ILLINOIS DEPARTMENT OF PUBLIC HEALTH

IDPH

PROTECTING HEALTH. IMPROVING LIVES

Illinois Department of Public Health

Illinois Homelessness Mortality and Morbidity Report 2017 - 2022

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Acknowledgments

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Preface

To be healthy, all people need affordable, accessible, and safe housing. Across Illinois, many households struggle to afford housing and are forced to make hard choices, such as paying rent or a mortgage instead of buying food or medicine (National Low Income Housing Coalition 2024). Families are forced to stay in housing situations that are unsafe or overcrowded. Many households struggle to access any housing, resulting in experiences of homelessness. Furthermore, these burdens are not equally distributed. For example, due to longstanding patterns of structural inequity, Black Illinoisans are eight times more likely to experience homelessness than White Illinoisans (Arenas 2024).

Health both affects and is affected by homelessness. Having a disability or otherwise struggling with health increases a family's risk of homelessness and experiencing homelessness is detrimental to a household's physical and mental health (Fazel 2014). The reality is staggering. As this report documents, Illinoisans experiencing homelessness die almost 18 years earlier than their housed counterparts. But this reality is not inevitable. Targeted investments in housing have the potential to end homelessness across the state and expansion of data-driven programs and policies, such as medical respite for people experiencing homelessness, harm reduction, and increased access to safe, accessible, low-barrier shelters, can mitigate the effect of homelessness on health.

Recognizing a need to better understand the state of health of people experiencing homelessness, the Illinois Department of Public Health (IDPH), and the University of Illinois Chicago School of Public Health partnered in October 2023 to produce this report, which draws on statewide death certificates and hospital records. The report will be repeated annually.

This work was shaped by the leadership and guidance of the Illinois Office to Prevent and End Homelessness (OPEH), a statewide office tasked with coordinating state strategies to prevent and to end homelessness. The work of OPEH and its partner departments and agencies, including IDPH, is documented in *Home Illinois, Illinois' Plan to Prevent and End Homelessness*. The plan is structured by a foundational goal and four pillars, one of which is closing the mortality gap between people experiencing homelessness and their housed neighbors.

IDPH and the University of Illinois Chicago dedicate this report to the identified 2,520 people experiencing homelessness who died in Illinois during the years 2017-2022. The goal of this effort is to understand better the health of people experiencing homelessness and lead to support of systemic changes that promote health equity for people experiencing homelessness and housing instability across the state.

Executive Summary

Context

Between 2017-2022, in Illinois approximately 10,000 people were experiencing "literal homelessness" when tallied during the annual Point-in-Time count on a night in January each year. "Literal homelessness" is a term defined by the U.S. Department of Housing and Urban Development (HUD) to generally include people living in shelters, on the street, or another place not meant for human habitation, such as a car or abandoned building. In addition, it is estimated that 111,463 to 238,823 people per year are living with others (family or friends) in unstable arrangements, commonly referred to as "doubled-up" (based on U.S. Census Bureau data for Illinois).

Research demonstrates that people experiencing homelessness are at an increased risk and severity of many acute and chronic health conditions. Many chronic age-related conditions affect people experiencing homelessness 10-20 years earlier than the general population, often resulting in premature death. Therefore, homelessness is a significant public health concern. Access to safe, affordable, and stable housing is a core social determinant of health. Public health has an important role to play in partnering to change the conditions that limit access to housing and supporting health-promoting systems for people experiencing homelessness. To get a better understanding of health needs, IDPH partnered with researchers at the University of Illinois Chicago School of Public Health to conduct a detailed analysis of the mortality and morbidity of people experiencing homelessness in Illinois. The statewide Office to Prevent and End Homelessness provided guidance and leadership to the project.

This report utilizes death certificates and hospital data to describe the mortality and morbidity of people experiencing homelessness in Illinois. Covering the years 2017-2022, it provides public health surveillance data on the mortality and hospital-based health care utilization of this population.

KEY FINDINGS

Mortality of People Experiencing Homelessness in Illinois, 2017-2022

- A total of 2,520 deaths involving people experiencing homelessness (PEH) were identified in the Illinois statewide vital records for the years 2017-2022. Nearly all the PEH decedents died in urban counties (94.5%). By comparison, 83.5% of the general population died in urban counties.

- There has been an overall increase of 36.6% in deaths of PEH since the start of the COVID-19 pandemic, while there has been only a 6.1% increase in deaths in the general population over the same time period. This increase is independent of the deaths occurring during the three COVID-19 waves in both groups.

- COVID-19 was a contributing cause of death listed on the death certificate among 86 of the PEH decedents.

- Compared to deaths in the general Illinois population, the average age at the time of death was almost 20 years younger among PEH (PEH vs general population; 56.3 vs 74.2 years old).

- Coinciding with the younger age of death, a lower proportion of PEH died from chronic health conditions associated with the aging process, such as diseases of the circulatory, respiratory, and nervous systems or cancer. However, compared to the general population, PEH disproportionately died from drug-related overdoses (32.9% vs 3.4%), traumatic injuries (12.3% vs 3.6%), and excessive cold (3.8% vs 0.1%).

- There were almost three times the proportion of PEH murdered compared to the general population (2.9% vs 1.0%). Compared to all PEH deaths, PEH who were murdered were disproportionately 44 years or younger and non-Hispanic Black.

- Consistent with prior research, PEH decedents in Illinois have signs of greater social isolation relative to the general population.

Morbidity of People Experiencing Homelessness in Illinois, 2017-2022: Analysis of Cumulative Hospital Utilization

• A total of 1,428,984 visits for PEH were present in the statewide hospital records for the years 2017-2022, with 12.6% (179,413) identified with Z59 codes at the time of their visit. Z59 is a specific code used by hospitals to identify patients experiencing homelessness at the time of the hospital visit.

