

Discussion: Sweeps undermined or directly harmed unhoused people's health, leading to serious health consequences. Common abatement practices are social policies that may be causal factors in the declining health of unhoused people. Improved documentation, reporting, and tracking of abatement practices are needed.

1. Introduction

For the thousands of people in Santa Clara County (SCC) who have no option but to live outdoors due to the lack of shelters and affordable homes, there are few places one can exist uncontested. Laws and systems labeling unhoused people as vagrants, transients, trespassers, and suspicious persons make their presence a perpetual struggle, even a crime, in most spaces. A key battleground in this struggle is the encampment. Encampments are the tents, wooden pallets, tarps, cars, vans, or other materials set up by unhoused people in order to survive without shelter (Cohen et al., 2019). People who are unhoused, housed residents in the community, business interests, and various local government agencies, including public health, criminal justice, and law enforcement, are stakeholders in the social struggle over the existence of encampments and the right to live outdoors when there is nowhere else to live.

A central apparatus in this struggle is *the sweep*. The definition of a sweep (i.e., encampment sweep, abatement, “move-along” order) is

varied, but in general, the term refers to authorities removing one or more persons from a location in adherence to ordinances that ban staying on a wide range of public or private spaces. If an individual refuses or cannot move, they are subject to citation and potential arrest, and their belongings can be confiscated and discarded. Abatements, and the controversies surrounding them, have a long history in the United States (Baker, 1990; Simon, 1991). The magnitude of abatements has escalated in many cities since the 1990s due to substantial increases in anti-homeless ordinances and technologies facilitating the reporting of neighbor complaints (Craven et al., 2021; Herring, 2019; Herring et al., 2020; Rankin, 2019; Wilking et al., 2018), despite ongoing legal concerns surrounding the constitutionality of sweeps. One example of a constitutional concern is a Ninth Circuit decision banning local governments from citing and arresting people sleeping on public property in the absence of adequate shelter space (Martin v. City of Boise, 2019). The court's underlying conclusion was that the abatement of unhoused people is cruel and unusual punishment when there is no reasonable alternative place to stay.

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Beyond legality, there are debates surrounding the efficacy, cost, and consequences of abatements. Academic studies examining the effects of abatements are limited, but research emerging around the United States, including from government reports and advocacy organizations, consistently show that abatements are costly to city budgets and ineffective at reducing homelessness. In 2019, the City of San Jose spent \$8,557,000 on encampment responses, 57% of which was used for encampment abatements, versus 17% for encampment prevention, and 10% for homeless outreach (Dunton et al., 2020). Due to the lack of effective coordinated documentation and reporting systems, most cities and counties are unable to assess the effectiveness of abatements. However, available detailed reports and audits have shown that abatements result in the dispersal and destabilization of unhoused people, rather than long-term removal from public spaces (e.g. Office of the City Auditor San Diego, 2020; Office of the City Auditor of San Jose, 2018). Arrest records in Chico, California showed that following the passage of anti-homeless “sit-lie” prohibition policies, there were substantial increases in arrests and relocation of unhoused people, at almost twice the cost of official estimates. Locations of arrests occurred incrementally further from the downtown area over time, suggesting that abatement practices pushed unhoused people away from city centers (Wilking et al., 2018). In Greensboro, North Carolina, anti-homeless policies resulted in increased contacts between unhoused people and law enforcement. There were also racial disparities, as Black people who were unhoused reported high rates of racial profiling in police contacts (Craven et al., 2021). During abatements, unhoused people are rarely introduced to viable shelter or housing options. In San Francisco, California, the vast majority (91%) of unhoused people remained outdoors following an abatement, and relocation into housing was rare (Herring et al., 2020). In Denver, Colorado, unhoused survey respondents reported that in over 80% of “move-along” encounters with police, they were forced to move without receiving any information about supportive services (Robinson, 2019).

In health research, there is strong epidemiological evidence that being *unsheltered* while unhoused is a major health risk (Anderson et al., 2021; Lee et al., 2016; Levitt et al., 2009) that is associated with premature mortality (Montgomery et al., 2016; Romaszko et al., 2017; Roncarati et al., 2018). However, evidence specifically linking sweeps to health outcomes is limited. In Denver, Colorado, unhoused people's experiences with abatements led to a range of physical and mental health issues, including poorer sleep, isolation, risk of interpersonal violence, and weather-related health hazards (Westbrook & Robinson, 2021). Ethnographic researchers (Bourgois & Schonberg, 2009; Knight, 2015; Lopez, 2020; Stuart, 2016) have chronicled the ways that policing and criminalization of homelessness - frequently interconnected with policing drug use - have resulted in prolonged exclusion and harassment of unhoused individuals. These ethnographies report a range of poor health outcomes ensuing, from languishing health to overt physical violence. Outside of health research, qualitative studies have examined the effects of abatements on quality of life, justice, and safety. Researchers have shown that abatements result in the loss or destruction of people's property, causing excessive cost and stress for those living unsheltered (Darrah-Okike et al., 2018). The loss of property and continuous relocation are underlying factors in crime and safety risks, as unhoused people are forced to undergo extreme lengths to regain necessities (Herring et al., 2020; Langegger, 2016). Criminalization of homelessness through abatements creates forms of hidden homelessness, as well as a direct pipeline into the criminal justice system, causing additional harm to the unhoused individual (Rankin, 2019, 2021). All together, these studies show that policies that criminalize homelessness are a structural driver of the pervasive destabilization, suffering, and violence that unhoused people experience, which lead to a range of legal, health, and social consequences.

In this study, we set out to investigate the social environmental mechanisms and dynamics created by abatement policies, which set the stage for unhoused people's exposure to health issues and ability to protect themselves. Drawing on community-based participatory research

(CBPR) principles, we explored this topic in a place-based, participatory manner to center the often invisible lived experiences and personal narratives of people who are unhoused.

2. Materials and methods

This study was approved by the Institutional Review Board at Santa Clara University. The data used for this manuscript are a subset of an ongoing qualitative study investigating how local policies surrounding abatements shape people's health in the San Francisco Bay Area. Here we report on in-depth, semi-structured interviews conducted with people who are unhoused recruited between 2018 and 2020 ($n = 29$). We also report based on observations and notes from several months of ethnographic data collection conducted in encampments in SCC during the study period, during which at least one of the authors met and discussed the study topics with unhoused people and wrote detailed memos, but did not formally enroll participants. To be eligible for the study, participants had to be an adult who was unhoused in SCC for at least six months within the last 5 years of enrollment. All participants had personal experiences with encampment abatements.

2.1. Community-based participatory research and the Docent method

Community-based participatory research is a research approach that acknowledges, challenges, and attempts to dismantle the current and historical harm done by academic privilege in health research. It is a set of interrelated principles (Israel et al., 2013; Minkler & Wallerstein, 2011) that informed the study design of this research. Based on CBPR principles, we involved members of the unhoused community as co-leaders of the study development and implementation. We relied on unhoused people's expertise to make decisions about the study, including what topics/concepts to focus on, and what spaces to visit. Based on CBPR, the academic-community partnerships and relationships are ongoing, as we continue to build and strengthen ties between academics and people in the unhoused community.

We used the *docent method* (Chang, 2017) to focus the data collection and analysis on the role of social and built environments, which is a central concept in CBPR. The docent method is a place-based, participant-guided, walking interview approach rooted in grounded theory (Charmaz, 2014) and CBPR principles. The docent method was designed to challenge or reverse the power dynamics of traditional interviews by 1) privileging the leadership and expertise of study participants, and 2) incorporating the everyday spaces and settings that are consequential to health into the semi-structured interviewing process. In the docent method, participants act as docents - resident experts - who guide the researcher on walking interviews through key conceptual sites. In this study, the three “sites of interest” were 1) the personal space of the unhoused person (e.g., tent, vehicle, shelter bed/space), 2) the community space (e.g., shared or open spaces in or around the encampments and shelters), and, for people in encampments, 3) the routes/pathways to and around the encampments. By visiting these conceptual sites guided by the expertise of each participant, the docent method enabled a systematic, participant-led investigation of the environmental, social, neighborhood, and structural factors that impacted people's health.

2.2. Participant recruitment and data collection

Participants were recruited in three stages. First, in Summer 2018, we recruited people living in encampments and vehicles ($n = 14$) using a convenience sample and snowball sampling approaches. R.J.A., who was formerly unhoused and has longstanding relationships with members of several key encampments, contacted or approached potential participants to inform them about the study. We focused on three semi-durable encampments for recruitment, locally known as the Bassett, Tully, and Roosevelt encampments. Interviews took place on-site at the encampments, in a semi-private location selected by the participant.

Next, we recruited people staying in shelters ($n = 9$), all of whom had prior experience living in encampments and/or vehicles. Participants were recruited at a large shelter facility in San Jose with the support of staff who posted flyers advertising the study, distributed information sheets, and provided interview rooms. Study participants were interviewed in a private room, then each participant guided us around their personal spaces (e.g., cot, room), and around the facility, including shared spaces and outdoor recreation areas.

In March 2019, at the start of the COVID-19 pandemic, we redesigned the study into a virtual format in order to comply with restrictions to in-person research. Participants ($n = 6$) were recruited by two community-based organizations that provide services to people who are unhoused. Eligible participants were given information sheets about the study, and asked to contact the researchers, who then set up virtual interviews on Zoom or by telephone.

All study participants provided informed consent prior to enrollment. Interviews were recorded using a digital audio-recorder. We used a semi-structured interview guide to cover interview topics, focusing on experiences with shelters, encampments, abatements, and health. The interview process took between one to two hours. During the docent method interviews, we took photos of the physical surroundings using a cell phone camera, avoiding identifying photographs of people's faces. At the end of the interview, we gave each participant twenty dollars in cash or gift card, and in-person interview participants received a care package containing food and personal care items.

2.3. Data analysis

All audio files were transcribed verbatim with identifying information removed. All participants were assigned pseudonyms. All transcripts were uploaded into ATLAS.ti for storage, coding, and analysis. The transcribed data were analyzed by three researchers using grounded theory data analysis approaches (Charmaz, 2014). First, we listened to all of the interview audio files as we reviewed transcripts and field notes for each interview. Reviewing the transcribed data, we conducted initial line-by-line inductive coding of a portion of the interviews. We wrote memos on broad theoretical and substantive topics drawn from initial impressions and interpretations, and organized these memos into an initial set of inductive codes. Next, we used this initial set of inductive codes to code all transcripts in ATLAS.ti. The initial set of inductive codes was supplemented by emerging concepts from the transcript coding. We then listened to the original audio files while reviewing and re-coding interview transcripts. Some codes clustered thematically and were analyzed together. We focused on queries for the codes "encampment experiences" and "encampment abatements" for analysis.

3. Results

For context, in SCC, abatements are initiated based on neighbor complaints, but also on grounds of environmental protection and sanitation. Santa Clara County, known as Silicon Valley, is a large, 1300 square mile, geographically diverse region, and a substantial portion of unhoused people stay in fairly remote outdoor spaces, such as in sites near the forested hills, rivers, creeks, abandoned lots, and industrial spaces interspersed throughout the county. Santa Clara County has among the highest proportions of *unhoused-unsheltered* people in the United States (Turner, 2017). The 2019 unhoused point-in-time count estimated that approximately 9700 unhoused people live in SCC, with 82% living unsheltered. The unhoused-unsheltered population increased 45% (5448 in 2017 to 7922 in 2019) since the 2017 point-in-time count (Applied Survey Research, 2019).

An audit of homeless service programs in San Jose showed a sharp increase in abatements following a 2015 lawsuit to keep waterfronts clean (Office of the City Auditor of San Jose, 2018). Abatements involve a constellation of city departments (e.g., housing, transportation, police, fire, parks and recreation, etc.), abatement contractors, and community

organizations. Though the protocols and practices involved vary, in general, unhoused people are required to remove themselves and their property from a location within 72-hour following notification ("getting posted"). Abatement workers are typically accompanied by law enforcement, who have the authority to seize and discard belongings, issue citations, or even arrest people who do not comply with orders to move (Office of the City Auditor of San Jose, 2018).

The study participants were closely split between women (51.7%) and men (48.3%). Almost half of participants self-identified as Latino (48.3%), 31% as White, 17.2% as Black, and 3.4% Asian Pacific Islander. At the time of the interview, 15 (51.7%) participants were living in encampments, 9 (31%) in shelters, 4 (13.8%) in vehicles, and 1 (3.4%) recently in supportive housing. Most participants were older than 50 (27.6% age 50–59, 31% age 60+), 9 (31%) were in their forties, 2 (6.9%) in their thirties, and 1 (3.4%) was in their twenties.

We report on our grounded theory analysis of participants' experiences with encampments and abatements, focusing on the social environmental mechanisms through which abatements affected their health.

3.1. Forced removal and property seizure destabilized people, and dispossessed them from resources (belongings, social support) needed to survive unhoused

At a basic level, abatements harmed the physical and emotional health of unhoused people by dispossessing them of the belongings they need to survive outdoors - belongings that were often painstakingly procured. Participants reported that during sweeps, their personal belongings of all kinds were taken and discarded by authorities (Image 1). Belongings that were necessities for survival (e.g., medications, tents, blankets, essential records/documents) were routinely seized. Nina, a Latina woman in her fifties and a San Jose native, had been living intermittently in her encampment located in a forested area near Coyote Creek for eleven years. She stayed in a tent, situated under a tarp strung between tree branches. During her interview, she thought back on the destabilizing effects of the prior year when her area was swept every few weeks. She became hypervigilant and unable to let her guard down, because sometimes, her camp would be given a 72-hour notification of an impending sweep, and other times, abatement contractors came without warning. If Nina could not carry her belongings away, everything she needed to survive would be gone, decimating her ability to stay healthy:

Every two weeks ... They would come, and they would sweep. Sometimes they would put up [72-hour] notices, sometimes they wouldn't. A few times, they came and wiped out everything of everybody's. Clothes, food ... It didn't matter what it was. If you had it there, they took everything. Tents. Then you were left with no clothes, no food, nowhere to stay, no blankets or anything. What they're doing is, they're keeping us down. Because then you gotta work harder. You're not able to go to work and make money.

Another participant, Sammy, exemplified the dehumanization and psychological stress of abatement property seizures, and used the term "inhumane" to describe them. Sammy is a White woman in her thirties, and a U.S. Military Veteran, who we met while she was staying at a shelter. During her service and following discharge, Sammy experienced a series of violent traumas and became addicted to opioids. She was a young mother, but tragically lost her youngest son when he was an infant. Sammy, a poised and articulate soldier, choked back tears as she recounted the first major sweep she endured, during which the only remaining photograph she had of her son was discarded. Her account of personal, irreplaceable possessions being seized and tossed away was common among participants. Sammy thought she had an arrangement with the abatement authorities - if she kept the area tidy, they would not sweep the encampment. One day, she discovered the deal was off:

Our first real experience with being swept, we had a guy come up and check our camp out. He goes, "If you clean it up and it looks good, you



Image 1. July 2019. The final day of the abatements at Bassett encampment, after most residents, including Maria, had vacated. Pictured is a tent being discarded as abatement workers cleared the site.

can stay.” And I said, “Okay! I’ll have it cleaned.” We got it spotless. There was not a piece of paper anywhere in the half block radius of my spot. We made it habitable. Well, they took everything. They took the last picture I had of my son. One of their workers ripped it up, in front of me. It’s just inhumane.

Beyond causing material losses, psychological distress, and emotional trauma, encampment sweeps disrupted social connections. Encampments are frequently depicted as nuisances or dangerous spaces, but participants were clear that, in the absence of alternatives, their encampment site was the safest place available to them. We recorded numerous examples of unhoused individuals bonding at their sites, watching out for one another’s property, gathering for meals, and checking in on each other regularly. Even strangers, tacitly understanding their common circumstances, went out of their way to help one another. For example,

Ted is a White man in his late thirties, a U.S. Military Veteran, and the informal leader of his tight-knit encampment. Abatements break up communities, which, Ted explained, were cautiously constructed over time. In his encampment, people supported one another, a dynamic that was hard to come by:

We enclose this area to people that we know, or that we can trust. Because you start getting a camp full of people you don’t know, then you don’t know what’s going on with your stuff while you’re gone. People start stealing your things. So we try to keep it a community here. We’ve got a group of people around us that we’ve known for a while, so we consider it more of a community. We help each other out with food. Some of these people who get food stamps pitch in for food during dinner and we all throw in something to cook, so that helps out with the people who don’t get stamps.

These participants described how common abatement practices resulted in the increased destabilization of unhoused people through the seizure of health necessities and irreplaceable personal belongings, and displacement of community support needed to survive outdoors.

3.2. Abatements pushed unhoused people into hazardous, isolated, often remote areas that were less accessible to health outreach workers

To avoid being swept or forced to move along, unhoused people need to be invisible in plain sight. In response to the threat of abatement orders, unhoused people in SCC have adapted by moving to more isolated, secluded areas that are less likely to be seen and swept. Largely through personal experiences and word of mouth, they have deciphered some of the myriad of abatement patterns and practices, and learned what areas are safer from frequent sweeps. Oftentimes, places that are safer from abatement are those that are difficult to access and less visible to the public. In SCC, these are hazardous spaces, such as the land along train tracks, along or under freeways, behind industrial buildings, on construction sites or empty lots, and deep in forested creeks and hills. That is, sweeping practices effectively push unhoused people into acutely risky places that are isolated, remote, and largely out of reach from public health services and homeless service providers.

For example, Maria, a Latina woman in her fifties, is one of the original members of the Bassett encampment whom we interviewed on several occasions. She settled on the spot alongside the train tracks upon figuring out that three local jurisdictions, who did not coordinate their efforts, owned different parts of the property - the City of San Jose, Union Pacific Railroad, and CalTrans. An abatement by one jurisdiction simply meant that encampment residents could relocate across the street to another jurisdiction's property. As she guided us along the stretch of land occupied by tents, the health risks were apparent. There were no sources of water or bathrooms nearby. Tents, which were often on dirt and gravel, flooded in the rain. Staying alongside the train tracks exposed residents to smog and pollution, including noise pollution, as screeching freight trains passed through every hour, every day, around the clock.

The location put the encampment residents at risk of mortal injury. Maria recounted several incidents of people being injured or killed by trains. Media reports have shown that in California, the number of unhoused people dying from collisions with trains is increasing (Swan, 2019). Yet amid these risks, Maria lived twenty unprotected feet from a moving freight train line because it was a good place to avoid abatements (Image 2). She put herself at risk to reduce the impact of sweeps:

Interviewer: How did you decide on this particular site, out of all of the places in San Jose, to set up?

Maria: Because they can't come over here and give us a paper and tell us to move. They can't. They can't sweep up. This belongs to the train company. So if the train company comes and tells us, "Out!", because it's dirty or whatever, then we have to leave. But we've been here going on five months. All the other camps they had to leave [because it was] too messy, and it wasn't a proper place to be.

The Bassett encampment was fairly conspicuous, visible to residents in an adjacent apartment complex and office building. For most unhoused people, reducing visibility was an essential adaptation to abatements. For example, Martha, a White woman in her fifties, lived in a van with her spouse. The couple was unhoused and unsheltered in encampments for years, but five years ago purchased the van. They equipped it with a narrow twin mattress, mini-fridge, storage, and a hotplate. They usually stayed in the parking lot of a mall, where Martha got informal "permission" from the store manager to park occasionally. In her van, Martha could stay hidden from public judgment, and drive away if detected. She informed us that people staying in visible encampments did not fare well:

They sweep them all the time. There's a small encampment over there at that park over there, Columbus Park. There's one in the middle of the field, and then there's another one across the way in the trees over there. You can see them from the street, that's why they're not going to last that long ... That's just the way it is. [Abatement authorities] say, "I don't care where you go, but you can't stay here."



Image 2. June 2018. Peering out of Maria's tent at Bassett encampment. A man sleeps under a blanket on the reclining couch as a freight train screeches by. Maria stayed in this community with several dozen other individuals because the site was swept less frequently.

The risk of visibility forced unhoused people into living long term in environments that were unsustainable and inadequate for maintaining health (Image 3). Nina, introduced above, lived near the creek, in a spot sheltered by tarps tied to tree branches. Residents staying by the creek explained that the location had no access to electricity or clean water for cooking, cleaning, or bathing. The cellular phone signal was spotty. Without electricity, it was pitch black most nights. We saw several camps burned to the ground from campfires, and other sites were washed away by the creek during seasonal floods (Image 4). Amid these hazards, fifty or more people lived in small camps on a half-mile footpath along the creek. The invisibility and inaccessibility of the location - which could only be accessed by hiking along a dirt path, crossing car gates and wire fences - exposed Nina to health and safety risks, but it appealed to her because it was safer from abatements. When looking for a place to set up in the forest, she said, “You look for the flattest spot. The almost hidden, but not hidden. And you look for who you’re living next to you, because that truly matters ... You want to try to get a spot where it’s not that accessible.”

When unhoused people become invisible to escape abatements, they are also invisible to health outreach workers and other “outside” support systems, cutting off a lifeline. For example, in SCC, public health workers, such as the Backpack Homeless Healthcare Program (“backpack medicine” teams) - a street medicine program run through the county hospital - play an essential role in homeless outreach. Teams of health care providers travel to encampments and provide on-site emergency and basic health care services, as well as providing referrals. Several participants knew the backpack medicine providers by name and eagerly anticipated their visits. However, because unhoused people’s risk assessment favored remaining hidden, medical teams encountered persistent issues locating patients in encampments. In one example, Ted, introduced above, told us he suffered from injuries related to his time in the military. The backpack medicine team visited his encampment every few months, but Ted had not seen them in a year because he had to move to a more secluded location (Image 5):

There is a really great group of doctors who come through here on foot. I think they come through maybe every few months ... I haven’t seen them in a little while and it seems like every time they do, they’ve asked about me, but I haven’t actually talked to them. My sister has talked to them ... I don’t know if they’ve been down here or not. Or if I’ve just missed them because I’m off in the bushes now, further away, or if they just haven’t been here in a while.

