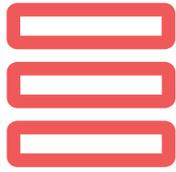


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Leveraging Data to Mitigate and Solve Homelessness in Canada



Leveraging Data to Mitigate and Solve Homelessness in Canada

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Homelessness is a widespread social concern in Canada and many other developed countries.¹ Homelessness constitutes when an individual or family does not have a stable, permanent address or residence nor the ability to acquire one soon.² Although homelessness is never a choice, there are various reasons why people become homeless, such as a lack of structural support for poor individuals who have experienced job loss and inadequate discharge planning for those leaving hospitals, penal facilities, and mental health facilities.³ In Canada, over 235,000 people experience homelessness in a given year, and 25,000 to 35,000 people may experience homelessness on a given night.

The problem exacerbates due to the lack of an easily accessible data repository. The federal government has access to data from approximately half of the country's homeless shelters. It includes data gathered from the Homeless Individuals and Families Information System Software (HIFISS) and data sharing agreements from various municipalities such as the City of Toronto, BC housing, and others. Yet, most reports are not publicly available; the federal government primarily utilizes the data for policy development, measurement, and program evaluation. Since there is no single platform for collecting data on homeless people in Canada, it is difficult for researchers, organizations, and other stakeholders to access and analyze data that would offer solutions and allow for data backed decision making. This could be solved by a centralized data network, such as a data-sharing platform that allows access to the public.⁴

At present, organizations collect different types of datasets, including Point-in-Time (PiT) Counts, administrative data, and surveys. First, PiT Counts is the golden standard in collecting data is using the PiT Counts, which identifies the number of people experiencing homelessness on a single night once every two years. However, due to seasonal fluctuations and mobility between towns, PiT Counts may be unreliable.⁵

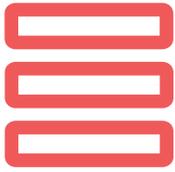
¹ Strobel, Stephenson, Ivana Barcul, Jia Hong Dai, Zechen Ma, Shaila Jamani, and Rahat Hossain. "This Study Uses Comprehensive Administrative Health Data from Emergency Department Visits to Enumerate People Experiencing Homelessness and Characterize Demographic and Geographic Trends in the Province of Ontario, Canada." Characterizing people experiencing homelessness and trends in homelessness using population-level emergency department visit data in Ontario, Canada. Government of Canada, Statistics Canada, January 20, 2021. <https://www150.statcan.gc.ca/n1/pub/82-003-x/2021001/article/00002-eng.htm>.

² "Canadian Definition of Homelessness." Homeless Hub. Accessed February 10, 2022. <https://www.homelesshub.ca/sites/default/files/COHomelessdefinition.pdf>.

³ Gaetz, Stephen, Tanya Gulliver, and Tim Richter. *The state of homelessness in Canada 2013*. Canadian Homelessness Research Network, 2013.

⁴ Falvo, Nick. "The Role of Sharing Data in Ending Homelessness." *Homeless Hub*, August 4, 2016. <https://www.homelesshub.ca/blog/role-sharing-data-ending-homelessness>.

⁵ "Monitoring Progress." Monitoring Progress. *The Homeless Hub*, 2021. <https://www.homelesshub.ca/solutions/monitoring-progress>



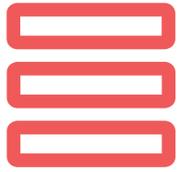
Second common dataset is administrative data is collected on an ongoing basis by governments, front-line professionals, and other public parties. The value in administrative data comes from comparing it to other datasets. Using this combined data in a data-sharing platform would identify people at risk of homelessness and recommend what services they require. Lastly, survey provide information about homeless persons' history, background, needs, and other demographic inquiries collected by researchers or municipalities. Survey data, which is not as commonly collected, may also shed light on what services people require, their preferences regarding living location, and how long they have been homeless. Yet these different types of data are not aggregated, a fact which directly contributes to the problem and inability to find solutions. Having one database that accurately holds such varied information is crucial as it could help mitigate the data gaps, essentially assist in providing solutions and services to homeless individuals and improve infrastructure in homelessness programs. The use of administrative data in research can help further knowledge for resource reform and reorganization that can help mitigate homelessness.⁶