• The majority of visits occurred within urban counties (86.9%) with PEH living in greater Chicagoland (IDPH Westchester Region that includes Suburban Cook and the city of Chicago) having the highest representation. However, there are PEH visits identified in every region of Illinois.

• The most common comorbidities noted for PEH patients included hypertension, chronic pulmonary disease, substance use disorders, psychoses, and depression.

• Approximately 15-20% of visits, depending on type and coding, were injuries. The vast majority were classified as accidental injuries; however, there were 28,860 visits related to assaults and 15,578 visits following suicide attempts within the six years.

• The majority of PEH were discharged to home or self-care. For PEH, this may be a discharge to a shelter or the streets, which may result in difficulty accessing continued care or treatment, as amenities available to adequately control chronic health conditions may not be available in these settings.

Morbidity of People Experiencing Homelessness in Illinois, 2017-2022: Analysis of Hospital Data at the Unique Patient Level

• Between 2017-2022, 62,158 individuals had a total of 1,428,984 emergency department (ED) visits and admissions. There was a median of 14 hospital visits per person over these years.

• During years a person had at least one hospital visit coded for homelessness, they had an average of seven ED visits and 2.5 hospital admissions. By comparison, during years these same individuals had no hospital visits coded for homelessness, they had an average of 1.7 ED visits and 0.4 hospital admissions.

• People experiencing homelessness who were high utilizers of medical care in the hospital setting were disproportionately diagnosed with an array of serious cardiovascular, respiratory, neurologic, and renal disorders, as well as psychiatric and substance use conditions. Chronic conditions are exacerbated during periods of homelessness because of inadequate access to medical care necessary to manage these chronic conditions.

Conclusions

The demographics of PEH decedents were similar to PEH patients treated in the hospital setting. This indicates that a similar group of PEH was identified in both the vital records and the hospital data. In the analysis, data regarding the duration or frequency of unstable housing of those identified as experiencing homelessness was unavailable. A proportion of the people included in this analysis likely experienced homelessness only for a part of the six years. However, research shows that there are persistent adverse health effects associated with episodic or short-term homelessness (Oppenheimer 2016). More importantly, early access to general health and psychiatric services, as well as housing programs, has been shown to be associated with reduced morbidity and mortality in people experiencing homelessness. Improved surveillance data of mortality and health care utilization patterns of PEH can inform policies that address unstable housing or homelessness, reemployment and healthy work, and the health care needs of PEH.

Building on existing research, this report documents severe health inequities between people experiencing homelessness in Illinois and other residents. This population experiences a high burden of mortality and morbidity, specifically related to life expectancy, the burden of chronic disease, accidental and violent injury victimization, substance use, and cold- and heat-related mortality. Through research into morbidity and mortality data, the goal was to shine a light on opportunities to improve systems of care for people experiencing homelessness in the state. It is important to understand that homelessness is not inevitable, but rather is driven by structural forces, such as housing costs and gaps in safety net programs. Therefore, efforts to improve the health of people experiencing homelessness should seek both to strengthen systems of care for PEH and to change the conditions that drive housing instability and homelessness. As advocates and practitioners have long understood, housing is a health-promoting intervention. The IDPH and the University of Illinois Chicago School of Public Health look forward to working with partners to build and act on this report.

Background

Defining and Counting Homelessness

It is estimated that in the United States there are 2.5 to 4.0 million people experiencing homelessness (PEH) annually, with approximately 500,000 experiencing literal homelessness counted yearly on a night in January (Fazel 2014; US HUD 2024; Richard 2022; Meyer 2023). The estimates vary widely primarily because of (1) the difficulty in identifying PEH, (2) homelessness can affect individuals intermittently over time, and (3) differences in the definitions used by different agencies, organizations, and researchers. Broadly, the definition of homelessness includes (Rossi 1989; Wasserman 2010):

• Individuals living out of vehicles.
• Individuals that sleep in places not meant for human habitation (e.g., abandoned buildings, public transit).
• Encampments (public camping) in various urban and rural locations.
• People living in shelters.
• People living in transitional housing.
• People at imminent risk of losing housing within 14 days with no subsequent residence identified who lack resources to obtain permanent housing.
• People fleeing a permanent residence due to domestic violence without a new permanent residence.
• People "doubled-up" with family and friends.

The duration and frequency of homelessness or more broadly housing instability also varies widely. Some subgroups are homeless for long durations (homelessness lasting greater than one year or four episodes in the past two years), people who intermittently experience homelessness (episodes that alternate with housing or institutional care), and transitional or crisis homelessness (homeless for less than one year or two times or less) (Fazel 2014). Definitions of these categories of homelessness may vary, but this framework reflects the scope of duration and number of episodes of homelessness that may be experienced.

The narrowest definition of homelessness aims to count those experiencing "literal homelessness" (the term used by the U.S. Department of Housing and Urban Development or HUD); those who are living in (1) shelters, (2) in areas not meant for human habitation, or (3) those leaving an institution (including jails) after a stay of 90 days or less who were experiencing homelessness before entering the institution. However, as soon as a person exiting an institution enters a shelter or begins residing in a place not meant for human habitation, they meet the definition of literal homelessness, regardless of their place of residence before entering the institution. In Illinois, the most conservative estimate of people experiencing literal homelessness is based on the HUD Point-in-Time (PIT) counts (USHUD 2024). All Illinois continuums of care (CoC) participate in the annual count of sheltered and unsheltered people experiencing homelessness. The count is managed, planned, and executed by local CoCs and reported to HUD.

Between 2017-2022, in Illinois, there was an annual average of approximately 10,000 people experiencing literal homelessness on a night in January each year (Table 1). Illinois PIT counts show that males, people 25 years or older, and Black or African American people are disproportionately represented in the PIT count. However, because the PIT count of sheltered and unsheltered people occurs on a night of the year, it does not include (1) people experiencing homelessness at other points during the year, (2) unsheltered people who are missed during the night of the count, and (3) those doubling up with family and friends.