In adapting to sweeps, unhoused people relocated to hazardous, riskier, often less visible spaces, an outcome that had detrimental impacts on health. Moreover, this was at odds with public health efforts to locate people, provide on-site services, and maintain consistent contact, further magnifying the harm of social exclusion on unhoused people’s health.

3.3. Abatements increased hostility and distrust between unhoused people and authorities, especially law enforcement

Orders to move were commonly carried out by or alongside law enforcement, resulting in frequent tense, hostile interactions between unhoused people and police. Several participants mentioned their efforts to be friendly and stay on the “good side” of police and abatement workers. Some recounted positive interactions, in which specific police officers offered support. However, such interactions were rare. Most commonly, participants reported that police officers used their authority to harass, disrupt, and, notably, to send the message that unhoused people were unwelcome. Ted, introduced above, was convinced that the purpose of the sweeps was not to clean up encampment sites or promote sanitation, but to cause suffering to the extent that unhoused people do not, or cannot, return. From his perspective, causing distress to unhoused people was itself the objective. He referred to abatements as a form of “state-sponsored harassment.” He told us about one morning when he returned to his encampment to find his tent and belongings were gone:

Slowly but surely, [abatement workers] have come more frequently, but cleaned up less. They’re just trying to bounce us from place to



Image 3. June 2021. A small section of the Columbus Park encampment, referenced by Martha as a site that will eventually be swept. The large encampment is located on empty, open lots adjacent to San Jose Mineta International Airport, which were razed and abandoned decades ago to create a flight path. The encampment population swelled during the COVID-19 pandemic.



Image 4. July 2018. The remainder of a campsite near the Guadalupe River, a secluded, forested area where Nina preferred to stay hidden from sweeps. Sites at the bank of the river were prone to being swept away by seasonal flooding.



Image 5. August 2018. Ted's former encampment under the freeway overpass, occupied by his younger brother. We reached this site by traversing the unpaved path between the freeways and creek system. We hiked along the creek, crossed an abandoned train rail, and jumped over security gates to access this location. Ted relocated from this section to an even more secluded area in a nearby field.

place hoping that we don't come back Most of the time the cops come down the minute the [abatement workers] are here. Cops let anyone who's still around know that they can no longer grab their stuff. Whatever is left now belongs to [the abatement workers]. People gotta get out of here or they'll be arrested ... Now, they don't clean up any of the garbage. What they do is they just take our personal property if we haven't been able to move it out in time.

Ted's descriptions of the aggravation and grief caused by law enforcement during abatements were echoed by several other participants. Izza is a Latinx transgender woman in her fifties who has been unhoused in SCC for over ten years. When we met her, she and her partner were staying in a collection of tents, cardboard, shopping carts, and tarps alongside a fence surrounding a vacant lot that had been cleared for a construction project. During the daylight hours, the couple

pushed a shopping cart with five-gallon water containers and a small dog to a sidewalk with tree shade near a strip mall parking lot. By moving to the shade, Izza risked being noticed and encountering police, but decided it was worth the momentary reprieve from the heat. She told us that from her perspective, the police were the source of instability and greatest misery:

(Translated from Spanish) Things have been awful. There has been a lot of trouble. Not only with other people, but with the police. They are very cruel. They give me citations for no reason, they tell me to move - all in the same day. Throw me out, and look through my things for no reason. They treat me like I am a criminal. I will tell you, my only crime is not having a place to live or sleep in. Even on rainy days they don't have compassion, they kick me out, too, and we get all wet. We have had to move too many times in the same night.

Steven, a Black man in his fifties, occasionally stayed at the Bassett encampment when he was unable to get a bed at the large homeless shelter. He became unhoused four years prior, when his wife's terminal illness put their family in major medical debt. Staying near the train tracks in a tent, working to recover from financial and emotional grief, Steven grappled with what he viewed as law enforcement's indifference toward people's personal hardships. He viewed sweeps as a form of harassment that worsened an already painful period in his life:

The police, when they [sweep], they come on the premises at 6 o'clock or 7 o'clock in the morning, beating on people's tents, say, "Hey. Come on out here. We've got some goodies for you." And then you find out it's the police. They serve you, put a notification on your tent. That's their strategy. They come in their gear and all that. And there's nothing you can do. [Police,] why are you bothering me? You see what I'm going through. Why are you over here bothering me? Some of these encampments are clean. Some of these encampments are kept well up. The police are aware, but it's harassment.

Maria, introduced above, described her efforts to de-escalate the stressful encounters with abatement authorities at the Bassett encampment, back when the site was swept every three months. She recalled when the police tried to intimidate her into leaving ("running"), but she remained, refusing to be treated like a criminal when she had done nothing wrong in her mind:

Packing our bags, packing our carts, and moving to a different spot, that's tough ... I bribe [abatement authorities]. I make them burritos. I give them a sandwich and water ... But they bring a [police] officer. They don't scare us! Maybe they can help us instead of trying to scare people! The [unhoused] people that get scared, they all run. They see a cop, they run. But why are you guys running? They'll go, "Run, Maria, run." Why am I gonna run? Why should I run? I haven't been in trouble since 1988, and that was just for tickets.

The psychological stress and dehumanization experienced by unhoused people, resulting from abatement practices oriented around law enforcement, fortified participants' skepticism and distrust of authorities.

3.4. Distrust in law enforcement increased self-policing and interpersonal violence in unhoused communities

I want the police officers to apologize for all these years, for degrading my humanity ... I'm just so angry every time I see them. Oh, my God, if I could just ... Maybe they'll disappear, because you made my life pure hell, every time I walk down the street. Every time. Every time.

Alexa, a Black woman in her forties, who is quoted above, expressed her outrage at the treatment she received from the police while living unsheltered on the streets. Partly due to the hostility spurred by abatements, law enforcement was largely viewed by participants as a threat and risk. As a result, participants often refused or were reluctant to

contact or interact with police, even in serious, life-threatening situations. To participants, contact with police placed them at greater risk of harassment and arrest, which outweighed the potential benefit of protection. For example, Miranda is a Latina woman in her fifties who was born and raised in San Jose, and was unhoused for several years, but was living in supportive housing when we met her. She recalled the day, five years prior, when her ex-husband was fatally stabbed in a large encampment north of downtown San Jose, known as the Jungle. Miranda called 911 for an ambulance, angering other residents of the encampment:

Because of everything that is going on, a lot of [unhoused] people take justice into their own hands. Which they shouldn't ... They don't trust the cops at all ... Before my ex passed away, they stabbed him up there in the Jungle. I had to [call] 911. Had to wait for enough officers to go down there. They had 15 officers behind me carrying their guns ... I pointed out the direction where my ex was, because he didn't want to get help. He had been stabbed six times ... Everybody was mad at me because I called the cops. Dude, I didn't call the cops, I called the ambulance! But they assume I sent the whole city of San Jose. Still, I think I did the right thing.

In the absence of police, Miranda described that people "take justice into their own hands" in encampments. Over the course of the interviews, several participants described brutal accounts of violence in the encampments, including sexual violence. Sammy, who is introduced above, informed us in detail that in the prior year, she was kidnapped, and physically and sexually assaulted by a stranger. Not trusting law enforcement, and viewing them as ineffective, she did not inform the police or file a police report. One morning, months after the assault, she saw the attacker on the street. When she told her husband, he was determined to seek retribution and settle matters himself. She pleaded with him that retribution was not worth the risk of being caught by law enforcement:

[In encampments] you have no restrictions, you have no rules, except for the rules of law. Even those have been bent, broken, and moseyed around. Even the law will overlook you sometimes. I didn't report [the attack], but [the police] already knew [about the attacker], and that guy's still out there. I encountered him once riding my bike. I almost crashed my bike as soon as I saw him. I rode back as fast as I could, and [my husband was] like, "what was that about?" I told him, "that was him." My husband was like, 'I will chop his head off right now.' I said, "you can't do that. There's too many cameras, you can't do that. I'm not condoning the [assault], but you just can't do that." That's just too much to have to put up with, and I don't want that on my conscience, or on his conscience.

As noted in Finding 1, many congregate encampments were self-managed, with residents developing their own cultures and systems for surviving. There were several examples of self-managed encampments that were operated by tight-knit and supportive communities, such as the one Ted described. In most cases however, self-management in encampments involved self-policing, and, at times, forceful and violent enforcement of informal rules. Nina, who is introduced above, told us about the unofficial "leader" of her encampment by the creek, who created and enforced rules. Interpersonal violence between unhoused people frequently erupted as a result:

Everybody has their little ways. Just recently, we've been having a problem with Little Hitler, I call him. He's trying to be a Hitler here. He has a new rule, and I don't live by his rules ... Basically we're all together, and we try to live together. If we can't, then we either tell the person higher up. If [higher ups] don't do anything, then we try to not be vigilantes. But me? I'm tired. I'm going to hit you if I feel threatened. I'm going to hit you. It's not like I want to do it, but I'm going to do it. If I feel like you're going to come and ruin my space or ruin anything for me or mess with mine, I'm going to do it.

Nina resorts to physical violence to protect herself because she cannot rely on others to help her - not the police, or even others in her encampment. In this context of exclusion from forms of support, she described that encampments can become susceptible to influence from organized crime.

[The gangs] had their laws down there. If you weren't wanted there, they would get your stuff, pack you up, and throw you out. You were gone. A lot of killings, a lot of bodies. Lots of, lots of bodies. That is MS-13's territory. What do they do when they do something? There were a lot of murders, a lot of things like that.

With no formal ways to pursue justice, these conditions entangled some unhoused people into cyclical, entrenched forms of violence, with serious health outcomes. For these individuals, encampment sweeps were an upstream, fundamental cause of downstream interpersonal violence, injury, and death.

4. Discussion

Drawing from unhoused people's narratives of their lived experiences in encampments in SCC, we described four interconnected ways abatements harmed their health: 1) forced relocation and property seizures severed people from possessions, resources, and social supports needed to sustain health; 2) abatements were the underlying reason people relocated into more isolated, hazardous, and remote spaces, which amplified health risks while reducing access to support systems such as health outreach workers; 3) abatements were viewed as a form of harassment, a persistent source of distress and tension between unhoused people and authorities; and 4) distrust caused unhoused people to avoid law enforcement and other authorities altogether, increasing self-policing and the risk of interpersonal violence in encampments. In these ways, we argue that unhoused people's health is harmed directly through encampment sweeps, or through the perilous social environmental conditions created by them.

There are several implications of this research and areas of needed future inquiry. First, in light of the health harms of abatements, we hypothesize that abatement practices may be a key structural factor explaining the soaring numbers of people who are dying while unhoused in SCC. The number of unhoused people dying annually in SCC has increased from 60 deaths per year in 2011, to 203 deaths in 2020 - rising almost every year (Jordan & Wells, 2017), a stark indication of worsening health in this population. Abatement rates are not routinely reported, but an audit of San Jose homeless services showed that in an overlapping time frame, there was a sharp increase in abatements taking place - one estimate indicating a leap from 49 sites in 2013 to 564 sites in 2018 (Office of the City Auditor San Jose, 2018). Overlapping increases do not necessarily indicate a relationship, but given our findings on the health harms of abatements, further research is warranted investigating the scope, dimensions, and directionality of the relationship between abatement practices and health outcomes such as mortality.

Given the growing body of research showing the consequences of abatements on human health, findings like these call into question the practical effectiveness and acceptability of common abatement practices. Abatements have been shown to have destabilizing effects, major health consequences, and cause psychological suffering to unhoused people. They create logistical burdens to public health outreach efforts. Abatements also counter public health logic and street medicine practice recommendations for unhoused people, which call for increasing stability, developing trust, and maintaining ongoing contact with outreach workers and health systems (Stefanowicz et al., 2021; Withers, 2011). In some regions, moratoriums and restrictions on abatements have been enacted given the potential health harms. In California, some counties (e.g., Alameda County) placed limitations on encampment abatement practices, restricting abatements when there are no shelter beds available (per the 2018 decision by the 9th U.S. Circuit Court of Appeals cited

above). In response to COVID-19, several counties in California, including SCC, initially enacted moratoriums on encampment abatements to reduce capacity in the shelter system and allow unhoused people to practice social distancing outside. However, since March 2021, abatements have resumed.

One theme that is apparent through the interviews is that society's heavy reliance on law enforcement in the management of encampments has long term, serious ramifications on people's health. As an alternative to current practices, researchers and advocacy organizations have supported restructuring abatements in favor of models that are less police-oriented and more driven by public health. These can involve specialized police units that exclusively focus on homelessness (e.g., Wichita, Kansas), that respond alongside providers or social workers (e.g., Philadelphia, Pennsylvania; Eugene and Portland, Oregon), and models where service providers or social workers respond to calls without automatic police involvement (e.g., San Francisco, California; New York, New York) (Batko et al., 2020; Townley & Leickly, 2021). In 2020, the San Jose Police Department began a small new pilot program, Mobile Crisis Assessment Team (MCAT), partnering police officers with behavioral health teams to provide a police presence in encampments geared toward de-escalating conflict, crisis management, and harm reduction, instead of only enforcement. These alternative models to police-focused abatements are promising strategies in reducing the health harms of abatements if they are appropriately scaled.

There is also an urgent need for improved documentation, reporting, and tracking of abatement practices, such as types of outreach efforts provided, prevention efforts, demographics of unhoused people who are posted and swept, and abatement-related incidents. In most counties, there is no integrated system for documenting abatements, and sweeps are conducted by a network of organizations - public, private, non-profit. There is no systematic, coordinated way to track, analyze, or report the effectiveness of abatements, nor to assess accountability during abatements. Such data and coordinated tracking systems are needed in local governments to understand the impact of sweeps on unhoused people and the broader community.

Fundamentally, the vast majority of people who are unhoused are living in encampments because there is no alternative when the cost of living is substantially higher than wages. A home is a necessity for basic health and safety. There is an urgent need for long term housing for unhoused people, an issue that requires stronger housing policies beyond the local level, needing to be addressed at the state and federal levels. At the local level in SCC, there is a commendable focus on prioritizing permanent supportive housing, but given the severity of the current housing crisis, there is also an immediate need for wide ranging solutions to unhoused people's health needs. Recognizing the persistent harms that stem from living on the streets for thousands of people, alternative interventions include moving people into hotels, expanding capacity in the shelter systems, providing basic health services in encampments (e.g., food, water, bathrooms, hygiene, medical services), creating safe parking locations with supportive services, funding substance use treatment outreach, and bolstering street medicine outreach. Policy efforts should also focus on interventions that prevent low income individuals from losing housing, such as investments in affordable housing and stronger eviction protections for renters.

There are limitations to this study that require future research. One limitation is that we focused on the health effects of abatements in encampment settings and did not examine how abatements shape people's medical care in health care settings. People of different genders, races, ethnicities, sexualities, and documentation statuses have wide-ranging experiences with encampment dynamics, law enforcement, and abatement authorities that we were not able to analyze fully for this manuscript. In the interviews with unhoused participants, we did not differentiate between abatement practices of different magnitudes (e.g., large-scale abatement of congregant, durable encampments; routine move-along orders of individuals).

The health harms of encampment abatements are preventable. It is common in health research to focus on individual-level factors, such as age or health comorbidities, including substance use or mental health. Another frequent area of focus is social determinants of health, which can include built environments or social networks. This analysis contributes to a growing body of evidence that demonstrates how structural determinants - such as *social policies* created to manage homelessness - ultimately undermine their health. As the numbers of unhoused people's deaths continue to soar every year, there is an urgent need to reimagine social policies with the goal of reducing preventable suffering and untimely deaths of unhoused people.

Acknowledgements

This study was funded by faculty startup funds from the College of Arts and Sciences at Santa Clara University. We are very grateful to the peer reviewers who volunteered to review this paper, for the time and energy they devoted. This study would not have been possible without the collaboration of local organizations supporting unhoused people, including HomeFirst Services of Santa Clara County (Andrea Urton, staff, residents, and volunteers), CHAM Deliverance Ministry (Pastor Scott Wagers), and Recovery Cafe San Jose (Kathy Cordova). We are grateful to Olivia Glowaki and Jennifer Friedenbach from San Francisco Coalition on Homelessness for providing feedback on parts of the manuscript. We would like to thank former Santa Clara University students, Ryan Sharek and Gina Chavez, for their support in data collection and documentation.

References

- Anderson, M. C., Hazel, A., Perkins, J. M., & Almqvist, Z. W. (2021). The ecology of unsheltered homelessness: Environmental and social-network predictors of well-being among an unsheltered homeless population. *International Journal of Environmental Research and Public Health*, 18(14), 7328. <https://doi.org/10.3390/ijerph18147328>
- Applied Survey Research. (2019). *Santa Clara county homeless census and survey comprehensive report*. <https://www.sccgov.org/sites/osh/ContinuumofCare/ReportandPublications/Documents/2015%20Santa%20Clara%20County%20Homeless%20Census%20and%20Survey/2019%20SCC%20Homeless%20Census%20and%20Survey%20Report.pdf>. Published 2019.
- Baker, D. E. (1990). *Anti-homeless legislation: Unconstitutional efforts to punish the homeless*, 45 p. 417). University of Miami Law Review.
- Batko, S., Gillespie, S., Ballard, K., Cunningham, M., Poppe, B., & Metraux, S. (2020). *Alternatives to arrests and police responses to homelessness*. Urban Institute. <https://www.urban.org/sites/default/files/publication/103158/alternatives-to-arrests-and-police-responses-to-homelessness.pdf>.
- Bourgeois, P., & Schonberg, J. (2009). *Righteous dopefiend*. University of California Press.
- Chang, J. S. (2017). The docent method: A grounded theory approach for researching place and health. *Qualitative Health Research*, 27(4), 609–619. <https://doi.org/10.1177/1049732316667055>
- Charmaz, K. (2014). *Constructing grounded theory*. Sage Publications.
- Cohen, R., Yetvin, W., & Khadduri, J. (2019, January 7). *Understanding encampments of people experiencing homelessness and community responses: Emerging evidence as of late 2018*. Department of Housing and Urban Development, Office of Policy Development and Research. <https://www.huduser.gov/portal/publications/Understanding-Encampments.html>.
- Craven, K., Sapra, S., Harmon, J., & Hyde, M. (2021). I'm no criminal, I'm just homeless": The Greensboro Homeless Union's efforts to address the criminalization of homelessness. *Journal of Community Psychology*. <https://doi.org/10.1002/jcop.22671>. Online ahead of print.
- Darrah-Okike, J., Soakai, S., Nakaoka, S., Dunson-Strane, T., & Umamoto, K. (2018). It was like I lost everything": The harmful impacts of homeless-targeted policies. *Housing Policy Debate*, 28(4), 635–651. <https://doi.org/10.1080/10511482.2018.1424723>
- Dunton, L., Khadduri, J., Burnett, K., Fiore, N., & Yetvin, W. (2020, February). *Exploring homelessness among people living in encampments and associated cost*. Department of Housing and Urban Development, Office of Policy Development and Research. <https://www.huduser.gov/portal/sites/default/files/pdf/Exploring-Homelessness-Among-People.pdf>.
- Herring, C. (2019). Complaint-oriented policing: Regulating homelessness in public space. *American Sociological Review*, 84(5), 769–800. <https://doi.org/10.1177/0003122419872671>
- Herring, C., Yarbrough, D., & Alatorre, L. M. (2020). Pervasive penalty: How the criminalization of poverty perpetuates homelessness. *Social Problems*, 67(1), 131–149. <https://doi.org/10.1093/socpro/spz004>
- Israel, B. A., Eng, E., Schulz, A. J., & Parker, E. A. (Eds.). (2013). *Methods for community-based participatory research for health*. Jossey-Bass.
- Jordan, M. A., & Wells, K. (2017, August). *Homeless deaths in Santa Clara county, California. 2011-2016*. Santa Clara County Medical Examiner-Coroner's Office <https://www.sccgov.org/sites/coroner/Documents/MEC-Homeless-Death-Retrospective-Study-2011-2016.pdf>.
- Knight, K. R. (2015). *Addicted. pregnant. poor*. Duke University Press.
- Langegger, S. (2016). After the ban: The moral economy of property. *Antipode*, 48(3), 645–664. <https://doi.org/10.1111/anti.12204>
- Lee, C. T., Guzman, D., Ponath, C., Tieu, L., Riley, E., & Kushel, M. (2016). Residential patterns in older homeless adults: Results of a cluster analysis. *Social Science & Medicine*, 153, 131–140. <https://doi.org/10.1016/j.socscimed.2016.02.004>
- Levitt, A. J., Culhane, D. P., DeGenova, J., O'quinn, P., & Bainbridge, J. (2009). Health and social characteristics of homeless adults in Manhattan who were chronically or not chronically unsheltered. *Psychiatric Services*, 60(7), 978–981. <https://doi.org/10.1176/ps.2009.60.7.978>
- Lopez, A. M. (2020). Necropolitics in the "compassionate" city: Care/Brutality in San Francisco. *Medical Anthropology*, 39(8), 751–764. <https://doi.org/10.1080/01459740.2020.1753046>
- Martin v. City of Boise, 920 F.3d 584 (9th Cir. 2019).
- Minkler, M., & Wallerstein, N. (Eds.). (2011). *Community-based participatory research for health: From process to outcomes*. John Wiley & Sons.
- Montgomery, A. E., Szymkowiak, D., Marcus, J., Howard, P., & Culhane, D. P. (2016). Homelessness, unsheltered status, and risk factors for mortality: Findings from the 100 000 homes campaign. *Public Health Reports*, 131(6), 765–772. <https://doi.org/10.1177/0033354916667501>
- Office of the City Auditor San Diego. (2020). *February. Performance Audit of the city's Efforts to address homelessness*. City of San Diego. https://www.sandiego.gov/sites/default/files/20-009_homelessness_0.pdf.
- Office of the City Auditor San Jose. (2018, November). *Audit of the city's homeless assistance programs: More coordination and better monitoring can help improve the effectiveness of programs*. City of San Jose. http://sanjose.granicus.com/DocumentViewer.php?file=sanjose_3ae28b1ca45aff1a33edc83a56618382.pdf&view=1.
- Rankin, S. K. (2019). Punishing homelessness. *New Criminal Law Review*, 22(1), 99–135. <https://doi.org/10.1525/nclr.2019.22.1.99>
- Rankin, S. K. (2021). Hiding homelessness: The transcarceration of homelessness. *California Law Review*, 109, 559. <https://www.californialawreview.org/print/hiding-homelessness-the-transcarceration-of-homelessness/>.
- Robinson, T. (2019). No right to rest: Police enforcement patterns and quality of life consequences of the criminalization of homelessness. *Urban Affairs Review*, 55(1), 41–73. <https://doi.org/10.1177/1078087417690833>
- Romaszko, J., Cymes, I., Dragańska, E., Kuchta, R., & Glińska-Lewczuk, K. (2017). Mortality among the homeless: Causes and meteorological relationships. *PLoS One*, 12(12), Article e0189938. <https://doi.org/10.1371/journal.pone.0189938>
- Roncarati, J. S., Baggett, T. P., O'Connell, J. J., Hwang, S. W., Cook, E. F., Krieger, N., & Sorensen, G. (2018). Mortality among unsheltered homeless adults in Boston, Massachusetts, 2000-2009. *JAMA Internal Medicine*, 178(9), 1242–1248. <https://doi.org/10.1001/jamainternmed.2018.2924>
- Simon, H. (1992). Towns without pity: A constitutional and historical analysis of official efforts to drive homeless persons from American cities. *Tulane Law Review*, 66, 631.
- Stefanowicz, M., Feldman, B., & Robinson, J. (2021). House calls without walls: Street medicine delivers primary care to unsheltered persons experiencing homelessness. *The Annals of Family Medicine*, 19(1), 84. <https://doi.org/10.1370/afm.2639>
- Stuart, F. (2016). *Down, out, and under arrest: Policing and everyday life in skid row*. University of Chicago Press.
- Swan, R. (2019, September 24). *Fatalities rise in California from people stepping in front of moving trains*. San Francisco Chronicle <https://www.sfchronicle.com/bayarea/article/Fatalities-rise-in-California-from-people-14465162.php>.
- Townley, G., & Leickly, E. (2021). *Portland street response: Six-month evaluation*. Portland State University Homelessness Research & Action Collaborative. https://www.pdx.edu/homelessness/sites/g/files/zndhr1791/files/2021-10/PSU%20Portland%20Street%20Response%20Six-Month%20Evaluation_final%20for%20website.pdf.
- Turner, M. (2017). *Homelessness in the Bay Area: Solving the problem of homelessness is arguably our region's greatest challenge*. The Urbanist. <https://www.spur.org/publications/urbanist-article/2017-10-23/homelessness-bay-area>.
- Westbrook, M., & Robinson, T. (2021). Unhealthy by design: Health & safety consequences of the criminalization of homelessness. *Journal of Social Distress and the Homeless*, 30(2), 107–115. <https://doi.org/10.1080/10530789.2020.1763573>
- Wilking, J., Roll, S., Philhour, D., Hansen, P., & Nevarez, H. (2018). Understanding the implications of a punitive approach to homelessness: A local case study. *Poverty & Public Policy*, 10(2), 159–176. <https://doi.org/10.1002/pop4.210>
- Withers, J. (2011). Street medicine: An example of reality-based health care. *Journal of Health Care for the Poor and Underserved*, 22(1), 1–4. <https://doi.org/10.1353/hpu.2011.0025>

