Identifying People Experiencing Homelessness in Canadian Administrative Health Data: A National Perspective

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Canadian Institute for Health Information

CIHI's mandate, vision and values

About CIHI

The Canadian Institute for Health Information (CIHI) is an independent, not-for-profit organization that provides essential information on Canada's health systems and the health of people living in Canada.

Mandate

Deliver comparable and actionable information to accelerate improvements in health care, health system performance and population health across the continuum of care.

Vision

Better data.
Better decisions.
Healthier Canadians.

Values

- Inclusion
- Integrity
- Collaboration
- Excellence
- Innovation

CIHI hosts extensive linkable, pan-Canadian data across the health care continuum

Types of care

- Hospital and emergency
- Mental health
- Home care
- Long-term care
- Rehabilitation
- Pharmaceuticals
- Clinical registries: organ transplant/ renal, hip and knee replacements; trauma
- More

Patient-reported data

- Patient-reported outcome measures (PROMs)
- Patient-reported experience measures (PREMs)

Health spending

- Patient costing data
- Hospital and regional health authority financial accounts
- Physician billing
- System-wide health expenditures

Health workforce

- Physicians
- Nurses
- Occupational therapists
- Pharmacists
- Physiotherapists
- Allied health professionals
- More

28 data holdings

- 10 billion records
- 3 terabytes of unique records
- Pan-Canadian coverage

Linkable data:

- Example: Population Grouper links 8 databases, 3 provinces, over 23 million patients

Strategic Plan focused on our stakeholders' priorities

Health information priorities

- Children and youth
- Community and primary care
- Equity
- First Nations, Inuit and Métis Peoples
- Health systems and public health links
- Health workforce
- Mental health and substance use
- Seniors and aging
- Virtual care

All our priorities are shaped through consultation with our stakeholders, as well as by our own assessment of health information trends, technologies and opportunities.

Reference:
CIHI. CIHI's Strategic Plan, 2022 to 2027. 2022.

Project objectives

- **Evaluate quality of data available to identify patients experiencing homelessness (PEH) within hospital data**
- **Explore hospital service use by PEH and demographic characteristics of these patients**
- **Promote data and information to enhance the identification of PEH, ultimately leading to improvements in access to care, quality of care and health care outcomes**

Presentation outline

1. Standards and processes for identifying PEH in hospital data
2. Stakeholder engagement
3. Results from exploring coding trends over time and geographic distribution
4. Demographic profile of PEH identified in acute inpatient data in 2020–2021

Standards and processes for identifying PEH in hospital data

What is the ICD-10-CA?

International Statistical Classification of Diseases and Related Health Problems [ICD], 10th Revision, Canada

- ICD was developed by the World Health Organization (WHO) and enhanced by CIHI to meet Canadian morbidity data needs
- It classifies diseases, injuries and causes of death, as well as external causes of injury and poisoning.
- It also includes conditions and situations that are not diseases but represent risk factors to health, such as occupational and environmental factors, and lifestyle and psychosocial circumstances.
  - The **code Z59.0 indicates "homelessness"**

Defining Z59.0 *Homelessness* for data collection

- **Health information management professionals select ICD-10-CA codes to include in abstracts sent to CIHI.**
- **Canadian Coding Standards supplement the classification rules in the ICD-10-CA.[1]**
  - It cites a Canadian definition of homelessness: "*The Canadian Observatory on Homelessness explains that 'homelessness encompasses a range of physical living situations,' including living on the streets or in places not intended for human habitation (e.g., sidewalks, parks, cars); staying in overnight shelters; and staying in temporary accommodations (e.g., motels, rooming houses, with friends/family, couch surfing, temporary housing for immigrants and refugees during settlement).*"[2]

References:
1. CIHI. Canadian Coding Standards for Version 2022 ICD-10-CA and CCI. 2022.
2. Canadian Observatory on Homelessness. Canadian Definition of Homelessness. 2012.