However, it is estimated that 80-90% of PEH each year are living with others (families or friends), often in overcrowded housing, due to the inability to afford a personal residence (these households are commonly referred to as "doubled-up"). Families with children or unaccompanied youth who are doubled-up (but not doubled-up households without children) are included in the U.S. Department of Education (DOE) McKinney-Vento definition of homelessness. The majority of these households would not be counted in the PIT or Homeless Management Information System (HMIS; see Procedures and Methodology for a description of these data systems). However, these households do qualify for supportive services within the educational system. Methods developed by Richard et al (2022) were used to estimate the total number of doubled-up people in Illinois. Between 2017-2022, the average annual estimate of people doubled-up ranges between 111,463 to 238,823. The lower estimate includes individuals living in a household with income below 125% of the federal poverty level that met the inclusion criteria (Table 2; see Appendix C: Procedures and Methodology). The upper estimate includes individuals living in a household with income below 200% of the federal poverty level.

There is an overlap between people who are counted in the Point-in-Time (PIT) counts, people receiving homeless services during a calendar year (captured in HMIS), and the doubled-up population estimates. For example, based on a report by the Chicago Coalition for the Homeless, 17.6% of the 31,333 people served in the Chicago CoC shelter system in 2022 reported being "doubled up" at some point during the same year (Paler-Ponce 2023). Furthermore, both the PIT and doubled-

up estimates do not capture all people accessing CoC homeless services during a calendar year. For example, in Chicago between 2016 and 2022, for each person counted on the PIT there were an additional 4 to 9 people accessing homeless services during the rest of a calendar year and only 17%-32% of these individuals reported "doubling-up" during the calendar year (Paler-Ponce 2023; Chicago Coalition for the Homeless 2024). Statewide, 49,229 school-aged youth experienced homelessness in 2022, 86% of whom were doubled-up (IL OPEH 2023a).

Table 1: Annual Point-In-Time Counts of People Experiencing Homelessness in Illinois (Literally Homeless), 2017-2022						
	2017	**2018**	**2019**	**2020**	**2021**	**2022**
Total PEH PIT Counts	**10,798**	**10,643**	**10,199**	**10,431**	**7,958**	**9,212**
Gender						
Male	6,372 (59.0%)	6,226 (58.5%)	5,914 (58.0%)	6,096 (58.4%)	4,370 (54.9%)	5,533 (60.1%)
Female	4,391 (40.7%)	4,376 (41.1%)	4,241 (41.6%)	4,300 (41.2%)	3,373 (42.4%)	3,620 (39.3%)
Transgender and Non-Binary	35 (0.3%)	41 (0.4%)	44 (0.4%)	35 (0.3%)	31 (0.4%)	54 (0.6%)
Unspecified	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	184 (2.3%)	5 (0.1%)
Age at PIT Count						
Under 18 years	2,455 (22.7%)	2,505 (23.5%)	2,355 (23.1%)	2,212 (21.2%)	1,828 (23.0%)	1,902 (20.6%)
18 to 24 years	1,106 (10.2%)	958 (9.0%)	926 (9.1%)	958 (9.2%)	804 (10.1%)	897 (9.7%)
25 years and older	7,237 (67.0%)	7,180 (67.5%)	6,918 (67.8%)	7,261 (69.6%)	5,142 (64.6%)	6,413 (69.6%)
Unspecified	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	184 (2.3%)	0 (0.0%)
Ethnicity						
Hispanic or Latino	1,059 (9.8%)	1,175 (11.0%)	1,032 (10.1%)	1,129 (10.8%)	931 (11.7%)	1,078 (11.7%)
Race						
American Indian or Alaska Native	68 (0.6%)	78 (0.7%)	67 (0.7%)	82 (0.8%)	64 (0.8%)	65 (0.7%)
Asian	78 (0.7%)	80 (0.8%)	90 (0.9%)	96 (0.9%)	78 (1.0%)	69 (0.7%)
Black or African American	6,375 (59.0%)	6,234 (58.6%)	6,218 (61.0%)	6,333 (60.7%)	4,657 (58.5%)	5,389 (58.5%)
Native Hawaiian or Pacific Islander	20 (0.2%)	32 (0.3%)	21 (0.2%)	21 (0.2%)	24 (0.3%)	22 (0.2%)
White (including Hispanic or Latino Ethnicity)	3,916 (36.3%)	3,854 (36.2%)	3,579 (35.1%)	3,671 (35.2%)	2,688 (33.8%)	3,344 (36.3%)
Multiracial, Declined, or Other	341 (3.2%)	365 (3.4%)	224 (2.2%)	228 (2.2%)	447 (5.6%)	323 (3.5%)
Veterans	864 (8.0%)	804 (7.6%)	690 (6.8%)	736 (7.1%)	402 (5.1%)	524 (5.7%)
Number CoCs that did not complete full counts of sheltered and unsheltered people	0	4	0	3	12	0

* The COVID-19 pandemic disrupted the PIT counts in a majority of CoC jurisdictions that resulted in a substantial undercount. It has been advised to generally disregard the accuracy of the 2021 numbers.