**THE REGIONAL MUNICIPALITY OF
WATERLOO**
Applicants

and

**PERSONS UNKNOWN AND TO BE
ASCERTAINED**
Respondents

Court File No.: CV-25-00000750-0000

**ONTARIO
SUPERIOR COURT OF JUSTICE**

Proceeding commenced at KITCHENER

AFFIDAVIT OF DR. STEPHEN HWANG

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TAB 3

Court File No. CV-25-00000750-0000

**ONTARIO
SUPERIOR COURT OF JUSTICE**

B E T W E E N:

THE REGIONAL MUNICIPALITY OF WATERLOO

Applicant

and

PERSONS UNKNOWN AND TO BE ASCERTAINED

Respondents

ACKNOWLEDGMENT OF EXPERT'S DUTY

1. My name is Dr. Stephen Hwang. I live at the City of Toronto, in the Province of Ontario.
2. I have been engaged by or on behalf of the Waterloo Region Community Legal Services to provide evidence in relation to the above-noted court proceeding.
3. I acknowledge that it is my duty to provide evidence in relation to this proceeding as follows:
 - (a) to provide opinion evidence that is fair, objective and non-partisan;
 - (b) to provide opinion evidence that is related only to matters that are within my area of expertise;and
 - (c) to provide such additional assistance as the court may reasonably require, to determine a matter in issue.

4. I acknowledge that the duty referred to above prevails over any obligation which I may owe to any party by whom or on whose behalf I am engaged.

June 4, 2025

Date

A handwritten signature in blue ink, appearing to read "Stephen Kwany", is written over a horizontal line.

Signature

TAB 4

Court File No. CV-25-00000750-0000

**ONTARIO
SUPERIOR COURT OF JUSTICE**

B E T W E E N:

THE REGIONAL MUNICIPALITY OF WATERLOO

Applicant

and

PERSONS UNKNOWN AND TO BE ASCERTAINED

Respondents

AFFIDAVIT OF LAURA PIN

I, Laura Pin, of the City of Hamilton, in the Province of Ontario, AFFIRM AND SAY:

1. The facts and opinions contained in this affidavit are based on my own research and experiences as well as information not based on my personal knowledge, which I believe to be credible and true.
2. I am an Associate Professor and researcher at Wilfrid Laurier University. I currently lead a multi-year federally funded research project reviewing municipal policy responses to encampments through a human rights lens. Please find attached as **Exhibit “A”** to this affidavit a copy of my current curriculum vitae.
3. I am a member of the Co-creators table of the Plan to End Chronic Homelessness (“PECH”) and have been a member of the table since it was first established. The Plan to End Chronic

Homelessness was approved by the Region of Waterloo (“Region”) on April 24, 2024. The Co-creators table is a group comprised of over 60 community organizations and individuals representing virtually all facets of the homelessness response locally. The role of the Co-Creators table is to coordinate local policy and program action to address chronic homelessness among diverse stakeholders active in the Region, including service providers, lived experts, community advocates, academics and other relevant organizations. The Co-Creators meet once a month for three hours at a time. I cannot always attend the Co-Creators meetings, I estimate that I have attended a third of them to date, however I keep updated by reading the emails and website. Please find here for information the website for the Co-Creators: <https://sites.google.com/overlapassociates.com/pechcocreator>

4. I also sat on a PECH sub-committee chaired by David Alton, who is with Social Development Centre Waterloo Region, from August 2023 to April 2024. The sub-committee focussed on a Human Rights Review of Municipal Policies and Bylaws. The sub-committee met monthly, sometimes more frequently, and were attended by Peter Philips from the Region of Waterloo, who was then the Manager of PECH. The subcommittee prepared a report that was integrated into the Lived Expertise Prototyping report and Plan to End Chronic Homelessness, both of which were subsequently adopted by Regional Council. As part of this work, we met with Commissioner of Social Services Mr. Peter Sweeney in December of 2023 to share findings and discuss the need for a human rights centred approach in housing services and also other regional departments.

5. I believed that by adopting the PECH, the Region committed to a human rights approach. This is mentioned throughout PECH, specifically at page 43 which states “Human Rights needs to be a building block of our community approach to housing (Lived Expertise Prototyping Cohort, 2024) – alongside Housing First – and should drive our empathy, action and advocacy.”
6. On March 20, 2025, I attended the Co-creators meeting. As a part of that meeting the PECH All of Community Leadership Model prototype was provided. The Prototype explained the Model would 1. transform the role of the regional government in relation to homelessness by setting and continually evaluating a shared community vision by upholding human rights in our values, goals and actions; 2. hold the system accountable by formalizing a transparent, explorative and flexible decision-making as well as outcome evaluation; and 3. build an inclusive system and community culture by anchoring work in collective ethics informed by the human rights approach. Please find attached as **Exhibit “B”** a copy of this prototype from the March 20, 2025 PECH Co-Creator Roundtable presentation.
7. Due to my ongoing involvement with regional policy work and expertise in studying of chronic homelessness, the Region approached myself and my colleague Dr. Erin Dej to be hired on contract to engage in policy work for the Region on PECH. In April 2025, the contract for this work had not yet been formally signed but all of the parties were in agreement to move forward. It was planned to announce this contract and our work at the Co-creators meeting on Tuesday, April 15, 2025.

8. On Monday, April 14, 2025, I received an email sent to myself and Dr. Dej from the Manager of the PECH, Ms. Jen Gordon titled “Can we chat ASAP”. Please find attached as **Exhibit “C”** a copy of this email. We arranged to meet over Microsoft Teams that afternoon. In the meeting was myself, Dr. Dej, Ms. Jen Gordon, Mr. Ryan Pettipiere, the Director of Housing Services for the Region, and Mr. Chris McEvoy, Manager, Housing Policy & Homelessness Prevention for the Region.
9. During the meeting Mr. Pettipiere explained there was an announcement happening on Wednesday, April 16, 2025 from the Region and he expected that Dr. Dej and I would be upset with the content of the announcement to the extent that we may find ourselves unable to continue working with the Region. He indicated the Region still wanted Dr. Dej and I to agree to the contract but because of the announcement it may change my and Dr. Dej’s decision about working with the Region. Mr. Pettipiere did not provide any more information about the nature of the announcement. Ms. Gordon recommended we delay announcing to the Co-creators table the policy work until after the Region’s announcement. We agreed to this arrangement.
10. On April 15, 2025, Erin Dej and I attended the Co-creator meeting. No mention was made by Region staff of any upcoming announcement.
11. On April 16, 2025, I learned that as of 1:00 pm police officers and bobcats arrived at the 100 Victoria Street Encampment (the “Encampment”). I was concerned about the impact that police officers and bobcats would have on people staying at the Encampment, as sudden

deployment of heavy equipment without pre-warning or communication is retraumatizing for people experiencing homelessness who have experienced forced displacement in the past. I sent out an email to the full Co-creators email list of over 125 plus members to ask for some transparency and accountability with respect to their presence, as I had heard from community members present at the Encampment at 1:00 pm that people staying there were concerned that the equipment could indicate plans for forced removal. Please find attached as **Exhibit “D”** a copy of this email. I did not receive a response to the email from anyone at the Region to my email. I did receive reply-all responses from two other members of the Co-Creators table expressing concern and asking for clarity. To my knowledge, the Region did not respond directly to any of these emails.

12. On April 16th, 2025 at 2:46 pm, I received an email message from Commissioner Sweeney, indicating that the Region was going to be considering a new by-law concerning the Encampment, and that the report and draft text of the by-law would be available on the Region’s website at 4:00 pm, as part of the agenda package for the Regional Council Meeting planned for April 23, 2025. Please find attached as **Exhibit “E”** a copy of this email. Shortly after 4:00 pm, I reviewed the draft report and Site Specific By-Law (“By-Law”). I was surprised that there had been no previous consultation with the PECH Co-Creators concerning the By-Law as it related to individuals experiencing chronic homelessness in the Region and as such fell within my understanding of the mandate of PECH. I also was concerned that there had been no consultation concerning the By-Law with individuals residing at the Encampment, or with service providers working with people at the Encampment or with those experiencing chronic homelessness across the Region more broadly, as my understanding of the PECH was

that it created a set of expectations that collaborative discussion with the housing and homelessness ecosystem would be part of any policy and program decisions concerning chronic homelessness.

13. Beyond the exclusion of PECH, I was particularly concerned about a number of provisions in the By-Law that seemed to make it functionally impossible (or at least very difficult) to maintain a tent/shelter structure at the Encampment, including restrictions on movement for residents, restrictions on site access for service providers, provisions for kettling residents into progressively smaller pieces of the property, vague and unclear prohibitions on harmful or threatening materials, and highly punitive fines for contravening any part of the By-Law. I also was concerned about the section of the staff report that described the By-Law as retroactively applying from date of notice once Regional Council approved the By-Law, as this seemed to imply that residents (who had not yet been informed of the By-Law) should be pre-emptively complying with guidelines that were not yet approved, or even publicly discussed.

14. I attended the online debrief meeting on April 17, 2025 facilitated by the Region and asked several questions. Commissioner Sweeney attempted to answer my questions, however, I found the responses either unclear, or clear but inconsistent with what was in the staff report that accompanied the By-Law, which he had approved. For example, the Commissioner emphasized that the By-Law was not yet in effect, however, the staff report clearly states that the By-Law applies retroactively to day of announcement.

15. On April 23, 2025, I attended the Regional Council meeting as a delegate on the By-Law I explained that I find the process by which the By-Law was developed deeply concerning. I

expressed my worry that the approach at the Encampment would be ineffective and undermine trust with community partners. I emphatically expressed that I could not fathom how the By-Law was developed without consulting the PECH Co-creators. This wasted the tremendous amount of work invested in building up collaborative policy infrastructure and the time and energy spent by service providers and lived experts.

16. In my delegation I pointed out that the By-Law was developed in secret, without input from community members and organizations. No one at the Encampment were informed of the By-Law and it was announced to the residents by the presence of police, bobcats and dumpsters. This announcement was not trauma informed or conducive to building pathways towards housing. I explained that on April 22, 2025, I spent time at the Encampment speaking with residents and no one from the Region had spoken to them about the By-Law. This was not meaningful engagement, not consistent with PECH or a human rights approach, or even good policy making.

17. My second point I made in my delegation was that there are not enough supportive housing spaces or subsidies available to house people experiencing homelessness by December 1, 2025. Given the Region's own recent point in time count which showed 2,300 residents of the Region experiencing homelessness, the situation has worsened since the decision issued by The Honourable Justice Valente in [*The Regional Municipality of Waterloo v. Persons Unknown and to be Ascertained*, 2023 ONSC 670](#). The proposal by the Region to offer motel rooms was made without any direct consultation with residents or service providers. This option is not

viable because of the significant barriers to these spaces and that they are temporary, not permanent, housing solutions.

18. Lastly, the By-Law criminalizes the survival activities of the residents of the Encampment and those who provide assistance to them. The By-Law prohibits anyone who was not a resident as of April 16, 2025 from residing there and proposes fines up to \$5,000.00 for individuals who move their structures without permission to another part of the lot, for example, to avoid flooding or hazards. The By-Law outlines a process for progressively “kettling” or fencing in the site while residents are still living there. This is not consistent with a human rights approach. I asked for Regional Council to direct staff to work with the PECH Co-creators table to create a realistic plan to work within the seven month timeframe which would be consistent with the principles of PECH to avoid harming and further marginalizing people experiencing homelessness in our community.

19. Despite my delegation and those from many other community members, Regional Council passed the By-Law.

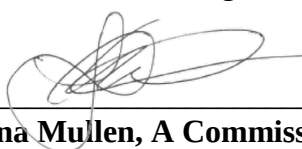
20. Since the passing of the By-Law I have worked to develop a survey to facilitate interviews of residents of the Encampment as well as other people in Waterloo Region and Hamilton experiencing homelessness. The Realizing the Right Encampment Survey provides a snapshot of the experiences of people staying in encampments in the Region. We surveyed 41 individuals who had stayed in encampments in Waterloo Region in the past 12 months. We found that most people have stayed in encampments for more than six months, with some

individuals indicating they have lived in encampments for several years. We further found that 66% of respondents described having a disability. We found that people staying in encampments in Waterloo Region experience multiple, complex, and overlapping barriers to emergency shelter access, relating both to the availability and accessibility of emergency shelter spaces. There are significant barriers to accessing permanent housing for people staying in encampments, including insufficient income to access private market housing, long waitlists for social housing, difficulty connecting with housing workers, and complex administrative rules governing social housing processes. Please find attached hereto as **Exhibit “F”** a Snapshot of our Realizing the Right Waterloo findings.

21. Since the passing of the By-Law I understand there has been an increased security presence noticeable decrease by Mutual Aid supporters in food, clothing and supply donations. I attach an op-ed written by my colleague Dr. Dej hereto as **Exhibit “G”** titled “Don’t block the help: Restoring access and dignity to Kitchener encampment residents” which was published in the Waterloo Record on June 10, 2025.

22. I make this Affidavit in support of the Respondent’s Application and for no improper purpose.

SWORN remotely by Laura Pin at the City of Hamilton, in the Province of Ontario, before me at the County of Wellington in the Province of Ontario on July 9, 2025 in accordance with O. Reg. 431/20.


**Joanna Mullen, A Commissioner
of Oaths (LSO#: 64535V)**


Laura Pin

THIS IS **EXHIBIT "A"** REFERRED TO
IN THE AFFIDAVIT OF LAURA PIN
SWORN REMOTELY AT THE CITY
OF HAMILTON BEFORE ME AT THE
COUNTY OF WELLINGTON DURING
A VIDEOCONFERENCE IN
ACCORDANCE WITH O.REG. 431/20,
ADMINISTERING OATH OR
DECLARATION REMOTELY THIS 9th
DAY OF JULY, 2025



JOANNA MULLEN
A Commissioner, etc.,
Province of Ontario,
While a Barrister and Solicitor.
LSO#: 64535V

LAURA PIN, PhD
 Department of Political Science
 Wilfrid Laurier University
 lpin@wlu.ca

CURRICULUM VITAE

RESEARCH EXPERTISE

Canadian politics, housing policy, social policy, deliberative democracy, participatory democracy, municipal and local government, community engaged scholarship

DEGREES

2019	Ph.D. Political Science York University, Toronto, ON. Dissertation: <i>Participatory Governance, Neoliberal Restructuring and Participatory Budgeting in Chicago, IL</i> Supervisor: Dr. Dennis Pilon
2010	M.A. Globalization Studies McMaster University, Hamilton, ON. Supervisor: Dr. Suzanne Mills
2009	H. Bach. Arts & Science McMaster University, Hamilton, ON.

ACADEMIC POSITIONS

2025-present	Associate Professor Department of Political Science Wilfrid Laurier University, Waterloo ON.
2021-present	Assistant Professor Department of Political Science Wilfrid Laurier University, Waterloo ON.
2023-2024	Acting Director Laurier Institute for the Study of Public Opinion and Policy (LISPOP) Wilfrid Laurier University, Waterloo ON.
2019-21	Postdoctoral Scholar Department of Political Science & Community Engaged Scholarship Institute University of Guelph, Guelph, ON.
2020	Interim Project Manager SSHRC Partnership Grant University of Guelph, Guelph, ON.
2016	Visiting Scholar, Great Cities Institute

University of Illinois, Chicago, IL.
Supervisor: Dr. Rachel Weber

AWARDS

2024	Laurier Equity, Diversity, and Inclusion Fund (\$890)
2024	Laurier Teaching Release, Research Category
2023	Laurier Merit Award, Research Category (\$1,200)
2023	Laurier Teaching Release, Research Category
2021-2023	SSHRC Postdoctoral Scholarship, CMHC stream (declined) (\$90,000)
2019-20	Community Engaged Scholarship Institute (CESI) Research Grant (\$5,000)
2016	SSHRC Michael Smith Foreign Study Supplement (\$4,500)
2013-16	SSHRC Joseph-Armand Bombardier Canada Graduate Scholarship (\$105,000)
2012	York Graduate Scholarship (\$3,000)
2009-10	Ontario Graduate Scholarship (\$15,000)

EXTERNAL RESEARCH GRANTS

2025-28	SSHRC Partnership Development Grant (applicant) \$191,770 <i>Staying Home 2.0: Rent Banks, Housing Stability and Eviction Prevention Across Canada</i> *Ranked 5th out of 107 applications in the adjudication committee
2024-27	SSHRC Insight Grant (co-applicant, with Dr. Pascal Lupien) \$94,776 <i>Political Participation and Migrants: A Comparative Study of Mechanisms and Strategies For Making Migrants' Voices Heard</i>
2024	MITACS Accelerate Grant (applicant, with Dr. Anthony Piscitelli) \$15,000 <i>Housing Affordability Financing Study</i>
2023-25	SSHRC Insight Development Grant (applicant) \$63,737 <i>Realizing the Right to Housing: Municipal Policy Responses to Encampments in Canada</i>
2023-25	CIHR Planning and Knowledge Dissemination Grant \$50,000 (co-applicant, with Dr. Lara Nixon). <i>Co-designing Equity Care with Older People with Experiences of Homelessness (OPEH): Exchanging Knowledge, and Planning Future Systems Improvement</i>
2022-23	SSHRC Partnership Engage Grant (applicant) \$24,550 <i>Filling the Gap: The Role of Social Engagement Hubs in a World Changed by COVID-19</i>
2022	Canadian Mortgage and Housing Corporation (co-applicant, with Dr. Leah Levac) \$32,000 <i>A National Housing Strategy By and For Whom? Documented Experiences of People with Living Knowledge of Housing Need</i>
2021-23	SSHRC Partnership Engage Grant (applicant, with Dr. Tobin Haley) \$24,633 <i>Staying Home: An Exploratory Study of Rent Banks in Canada</i>

2021-23	District of Kitimat, British Columbia (co-applicant with Dr. Leah Levac) \$75,000 <i>Diversity and Inclusion Planning in a Small Northern Municipality</i>
2020-22	SSHRC Connection Grant (applicant) \$30,200 <i>Transforming policy through digital storytelling: A workshop and symposium on homelessness on the rural-urban fringe (RUF)</i>
2020	Employment and Social Development Canada (collaborator, with Dr. Deborah Stienstra) \$94,995 <i>Disability Inclusion Analysis of Lessons Learned and Best Practices of the Government of Canada's Response to the COVID-19 Pandemic</i>
2019-20	SSHRC Knowledge Synthesis Grant (collaborator, with Dr. Deborah Stienstra) \$29,000 <i>Addressing the + in GBA plus: Exploring promising international practices in impact assessments</i>