Recording Z59.0 (Homelessness) is mandatory in 2 CIHI databases

Prior to 2018: ICD-10-CA code Z59.0 was optional for coding

2018: ICD-10-CA code Z59.0 is mandatory for patients who are homeless on admission

2022: ICD-10-CA code Z59.0 is mandatory for patients who are homeless **at any point in time** (whenever documented)

National Ambulatory Care Reporting System (NACRS)

Data on visits to hospital-based and community-based ambulatory care including emergency departments (ED)

Discharge Abstract Database (DAD)

Data on discharges from acute inpatient facilities

Stakeholder engagement

Stakeholder engagement process

- **Conducted descriptive analysis**
  - Time trends in coding Z59.0 in submitted data (DAD and NACRS data holdings)
  - Demographic characteristics of PEH who sought health care services
- **Presented findings to several audiences for feedback on:**
  - Validity of findings and data limitations
  - Practices within hospitals that may affect recording of Z59.0

Engagement

Health care providers and researchers

Health information management (HIM) professionals

Community

To understand:

- Importance of collection of this data and documentation of homelessness

- Sources for Z59.0 in health records
- Reporting of Z59.0 to NACRS or DAD

- Acceptability, relevance of efforts to improve information quality

Highlights from external engagement

Many reasons why Z59.0 might be applicable, but not coded on the abstract

- **Poor documentation** was the most cited reason
    - HIM professional: *“It really comes to what's documented in the chart."*
    - HIM professional may have difficulty interpreting whether the criterion for Z59.0 was met

- Patient may not provide comprehensive information
    - Health care provider: *“There is a need for a deliberate activity to ask about a person’s living situation.”*

- HIM professionals may lack time to review all available documentation (e.g., consult notes)

Highlights from external engagement (continued)

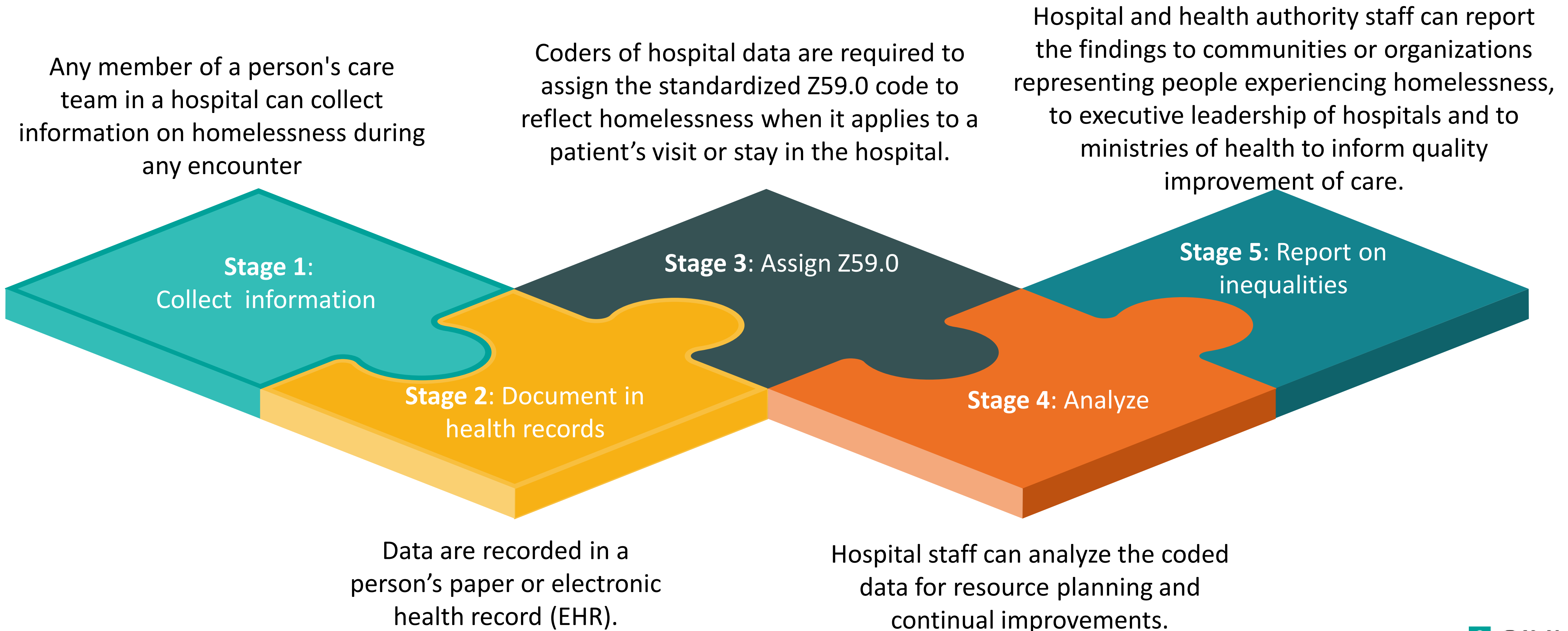
- Hospitals do not obtain data from community services about a patient’s social circumstances. This is a gap because many services for PEH are delivered in the community.