Table 2: Estimates of People Living Doubled-Up* with Others For Economic Reasons in Illinois, 2017-2022

	2017	2018	2019	2020	2021	2022
Annual Total	138,658	133,714	100,390	104,446	108,154	83,418
Gender						
Male	59,293 (42.8%)	61,094 (45.7%)	45,561 (45.4%)	49,184 (47.1%)	46,563 (43.1%)	41,483 (49.7%)
Female	79,365 (57.2%)	72,620 (54.3%)	54,829 (54.6%)	55,262 (52.9%)	61,591 (56.9%)	41,935 (50.3%)
Age at Death						
Under 18 years	36,294 (26.2%)	39,920 (29.9%)	24,844 (24.7%)	32,326 (30.9%)	36,051 (33.3%)	22,957 (27.5%)
18 to 24 years	36,000 (26.0%)	35,234 (26.4%)	28,159 (28.0%)	29,205 (28.0%)	23,722 (21.9%)	19,761 (23.7%)
25 years and older	66,364 (47.9%)	58,560 (43.8%)	47,387 (47.2%)	42,915 (41.1%)	48,381 (44.7%)	40,700 (48.8%)
Ethnicity						
Hispanic or Latino	45,184 (32.6%)	41,410 (31.0%)	24,671 (24.6%)	37,242 (35.7%)	36,752 (34.0%)	26,565 (31.8%)
Race						
American Indian or Alaska Native	1,256 (0.9%)	1,375 (1.0%)	1,013 (1.0%)	1,104 (1.1%)	1,316 (1.2%)	26 (0.0%)
Asian	6,063 (4.4%)	10,947 (8.2%)	5,911 (5.9%)	2,462 (2.4%)	4,062 (3.8%)	4,384 (5.3%)
Black or African American	51,014 (36.8%)	48,836 (36.5%)	37,545 (37.4%)	41,585 (39.8%)	39,078 (36.1%)	29,396 (35.2%)
Native Hawaiian or Pacific Islander	61 (0.0%)	0 (0.0%)	0 (0.0%)	89 (0.1%)	149 (0.1%)	381 (0.5%)
White (including Hispanic or Latino Ethnicity)	56,803 (41.0%)	52,625 (39.4%)	45,911 (45.7%)	24,811 (23.8%)	26,853 (24.8%)	23,463 (28.1%)
Multiracial, Declined, or Other	23,461 (16.9%)	19,931 (14.9%)	10,010 (10.0%)	34,395 (32.9%)	36,696 (33.9%)	25,768 (30.9%)
Veteran	1,756 (1.3%)	1,145 (0.9%)	1,094 (1.1%)	560 (0.5%)	1,043 (1.0%)	487 (0.6%)

*Doubled-up homelessness estimates based on 125% poverty line cut-off, Richards et al (2022).

Figure 1: Venn Diagram Showing Approximate Annual Count of People Experiencing Homelessness in Illinois: Intersection between Point-In-Time, HMIS, and Doubled-Up Estimates

HMIS Count Unknown

PIT Count ~10,000

~17-32%*

Doubled-up Annual Estimate 111,463 to 238,823
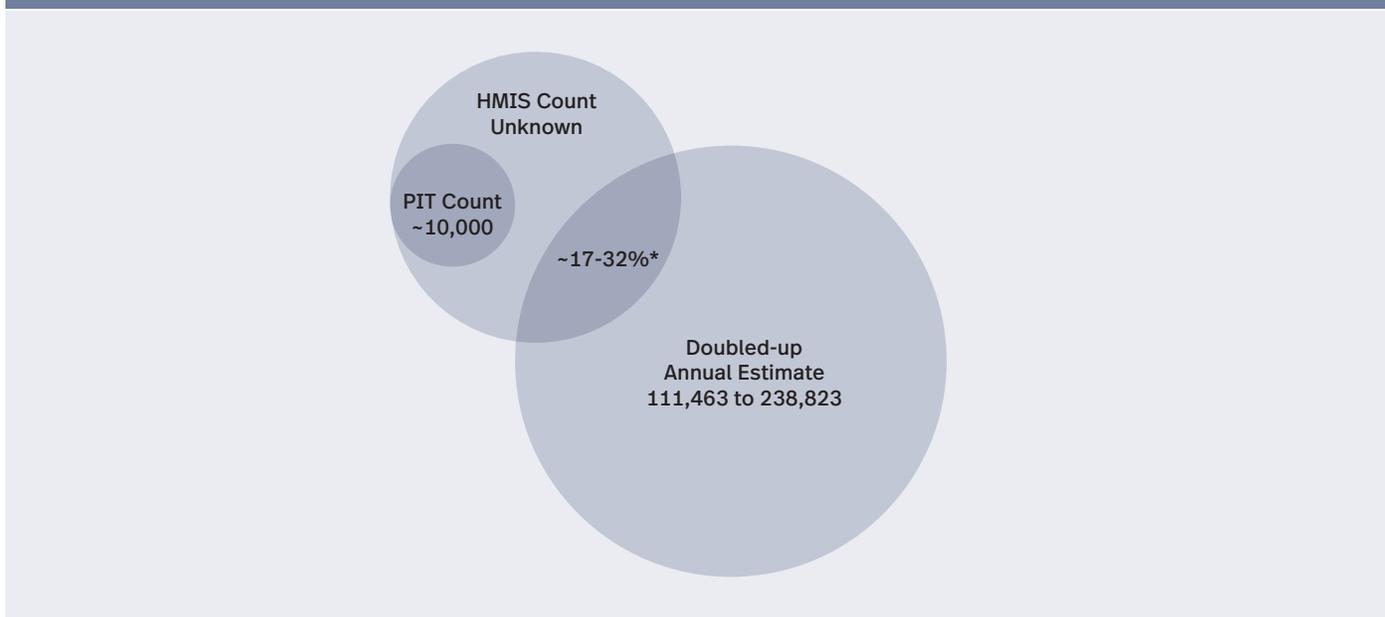
* The overlap between HMIS/PIT and Doubled-Up counts is based on the reported percent of people in Chicago HMIS data who were also doubled-up during a calendar year (Paler-Ponce, 2024; Chicago Coalition for the Homeless, 2024)
** Note: Some additional individuals are not identified in any of the three data systems.