INTERNAL RESEARCH GRANTS

2024	University of New Brunswick Harrison McCain Young Scholar Award (co-applicant with Dr. Tobin Haley) \$15,000. <i>Rent Banks in Canada.</i>
2023	Wilfrid Laurier University Internal Category A Grant (applicant) \$12,900 <i>Municipal Encampments through a Human Rights Lens: A Case Study of A Better Tent City (ABTC) in Kitchener, ON</i>
2020	University of Guelph COVID-19 Catalyst Grant (applicant) \$19,950 <i>Mobilizing Marginalized Knowledges and Practices for Structural Transformation</i>

EXPERT CONSULTING

2024-2025	Client: Norton Rose Fulbright Canada Court Case: Clinique Juridique Itinérante v. Ville de Saint- Jérôme, No: 700-17-020156-245
2023-24	Client: Social Development Centre Waterloo Region and Region of Waterloo Project: Plan to End Chronic Homelessness
2023	Client: City of Kitchener Project: Places and Spaces Parks Plan
2022	Client: Waterloo Region Community Legal Services Court Case: The Regional Municipality of Waterloo v. Persons Unknown and to be Ascertained, 2023 ONSC 670
2021-22	Client: Services and Housing in the Province (SHIP) Project: Program Evaluation, Short Stay Crisis Support Program Peel Region
2017-19	Client: Services and Housing in the Province (SHIP)

Project: Program Evaluation, Ontario Trillium Foundation Local Poverty Reduction Initiative, Community Flex Fund

2017-18 Client: Samara Centre for Democracy
Project: Member of Provincial Parliament Survey

PUBLICATIONS¹

Peer Reviewed Journal Articles

- 2025 Levac, L., **Pin, L.**, Buchnea, A., Malenfant, J., & Annan, J. (2025). A national housing strategy for whom? Possibilities and limits in Canada's National Housing Strategy (NHS) for a rights-based housing regime. *International Journal of Housing Policy*, 1-30.
- 2024 **Pin, L.**, Haley, T., and Levac, L. Using Community-Engaged Arts-Based Methods to Explore Housing Insecurity in Rural-Urban Spaces. *Engaged Scholarship Journal: Community-Engaged Research, Teaching, and Learning*. Forthcoming Jul 2024.
- 2024 Malenfant, J, Annan, J, **Pin, L.**, Levac, L., and +Buchnea, A. Toward the Right to Housing in Canada: Lived Experience, Research, and Promising Practices for Deep Engagement. *Engaged Scholarship Journal: Community-Engaged Research, Teaching, and Learning*. Forthcoming Jul 2024.
- 2024 Haley, T., Woodhall-Melnik, J., and **Pin, L.** New Roles Amidst Crisis: Comparing Municipal Affordable Housing Strategies in New Brunswick. *International Journal on Homelessness* Forthcoming Jul 2024.
- 2022 **Pin, L.**, and Haley T. On the Edge of the Bubble. Transformative Housing Policy on the Rural-Urban Fringe. *Journal of Rural and Community Development*. 1-24.
- 2022 **Pin, L.**, Levac, L., and +Rodenburg, R. Legislated Poverty? An Intersectional Policy Analysis of Covid-19 Income Support Programs in Ontario, Canada. *Journal of Poverty*, 1-28. <https://doi.org/10.1080/10875549.2022.2113590>
- 2022 Levac, L., Cattapan, A., Haley, T., **Pin, L.**, Tungohan, E., and Wiebe, S.M. Better Together: Disrupting Power and Transforming Public Policy with Engaged Scholarship. *Policy and Politics*, 1-24.
- 2021 **Pin, L.** From Aldermanic Patronage to Aldermanic Menus: Racial Exclusion and the Reinvention of Participatory Democracy in Neoliberal Chicago. *Studies in Political Economy*. 102(2): 1-21
- 2021 **Pin, L.** Bridging the Gap between Electoral and Participatory Democracy: The Electoral Motivations behind Participatory Budgeting. *Urban Affairs Review*. <https://doi.org/10.1177/1078087420964871>
- 2020 **Pin, L.** Intersections of Race, Class and Citizenship in Participatory Democracy: Interrogating the Racial Dynamics of Participatory Budgeting. *New Political Science: Special Issue on Race and Citizenship*. <https://doi.org/10.1080/07393148.2020.1840199>

¹ * Authors contributed equally; authors listed in alphabetical order.

^ Denotes community collaborator

+ Denotes a student collaborator

- 2018 *Bernhardt, N. and **Pin, L.** Engaging with 'identity politics' in the Canadian social sciences. *Canadian Journal of Political Science*. 51(4): 771-794.
- 2017 **Pin, L.** Does Participatory Budgeting Lead to Local Empowerment? The Case of Chicago, IL *Alternate Routes*. 28: 114-141.
- 2017 *Gray, M. and **Pin, L.** (2017). University Branding, Securitization and Campus Sexual Assault at a Canadian University. *The Annual Review of Interdisciplinary Justice Research*. 6: 86-110.
- 2016 **Pin, L.** Global Austerity and Local Democracy: The Case of Participatory Budgeting in Guelph, ON. *Canadian Political Science Review*. 10(1): 72-108.
- 2010 Evans, B.J., **Pin, L.**, Melnick, D.J., Wright, S.I. (2010). Sex linked inheritance in macaque monkeys: implications for effective population size and dispersal. *Genetics* 185: 923-937.

Peer Reviewed Journal Articles Under Review

- 2025 **Pin, L.**, +Barnett, R.G., +Ermeta, N., and +Suthakaran, A. 'More than Shelter: A Case Study of Wellbeing in a Sanctioned Managed Encampment in Ontario, Canada. *International Journal on Homelessness*. (under review)
- 2024 **Pin, L.**, +Barnett, R.G., +Ermeta, N., and +Suthakaran, A. 'Community Beyond Expectations': The Role of Autonomy and Care in Managed Encampments. *Urban Geography*. (revision submitted May 2025).

Peer Reviewed Book Chapters

- 2022 +Grand Maison, V., +Reinders, K, **Pin, L.**, ^Abbas, J, and Stienstra, D. Cumulative and Cascading Impacts of Invisibility: An Intersectional Approach to Understanding the Housing Experiences of Canadians with Disabilities During COVID-19. *Research in Social Sciences and Disability*. 1-19.
- 2022 Haley, T.L. and **Pin, L.** Injustice in Incentives: Doing Research with People Living with Poverty. In Casey Burkholder (Ed.) *Leading and Listening to Community: Facilitating Qualitative, Arts-Based & Visual Research for Social Change*.
- 2019 Gray, M., **Pin, L.**, Cooper, A. (2019). Curated Consultation in Sexual Assault Policy-Making Processes. In K.A. Malinen (ed.), *Dis/Consent: Perspectives on Sexual Violence and Consensuality*. Fernwood Publishing.

Papers for Refereed Conferences

- 2025 Haley, T. and **Pin, L.** "Sustaining an Unsustainable System: Policy Failure and Rent Banks in Canada". Canadian Political Science Association Annual Conference, George Brown College, Toronto, ON.
- 2024 **Pin, L.**, Barnett, R.G., Ermeta, N., and Suthakaran, A. 'Community Beyond Expectations': The Role of Autonomy and Care in Managed Encampments Canadian Political Science Association Annual Conference, McGill University, Montreal, QC.
- 2023 Levac, L., and **Pin, L.** A national housing strategy for whom? Possibilities and limits in Canada's National Housing Strategy (NHS) for a rights-based housing regime. Canadian Political Science Association Annual Conference, York University, Toronto, ON.

- 2022 Levac, L. and **Pin, L.** Pursuing Participatory Policy-Making to Address Systemic Oppression in Small, Northern Municipalities. Canadian Political Science Association Annual Conference, Virtual Conference
- 2022 +Brown, A., Gillies, S., +Marshall, V., +Mcgurk, Hannah, and **Pin, L.** (2022, June). How do municipalities in respond to encampments? Evaluating municipal responses in Ontario and Manitoba using a human rights framework. Canadian Political Science Association Annual Conference, Virtual Conference
- 2021 *Haley, T. and **Pin, L.** On the Edge of the Bubble. Transformative Housing Policy on the Rural-Urban Fringe. Canadian Political Science Association Annual Conference, Virtual Conference.
- 2021 **Pin, L.** and Levac, L. Legislated Poverty? An Intersectional Policy Analysis of Covid-19 Income Support Programs in Canada. Canadian Political Science Association Annual Conference, Virtual Conference.
- 2021 *Bernhardt, N., and **Pin, L.** Troubling the Lack of Settler-Colonial Truths in Introductory Approaches to Teaching Canadian Political Science. Canadian Political Science Association Annual Conference, Virtual Conference.
- 2020 **Pin, L.** Participatory Neoliberalism? The Reinvention of Participatory Democracy in the Neoliberal Era. Workshop: Exploring a Critical Institutionalism, York University, Toronto.
- 2020 **Pin, L.**, Haley, TL. Homelessness on the Rural-Urban Fringe: The Case of Dufferin County. Urban Policy and Marginalized Groups. Canadian Political Science Association Annual Conference (Congress), University of Western Ontario, London, ON. *Conference cancelled due to Covid-19.*
- 2019 **Pin, L.** Exploring the Social Struggles over Redevelopment in a Chicago Neighbourhood. Paper presented at the Society for the Study of Social Problems (SSSP) Annual Conference. Roosevelt Hotel, New York, NY.
- 2019 ***Pin, L.**, Bernhardt, N. ‘Sorry, Not Sorry’: Troubling our Positionality as non-Indigenous Educators Teaching on the Canadian State. Workshop: Teaching and Learning after the TRC. University of British Columbia, Vancouver, BC.
- 2019 **Pin, L.** Bridging the Gap between Electoral and Participatory Democracy: The Electoral Motivations behind Participatory Budgeting. Paper being presented at the Canadian Political Science Association (CPSA) Annual Conference, University of British Columbia, Vancouver, BC.
- 2019 **Pin, L.** Intersections of Race, Class and Citizenship in Participatory Democracy: Interrogating the Racial Dynamics of Participatory Budgeting. Paper being presented at the Canadian Political Science Association (CPSA) Annual Conference, University of British Columbia, Vancouver, BC.
- 2018 **Pin, L.** Bottom-Up or Top-Down? Participatory Budgeting and Community Empowerment. Paper presented at the Participate!, University of Illinois, Chicago, ON.
- 2018 **Pin, L.** (2018, Apr.). “How Would You Spend a Million Dollars?” A Tale of Neighborhood Redevelopment and Participatory Budgeting. Paper presented at

- the Urban Affairs Association Annual Conference, Sheridan Hotel Center, Toronto, ON.
- 2017 **Pin, L.** What Can Critical Theory Teach Us About Participatory Budgeting? Paper presented at the American Political Science Association (APSA) Annual Conference. San Francisco, CA.
- 2017 **Pin, L.** “How Would You Spend a Million Dollars?” A Tale of Gentrification and Pro-Poor Budgeting. Paper presented at the Society for the Study of Social Problems (SSSP) Annual Conference. Hotel Bonaventure, Montreal, QB.
- 2017 Bernhardt, N. and **Pin, L.** ‘Real’ Politics and ‘Identity’ Politics: resisting the reprivatizing of particular ‘identities’ in political discourse. Paper presented at the Canadian Political Science Association (CPSA) Annual Conference. Ryerson University, Toronto, ON.
- 2016 **Pin, L.** Governing Democracy: Participatory budgeting, deliberative democracy and urban governance. Paper presented at the Canadian Political Science Association (CPSA) Annual Conference. University of Calgary, Calgary, AB.
- 2016 *Bernhardt, N. and **Pin, L.** What's in a name? Disciplinary Engagement with 'Identity Politics' in Canadian Social Sciences. Presentation at the Women's and Gender Studies et Recherches Féministes (WGSRF) Annual Conference. University of Calgary, Calgary AB.
- 2016 *Bernhardt, N. and **Pin, L.** 'Identity Politics' Backlash: Interrogating Disciplinary Engagement with Marginalized 'Identities' within Canadian Social Sciences. Paper presented at the Interdisciplinary Center for Gender Studies International Congress. Institute of Social and Political Sciences Universidade de Lisboa, Lisbon, Portugal.
- 2015 **Pin, L.** Global Austerity and Local Democracy: Participatory Budgeting in Hamilton, ON. and Guelph, ON. Paper presented at the Contesting Canada's Future Conference. Trent University. Peterborough, ON.
- 2014 **Pin, L.** Does Deliberative Democracy Work? An Investigation of Participatory Budgeting in Guelph, ON. and Hamilton, ON. Paper presented at the Canadian Political Science Association (CPSA) Annual Conference. Brock University, St. Catharines, ON.
- 2014 **Pin, L.** Reconstructing the nation through mega events: The Vancouver 2010 Olympic Games and Indigenous Peoples. Paper presented at the International Studies Association Conference. Sheraton Hotel, Toronto, ON.

Research Reports, Government

- 2023 Levac, L., **Pin, L.**, ^Ramadatt, J., ^Christiansen, R., and +Zhang, X. (2023). Diversity and Inclusion Planning: A Report for the District of Kitimat, BC. Report prepared for the District of Kitimat.
- 2022 Levac, L., +Buchnea, A., **Pin, L.**, +Karyar, R., Annan, J., Morton, E. and Malenfant, J. (2022). A National Housing Strategy By and For Whom? Report prepared for the National Housing Council. <https://assets.cmhc-schl.gc.ca/sites/place-to-call-home/pdfs/national-housing-council/nhs-a-national-housing-strategy-by-and-for-whom-en.pdf?rev=9090b766-002c-4e4a-a757-0502aeca9f9b>
- 2020 Stienstra, D., +Grand'Maison, V., **Pin, L.**, +Rodenburg, E., Garwood, K., and +Reinders, K. (2020). Disability Inclusion Analysis of Lessons Learned and Best

Practices of the Government of Canada's Response to the COVID-19 Pandemic. Report prepared for Employment and Social Development Canada.

- 2018 *Morden, M., Mussell, J., **Pin, L.**, and Preston, S. National Action for Civic Literacy. (2018). Report prepared by Samara for the Privy Council Office of the Government of Canada.

Research Reports, Community Organizations

- 2025 **Pin, L.**, Brusse, R., and Dej, E. Realizing the Right: Municipal Policy Responses to Encampments Waterloo Region Snapshot. Social Development Centre Waterloo Region.
- 2024 Piscitelli, A., Ornelas, V., Hayes, N., Guevara, M., Lovell, M., and **Pin, L.** Credit Unions and Housing Affordability: Canadian Trends and Opportunities. Conestoga Social Innovation Lab. <https://research.conestogac.on.ca/research-publications/publications/credit-unions-and-housing-affordability-canadian-trends-and-opportunities>
- 2024 Haley, T. and **Pin, L.** Staying Home: The Role of Rent Banks in Enhancing Housing Stability for Canada's Renter Households. Canadian Rentbank Coalition. ISBN 978-1-0688751-0-6. https://www.rentbanks.ca/_files/ugd/643ed5_a842ae706c4b4d94924a9383c56ba2a8.pdf
- 2024 **Pin, L.**, +Barnett, N.R.G., +Ermeta, N., and +Suthakaran, S. "A Place to Find Community" Findings from the A Better Tent City Survey. Report hosted by Social Development Centre Waterloo Region. <https://civichubwr.org/a-better-tent-city/>
- 2023 **Pin, L.**, Forma, L., and ^Petrovic, A. Civic Engagement and Grassroots Organizing through the COVID-19 Pandemic: A Case Study of Civic Hub Waterloo Region. Report hosted by Social Development Centre Waterloo Region. <https://www.waterlooregion.org/sites/default/files/CivicHubReport-2023.pdf>
- 2022 +Brown, A., +Gillies, S., +Marshall, V., +Mcgurk, Hannah, and **Pin, L.** Homeless Encampments Through a Human Rights Lens. Report hosted by Canadian Observatory on Homelessness. <https://www.homelesshub.ca/resource/homeless-encampments-through-human-rights-lens>
- 2022 Haley, T., **Pin, L.**, Marshall, V., and +Berthelot, P. Barriers Beyond the City: Housing and Economic Poverty in Dufferin County. Dufferin Lived Experience Collective. www.dufferinchange.ca
- 2022 **Pin, L.**, Haley, T., + Berthelot, P., and +Marshall, V. Food Insecurity in Farm Country. Dufferin Lived Experience Collective. Report. www.dufferinchange.ca
- 2022 **Pin, L.** and Haley, T. Short Stay Crisis Housing Nursing Support. Program Evaluation for the Short Stay Crisis Support Program (SSCSP) in Peel Region. Report prepared for Services and Housing in the Province (SHIP).
- 2021 **Pin, L.**, Levac, L., +Rodenburg, E., and +Hatt, K. Dangerous Disruptions to Money, Essentials for Daily Living and Housing. The COVID-Related Experiences of People Living with Poverty in Rural and Small Urban Communities in Southern Ontario. University of Guelph Live-Work-Well Research Centre. <https://liveworkwell.ca/dangerous-disruptions-local-intersections-poverty-and-covid-19-guelph-wellington-and-dufferin-o>

- 2021 **Pin, L.**, Levac, L., +Rodenburg, E., and +Hatt, K. The Need for Permanent Supportive Housing: An Intersectional Analysis of COVID-Related Housing Policies. University of Guelph Live-Work-Well Research Centre <https://liveworkwell.ca/sites/default/files/pageuploads/NeedforSupportiveHousing.pdf>
- 2021 **Pin, L.**, Levac, L., +Rodenburg, E., and +Hatt, K. Unequal Income Support and the Case for a Universal Basic Income: An Intersectional Analysis of COVID-Related Income Policies. University of Guelph Live-Work-Well Research Centre <https://liveworkwell.ca/sites/default/files/pageuploads/CaseforUniversalBasicIncome.pdf>
- 2019 Haley, T.L., **Pin, L.**, Mussell, J., & Froese, R. Final Report for Poverty Reduction Grants: A Picture of Poverty in Dufferin County. Report prepared for the Ontario Trillium Foundation.
- 2016 Chan, M., Gapski, G., Hurley, K., Ibarra, E., **Pin, L.**, Shupac, A. and Szabo, E. (2016). *Bike Lanes, On-Street Parking and Business in Parkdale: A Study of Queen Street West in Toronto's Parkdale Neighbourhood*. Toronto Coalition for Active Transportation. Toronto, Ontario.
- 2016 * Gray, M. and **Pin, L.** *Invisible supports: Examining undergraduate student knowledge of sexual assault resources at York University*. SIV. Toronto: Ontario.
- 2012 **Pin, L.** and Martin, C. Student Health: Bringing Healthy Change to Ontario's Universities. Research Report. Toronto: Ontario Undergraduate Student Alliance.
- 2011 **Pin, L.**, Martin, C. and Andrey, S. *Rising Costs: A Look at Post-Secondary Expenditures*. Research Report. Toronto: Ontario Undergraduate Student Alliance.
- 2010 CSA, OSTA and OUSA. *Breaking Barriers: A Strategy for Equal Access to Higher Education*. Research Report. Toronto: Ontario Undergraduate Student Alliance.

INVITED PRESENTATIONS

- 2024 MacLatchy, D. (moderator), **Pin, L.**, Gillies, S., Prentiss, J. Women Finding Housing Solutions for a Better Future. Wilfrid Laurier University and the International Women's Forum's International Women's Day luncheon, Ken Seiling Museum Waterloo Region, Kitchener, ON.
- 2023 Lindo, L.M. (moderator), **Pin, L.**, Siembida, S., Lafreniere, G., Knight, M. Criminalization of Poverty. Poverty Reduction Fall Forum. Hosted by Waterloo Region Community Legal Services. Kitchener Public Library, Kitchener, ON.
- 2023 Deutschmann, R. (moderator), Down, S., Doucet, B., Jagorin, M., Knight, M., **Pin, L.**, and Ruttan, M. Renoviction – Righting the Reno Wrong. Waterloo Region Community Town Hall. Panel Discussion. <https://www.wrcommunitytownhalls.ca/renoviction---righting-the-reno-wrong--main-event-page.html>
- 2023 **Pin, L.** and +Mcgurk, H. Homeless Encampments Through a Human Rights Lens. Laurier-Milton Speaker Series, First Ontario Centre, Milton, ON.
- 2023 **Pin, L.** Canada's Housing Regime: Municipal Policy Responses to Encampments. Political Science Department Speaker Series at the University of Waterloo. Waterloo, ON.

- 2023 **Pin, L.** Participatory Budgeting and the Future of Public Finance. Futures Forum. School of Planning, University of Waterloo, Waterloo, ON.
- 2022 **Pin, L.** Assessing Approaches to Encampment Policies: How to Address Needs Sustainably and Develop Effective Partnerships. Panel Discussion. Ontario Municipal Social Services Association
- 2022 **Pin, L.** Politics Beyond Politicians: Civic Engagement and Social Advocacy in Local Politics. Third Age Learning Kitchener Waterloo. Virtual Presentation.

CONFERENCE AND WORKSHOP PRESENTATIONS

- 2025 **Pin, L.**, Levac, L., Ajadi, T. (Moderators: Findley, T. and Bernhardt, N.) Roundtable: Intersectionality and Canadian Public Policy: Structure, Power and Politics. Canadian Sociological Association Annual Conference. George Brown College, Toronto, ON.
- 2025 **Pin, L.**, Major, R., Millar, H. (Moderator, Leval, L.). Workshop: Teaching through Fractious Elections and Contentious Policies. Canadian Sociological Association Annual Conference. George Brown College, Toronto, ON.
- 2024 **Pin, L.** Municipal Encampment Governance Through a Human Rights Lens. Canadian Sociological Association Annual Conference. McGill University, Montreal, QC.
- 2023 Haley, TL., ^Giles, M., ^Krostewitz, C., and **Pin, L.** Rent Banks in Canada: Promising Practices from a National Study. Canadian Alliance to End Homelessness Conference. Halifax Convention Centre, Halifax, NS.
- 2023 **Pin, L.** The Governance of Homeless Encampments in Canadian Municipalities. Critical Perspectives National Conference. Carleton Dominion-Chalmers Centre, Ottawa, ON.
- 2023 **Pin, L.** Participatory Action Research. Workshop delivered for the Social Development Centre, Region of Waterloo, Plan to End Chronic Homelessness. Kitchener, ON.
- 2022 **Pin, L.**, +Buchnea, A. A National Housing Strategy By And For Whom? Documented Experiences Of People With Living Knowledge Of Housing Need. Canadian Alliance to End Homelessness, Annual Conference, Toronto, ON.
- 2022 *Levac, L., Haley, T., **Pin, L.**, Tungohan, E., and Wiebe, S.M. (2022, May). Advancing Transformative Policymaking Through Community-Engaged Research. Panel. Horizons: Crisis and Social Transformation in Community-Engaged Research. Simon Fraser University, Vancouver, British Columbia.
- 2021 ***Pin, L.** and Haley, T. Centering People with Lived Experience (PWLE): Community-Engaged Approaches to Research on Rural and Remote Homelessness. Workshop being presented at the Canadian Rural and Remote Housing and Homelessness Symposium. Guelph, ON.