- There’s a general lack of awareness about the availability of Z59.0 *Homelessness* data, resulting in a lack of use or reporting.
  - Health care provider: *“I have had the opportunity to [work with] many hospitals and I always ask what percentage of visits are [for people who are] homeless and they have no clue.”*

- Key message: There are opportunities for data quality improvement and greater use of the data.

Journey to information quality

Key message: Standardized collection of data about homelessness in hospital information systems can be used to inform quality, experience and coordination of care



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Methods for exploration of PEH in hospital data

Method for identifying PEH in hospital data varies by database and year

- **National Ambulatory Care Reporting System (NACRS)**
  - *Pre-mandate:* Residential status flag, Postal code flag, Z59.0; *Post-mandate:* Z59.0
- **Discharge Abstract Database (DAD) — DAD does not include Quebec records**
  - *Pre-mandate:* Postal code flag, Z59.0; *Post-mandate:* Z59.0
- **Ontario Mental Health Reporting System (OMHRS)**
  - Necessary supplement to Ontario DAD records – Exclusively collects data about all individuals receiving adult mental health services in Ontario
  - Z59.0 is *not a mandatory code in this database* but is present; primary identification of PEH uses variables of residential status

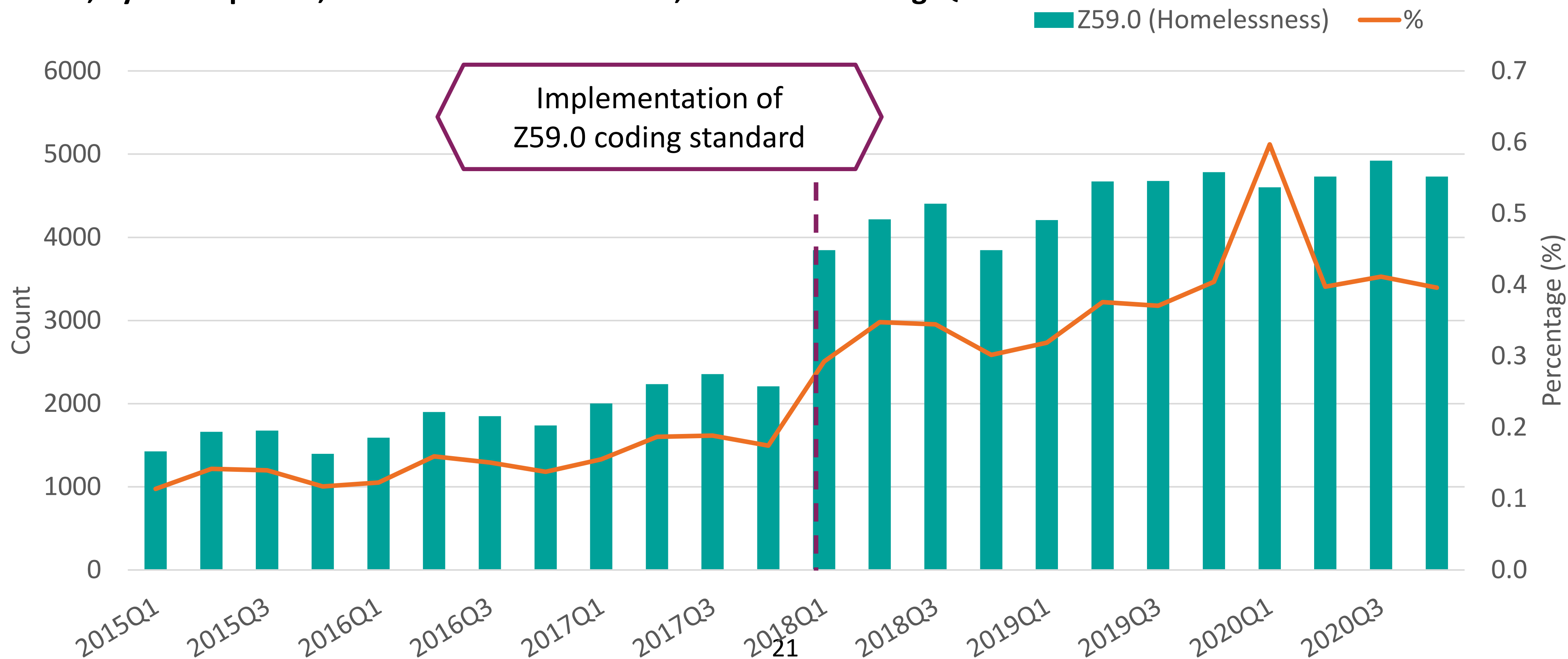
Objectives	Analysis
1. Quantify the uptake of homelessness reporting in CIHI data (Z59.0) **(subject of publication in preparation)**	Trends (2015–2016 to 2020–2021) of frequencies and proportions of hospitalizations/ ED visits
2. Describe characteristics of PEH who are seeking hospital services	Descriptive statistics of PEH • By available demographics (e.g., age, recorded sex or gender) • By Most Responsible Diagnosis (MRDx) • By characteristics of service access in ED and inpatient stays (e.g., triage level, length of stay)

Results

Overall time trend

Key message: There was a substantial increase in the recording of Z59.0 following the 2018 mandate **(a 331% increase from 2015 to 2020).**

Frequency and percentage of hospitalizations coded with ICD-10-CA Z59.0 *Homelessness*, Discharge Abstract Database, by fiscal quarter, 2015–2016 to 2020–2021, Canada excluding Quebec