Health Concerns of People Experiencing Homelessness

Those with unstable or a lack of housing are at an increased risk and severity of many health conditions. In comparison with the general population, PEH have a higher burden of infectious diseases, such as tuberculosis, hepatitis, and HIV (Fazel 2014). Additionally, chronic age-related conditions are common in this population as these conditions affect PEH 10-20 years earlier than the general population and the median age of PEH is approximately 50 years old in the U.S. (Fazel 2014). Chronic health concerns include substance use disorders, mental illness, chronic obstructive pulmonary disease, diabetes, and cardiovascular disease (Madigan 2021). Unintentional injuries are also common and PEH are likely to seek care for falls, cold-related injuries, burns, poisoning, assaults, and traumatic brain injury (Madigan 2021).

Health care utilization patterns of PEH lend insights into the programmatic and service needs of this population (Hwang 2014). Discharge to medical respite programs have demonstrated some success in limiting readmissions, but most patients are discharged to other settings (own care, nursing homes, etc.; Madigan 2021) that do not achieve similar results (Kertesz 2009). Interestingly, safety-net hospitals, which are more likely to serve PEH, employed fewer strategies to reduce readmissions (Figueroa 2017). While the Patient Protection and Affordable Care Act increased access to Medicaid coverage among PEH (Madigan 2021), studies show that this population has high hospital utilization rates despite this increased medical coverage, which may be due to broader situational circumstances (e.g., lack of housing, transportation, phones, financial resources), that limit access to alternative health care services (Lin 2015; Madigan 2021). In Illinois, between the years 2011-2018, there were 154,173 ED visits and admissions involving people recognized as experiencing homelessness with at a cost of $2.34 billion (Madigan 2021).

Need and Impact

A systematic review of the health of people experiencing homelessness in high-income countries noted that surveillance needs to occur regularly since the optimal public health strategies for this population can vary across time and region (Fazel 2014). In addition, those experiencing homelessness experience a higher burden of health concerns and often lack the supportive services needed for improving their health when routinely discharged to "home" or "self-care" (Fazel 2014). Without addressing the underlying health care needs, the success of transition programs decreases (Byrne 2023). Additionally, there is evidence that when hospitals and health care providers do not have strong partnerships with supportive housing and other systems that serve PEH, the unmet health needs are shifted to other social systems that are not designed to address them, such as the criminal legal system (Heun-Johnson 2018).

This report utilizes different data sources to describe the mortality and morbidity of PEH in Illinois. Individuals identified as experiencing homelessness in state-level data over a multi-year time frame are described to provide public health surveillance data on the health care utilization and mortality of this population. Improved surveillance data of health care utilization patterns and mortality of people experiencing homelessness will help shape health-promoting policies and systems for people experiencing homelessness (Hwang 2014).

Mortality of People Experiencing Homelessness in Illinois, 2017-2022

Key Findings

- A total of 2,520 deaths of people experiencing homelessness (PEH) were identified in the Illinois statewide vital records for the years 2017-2022.

- There has been an overall increase of 36.6% in PEH deaths since the start of the COVID-19 pandemic, while there has been only a 6.1% increase in deaths in the general population over the same period. This increase is independent of the deaths occurring during the three COVID-19 waves in both groups.

- The increase in deaths since the start of the COVID-19 pandemic appears to be driven in part by an increase in fatal drug-related overdoses (proportion of deaths pre- vs post-March 2020 coinciding with the onset of the COVID-19 pandemic; 27.1% vs 33.2%). When comparing the same periods, an increase is also noted in the proportion of PEH deaths testing positive for three or more drugs on a toxicology screen (11.9% vs 18.8%) and increases in the proportion testing positive for fentanyl (23.2% vs 29.6%), cocaine (10.3% vs 16.4%), and amphetamines (1.2% vs. 3.2%).

- Compared to deaths in the general Illinois population, the average age at death was almost 20 years younger among people experiencing homelessness (56.3 vs 74.2 years old).

- Coinciding with PEH decedents being approximately 20 years younger on average at the time of death than the general population, a lower proportion of PEH died from chronic health conditions associated with the aging process, such as diseases of the circulatory, respiratory, and nervous systems, or cancer. Many people experiencing homelessness do not live long enough to die from chronic health conditions associated with natural aging. However, compared to the general population, PEH disproportionately died from acute conditions, particularly drug-related overdoses (32.9% vs 3.4%), traumatic injuries (12.3% vs 3.6%), and excessive cold (3.8% vs 0.1%).

- Forty children experiencing homelessness under the age of 5 years died. Of these, 31 died during the first week after delivery, five died between the ages of 1 week and 4 months, and four died between the ages of 1 to 3 years (there were no deaths of infants between the ages of 4 and 12 months). The perinatal deaths were primarily the result of premature birth or complications during delivery.

- Consistent with research on homelessness, nearly all the decedents died in urban counties (n=2,381; 94.5% of all PEH decedents). Of PEH decedents, 83.7% died in the Westchester IDPH region that covers the greater Chicago metropolitan area. The majority of all PEH deaths occurred in the city of Chicago (57.8%). By comparison, only 60.8% of general population decedents died within these two public health regions.

- There were 139 PEH (5.5% of all PEH decedents) who died in rural counties. Rural PEH compared to urban PEH decedents are disproportionately female, older, had indicators of greater social support, and died from chronic health conditions or traumatic injury. However, rural PEH were less likely to die of drug-related overdoses.

- A total of 86 PEH tested positive for COVID-19 at the time of death. Of these, the contributing cause of death for five of those positive for COVID-19 at the time of death was drug-related overdoses, three died from cold exposure, one person committed suicide, and one died from a work-related injury. Almost all of those positive for COVID-19 at their time of death died during 1 of 3 COVID-19 waves (n=66; 76.7%).

- There were almost three-times the proportion of PEH murdered compared to the general population (2.9% vs 1.0%). Compared to all PEH deaths, PEH who were murdered were disproportionately 44 years or younger and non-Hispanic Black. Only 9.5% of PEH who were murdered tested positive for drugs associated with substance use disorders, and three of them were determined to be intentionally poisoned.