- 2020 *Bernhardt, N.S., **Pin, L.** Lessons Learned? The Past and Futures of Inclusion in Canadian Political Science. Workshop: Chilly Climates, Then and Now. Canadian Political Science Association Annual Conference (Congress), University of Western Ontario, London, ON. *Conference cancelled due to Covid-19.*
- 2020 *Haley, TL., **Pin, L.**, and Phillips, E. Towards A Disability Positive Approach to Semi-Rural Homelessness. Paper being presented at the Housing First Partners Conference. Roosevelt Hotel, Seattle, WA. *Conference cancelled due to COVID-19*
- 2016 *Gray, M. and **Pin, L.** Decolonizing Sexual Violence Organizing on Campus: Anti-Carceral and Anti-Racist Approaches. Presentation at the Decolonizing Conference. OISE University of Toronto, Toronto, ON
- 2014 **Pin, L.** Global Austerity and Local Democracy: Participatory Budgeting in Hamilton, ON. and Guelph, ON. Paper presented at the Bell Chair Graduate Student Conference. Carleton University, Ottawa, ON

COMMUNITY KNOWLEDGE MOBILIZATION

Editorials and Professional Blogs

- 2023 **Pin, L.**, Dej, E., Down, S. Schuitema, A. Encampments and Charter rights: Upholding the right to life, liberty and security of the person in the Waterloo Region decision. Housing Tell Blog, National Right to Housing Network. <https://housingrights.ca/encampments-and-charter-rights-waterloo-region-decision/>
- 2023 Doucet, B. and **Pin, L.** Cities must take immediate action against ‘renovictions’ to address the housing crisis. The Conversation. <https://theconversation.com/cities-must-take-immediate-action-against-renovictions-to-address-housing-crisis-204170>
- 2020 +Morris, S., and **Pin, L.** Bill 184 and the Myth of Tenant Protection. *Policy Options*. Op-Ed. <https://policyoptions.irpp.org/magazines/september-2020/ontarios-bill-184-and-the-myth-of-tenant-protection/>
- 2020 *Levac, L., **Pin, L.**, and +Rochefort, J. Understanding Community Data in Community. Blogpost. Canadian Research Institute for the Advancement of Women. <http://fnn.criaw-icref.ca/en/page/understanding-community-data-in->

Public Lectures and Webinars

- 2023 **Pin, L.**, (moderator), Rainer, R., Janeiro, J., and Regehr, S. A. Why Canada Needs a Basic Income Guarantee. Laurier Centre for the Study of Canada Speaker Series. Panel. <https://studyofcanada.ca/event/why-canada-needs-a-basic-income-guarantee-a-panel-discussion/>
- 2023 **Pin, L.** (moderator). Dantzler, P., Rollwagen, H., and Simpson, S. Keynote Panel. Forum on Public Opinion and Housing Policy, Wilfrid Laurier University, Waterloo, ON.
- 2023 **Pin, L.**, (moderator), Dej, E., Lee, C., Draper, J., Down, S. and Schuitema, A. Charter Rights and the Encampment Ruling: What Does it Mean for Waterloo Region and Beyond? Laurier Centre for the Study of Canada. Virtual Panel. <https://www.youtube.com/watch?v=9dmHWpKpn40>

- 2023 **Pin, L.** and Dej, E. Addressing Homelessness in our Communities. Inspiring Conversations Webinar Series. Wilfrid Laurier University. Virtual Lecture.
- 2021 **Pin, L.**, Garwood, K., and +Buchnea, A., and ^McPherson, D. Dangerous Disruptions: Local Intersections of Poverty and COVID-19 in Guelph-Wellington and Dufferin. Webinar in collaboration with Guelph-Wellington Taskforce for Poverty Elimination, Services and Housing in the Province, and A Way Home Canada. Guelph, ON.
- 2020 **Pin, L.**, +Philpott, E, and Levac, L. Women's Wellbeing in Happy Valley-Goose Bay. Results from the CVI Survey. Webinar in collaboration with Labrador-Grenfell Health. Labrador, NL.
- 2020 ^Maloney, P., **Pin, L.**, Levac, L. Sewing Workshop and Collaborative Data Analysis: Conversations about Women's Wellbeing in Happy Valley-Goose Bay. Workshop Series in collaboration with the Labrador Friendship Centre. Labrador, NL.
- 2020 Haley, T., ^O'Handley, C., **Pin, L.**, and ^Metcalf, K. Housing and Poverty. "From the Margins: Communities Respond to COVID-19". Webinar hosted by the Live-Work-Well Research Centre. University of Guelph.
- 2020 Levac, L., Ramdatt, J., and **Pin, L.** Diversity and Inclusion Planning in the District of Kitimat. Workshop for City Councillors and Staff. Kitimat, BC.
- 2019 ^Maloney, P., ^Beals, P., **Pin, L.**, Levac, L. Sealskin Purse Making and Collaborative Data Analysis: Conversations about Women's Wellbeing in Happy Valley-Goose Bay. Workshop Series in collaboration with the Labrador Friendship Centre. Labrador, NL.
- 2019 Haley, T., and **Pin, L.** Findings from the Community Flex-Fund Program Evaluation. Presentation to Dufferin County Moves Community Development Council. Shelburne, ON.
- 2016 ^Chan, M., **Pin, L.**, ^Shupac, A. *Bike Lanes, On-Street Parking and Business in Parkdale*. Presentation to Parkdale BIA. Toronto, Ontario.

News media, past 18 months

- 2023 Norris, Craig. (Nov 22). As municipalities work to address homelessness, how do they measure success?? CBC Kitchener-Waterloo. Radio Interview. <https://www.cbc.ca/news/canada/kitchener-waterloo/homelessness-how-to-measure-successful-programs-1.7039033>
- 2023 Pavia, Joe. (Oct 20). LISPOP Housing Forum Happening Today. CBC Kitchener-Waterloo. Radio Interview.
- 2023 McGinty, Joe. (Oct 6). Legal action in the cards after Cambridge encampment evictions. *Cambridge Today*. <https://www.cambridgetoday.ca/local-news/legal-action-in-the-cards-after-cambridge-encampment-evictions-7652134>
- 2023 CityNews Kitchener Staff. (Sep 28). Passionate delegations heard about homelessness at regional council, Soper Park evictions hot topic. *CityNews Kitchener*. <https://kitchener.citynews.ca/2023/09/28/passionate-delegations-heard-about-homelessness-at-regional-council-soper-park-evictions-hot-topic/>
- 2023 Bueckert, Kate. (Sep 17). Municipalities can't solve homelessness without more federal and provincial aid, experts say. CBC News Kitchener-Waterloo <https://www.cbc.ca/news/canada/kitchener-waterloo/homelessness-reports-waterloo-region-guelph-municipalities-fix-1.6968280>

- 2023 Mostaci, Madalyn. (Mar 2). Application to have homeless encampment removed declined by Ontario Superior Court of Justice <https://thecord.ca/application-to-have-homeless-encampment-removed-declined-by-ontario-superior-court-of-justice/>
- 2022 Sharpe, K. (Aug. 19). Waterloo region candidates list sparse with registration deadline looming. <https://kitchener.ctvnews.ca/waterloo-region-candidates-list-sparse-with-registration-deadline-looming-1.6025719>
- 2022 Outhit, J. (Jun 22). Evicting Kitchener Encampment is the Greatest Harm. The Record. <https://www.therecord.com/news/waterloo-region/2022/06/22/evicting-kitchener-encampment-is-the-greatest-harm-laurier-professor-says-after-studying-homeless-policies-in-other-cities.html>
- 2022 Jonkman, B. (Jun 10). Encampment Evictions with Dr. Erin Dej, Dr. Laura Pin, and Lesley Crompton. CKMS Community Connections. <https://radiowaterloo.ca/ckms-community-connections-for-10-june-2022-encampment-evictions-with-dr-erin-dej-dr-laura-pin-and-lesley-crompton/>

TEACHING

Graduate Courses

- 2024, 22, 21 **Policy Research in Action (PO 691, PO 627)**
Department of Political Science
Wilfrid Laurier University

Undergraduate Courses

- 2024 **Art and Science of Policy Design (PO 245)**
Department of Political Science
Wilfrid Laurier University
- 2022, 21 **Politics and Government in Canada (PO 263)**
Department of Political Science
Wilfrid Laurier University
- 2022 **Human Rights in Canada (PO 498)**
Department of Political Science
Wilfrid Laurier University
- 2022 **Public Policy Analysis (PO 345)**
Department of Political Science
Wilfrid Laurier University
- 2020 **Public Policy: Challenges & Prospects (POLS 3250)**
Department of Political Science
University of Guelph
- 2019 **Intergovernmental Relations in Canada (CPPA 425)**
*co-taught with Annelies Coopers
Public Policy and Administration Program
Toronto Metropolitan University & First Nations Technical Institute
- 2018, 17 **Canadian Politics and Government (CPPA 120)**
Public Policy and Administration Program

Toronto Metropolitan University & First Nations Technical Institute

2017 **Canadian Urban Policy (POLS 4110)**
Politics Department
York University

GUEST LECTURES

2024	Doing Housing Research in Political Science. PSCI 662 Canadian Political Process. University of Waterloo, Waterloo, ON.
2024	Human Rights and Housing Fights. Lecture for Laurier Association for Life-Long Learning. Waterloo Memorial Recreation Complex, Waterloo, ON.
2023	The Right to Housing in Canada. POLAO1 Critical Issues in Politics: Human Rights and Equity. University of Toronto Scarborough, Toronto, ON.
2023	Housing as a Human Right. SHAD Laurier. Wilfrid Laurier University, Waterloo, ON.
2023, 22	Social Innovation Advisor. SE 364 Social Innovation in the City. Wilfrid Laurier University, Waterloo, ON.
2022	Qualitative Research Interviews. PO 217 Asking Questions in Political Science. Wilfrid: An Introduction to Research. Wilfrid Laurier University, Waterloo, ON.
2021	Community Engaged Research. PO 478 Social Science Theories. Wilfrid Laurier University, Waterloo, ON.
2021	Pandemic Disruptions and Engagements. UNIV2020 Creativity, Research, and Scholarship in a Time of Crisis. University of Guelph, Guelph ON.
2019	Community-Based Research Methods. Guest Lecture for SSH 301 Research Methods. Ryerson University, Toronto, ON.
2017	with Nicole Bernhardt. Equity in the Classroom. Teaching Assistant Workshop for Graduate Students. York University, Toronto, ON.
2016	Participatory Budgeting in Chicago. Guest Lecture for Great Cities Institute Lunch Series. Chicago, IL.
2016	Participatory Budgeting and Deliberative Democracy. Guest Lecture for POLS 6155 Democratic Administration. York University, Toronto, ON.
2016	Women and Politics. Guest Lecture for POLS 2910 Canadian Politics in Comparative Context.

COURSE DEVELOPMENT IN PROGRESS

Graduate

2024 **Applied Public Policy Analysis (PO 604)**
Department of Political Science
Wilfrid Laurier University

STUDENT SUPERVISION

Academic Supervision

- 2023-24 Valentina Ornelas, MAP student, Wilfrid Laurier University
Supervisor, Major Research Paper
Homelessness in Canadian Municipalities
- 2023-24 Claire Rahija, MA student (Criminology), Wilfrid Laurier University
Second Reader, Thesis
Indigenous Perceptions of Indigenous-Led Housing Support Services
- 2022-23 Abishane Suthakaran, MAP student, Wilfrid Laurier University
Supervisor, Major Research Paper
The covert effects of gentrification: A case study of South Parkdale
- 2022-23 *Nathan R.G. Barnett, MAP student, Wilfrid Laurier University
Supervisor, Major Research Paper
"People Will Notice That Level of Silence Way More": How Identity-Based Language in School Board EDI Policies Shapes LGBTQ+ Students' Belonging
*Department nominee for the Medal for Academic Excellence
- 2022-23 Ranjit Saini, MAP student,
Second Reader, Policy Analysis Major Research Paper
Housing Supply and Affordability in Ontario: A Policy Analysis of the More Homes, Built Faster Act, 2022

Post-Graduate and Graduate Research Assistants

- 2023-24 Valentina Ornelas, MAP student, Wilfrid Laurier University
- 2023-24 Matthew Arp, PhD, Research Associate, Wilfrid Laurier University
- 2023-24 Melih Sahin, PhD Student, Wilfrid Laurier University
- 2023 Nathen Ermeta, MAP student, Wilfrid Laurier University
- 2023 Siobhan Saravanamuttu, PhD candidate, York University
- 2022-23 Lia Forma, Postgraduate MSW, Wilfrid Laurier University
- 2022-23 Abishane Suthakaran, MAP student, Wilfrid Laurier
- 2022-23 Tracey Sebastien, MA student, Wilfrid Laurier University
- 2022 Victoria Marshall, MAP, Wilfrid Laurier University
- 2020 Erin Rodenburg, PhD Student, University of Guelph
- 2019-20 Julie Rochefort, PhD Student, University of Guelph

Undergraduate Research Assistants

- 2024 Sebastian McPherson, Political Science, Wilfrid Laurier University
- 2023-24 Maria Andriyovych, Law & Society, Wilfrid Laurier University
- 2023 Gabrielle Russo, Political Science, Wilfrid Laurier University
- 2022 Laith Adi, Computer Science, Wilfrid Laurier University
- 2021-23 Paul Berthelot, Political Science, University of Guelph
- 2020-21 Jee-Ho Paik, Political Science, University of Guelph
- 2020-21 Leen Rhazi, Political Science, Mount Holyoke College

2020 Sabina Morris, Political Science, Mount Holyoke College
 2019-21 Arfi Haig Yusuf, Political Science, York University

Community-Based Research Assistants

2023-24 Regan Brusse, Kitchener, ON
 2022-23 Michael Ryan, Orangeville, ON

PROFESSIONAL DEVELOPMENT

2023 Teaching with Generative AI. Virtual seminar. Laurier Centre for Teaching Excellence and Innovation.

2023 Thinking Qualitatively: Doing Intersectionality (TQ:DI). Virtual Workshop. University of Alberta. <https://www.ualberta.ca/events/arts/thinking-qualitatively-doing-intersectionality-tqdi.html>

2023 Social Housing and Human Rights Conference and Workshop. Manitoba Research Alliance, Winnipeg, MB. <https://mra-mb.ca/social-housing-and-human-rights/>

2022-23 Systems Planning Collective Community of Practice. Monthly Workshops. Canadian Observatory on Homelessness

2019 Digital Storytelling: Method and Practice. Workshop. Re*Vision Centre for Art and Social Justice. University of Guelph, Guelph, ON.

2019 Community-Based Research II. Society for the Study of Social Problems. Roosevelt Hotel, New York, NY. Workshop.

2018 Community-Based Research I. Society for the Study of Social Problems. Hotel 201, Philadelphia, PA. Interactive Workshop.

2015 TA Certificate in Teaching (TACT). York University Teaching Commons, Toronto, ON. SEDA Accredited Certificate Course

2015 Advanced Research Design Seminar. Institute for Social Research, York University, Toronto, ON. Certificate Course.

2015 Conducting Focus Groups for Social Research. Institute for Social Research, York University, Toronto, ON. Interactive Workshop.

ACADEMIC SERVICE

Department

2022, 2023 Member, Department Co-op Committee

2023 Judge and Keynote Speaker, Policy Pitch Competition, Wilfrid Laurier Association of Political Science Students (APSS)

2023 Program advisor, development of PO311e OC: The Global Politics of Land

Faculty

2024-present	Member, Faculty of Arts Part Time Appointments Committee (PTAC)
2023-present	Member, Faculty of Arts Curriculum Committee
2022-2023	Alternate member, Faculty of Arts Part Time Appointments Committee (PTAC)

University

2023-2024	Acting Director, Laurier Institute for the Study of Public Opinion and Policy (LISPOP)
2022-present	Board Member, Laurier Institute for the Study of Public Opinion and Policy (LISPOP)
2021-present	Affiliate, Laurier Centre for the Study of Canada (LCSC)

PROFESSIONAL SERVICE

Memberships

2015-present	Canadian Political Science Association (CPSA)
2023-2024	Canadian Sociological Association (CSA)
2018-2022	Urban Affairs Association (UAA)
2018-21	Society for the Study of Social Problems (SSSP)
2017-18	American Political Science Association (APSA)

Peer Review

2025	Canadian Review of Social Policy x1
2023, 2024	Engaged Scholarship Journal x2
2024	Manitoba Research Alliance x1
2023, 2024	International Journal on Homelessness x2
2023	Canadian Journal of Political Science x1
2022	Sociological Forum x1
2022	Local Development and Society x1
2021	Springer Books US x1
2020	Between the Lines x1 (no extant documentation available)

Conference Service

2024	Lead organizer, Sustaining Shared Futures...for whom? Solidarity Workshop and Conference. Centre St. Pierre, Montreal, QC.

2024	Discussant. Early Career Research Panel. Sustaining Shared Futures...for whom? Solidarity Workshop and Conference. Centre St. Pierre, Montreal, QC.
2023	Lead organizer, Forum on Public Opinion and Housing Policy, Wilfrid Laurier University, Waterloo, ON.
2023	Discussant x2, Canadian Political Science Association Annual Conference, York University, Toronto, ON.
2022-23	Organizer, two sessions of monthly community of practice meeting, Systems Planning Collective, Canadian Observatory on Homelessness
2022	Organizer, Forum on Public Opinion and Housing Policy. Wilfrid Laurier University, Waterloo, ON.
2022	Discussant x1, Chair x1, Canadian Political Science Association Annual Conference
2021	Committee Member, Best Student Paper Award, Society for the Study of Social Problems Annual Conference (no extant documentation available)
2019	Discussant x1, Chair x1, Canadian Political Science Association Annual Conference

COMMUNITY SERVICE

2023-present	Member. National Encampment Litigation Strategy Working Group.
2022-present	Member. Social Development Centre, Waterloo Region. Waterloo Region, ON.
2022-2024	Volunteer. A Better Tent City (ABTC). Kitchener, ON.
2021-2023	Facilitator. Dufferin Lived Experience Collective. www.dufferinchange.ca Dufferin County, ON.
2023	Informal consultant on municipal advisory committees. Office of the Clerk. City of Waterloo. Waterloo, ON.
2022	Moderator. Election Town Hall on Homelessness in Waterloo Region. Unsheltered Campaign and Social Development Centre. Virtual Town Hall.

THIS IS **EXHIBIT “B”** REFERRED TO
IN THE AFFIDAVIT OF LAURA PIN
SWORN REMOTELY AT THE CITY
OF HAMILTON BEFORE ME AT THE
COUNTY OF WELLINGTON DURING
A VIDEOCONFERENCE IN
ACCORDANCE WITH O.REG. 431/20,
ADMINISTERING OATH OR
DECLARATION REMOTELY THIS 9th
DAY OF JULY, 2025



JOANNA MULLEN
A Commissioner, etc.,
Province of Ontario,
While a Barrister and Solicitor.
LSO#: 64535V

The Plan to End Chronic Homelessness

Co-Creator Roundtable

March 20th, 2025

Welcome!

- Name and role, connection to the work or what brought you here today
- [OPTIONAL PROMPT]
 - First official day of spring!!
 - What makes spring “official” for you?

Agenda

- Welcome and Context Setting
- The People's Purse Networking and Voting
- PECH Coordination Team Nomination Process Launch
- Caring for our Talent Discussion
- General Updates on PECH Activity
- People's Purse Voting Results Announcement
- Closing and Next Steps

People's Purse Networking and Voting

The Plan
to End Chronic
Homelessness

#ThePlanWR

This is a light synthesis of participant responses in Mentimeter during the May 31st Co-Creator Group Roundtable. This is the start of a co-developed guiding document for the group. We will use this a touchstone throughout our work to ensure alignment with these principles.