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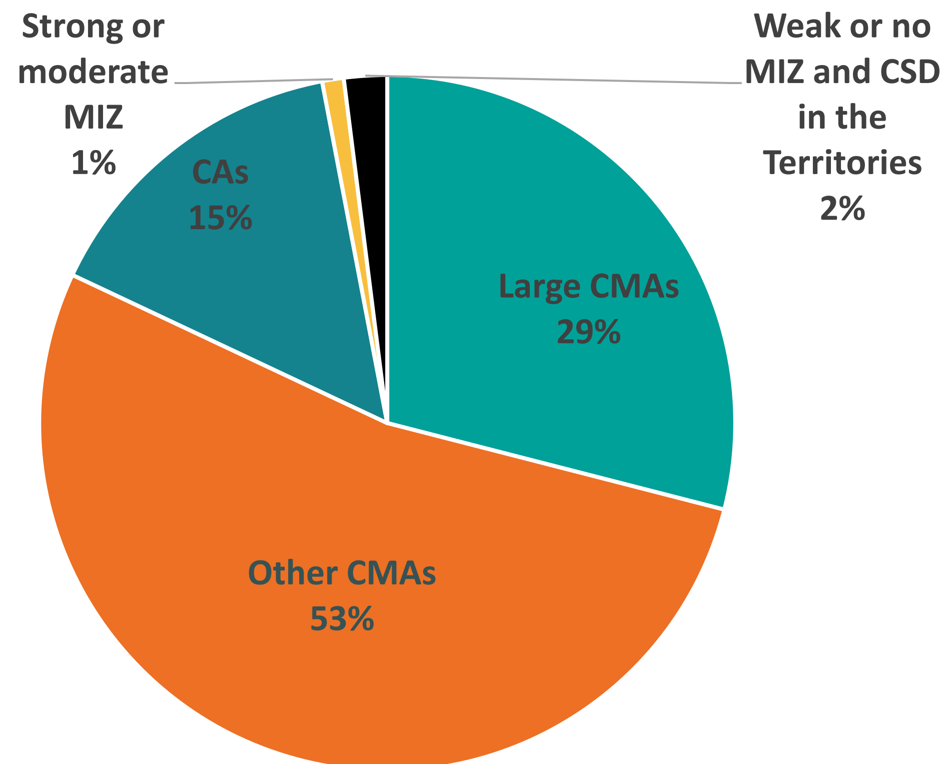
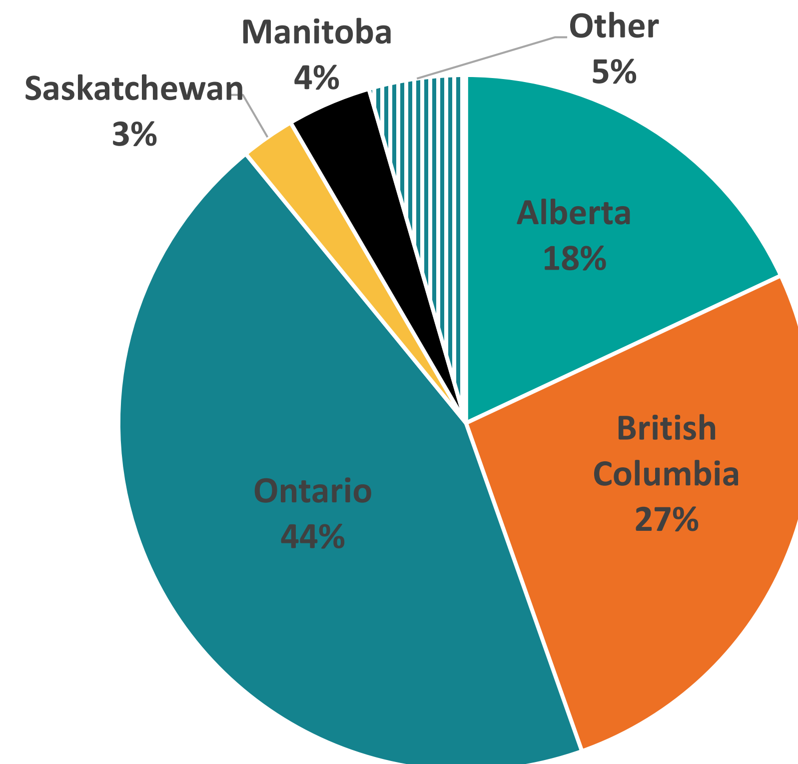
Geographic trends

Among identified PEH in FY 2020–2021:

Almost 1/3 were hospitalized in large census metropolitan areas (i.e., **Vancouver or Toronto**)



Hospitalizations primarily were documented in **Ontario**, **British Columbia**, and **Alberta**