- 96 PEH deaths had cold exposure identified as a contributing cause of death. The majority tested positive for a drug associated with substance use disorders (n=57; 59.4%), and most of the remainder had a circulatory or respiratory disease (N=21; 21.9%) or a nutritional deficiency (n=4; 4.2%).

- There were 44 suicides involving PEH identified in the death records. Compared to PEH decedents who did not die from suicide, PEH who died from suicide disproportionately involved people between the ages of 15-44 years, females, non-Hispanic Whites, and Hispanics or Latinos.

- **Over the six years, 38.1% (n=960) of PEH and 4.9% (n=33,565) of general population decedents tested positive for drugs associated with substance use disorders. Of decedents who tested positive for these substances, 830 of PEH (86.5%) and 23,215 of the general population (69.2%) had a drug-related overdose identified as a contributing factor on the death certificate. Among PEH, the most common agents identified on the toxicology screens were fentanyl analogs, alcohol, cocaine, and heroin. Of those testing positive for any opioid, 37.1% also tested positive for at least one other agent known to increase the risk of respiratory depression or sedation when taken in combination with an opioid.**

- **Over the six years, PEH drug-related overdose deaths increased by 1.7% per month (p<0.001), in contrast, all PEH deaths not involving drug-related overdoses increased by 0.5% per month (p<0.001) between 2017 and 2022, after controlling for the COVID-19 pandemic.**

Overview of the Methodology Used to Identify PEH in Death Records

A detailed description of the procedures and methodology used in this report is available in Appendix C. Death certificates do not capture specific information on homelessness. For this reason, strategies developed by public health researchers in Minnesota, Boston, Los Angeles County, and San Francisco were used to identify deaths involving PEH (Fine 2023; Minnesota Department of Health 2023; LACDPH 2023; Cawley 2022).

For this report, all cases that met the following criteria were included:

1. Any narrative fields on the death certificate containing a homelessness-related keyword/phrase (e.g. homeless, living in a tent).

        OR

2. Death certificates with an unknown residential address (e.g., "no fixed abode" and "no known residence").

        OR

3. Death certificates with a street address that matched any of the state's emergency shelters (ES), transitional housing facilities (TH), safe havens (SH), and migrant shelters.

        OR

4. Death certificates with keywords that matched any of the project, facility, or agency names of the state's emergency shelters (ES), transitional housing facilities (TH), safe havens (SH), and migrant shelters (e.g., Hope Haven, Salvation Army).

A total of 2,520 deaths involving PEH were identified. Table 3 shows the number of deaths identified using the different strategies described above. The counts shown in the table are not independent. Cases could be identified in one or more stages, but duplicates were removed from the final dataset. The largest proportion of deaths involving PEH were identified because the death certificate either had no known residential address or had an address relating to a shelter or housing facility.

Table 3: Identification of People Experiencing Homelessness in Illinois Death Records by Each Query Stage, Statewide Illinois Death Records, 2017-2022	
	Statewide (N=2,520)
Homeless Keywords[1]	286 (11.3%)
No Known Residential Address[2]	1,076 (42.7%)
Shelter Street Address Match[3]	1,211 (48.1%)
Shelter Name Keyword Match[4]	43 (1.7%)

* Counts of cases are not independent. Cases could be identified in one or more stages of querying records. The final counts used in the main analysis are deduplicated.

[1] Homeless keywords - matching on keywords recommended by HUD and used in prior reports.

[2] No address - matching on missing residential address only, other address fields were not queried.

[3] Shelter street address match - Matches on shelter street address and city using SQL code, direct matching to all shelters and CoC service providers in Illinois. The shelter list was built from lists provided by HUD-HIC, OPEH and local/state service providers.

[4] Shelter name keywords - Matches on shelter name using SQL code, direct matching to all shelters and CoC service providers in Illinois. The shelter list was built from lists provided by HUD-HIC, OPEH and local/state service providers

For this analysis, a conservative approach was used when validating death records relating to potential PEH. Death records were omitted if the provided information on the death certificate was too vague and unclear to determine if the death involved a person experiencing homelessness. The following modifications to the inclusion criteria were made:

1. Many keywords recommended in the literature for identifying PEH were eliminated or modified because they primarily captured deaths of people dying in outdoor settings relating to drug-related overdoses, homicides, suicides, and motor vehicle crashes. However, the data relating to these cases were too vague and unclear to determine if the death involved a PEH. Nearly all of the death certificates with these keywords had a residential address provided. While unable to verify PEH status, some of the excluded decedents may be PEH.

2. For death records with an unknown residential address, if a narrative field noted that the place of death or injury occurred at the decedent's home or in a nursing facility, then the death record was not classified as involving a PEH. For some decedents without a residential address, the narrative fields indicated that the individual died at the "decedent's home." These cases may, in fact, involve PEH who were intermittently residing at a family or friend's residence (e.g., the parental residence of estranged children), people recently separated from a partner, or a person whose private residence was acquired by a nursing home to pay for residential costs.

3. Death certificates matching shelter addresses were excluded, if the facility had a dual use for general health care services as well as housing for PEH, unless these death certificates had a homelessness-related keyword in the narrative fields. Some hospitals and nursing homes provide housing to PEH, but because the deaths involving the main health care patient population and PEH were unable to be distinguished, these cases were omitted.

A detailed description of the procedures and methodology used is available in Appendix C. Despite the conservative inclusion criteria, the rate of deaths per 100 PEH identified in this analysis is comparable to prior reports from other regions (see Table 4). Studies from Boston and Minnesota identified the most cases, but they were able to also link death certificates with HMIS data which improved the accuracy of case identification in vital records.