As an example, look at the different approaches of two of Canada's largest cities: Toronto and Montreal. Each have its own data management approaches: Toronto's is more centralized while Montreal's is less centralized. The Shelter Management Information System (SMIS) database system is used by all municipally sponsored homeless shelters in Toronto. It is a program that notifies administrators when people enter and exit homeless shelters. All 60 of Toronto's city-funded homeless shelters utilize SMIS, assisting administrators by making it easier for personnel at Toronto's central access services to refer those in need to available beds. In contrast, there is no centrally administered database system for homeless shelters in Montreal. HIFISS is used by Montreal's three leading men's shelters, and several individual shelters in Montreal keep statistics on their clients.⁷ The Montreal Homeless Network while adequately address non-complex homelessness problems, it is not equipped to address more chronic and complex profiles, leading researches to call for "a more formal and better-integrated network of homeless organizations, particularly in the health and social service sectors."⁸ Despite the difference in these approaches, there is an overall gap in data collection and therefore a need for a single entity who would be responsible for the aggregation of homelessness-related data in a manner that could deal with the complexities of the issue.

⁶ Falvo, Nick. "The Role of Sharing Data in Ending Homelessness." *Homeless Hub*, August 4, 2016. <https://www.homelesshub.ca/blog/role-sharing-data-ending-homelessness>.

⁷ Falvo, Nick. "The Role of Sharing Data in Ending Homelessness." *Homeless Hub*, August 4, 2016. <https://www.homelesshub.ca/blog/role-sharing-data-ending-homelessness>.

⁸ Fleury, Marie-Josée, Guy Grenier, Alain Lesage, Nan Ma, and André Ngamini Ngui. "Network collaboration of organisations for homeless individuals in the Montreal region." *International Journal of Integrated Care* 14 (2014).



A recent 2020 project shows another approach to data collection. The Chronic Homelessness Artificial Intelligence model (CHAI) in London, Ontario, tracked a group of people for six months.⁹ Then an AI algorithm was used to analyze participants' specific personal data to predict who might face chronic homelessness. CHAI had a 93 percent success rate in predicting when someone would become chronically homeless during that time. Privacy considerations guided the researchers; CHAI was only applied to consenting individuals, and participants could quit the program at any time and, consequently, their data was removed from the model. Personally identifiable information was omitted; instead of collecting names, each person was given a number, including their age, race, gender, military status, city services they have accessed, and how often they slept in shelters. The developers "ensured that the data put into the system was standardized and accurate and met national guidelines on the ethical use of automated decision-making."¹⁰

As commendable the CHAI research is, collecting data of marginalized communities such as of homeless people requires the outmost care; a fiduciary duty that could be maintained by a data trust. This attention to privacy is necessary because even without names, there is often a risk of reidentification. To ensure ethical, privacy-centered data collection in a data-sharing platform, it is crucial to follow guidelines similar to Canada's health exchange data reform. In most cases, the acquisition of personal health information to provide care and treatment does not require the individual's agreement, especially in emergencies where time is tight.¹¹ However, for homelessness data, to avoid infringing on an individual's privacy and to comply with moral and ethical considerations, consent should always be given, and personally identifiable information be anonymized.¹²

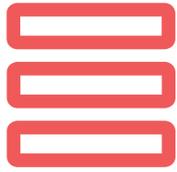
All this speaks to the importance of single place to deposit homelessness data. Once this aggregated data would become available to policymakers, researchers, local officials, non-profit organizations, and others, deeper understanding of the problem would emerge and with it a holistic strategy integrating policy, economic, structural, and technical solutions. High-quality data alongside a strategy to share data is the key to improving services in the public and private sector, arriving at more informed decisions, and addressing the problem with all its complexity. Solving homelessness is an ambitious mission, yet the solution clearly starts with data.

⁹ <https://github.com/aiidnont/HIFIS-model>

¹⁰ Arsenault, Chris. "How One Canadian City Is Using AI to Predict Homelessness." Thomas Reuters Foundation News, October 15, 2020. <https://news.trust.org/item/20201015080726-ye4o/>.

¹¹ Canada Health Infoway. "Business and Architecture Considerations for Interoperable Consent Solutions." Colleague, March 21, 2012. <https://colleaga.app.box.com/s/rptt47n74z8lme6vi98xqb0ht3db8uf5>.

¹² El Emam, Khaled, Sam Rodgers, and Bradley Malin. "Anonymising and sharing individual patient data." *bmj* 350 (2015).



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