Menti Question	Why are we doing this work?				How will we work together?				What does success look like?											
Cluster Title (created by Overlay)	Collaborating to share knowledge and expertise	Because housing is a human right	To better align and coordinate resources	Because our past approach was not working—we need a culturally different, comprehensive, sustained place to live.	To ensure everyone in WI has a safe and secure place to live.	Not work in silos	Top down plans have not worked in the past	So that the voices of community are authentically heard	Because we are accountable to the community, we must ensure real action happens, not just look busy	Being willing to take risks, authentically, transparently, honestly, respectfully—rooted in love	Being open and action minded	With intentionality, focus and clarity of our vision	With a willingness / drive to see change	With a passion to work together	By weighing lived experience as critical information	Our success will be defined by the community—we want to hear from people directly impacted by our work	Lives saved	An actionable plan that evicts change	A clear, measurable plan that aligns with best practice	A plan that everyone supports and is committed to
Individual Participant Responses added in Menti	collaboration	To ensure everyone in WI has a safe and secure place to live.	align support	because we are in a pinch where we are generating homelessness, a collaborative solution is critical	Community lead approaches ensure diverse voices are heard	coordinate resources	complex issues requires systems level solutions developed with community	Accountability	To ensure that we continue to be perceived as "doing something"	willing to take risks	Honestly	Open minds	INTENTIONAL	active listening, active participation	weighing lived experience as critical information	Account for all voices in our community	Lives saved!	Action	Metric: Accessible service in a timely fashion	A plan that everyone supports and is committed to
	To collaborate and design a road map to end homelessness in the safe home.	Everyone has a right to be housed, and deserves a safe home.	align support	because housing is a basic human right and everyone is deserving.	Community lead approaches ensure diverse voices are heard	coordinate resources	complex issues requires systems level solutions developed with community	Accountability	To ensure that we continue to be perceived as "doing something"	Pushing the boundaries	Transparency!	being open minded	Clarity on the regional expectations	PASSION/DRIVE TO SEE CHANGE	Account for all voices in our community	When the people being directly impacted by the decision to do this find they are getting and feeling those changes for the better.	Success will be when there is no longer a need for shelters or encampments	Better policies and legislation that works with our community and not against it	a collaborative plan that together we can deliver on	
	To utilize the specialized knowledge of every community agency to ensure all needs of our clients are being met.	Because housing is a basic human right and everyone is deserving.	coordinate resources	complex issues requires systems level solutions developed with community	Community lead approaches ensure diverse voices are heard	coordinate resources	complex issues requires systems level solutions developed with community	Accountability	To ensure that we continue to be perceived as "doing something"	Being able to push each other in this work	Transparency!	being open minded	Clarity of the problem of the work being done, why are we really doing what we are doing	PASSION/DRIVE TO SEE CHANGE	Account for all voices in our community	When the people being directly impacted by the decision to do this find they are getting and feeling those changes for the better.	Success will be when there is no longer a need for shelters or encampments	Better policies and legislation that works with our community and not against it	a collaborative plan that together we can deliver on	
	To respond to those in crisis to bring about change that is a better path to a more equitable and just world.	Human right that everyone should have access to safe and stable housing.	share resources	This is an intersectional and social justice issue and all of us need to work together to do this work	Community lead approaches ensure diverse voices are heard	coordinate resources	complex issues requires systems level solutions developed with community	Accountability	To ensure that we continue to be perceived as "doing something"	Being able to push each other in this work	Transparency!	being open minded	Clarity of the problem of the work being done, why are we really doing what we are doing	PASSION/DRIVE TO SEE CHANGE	Account for all voices in our community	When the people being directly impacted by the decision to do this find they are getting and feeling those changes for the better.	Success will be when there is no longer a need for shelters or encampments	Better policies and legislation that works with our community and not against it	a collaborative plan that together we can deliver on	
	Senior providers have so much expertise that everyone gets can utilize or forgotten.	to ensure everyone's needs are being met	Stronger together	Need to do things differently to achieve different, better outcomes	Community lead approaches ensure diverse voices are heard	coordinate resources	complex issues requires systems level solutions developed with community	Accountability	To ensure that we continue to be perceived as "doing something"	Being able to push each other in this work	Transparency!	being open minded	Clarity of the problem of the work being done, why are we really doing what we are doing	PASSION/DRIVE TO SEE CHANGE	Account for all voices in our community	When the people being directly impacted by the decision to do this find they are getting and feeling those changes for the better.	Success will be when there is no longer a need for shelters or encampments	Better policies and legislation that works with our community and not against it	a collaborative plan that together we can deliver on	
Let those who are the experts do the work not everyone has to play a large part	Share knowledge and expertise	To actually end homelessness and lived, deaths in the process	shared work	Radical Redesign of the regional plan allows for the change to happen	Community lead approaches ensure diverse voices are heard	coordinate resources	complex issues requires systems level solutions developed with community	Accountability	To ensure that we continue to be perceived as "doing something"	Being able to push each other in this work	Transparency!	being open minded	Clarity of the problem of the work being done, why are we really doing what we are doing	PASSION/DRIVE TO SEE CHANGE	Account for all voices in our community	When the people being directly impacted by the decision to do this find they are getting and feeling those changes for the better.	Success will be when there is no longer a need for shelters or encampments	Better policies and legislation that works with our community and not against it	a collaborative plan that together we can deliver on	
	Don't "compete" for dollars but spread the work		New ideas																	
												</								

Why are we doing this work?

- Collaborating to share knowledge and expertise
- Because housing is a human right
- To better align and coordinate resources
- Because our past approaches have not worked—we need a radically different, community lead plan
- So that the voices of community are authentically heard
- Because we are accountable to ensure real action and changes happens, not just look busy

How will we work together?³¹³

- Being willing to take risks, push boundaries, "rebellious"
- Authentically, Transparently, honestly, respectfully—rooted in love
- Being open and action minded
- With intentionality, focus and clarity of our vision
- With a passion / drive to see change
- With a willingness to work together
- By weighing lived experience as critical information and focusing on the needs of those experiencing homelessness

What does success look like?

- Our success will be defined by the community—we want to hear from people directly impacted by our work
- Lives saved!
- An actionable plan that enacts change
- A clear, measurable plan that aligns with best practice
- A plan that everyone supports and is committed to

Mid-Project Key Findings

September 12, 2023

The Plan
to End Chronic
Homelessness

IN COMMUNITY,
BY COMMUNITY,
FOR COMMUNITY.

#ThePlanWR

THE PLAN TO END CHRONIC HOMELESSNESS

Navigating Complexity Together A Roadmap to Functional Zero by 2030

Waterloo Region
April 2024

The Plan
to End Chronic
Homelessness

IN COMMUNITY,
BY COMMUNITY,
FOR COMMUNITY.
#ThePlanWR

THE AOC
WILL:

Uphold
Leadership
Values

FORMALIZE
EXPLORATIVE,
FLEXIBLE AND
TRANSPARENT
DECISION-MAKING

ANCHORING WORK
IN COLLECTIVE
ETHICS USUALLY
OF VARIOUS
NATURE

Accountability
to all voices

PERSISTENT
ACTION TO
ERODE SILOS
& ENABLE
HOLISTIC PREVIEW

MAKE
STRATEGICALLY
INFORMED
DECISIONS
THAT
SUPPORT
PUBLIC
DECISIONS

Stay Focused
on the
Mission

EFFECTIVE
TRANSPARENT
EFFICIENT-FAST
DECISIONS

STRUCTURES
TO
REPAIR
&
REMEDIAL
HARM

Address Equity,
Diversity & Inclusion
Across All
Communities: Includes
Community Members

Remaining
Focus on Future

Future-Ready
Future-Ready
Future-Ready
Future-Ready

2 Human
rights
approach
to achieve
functional zero
homelessness

Exploration of
Other Models
e.g. Scandinavian

COMMON
UNDERSTANDING
OF HUMAN
RIGHTS

UPHOLDING
DIGNITY WITH
COLLECTIVE
ACCOUNTABILITY

HOUSING
SUPPORTS
ARE KEY

4 Dedicated role
with knowledge
of the funding
opportunities
to meet all needs

MAKING THE
UNSEEN
VISIBLE
(Using Outcomes)

Move beyond
Austerity
Mindset

COALITION
ENTERED
SYSTEMS
THINKING

Commitment to
Housing for
ALL

Open & Ongoing
Conversation
(Continuous Growth)
Homelessness and
Mental Health

PLAYING
FIELD
LEVELS
ON ALL SIDES

Service Providers
and
Housing Suppliers
Work Together

EQUAL PAY
ACROSS THE
SECTOR

3 Flexibility
of system
to adapt to
new needs

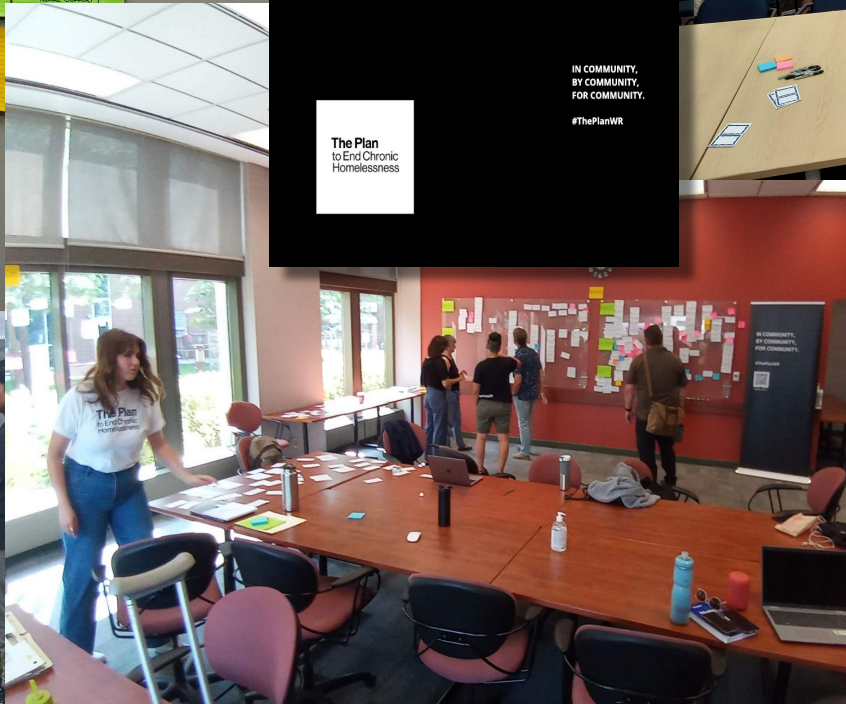
COMMITMENT
TO
MUTUAL
VULNERABILITY

Real time data
35 that's public

ETHICAL +
VALUE LED
WORK

SHARED
ACCOUNTABILITY
for
OUTCOMES

Flexibility
or
Power/Ownership



**It may be that when we no longer know what to do
we have come to our real work,
and that when we no longer know which way to go
we have come to our real journey.**

—Wendell Berry, Our Real Work

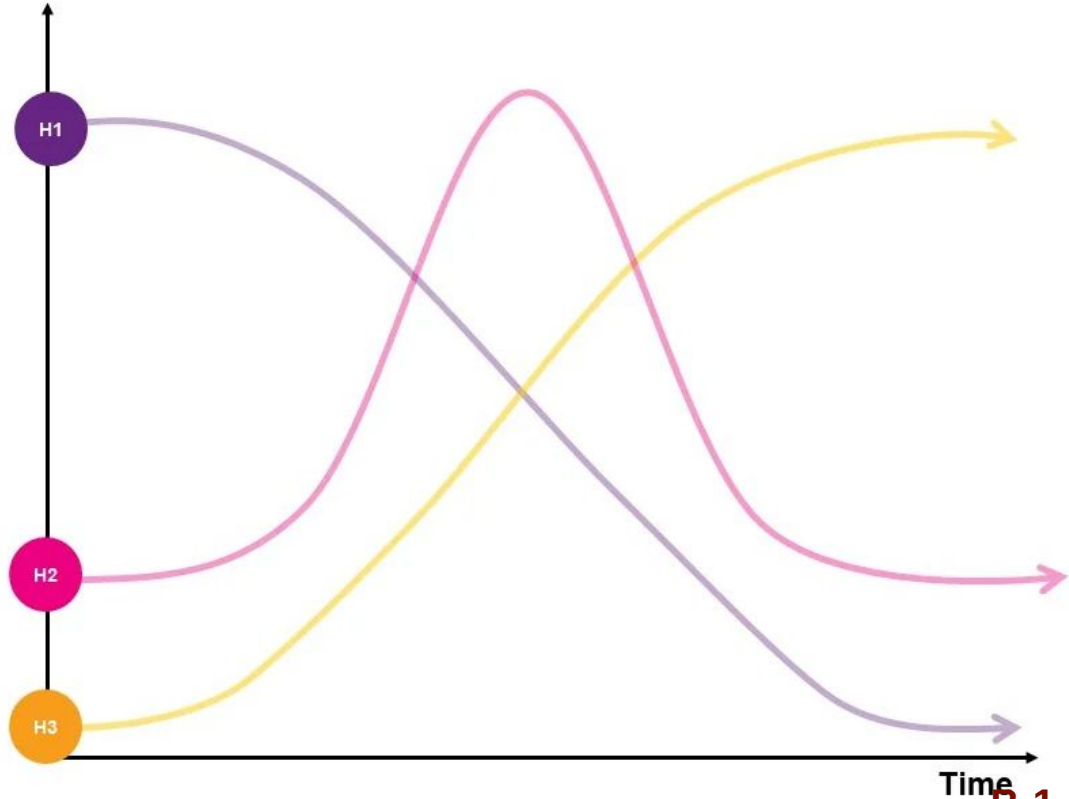
Where we are in this moment...³¹⁷

3 Horizons Model

Horizon 1 (H1) represents the current system, or the paradigm of 'business as usual'.

Horizon 2 (H2) represents innovations which, if appropriately developed, can help bring about a different system.

Horizon 3 (H3) represents the desired future system.



Activity Instructions

- If there are representatives connected to each of the Submissions please raise your hand
- This time is for voters to meet applicants (if you haven't already) and learn more about their submission
- The voting poll is currently open, so feel free to vote if you have made your decision
- Sean and Sam are on hand to answer any of your voting strategies and a “polling station” has been set up for those who need access to a device

Voting Process, Instructions and Strategy³¹⁹

- As you prepare to review submissions/projects we have some tips and strategy for you to consider:
- You will rate each project on a scale from no support to full support (0 - 100)
- The "do not support" (0) option is important. If you don't think a project should be funded be sure to use this option and name that.
- Pay attention to your top pick but also every score you put in matters.

Voting Process, Instructions and Strategy

320

- Allocate resources to your favourite project truthfully, avoid strategic voting.
- Think about the broad goals of the allocation but we are relying on your judgement for scoring. There is no formal rubric for you to score against. It comes down to your judgement on what is proposed and who is proposing it.
- Your scores will all be combined together to lead to the decision of what projects move forward into action.



agorapolls.com/v/kwy

Coordination Team Scope + Next Steps

Purpose and Function

Our Key Findings Report from Fall 2023 called for a shift to increased community governance and decision-making. The intention of this shift is to create greater equity, transparency, and trust within the Housing Stability System. In response to this learning the PECH included Action 2.1, which directs our group to "establish an All of Community Leadership Model". This prototype is that model.

In order to transform the system and how our community responds to homelessness the Structure will:

- Set and continually evaluate a shared community vision by:
 - Upholding human rights in our values, goals and actions
 - Acknowledging and addressing systemic harms and barriers
- Hold the system and everyone in it accountable by:
 - Formalizing transparent, explorative, and flexible decision-making and outcome evaluation
 - Making strategically informed and transparent spending decisions
- Build an inclusive system and community culture by:
 - Anchoring our work in collective ethics informed by our human rights approach
 - Taking persistent action to erode silos and enable holistic prevention

PECH implementation is the current focus and we envision this structure living beyond 2030 to guide our community's ongoing response to homelessness.

Key Features / Elements

Community Need / Shared Cause

The Housing, Health and Homelessness Crisis in our Region is our mobilizing need or opportunity in which working together will achieve individual and shared outcomes. This need and/or opportunity is described as a "magnetic attractor", as it is the force which defines the scope of the ecosystem of activity.

Co-Creator Group: The Strategic Visionaries—(Open to all Community Members, System and Strategic Level Discussions)

A representative stewardship group that sets the vision and mission of our community's response to our need/shared cause—homelessness.

Shared Vision—1) To reach functional zero chronic homelessness in Waterloo Region by 2030 2) Housing Stability System that is an integrated, inclusive, adaptive, responsive and sustainable ecosystem.

Guiding Documents

The guiding documents articulate the way that the partners or members want to work together, describes the roles and responsibilities of the various players and clearly defines the goals and priorities of the group.

Coordination Team: The Planful Stewards—(10-15 Members, Management of PECH Implementation / Operationalization)

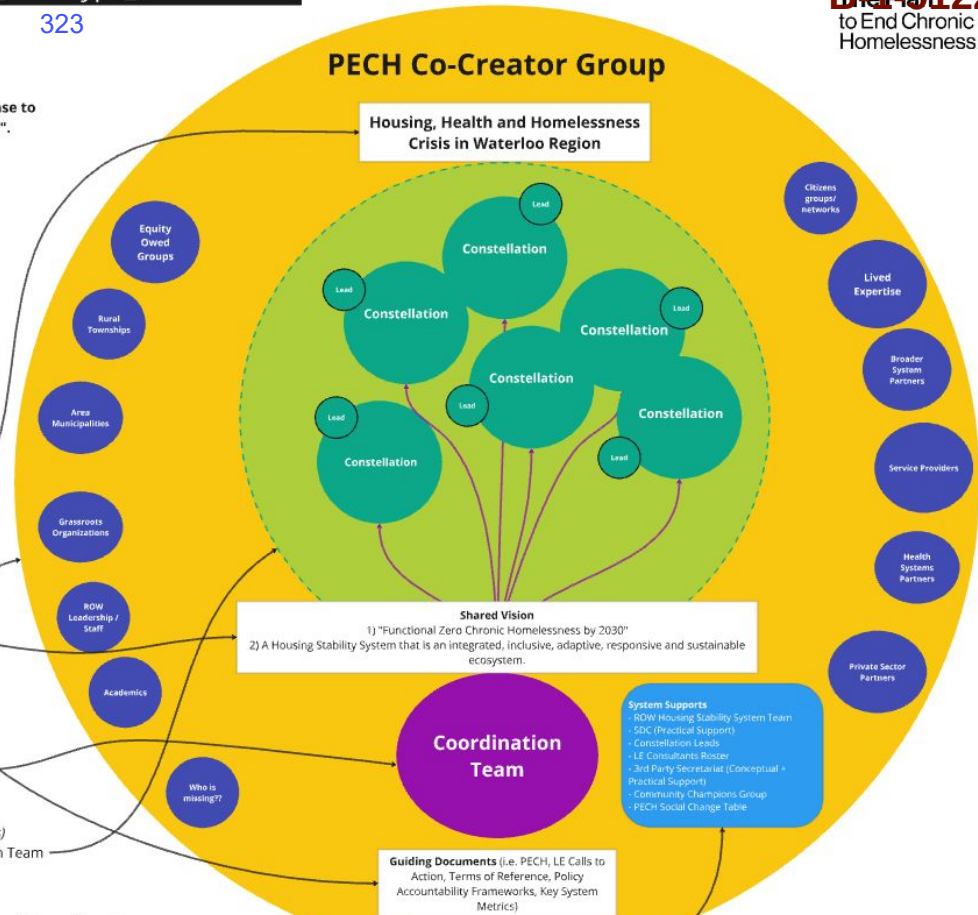
A small, nimble, group that coordinates the action of the Constellations - ensuring that the PECH is being implemented / the vision and mission set by the Co-Creator Group is "cared for" and enacted. An additional role of the CT is to build equity capacity and collective impact lenses to the work of PECH implementation.

Constellations: The Focused Implementors—(Implementation / Operationalization of PECH Actions and related system operations)

Revolving and ad-hoc teams that form to respond to specific topics and/or implement individual PECH Actions. The Coordination Team evaluates the need for and potential scope for each Constellation.

Secretariat: The Third-Party Catalyst and Capacity Builder

The role of the secretariat is to act as a third-party catalyst and capacity builder for the group. Their role is to support the process of the collaboration - guiding the group through the various planning stages, facilitating meetings, incubating constellations, mediating conflict, ensuring the flow of information and generally building the capacity of the group to work towards the desired outcome.



Overview:

Who:

The Coordinating Team will include 11 representatives and is made up from members of the existing PECH Co-Creator group, including (at minimum):

- Manager of the Plan to End Chronic Homelessness (ROW)
- Manager of Homelessness & Supportive Housing (ROW)
- Minimum of two people with lived/living expertise of homelessness
- Minimum of three people with lived/living expertise of systems barriers due to equity

Commitment:

- 10-15 hrs a month (including meetings/prep time, etc.)
- 1 year commitment (possibility of one year extension)
- No expectation of unpaid work

Scope: First Key Area³²⁵

Equity and Partner Relations: This role involves maintaining a consistent systems analysis to ensure equity and lived expertise are central to the Plan to End Chronic Homelessness, while also engaging in community development to support social and structural change.

Scope: Second Key Area³²⁶

Systems Level Guidance and Coordination: This role provides guidance for system-level responses, including visioning and building systems change, makes resource allocation recommendations based on participatory models and community-aligned decision-making, and collaborates to establish and implement change management processes and accountability measures to advance the Plan to End Chronic Homelessness.

Scope: Third Key Area ³²⁷

Actioning the 'All of Community' Model: This role supports the "all of community" model by empowering constellations, co-creators, lived experts and other partners to move from theory to action and launch their systems change work. It ensures progress and alignment toward the goal of ending chronic homelessness.

The Vote

- **To Run:** Any current co-creator or lived expert can self-nominate.
- **To Vote:** You will need to perform an act. You will see papers on the table, sign your initials on 'yes' or 'no' regarding whether you want a vote. Those not here will be emailed this question and will need to respond
- **Ranked Ballet:** You will have the chance to look at people's profiles and choose your top five applicants for the coordinating team.

Transition to Mentimeter

- In the form of questions, what do you want to know from people who are self-nominating to be a member of the coordinating team?

Caring for our Talent Discussion

The Plan
to End Chronic
Homelessness

#ThePlanWR

PECH General Updates

People's Purse Voting Results

The Plan
to End Chronic
Homelessness

#ThePlanWR

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JOANNA MULLEN
A Commissioner, etc.,
Province of Ontario,
While a Barrister and Solicitor.
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RE: [EXTERNAL *] Can we chat ASAP

From Jennifer Gordon <jegordon@regionofwaterloo.ca>
Date Mon 4/14/2025 1:46 PM
To Erin Dej <edej@wlu.ca>; Laura Pin <lpin@wlu.ca>
Cc Ryan Pettipiere <RPettipiere@regionofwaterloo.ca>

Thanks folks,
Just sent the invite for 4 pm. Will keep things tight to respect time.
Jen

From: Erin Dej <edej@wlu.ca>
Sent: April 14, 2025 1:36 PM
To: Laura Pin <lpin@wlu.ca>; Jennifer Gordon <jegordon@regionofwaterloo.ca>
Cc: Ryan Pettipiere <RPettipiere@regionofwaterloo.ca>
Subject: Re: [EXTERNAL *] Can we chat ASAP

CAUTION! EXTERNAL SENDER

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I can meet at both of those times, although in both cases it will have to be brief. Teams and phone work well for me. Teams might be preferable as I have an Android phone which doesn't always align with Apple phones in terms of a conference call.