Table 4: Comparison of PEH Death Counts Reported by Other Departments of Public Health Using Point-In-Time Counts as Common Denominator				
Location	Average Number of Deaths per Year	Average Annual PIT Estimate	Rate per 100 PEH	Data Source
Boston	475	5,712	8.3	Fine, 2023
Minnesota	399	7,521	5.3	MDPH State Report, 2017-2021
Los Angeles	1,051	48,826	2.2	LADPH Report, 2014-2020
San Francisco	174	6,904	2.5	Cawley, 2022
Illinois	**420**	**9,874**	**4.3**	**Illinois Vital Records, 2017-2022**

Demographics of PEH Decedents

A total of 2,520 deaths involving PEH were identified in the Illinois statewide vital records for the years 2017-2022. Table 5 presents the demographics of deaths involving PEH and the general population. Compared to deaths in the general Illinois population, PEH were disproportionately male (76.0% vs 51.4%) and the average age at the time of death was almost 20 years younger (56.3 vs 74.2 years old). PEH were predominately between the ages of 25 and 64 years at the time of death. The gender distribution and mean age observed in Illinois PEH decedents are consistent with other mortality reports of PEH (Nielsen 2011; Cawley 2022; Fine 2023).

Among deaths involving PEH only, the reported educational attainment was as follows: 19.1% did not complete high school, 34.5% had a high school diploma or equivalent, 17.9% attended college, and 28.5% had an unknown level of education. The high level of missing data relating to educational attainment makes it difficult to analyze this important characteristic. However, PEH have a higher prevalence of adverse childhood experiences (ACEs) and psychiatric conditions, both of which are associated with difficulty in remaining in secondary education or continuing to vocational training programs or college (Breslau 2008; Lee 2009; Levitt 2009; Vila-Rodriguez 2013; Stewart-Tufescu 2022; Yeo 2024).

	PEH Deaths Statewide (N=2,520)	All Other Deaths Statewide (N=688,573)
Table 5: Demographics of People Dying Based on Illinois Death Records, 2017-2022: People Experiencing Homelessness Compared to All Other Deaths Occurring in Illinois		
Gender		
Male	1,914 (76.0%)	35,1980 (51.4%)
Female	586 (23.3%)	336,569 (48.9%)
Unspecified	20 (0.8%)	24 (0.0%)
Mean Age at Death (standard deviation, sd)	56.3 (16.6)	74.2 (18.0)
Perinatal Deaths: 0 to 7 days	31 (1.2%)	2,605 (0.4%)
8 days to 11.99 months	5 (0.2%)	1,914 (0.3%)
1 to 4 years	4 (0.2%)	744 (0.1%)
5 to 9 years	0 (0.0%)	469 (0.1%)
10 to 14 years	1 (0.0%)	700 (0.1%)
15 to 19 years	6 (0.2%)	2,717 (0.4%)
20 to 24 years	28 (1.1%)	4,838 (0.7%)
25 to 34 years	171 (6.8%)	14,284 (2.1%)
35 to 44 years	306 (12.1%)	19,704 (2.9%)
45 to 54 years	491 (19.5%)	38,006 (5.5%)
55 to 64 years	808 (32.1%)	88,443 (12.9%)
65 to 74 years	393 (15.6%)	132,116 (19.3%)
75 and older	220 (8.7%)	381,949 (55.7%)
Unspecified	56 (2.3%)	85 (0.0%)
Race/Ethnicity		
White, Non-Hispanic	1,197 (47.5%)	510,719 (74.5%)
Black or African-American	998 (39.6%)	116,868 (17.1%)
Hispanic or Latino	214 (8.5%)	43,122 (6.3%)
Asian	28 (1.1%)	16,062 (2.3%)
American Indian/Alaska Native	10 (0.4%)	729 (0.1%)
Native Hawaiian or Pacific Islander	3 (0.1%)	287 (0.0%)
Other / Unspecified	70 (2.8%)	787 (0.1%)
Education		
8th Grade or Less	178 (7.1%)	62,701 (9.2%)
9th to 12th Grade	303 (12.0%)	57,383 (8.4%)
High School or GED	869 (34.5%)	313,322 (45.7%)
Associate Degree	81 (3.2%)	42,160 (6.2%)
College but No Degree	236 (9.4%)	86,580 (12.6%)
Bachelor's Degree	96 (3.8%)	72,053 (10.5%)
Master's Degree	23 (0.9%)	30,357 (4.4%)
Doctoral Degree	15 (0.6%)	10,998 (1.6%)
Unknown	719 (28.5%)	13,019 (1.9%)

While non-Hispanic Whites comprise the largest proportion of PEH decedents, the proportion of PEH who were non-Hispanic Black was more than double the proportion observed in the general population. While the distribution of PEH decedents by gender and age was similar across all IDPH-defined public health regions, the racial and ethnic characteristics of PEH varied regionally. In more rural regions, the proportion of PEH who were non-Hispanic White ranged between 74.7% and 82.9%, but these proportions diminished in the greater Chicago metropolitan area. In the city of Chicago, the majority of PEH decedents were non-Hispanic Black (52.1% of PEH within Chicago). The regions with the highest proportion of Hispanic or Latino PEH decedents were Chicago (10.3% of all decedents in Chicago were Hispanic or Latino) and the Westchester West Chicago public health region (10.0%).

A detailed table of the demographics of deaths involving PEH by public health regions is available in Appendix B.

Table 6 presents the crude annual mortality rates for people experiencing homelessness and the Illinois general population for the years 2017-2022 rates, stratified by race-ethnicity, age, and gender. Because quality data enumerating PEH by detailed age groups were absent, Point-in-Time counts were used to calculate crude mortality rates for PEH as opposed to age-standardized rates.