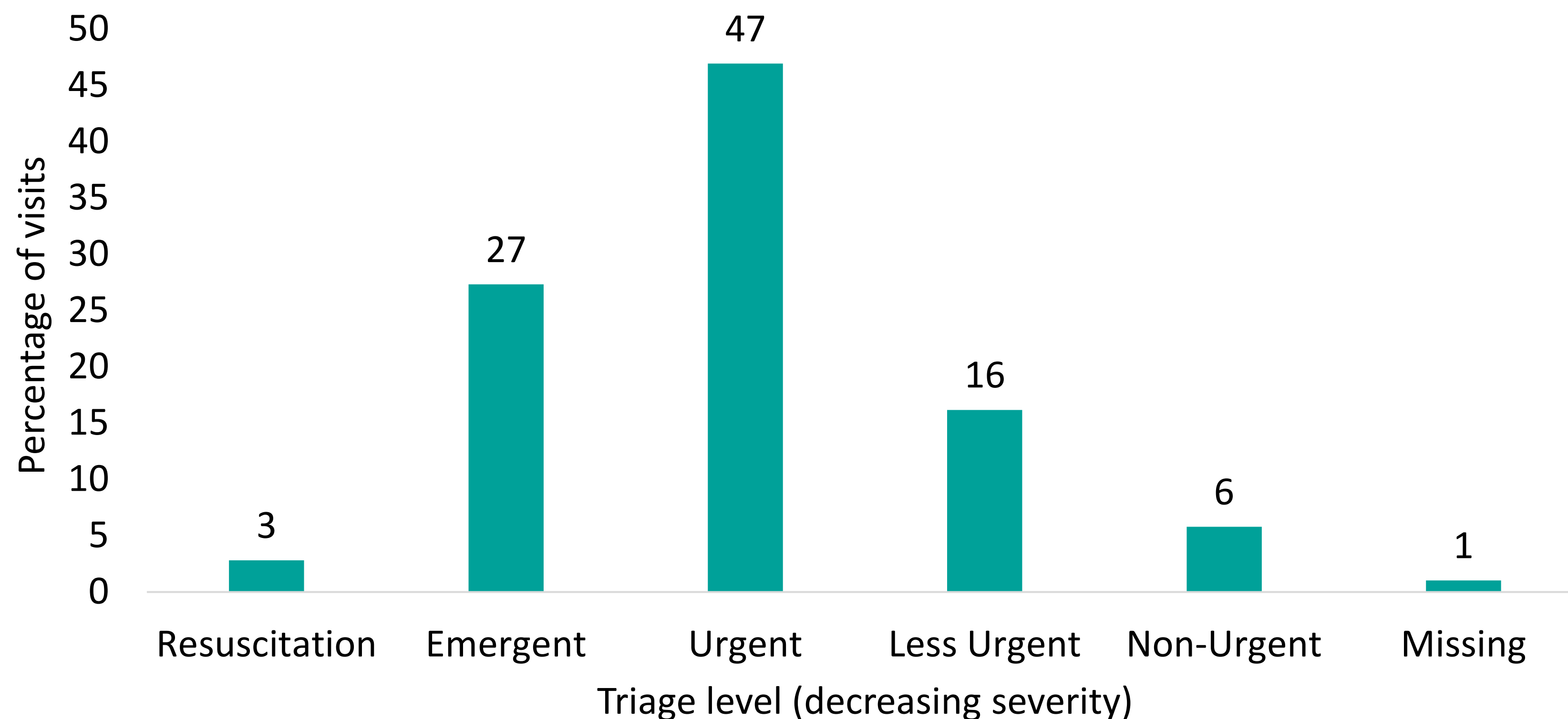


Source: Discharge Abstract Database (excludes Quebec)

Interactions with emergency departments

Key message: Over **75%** of interactions with the ED were for issues requiring urgent, emergency or lifesaving care.

Percentage of ED visits by Canadian Triage and Acuity Scale, National Ambulatory Care Database, 2020–2021, Ontario, Alberta and Yukon



45% arrived via **ambulance**

Patient profile

Hospitalized patients identified as homeless, **DAD (Z59.0) and OMHRS (Z59.0 and residential status), 2020–2021**

No information on :
- Indigenous identity
- Racialized group
- Ethnicity
- Gender identity
- Education
- Language
- Etc.