Erin

From: Laura Pin <lpin@wlu.ca>
Sent: Monday, April 14, 2025 1:34 PM
To: Jennifer Gordon <jegordon@regionofwaterloo.ca>; Erin Dej <edej@wlu.ca>
Cc: Ryan Pettipiere <RPettipiere@regionofwaterloo.ca>
Subject: Re: [EXTERNAL *] Can we chat ASAP

Hi Team,

I am available at 4pm today or 11:00-11:30am tomorrow. Teams or phone would work equally well for me (647 781 6940)

Best,

Laura

From: Jennifer Gordon <jegordon@regionofwaterloo.ca>
Sent: Monday, April 14, 2025 1:29 PM
To: Laura Pin <lpin@wlu.ca>; Erin Dej <edej@wlu.ca>
Cc: Ryan Pettipiere <RPettipiere@regionofwaterloo.ca>
Subject: [EXTERNAL *] Can we chat ASAP

Hi folks,

Thanks for throwing over the updated Frameworks one pager. We've shopped it around our internal voices and it looks great for moving forward. This excites me a lot.

In a full transparency, something is coming down this week that I'd like to get into the open as it runs along side this and our work together.

Do you have a half hour this afternoon (one or both of you, both preferred)?

Ryan and I can be flexible to your schedule. We can do it over the phone or teams, whatever suits.

Jen

Jennifer Gordon
Manager, The Plan to End Chronic Homelessness
Community Services, Region of Waterloo
99 Regina St, Waterloo
Cell: 519-505-0295 | Email: jegordon@regionofwaterloo.ca

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Outlook

Why are Police and Bobcats at 100 Victoria?

From Laura Pin <lpin@wlu.ca>

Date Wed 4/16/2025 1:57 PM

To amanda.mcguiremartin@ontariohealthathome.ca <amanda.mcguiremartin@ontariohealthathome.ca>; Regan Brusse <reganbrusse@gmail.com>; leahdrewrich@gmail.com <leahdrewrich@gmail.com>; Kristy Sawatzky <kristy@compassrefugee.ca>; 'jeff.willmer@gmail.com' <jeff.willmer@gmail.com>; oluseun@adventure4change.org <oluseun@adventure4change.org>; Fadhilah Balogun <fadhilahb@yahoo.com>; David dirks <daviddirks@rogers.com>; Mikael Beijom <mikaelbeijbom@gmail.com>; Linda Terry <terrylinda44@gmail.com>; Sharon Livingstone <srlogan43@gmail.com>; lori@caeh.ca <lori@caeh.ca>; Wayne Paddick <wpaddick@cambridgesheltercorp.ca>; imorton@cambridgesheltercorp.ca <imorton@cambridgesheltercorp.ca>; Tracy Elop <telop@caminowellbeing.ca>; mharrigan@cmhaww.ca <mharrigan@cmhaww.ca>; ccrocker@cmhaww.ca <ccrocker@cmhaww.ca>; bvisser@cmhaww.ca <bvisser@cmhaww.ca>; Diane Goodwin (goodwins4@sympatico.ca) <goodwins4@sympatico.ca>; Anne Tinker (anneltinker@gmail.com) <anneltinker@gmail.com>

Hello Co-Creators,

I am writing to ask for some transparency and accountability with respect to the presence of police officers and bobcats at the 100 Victoria Street encampment. To my knowledge, police and bobcats have been at 100 Vic since 1pm today.

Specifically, I would like the whole table to know why this equipment has been deployed, and who made a decision to deploy it.

I know all of us that participate in this table are committed to working collaboratively and through a human rights framework and this sort of transparency is necessary if we have any hope on either of those fronts

Best,

Laura

Dr. Laura Pin (she/her)
Assistant Professor
Political Science Department

MAP your future in Political Science at Laurier!

Learn more at: <http://wlu.ca/programs/arts/graduate/applied-politics-map>

Wilfrid Laurier University is located on the territory of the Neutral, Anishnaabe and Haudenosaunee peoples on the Haldimand Tract. The Six Nations of the Grand River now reside on less than five per cent of the original Haldimand Tract territory agreed to in treaty by the British.

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[EXTERNAL *] Update on 100 Victoria Street

From Peter Sweeney <PSweeney@regionofwaterloo.ca>

Date Wed 4/16/2025 2:46 PM

Hello everyone,

We heard from some of you today about the changes to the site, including more garbage bins and a trailer that was put on site to facilitate meetings with residents.

Sharing an update with you today on the development of the Kitchener Central Transit Hub is entering a new phase, and the Region's property at 100 Victoria will be required later this year. As most of you know, the property was set for this purpose, and we committed to sharing that with you and with the community once a timeframe was confirmed. We're doing that today.

Regional Council will be considering a new report, [available online here after 4 p.m. today](#), for discussion at Council on April 23, 2025. The report includes a recommendation for a new bylaw for 100 Victoria Street that will facilitate the transition of the site for transit hub by December 1st, 2025. The report also includes a recommendation that Council provide additional housing resources to support those currently residing at 100 Victoria to transition to safer, alternative accommodations before that time. Over the coming months, Housing Services staff at the Region will work with residents of 100 Victoria and support them to access services that meet their needs.

Tomorrow, Ryan Pettipiere and I will be available to Co-Creators to answer questions and discuss this in more detail. Please join us tomorrow as your schedule allows:

- In person from 1:00 p.m. to 2:00 p.m. at the Kitchener Public Library (85 Queen St N, Kitchener)
- Online via Zoom at 2:30 p.m. ([zoom link here](#))
-

We will provide more information and answer your questions tomorrow. Please note this is an invitation to active members of the Co-creators only. Further communication for other interest holders and the community is also planned.

We know that this is short notice. If you are unable to make it tomorrow, please reach out to Janet Boyd at jboyd@regionofwaterloo.ca who can help arrange a connection with us next week.

Sincerely,
Peter

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Realizing the Right: Municipal Policy Responses to Encampments

Waterloo Region Snapshot

This research project is called “Realizing the Right: Municipal Policy Responses to Encampments”. Funded through the Social Sciences and Humanities Research Council of Canada (SSHRC), Realizing the Right is a multi-year community-engaged project focused on understanding of how Ontario municipalities are responding to encampments. The project is made up of:

- An Ontario-wide review of all neo-vagrancy bylaws and protocols in municipalities with populations over 80,000;
- A review of legal cases concerning encampments in Ontario; and
- The Realizing the Right Encampment Survey of people with direct experience staying in encampments in Waterloo Region and Hamilton.

This research snapshot shares our preliminary findings from the encampment survey from people with experience staying in encampments in Waterloo Region exclusively¹.

The Realizing the Right Encampment Survey

The survey was developed by the project advisory team which includes academic researchers, people with lived experience (PWLE) of homelessness, and people with connections to local homelessness service providing organizations. Many project advisors have expertise that draws on multiple categories.

To develop the survey questions, we drew the expertise of our advisory team, as well as foundational documents that outline what a human rights-based approach to encampments might look like in the Canadian context. These documents include:

- A National Protocol for Homeless Encampments in Canada, UN Special Rapporteur on the Right to Housing, 2020;
- The Decampment Report Card, Pivot Legal Society, 2021;
- Statement on Encampments, Ontario Human Rights Commission, 2022; and

¹ This research snapshot was compiled by Dr. Laura Pin, Regan Sunshine Brussé, and Dr. Erin Dej in July 2025.

- Overview of Encampments Across Canada: A Right to Housing Approach, Canadian Human Rights Commission, 2022.

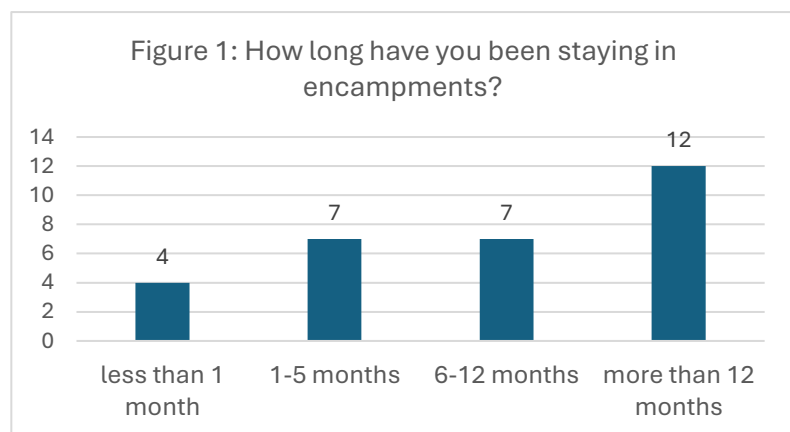
These foundational documents are important because they describe our domestic and international human rights obligations, and how they intersect with municipal encampment responses. Drawing on these documents, the Realizing the Right Encampment Survey was organized around five themes of a human rights approach to encampments:

1. Decentering police and law-enforcement in municipal responses
2. Meeting basic needs
3. Equitable access to service provision
4. Meaningful participation in decision-making
5. Upholding Indigenous rights.

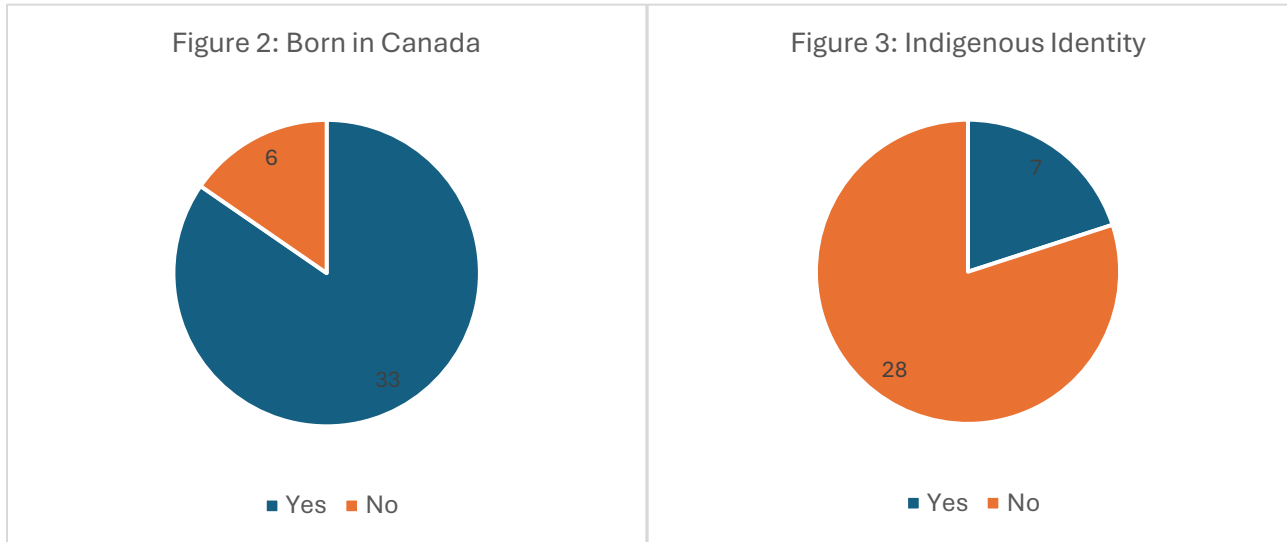
Waterloo Region surveys were conducted between May 1st 2025 and June 30th 2025, at locations in Kitchener and Cambridge. Surveys took between 15 and 45 minutes to complete. The project had Wilfrid Laurier University Research Ethics Board (REB) approval, and all members of the research team completed REB ethics training, as well as training with a trained outreach worker. Overall, 41 surveys were completed. Some respondents declined to answer certain questions, so the number of individual responses to each question may vary, and this is noted in our discussion of data.

Findings

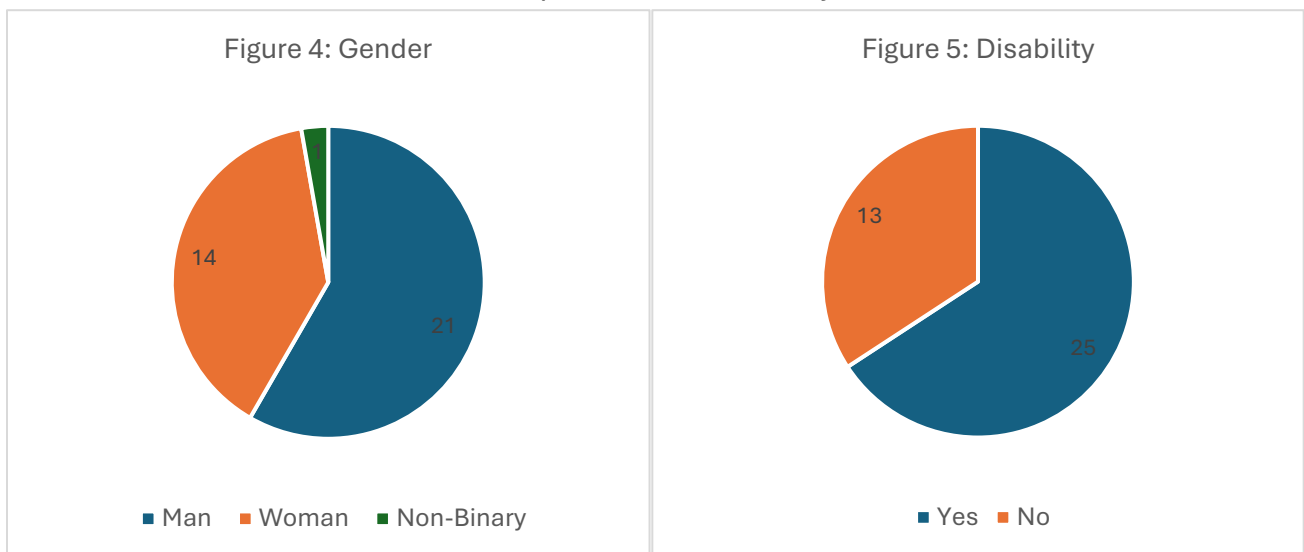
All people responding to the survey were either currently staying in an encampment (n=30), or had stayed in an encampment in Waterloo Region in the past year (n=11). Of the people currently staying in a camp, most had been staying in camps for more than 6 months (n=19), and many for more than 12 months (n=12) (Figure 1). During their time staying in camps, 16 reported staying alone, while other individuals reported staying with romantic partners, friends, family members, and their community or chosen family. One individual described experiencing family separation due to homelessness.



We also asked respondents several demographic questions. Most respondents reported being born in Canada (Figure 2). Some respondents identified as Indigenous, though many did not (Figure 3).

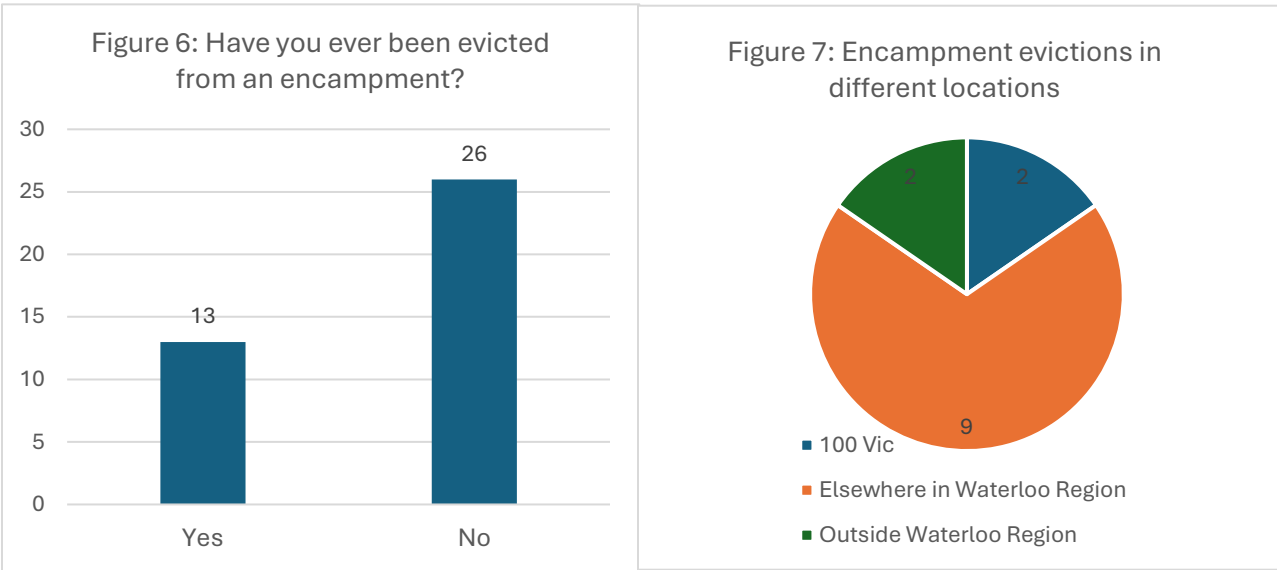


More respondents identified as men than women, with only one respondent identifying their gender as non-binary (Figure 4). More than half of the respondents identified themselves as having a disability that affected their day-to-day life (Figure 5). Finally, most respondents were between the ages of 30 and 50, with 40-49 the most frequent age bracket (14 of 36 respondents). Overall, demographic data indicates that in comparison with census data for Waterloo Region, individuals completing the survey are more likely to be Indigenous, have a disability, and identify as male, findings that are both consistent with research on homelessness and encampments more broadly.



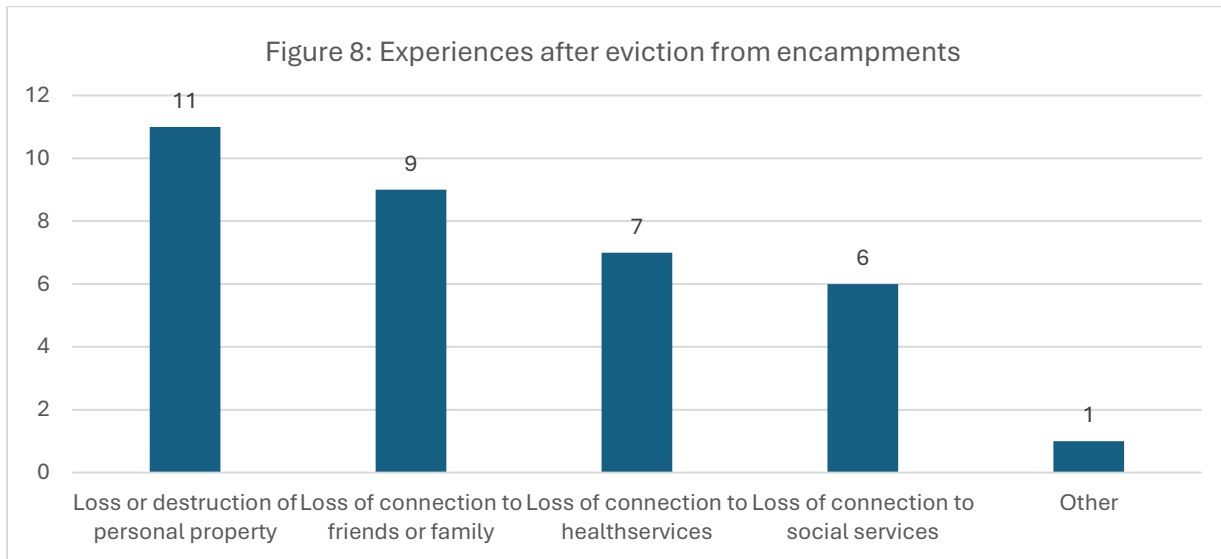
Forced Removal from Encampments

Of 39 survey responses, 13 people reported being forced to leave a camping location when they would have preferred not to, typically by bylaw or police officers (Figure 6). Of the 13 individuals describing encampment evictions, only two individuals described being evicted from 100 Vic. In contrast, nine individuals described experiencing evictions at other locations in Waterloo Region, often multiple evictions, with six individuals stating they had been forced to move more than five times. An additional two respondents described encampment evictions occurring outside of Waterloo Region (Figure 7). Overall, these data suggest that individuals staying at 100 Vic are less likely than people staying at other locations in Waterloo Region to experience forced removal from encampments, which is important for the survival, health, and wellbeing of people experiencing homelessness, as forced eviction is associated with a number of harms, as discussed in the following paragraph.



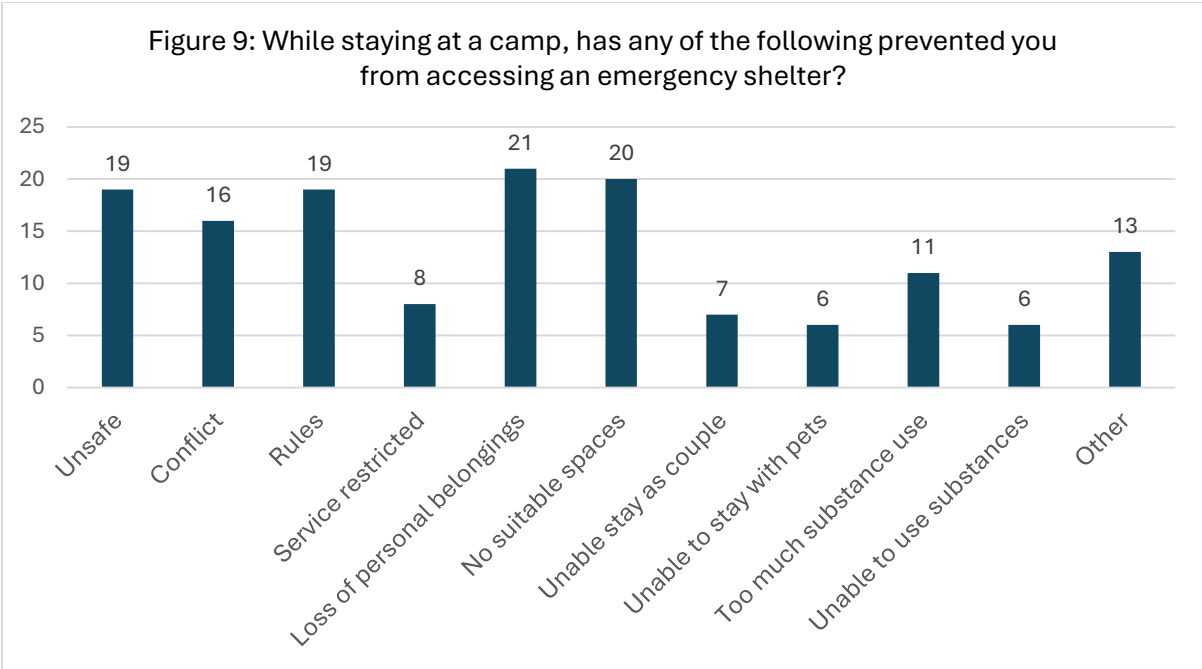
For individuals who had been forced to leave a camping location, we asked how that experience affected their personal property, their social connections, and their contact with health and social services. Of the 13 individuals who were forced to leave an encampment, 12 reported experiencing at least one harm, and eight reported experiencing multiple forms of harm. Documented harms were the loss of personal property, the loss of connection to friends and family, and a decreased ability to access health and social services (Figure 7). Several individuals provided additional details, or noted other harms, including a loss of identification which then compromised their ability to access social assistance and the loss of important personal items like family photos. The expressions

respondents used to describe these experiences included being left “high and dry” and being “bulldozed”.



Barriers to Emergency Shelter

Respondents were asked about any barriers that had prevented them from accessing an emergency shelter (Figure 9). All respondents, except for one (n=40), reported at least one barrier to staying at an emergency shelter, with many respondents reporting multiple barriers. The presence of barriers to emergency shelter was the most consistent finding among survey respondents. The most cited barriers were a loss of personal belongings (n=21), no suitable shelter spaces available (n=20), being unsafe (n=19), and restrictive rules (n=19). Other reasons noted by respondents included an inability to stay as a couple at a shelter, an inability to stay with pets at a shelter, too much substance use present at shelters, an inability to use substances at shelters, and interpersonal conflicts. The contrasting views on substance use emphasize the heterogeneity of encampment residents, and the need for individualized and person-centered approaches to meet diverse needs.



Some respondents noted additional barriers to staying at emergency shelter under the “other category”. These included accessibility barriers, especially experiencing distress in crowded spaces, unavailability of women’s shelter spaces in Cambridge,² concerns about sanitation at shelters, a lack of transportation options to get to shelters, a lack of knowledge about shelter locations, needing to line up for a shelter space, lacking necessary identification, and needing to leave the shelter during the day.

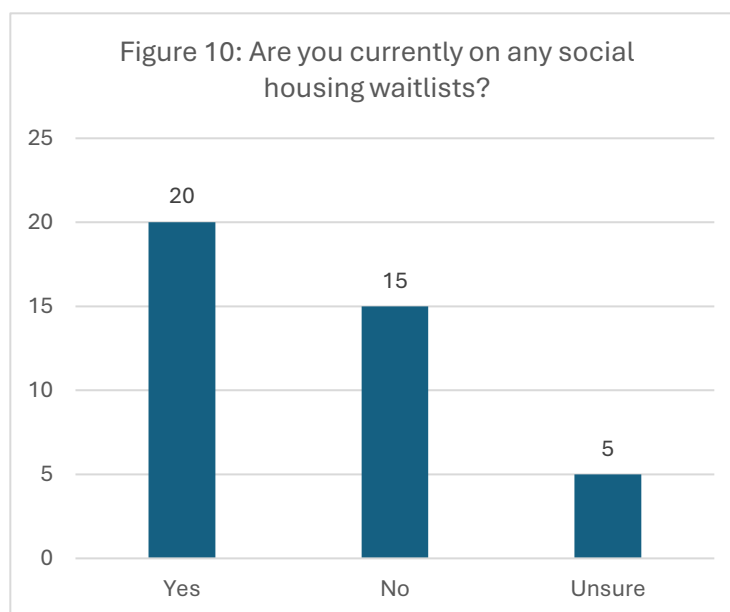
Barriers to Permanent Housing

We also asked respondents questions related to their ability to access adequate, permanent housing, especially social housing. Given the high rates of market rent in Waterloo Region, particularly in relation to social assistance rates, for most individuals staying in encampments, accessing market rent housing is impossible. According to the Canada Mortgage and Housing Corporation (CMHC) in Oct 2024, the median market rent for a 1-bedroom apartment was \$1,472, and this may underestimate the rental costs of a new tenancy given that the median includes longstanding tenants paying below-market rent. In contrast, the maximum assistance available for a single person in receipt of Ontario Works (OW) in Oct 2024 was \$733, and this amount was \$1,368 for a single adult in receipt of the Ontario Disability Support Program (ODSP). The disconnect between income

² In December, 2024 the YWCA opened a dedicated women’s shelter in Cambridge on a temporary basis. Prior to this time, there was no dedicated women’s shelter in Cambridge. Respondents may be referring to experiences prior to Dec. 2024, or to ongoing difficulty accessing spaces (ex. all shelter beds are full).

support rates and market housing costs leaves social housing, that is housing offered at Rent-Geared-to-Income (RGI) rates, as the main permanent housing option for people experiencing homelessness.

We asked if survey respondents were on the waitlist for social housing in Waterloo Region. Just over half of the individuals (n=20) stated 'yes', with a further 15 individuals stating 'no', and 5 individuals indicating that they were 'unsure' (Figure 10). Twelve respondents indicated that they had not been able to satisfactorily connect with housing services, including several individuals who reported being on the housing waitlist.



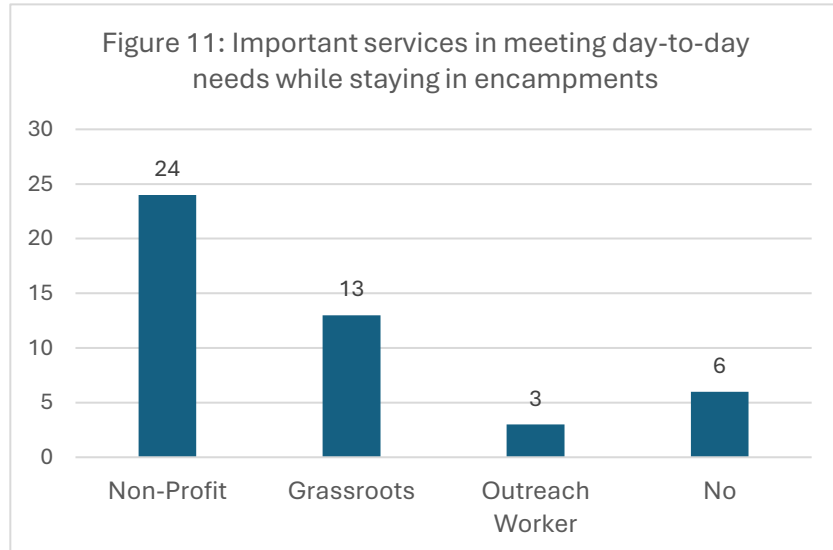
Some of the frustrations expressed in terms of accessing housing included no housing available, despite being on the housing waitlist for years, not being able to access housing despite being given priority on the waitlist, not feeling that housing workers were effective, and difficulty connecting with housing workers or services. In the follow-up qualitative responses, respondents described additional barriers to housing. Seven respondents noted they had been on the waitlist for more than 12 months. Reflecting the complexity of the waitlist process and status, five individuals left comments expressing uncertainty as to whether they were in fact on the housing list, including some individuals who had answered the previous question affirmatively. Five comments referenced administrative barriers to social housing, which ranged from arrears from previous time in social housing, to permanent residency status, to bans from the entire social housing system.

We also asked if individuals had been offered a permanent housing option, for example, a supportive living space, a room in a house, or an apartment. Of the 35 individuals who answered this question, most individuals (n=30, 86%) stated that they were not offered a permanent housing option, though one individual described finding market housing on their own. Of the five individuals who indicated that they had at some point been offered a permanent housing option, one was in the process of moving into housing, two described living for a time in housing arrangements they felt “forced” into, and that they described as

unsafe or unsuitable. The other three respondents described the housing offers as “falling through” prior to occupancy.

Access to Services to Meet Day-to-Day Needs

To find out about service access, we asked respondents with experience living in encampments which types of service providers had been important in meeting their day-to-day needs. This was an open-ended question, and we coded responses into three emergent categories: non-profits (formal service providing organizations), grassroots initiatives (mutual aid, volunteers), and outreach workers (municipal and other types). Non-profits and grassroots were the most common ways individuals accessed services to meet their day-to-day needs, with a few individuals mentioning outreach workers (n=3) (Figure 11).



In comments from respondents, the most common organizations identified as helpful to meeting their day-to-day needs were Tiny Home Take Out, 519 Community Collective, 150 Main Drop-In, St. John’s Kitchen, Ray of Hope, the Sanguen Health Van, and the Working Centre’s Specialized Outreach Services (SOS). Importantly, many of the frequently mentioned organizations provide delivery and/or mobile services (ex. Sanguen Health Van, 519 Community Collective) or are located very close to where people accessing the service are camping (St. John’s Kitchen). Several individuals noted the importance of volunteer efforts in providing food and water to people staying in camps. One respondent described a non-profit as helping with tents, sleeping bags, and cell phones for their housing search. The types of organizations mentioned by individuals were consistent across encampments, , but individuals at the 100 Victoria Street encampment were more likely to describe volunteers and organizations providing regular access to food. As one person put it, “you’re not going to starve if you stay here.”

One question on our survey asked if individuals knew of any attempts to offer Indigenous-specific services to people staying in encampments, to offer access to traditional medicine, and/or to discuss treaty rights when accessing encampments. We asked these

questions because international and domestic guidance on the Right to Housing emphasizes the importance of respecting Indigenous rights as part of meeting Right to Housing obligations.

Overall, 38 individuals responded to our question, of which 31 individuals responded “No”. A further two individuals were unsure. Of the remaining five individuals, four described accessing Indigenous specific services, and one described accessing traditional medicine, mostly informally through community, though two Indigenous outreach organizations, Seven Generations and Native Housing, were also mentioned.

Key Takeaways

The Realizing the Right Encampment Survey provides a snapshot of the experiences of people staying in encampments in the Region.

- Most people have stayed in encampments for more than six months, with some individuals indicating they have lived in encampments for several years;
- People staying in encampments experience forced displacement and people staying at encampments that have legal or policy protections, such as the 100 Victoria Street encampment, are much less likely to be displaced;
- Forced displacement of encampment residents is strongly associated with harms that make it more difficult for encampment residents to access social networks, services, and supports needed for daily survival;
- People staying in encampments in Waterloo Region experience multiple, complex, and overlapping barriers to emergency shelter access, relating both to the availability and accessibility of emergency shelter spaces;
- There are significant barriers to accessing permanent housing for people staying in encampments, including insufficient income to access private market housing, long waitlists for social housing, difficulty connecting with housing workers, and complex administrative rules governing social housing processes;
- People staying in encampments rely primarily on non-profit service providers and grassroots volunteer and mutual aid efforts to meet their day-to-day needs;
- Few people staying in encampments reported accessing Indigenous-specific services or support

Limitations

There are several limitations to our survey data. First, we used convenience sampling, and as such, our survey respondents may not be fully representative of people who have stayed in encampments in Waterloo Region. Second, we were only able to speak to individuals who were interested in completing a survey and who were comfortable participating in English. Because participation in our survey required a certain level of sustained focus, the voices of those in acute crisis may be underrepresented in this data. These limitations speak to the importance of ongoing efforts to document and include the perspective of people with experience staying in encampments in municipal policy responses.

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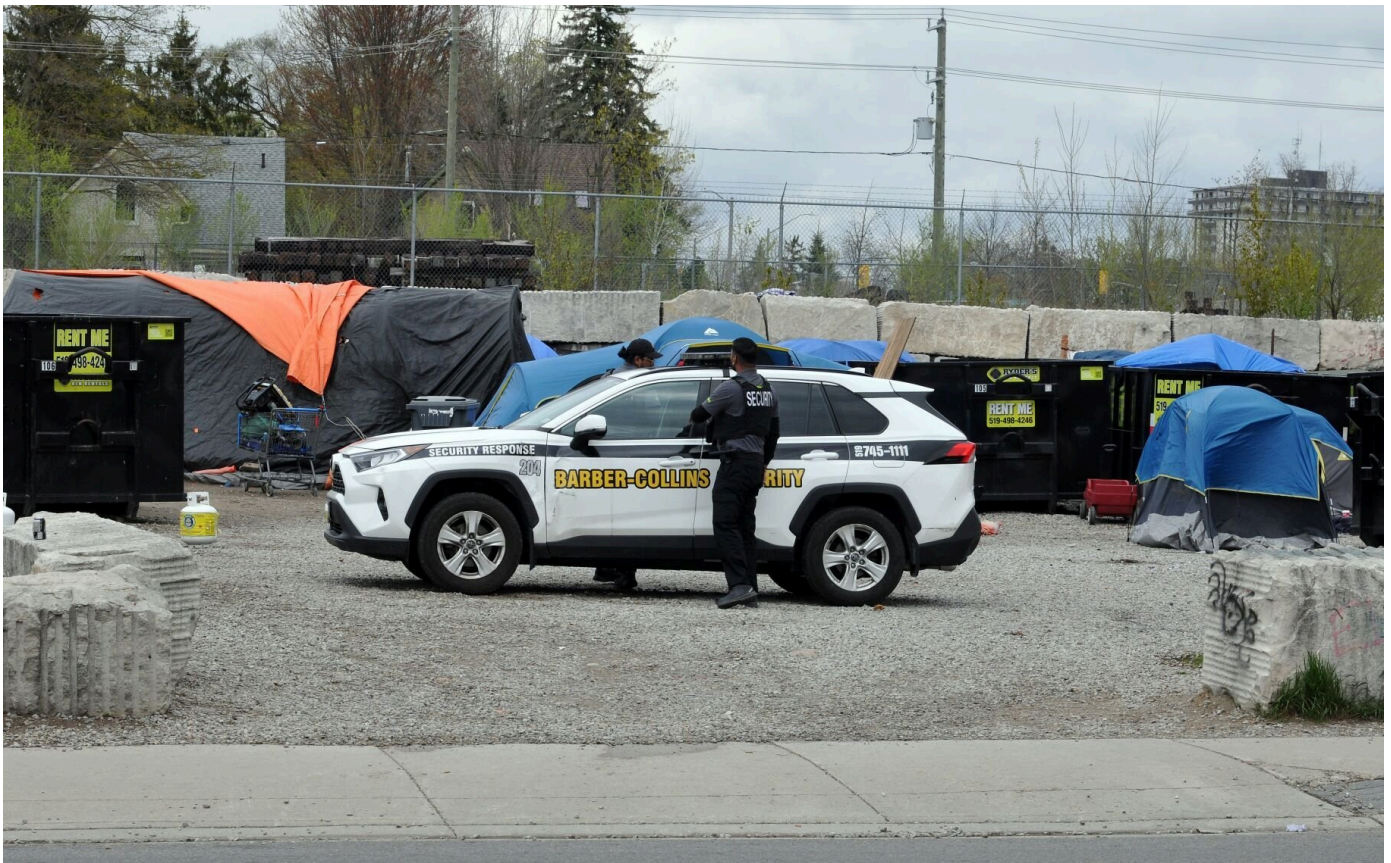
https://www.therecord.com/opinion/contributors/don-t-block-the-help-restoring-access-and-dignity-to-kitchener-encampment-residents/article_6313f1cc-9d37-5a6e-a072-5eebef2c2c93.html

CONTRIBUTORS

Opinion | Don't block the help: Restoring access and dignity to Kitchener encampment residents

Dignity, safety and care for people living at Victoria and Weber streets should not depend on a policy loophole. They must be the foundation of how we respond to encampment communities — starting now, advocates write.

Updated 1 hr ago | June 10, 2025



Security guards stand last month with their vehicle parked near an entrance to the encampment at Victoria and Weber streets in Kitchener.

Brent Davis/Waterloo Region Record file photo

By Erin Dej, Lori Lafond and Jacara Droog

Over the last few weeks, the status of the ³⁵³100 Victoria St. encampment in Kitchener has been the subject of regional council deliberation, the newly passed PDL-LEG-25-017 bylaw, and a reshaping of supports at the site.

The purpose of the bylaw, passed by the region on April 23, is to slowly shut down the encampment in advance of the Dec. 1 deadline for the space to be used to hold construction vehicles as Metrolinx gets ready to build its transit hub down the street.

The bylaw contains some positive elements, such as limited funds for rent supplements and significantly more money flagged for temporary motels that will expire by the end of next year.

However, the bylaw also contains multiple harmful elements, such as restricting the use of space between now and December and fining encampment residents and community members who come on site to support them up to \$5,000 after December.

This bylaw and its rollout was designed without input from the Co-Creators table as part of the Plan to End Chronic Homelessness, wherein more than 60 representatives from service providers across the region and people who have experienced homelessness are supposed to inform the region's response to the homelessness crisis.

Most importantly, it was done without consultation with encampment residents themselves; a gesture of disrespect similar to that of the historical and ongoing displacement of Indigenous folks on their own land.

The legality of this bylaw is questionable as the encampment was the site of the 2023 court ruling that found that without adequate shelter space, encampment evictions violate residents' Charter rights because they have nowhere else to go.

With recent data showing that the homeless population in the region has doubled in the last three years to more than 2,000 people, the situation has gotten worse.

While this legal question hangs in the air, and while the province is looking to double down on punishing people for being homeless, the region has been quick to enact the bylaw.

This looks like a trailer on site for residents to meet with a housing worker, but it also means shrinking the space where tents are allowed, blocking off the site so that no new residents can pitch a tent, and creating more blockades around the space.

These recent developments are alarming. In the last month, access to the encampment has been confusing at best and obstructive at worst. Mutual aid providers and service organizations have received mixed messages about whether

they can drive up to deliver supplies. Mutual aid supporters have seen a noticeable drop in food, clothing, and supply donations since the introduction of the bylaw. This is more than a bureaucratic oversight. It's a systemic failure, rooted in a colonial mindset, that limits life-saving interventions and stands in the way of an organized community wraparound response to a crisis impacting our neighbours.

Encampment residents rely on these kinds of resources to survive and they are deserving of all that it takes to move them from that place of survival to "living the good life."

While the bylaw claims to be "human-centred and relational," the outcome is the opposite: it creates dangerous barriers for people already struggling to meet their physical, emotional, mental and spiritual needs.

These barriers are reinforced by the way local media often echoes institutional narratives, rather than centring the lived experiences and rights of encampment residents.

One recent article, for example, focused on service disruptions while omitting critical context, including that notices lacked a date and time, and that the region attempted to place dumpsters near a resident's tent despite clear public health and safety concerns, such as the risk of rodents or dumpster fires. This kind of framing devalues the lives of people living in poverty, seeing them as unworthy of dignity and support.

The encampment at 100 Victoria St. is expected to remain in place until at least Dec. 1. That's six months from now. Restricting support services during that time not only undermines the region's Plan to End Chronic Homelessness — it disregards the humanity of the very people it's supposed to serve. All our relations matter.

Mutual aid is not an optional extra. It is a lifeline. Whether it's food, water, or basic hygiene products, such as toilet paper and hand wipes, these efforts are often the first and fastest form of care available. Deterring access doesn't just inconvenience volunteers; it risks lives.

It's time for regional leaders to make right the wrongs. Move the security vehicle back to where it has been stationed for years in the adjacent parking lot. Reaffirm that service providers and community members can access the site safely and consistently to provide support.

Dignity, safety, and care should not depend on a policy loophole. They must be the foundation of how we respond to encampment communities — starting now.

Erin Dej is a member of the Unsheltered Campaign³⁵⁵, a group of housed and unhoused community members who advocate for year round support, housing, and alternatives to shelters for all unhoused people in Waterloo Region.

Lori Lafond is part of A Womb With A View — Finding Common Ground, a peer led, social prescription for wellness and an emerging grassroots crisis response alternative that is rooted in Indigenous ways of knowing and doing, with a leaning toward 2 Eyed Seeing for future.

Jacara Droog is a social worker, housing advocate, member of the Unsheltered Campaign, and writing in solidarity with residents at the 100 Victoria encampment.

Opinion articles are based on the author's interpretations and judgments of facts, data and events. More details

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JOURNALISTIC STANDARDS

ABOUT THE RECORD

**THE REGIONAL MUNICIPALITY OF
WATERLOO**
Applicants

and

**PERSONS UNKNOWN AND TO BE
ASCERTAINED**
Respondents

Court File No.: CV-25-00000750-0000

**ONTARIO
SUPERIOR COURT OF JUSTICE**

Proceeding commenced at KITCHENER

AFFIDAVIT OF LAURA PIN

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TAB 5

**ONTARIO
SUPERIOR COURT OF JUSTICE**

B E T W E E N:

THE REGIONAL MUNICIPALITY OF WATERLOO

Applicant

and

PERSONS UNKNOWN AND TO BE ASCERTAINED

Respondents

ACKNOWLEDGMENT OF EXPERT'S DUTY

1. My name is Dr. Laura Pin. I live at the City of Hamilton, in the Province of Ontario.
2. I have been engaged by or on behalf of the Waterloo Region Community Legal Services to provide evidence in relation to the above-noted court proceeding.
3. I acknowledge that it is my duty to provide evidence in relation to this proceeding as follows:
 - (a) to provide opinion evidence that is fair, objective and non-partisan;
 - (b) to provide opinion evidence that is related only to matters that are within my area of expertise;
and
 - (c) to provide such additional assistance as the court may reasonably require, to determine a matter
in issue.

4. I acknowledge that the duty referred to above prevails over any obligation which I may owe to any party by whom or on whose behalf I am engaged.

A handwritten signature in black ink, appearing to be 'J. R. Kim', is positioned above a horizontal line.

Date: August 13, 2025

Signature

**THE REGIONAL MUNICIPALITY OF
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SUPPLEMENTAL RESPONDING APPLICATION
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