74% male

Average total length of stay is **12 days**

19% left against medical advice

67% aged 20-49 years

88% were admitted to the hospital via **ED**

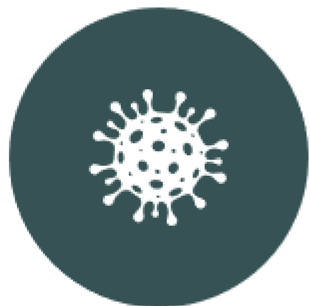
Primary diagnoses among PEH in 2020

Mental health diagnoses were a notable feature among PEH accessing hospital services

- **16%** of hospitalizations (DAD, OMHRS) and **5%** of ED visits (NACRS) were due to schizophrenia/ psychotic disorders

Substance use was also prominent

- **23%** of hospitalizations (DAD, OMHRS) and **22%** of ED visits (NACRS) indicated a primary diagnosis of a substance-related disorder



Other top individual ICD-10-CA diagnostic codes in DAD included skin and respiratory illnesses

- L03.1 Cellulitis (**6%**), J18.9 Pneumonia (**1.7%**) and U07.1 COVID-19 (**2.2%**)

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Limitations

- **Levels of PEH identification, and demographic/clinical characteristics, depend on coding practices.**
  - Facilities are able to collect this systematically but identification processes are inconsistent. Using data to inform changes in processes occurs at this local level.
  - Comparisons of PEH at the provincial/territorial level are not suitable using the current data
- **Code Z59.0 code applies only to a specific subset of people experiencing residential instability.**
  - There are other ICD-10-CA Z59 codes that capture inadequate housing, extreme poverty and other problems relating to housing. They are not considered mandatory for collection.
- **There is no demographic information on important groups of PEH, including Indigenous and racialized groups.**

Concluding remarks

Next steps

Our next steps:

- **Upcoming publication on uptake of and trends in coding of Z59.0 (Homelessness) pre- and post-mandate**
  - Potential future work on descriptive analysis, with deeper dive on mental health and substance use hospitalizations for PEH
- **Release of infographics to support health care workers and coders in identifying PEH**

Your next steps:

- **Advocate for detailed screening by hospital staff on housing/living conditions**
- **Encourage communication between hospital and community organizations to further enhance actionable housing data in health care**

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Supplementary

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Other social determinants of health Z codes

- **SDoH Z codes provide details on all aspects of psychosocial circumstances and environmental factors (e.g., education, living situation, domestic abuse)**

Z-Code	Description
Z55	Problems with education and literacy
Z56	Problems related to employment and unemployment
Z57	Occupational exposure to risk-factors
Z58	Problems related to physical environment
Z59	Problems related to housing and economic circumstances
Z60	Problems related to social environment
Z61	Problems related to negative life events in childhood
Z62	Other problems related to upbringing
Z63	Other problems related to primary support group, including family circumstances
Z64	Problems related to certain psychosocial circumstances
Z65	Problems related to other psychosocial circumstances

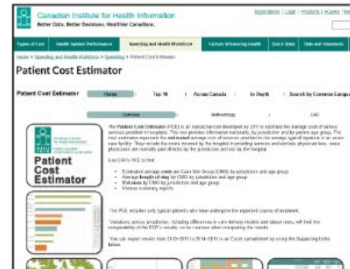
Publicly accessible open data

Examples

Interactive analytical tools

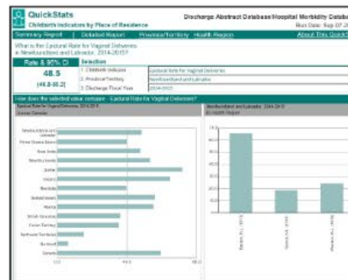
Your Health System

Patient Cost Estimator



Quick Stats

Interactive data



Pre-formatted data tables

Analytical publications