Table 6: Crude Annual Mortality Rates for People Experiencing Homelessness and the Illinois General Population by Year, 2017-2022												
	Crude Annual Mortality Rates People Experiencing Homelessness*						Crude Annual Mortality Rates General Illinois Population**					
	2017	2018	2019	2020	2021*	2022	2017	2018	2019	2020	2021**	2022**
Overall Crude Annual Mortality Rate	3.1	3.1	3.4	4.6	4.8	6.1	0.8	0.8	0.8	1.0	1.0	0.9
Gender												
Male	3.9	4.2	4.3	5.7	6.4	7.7	0.8	0.9	0.9	1.1	1.0	1.0
Female	1.9	1.6	2.0	3.0	2.6	3.3	0.8	0.8	0.8	1.0	0.9	0.9
Unspecified	0.0	12.2	2.3	2.9	2.2	22.2	~	~	~	~	~	~
Age at Death												
Under 18 years	0.2	0.3	0.1	0.7	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0
18 to 24 years	0.5	0.3	0.8	0.5	0.9	0.4	0.1	0.1	0.1	0.1	0.1	0.1
25 years and older	4.3	4.4	4.7	6.3	6.6	8.3	1.2	1.2	1.2	1.5	1.4	1.3
Unspecified	~	~	~	~	~	~	~	~	~	~	~	~
Ethnicity												
Hispanic or Latino	2.5	2.0	3.4	4.7	3.7	3.2	0.2	0.3	0.3	0.4	0.4	0.3
Race												
American Indian or Alaska Native	1.5	0.0	4.5	0.0	5.4	3.1	0.5	0.3	0.4	0.5	0.2	0.2
Asian	7.7	3.8	4.4	7.3	3.6	7.2	0.3	0.3	0.3	0.5	0.4	0.4
Black or African American	1.7	2.1	2.1	2.9	3.5	4.6	0.9	1.0	1.0	1.3	1.3	1.2
Native Hawaiian or Pacific Islander	0.0	0.0	0.0	0.0	14.0	0.0	0.9	1.0	1.4	1.2	0.7	0.5
White (inc. Hispanic or Latino Ethnicity)	5.3	4.9	5.4	7.2	7.2	8.5	1.0	0.9	0.9	1.1	1.2	1.2
Multiracial, Declined, or Other	2.1	3.8	3.6	9.2	2.9	6.5	0.0	0.0	0.0	0.1	0.0	0.0

Note: Race and ethnicity were kept independent of each other because the Point-In-Time Counts through 2022 do not provide counts of race stratified by ethnicity.

* Crude annual mortality rates for PEH are based on HUD PIT counts for the denominator. Many CoC jurisdictions were unable to provide complete PIT counts in 2021 because of the COVID-19 pandemic. 2021 PIT counts were corrected using the average between the 2020 and 2022 counts.

** Crude annual mortality rates for the general Illinois population are based on US Census data for the denominator. However, the selection of race categories changed in 2021 that resulted in a substantial decline in counts for the category "White Alone" and substantial increases in counts of Illinois residents identifying as American Indian or Alaska Native and multiracial.

*** It was not feasible to calculate age-standardized rates because the PIT counts lacked detailed age categories through 2022. The only age categories used in the PIT reports for years 2017-2022 were <18 years, 18-24 years, and 25 and older.

It was not feasible to calculate age-standardized rates because the PIT counts lack detailed age categories through 2022. Calculation of age-standardized rates is a statistical strategy used to compare rates between groups with different age structures. PEH are much younger than the general population decedents. The only age categories used in the PIT reports for the years 2017-2022 were less than 18 years, 18 to 24 years, and 25 years and older. Because age-standardized rates could not be calculated, comparing the rates between PEH subgroups and the general Illinois population should be done with caution. On average, PEH decedents die almost 20 years younger than the general Illinois population. Standardization of rates would "correct" for this difference in age of death. Furthermore, it is recognized that the PIT undercounts total PEH (see detailed discussion in the Procedures and Methodology section). Using the PIT counts as the denominator of the mortality rate inflates the rates because so many PEH are not identified in the PIT. Overall, it is unclear how these opposing effects – not adjusting for the age of death and using the smaller denominator estimates from the PIT count -- impact the crude rates. However, a detailed analysis conducted by the Minnesota Department of Health in 2023, which used HMIS data and calculated age-standardized mortality rates, continued to show that adjusted mortality rates among PEH were 3.0 times higher than the general Minnesota population.

Early Childhood Deaths

Forty children experiencing homelessness under the age of 5 years died -- 31 died during the first week after delivery, five died between the ages of 1 week and 4 months (there were no deaths of infants between the ages of 4 and 12 months), and four died between the ages of 1 to 3 years (there were no deaths of 4-year-old children). Almost all childhood deaths occurred in a hospital setting. Two deaths occurred in transitional housing facilities and two at unknown locations or outdoors.

Research demonstrates that homelessness during pregnancy is associated with preterm birth, low birth weight, and delivery complications (Sandel 2018; DiTosto 2021; St Martin 2021). These adverse birth outcomes are related to poor prenatal care because of the difficulty in accessing services, a high prevalence of comorbidities in mothers experiencing homelessness, and engaging in risky behaviors (DiTosto 2021; St Martin 2021). Of the perinatal deaths identified in this study (deaths occurring within the first seven days after birth), 21 died on the day of delivery and 10 died between 2-7 days after delivery (the World Health Organization refers to the day of birth as day zero; in this report the day of birth is referred to as day one). When evaluating the cause of perinatal deaths, 11 infants were born extremely premature (23 to 27 weeks), four were born premature (28 to 36 weeks), and 16 had a gestational age of 37 weeks or more at birth.

Of the 16 perinatal deaths involving infants with a gestational age of 37 weeks or more at birth, the following contributing causes of death were provided: intra-uterine complications, such as ruptures, placental separation, or hemorrhage (n=8); congenital malformations (n=2); complications following an injury to the mother (n=2); cocaine-related exposure (n=1); and one from an injury sustained in a motor vehicle crash. Two deaths did not provide sufficient information regarding the cause of death. Most of the perinatal deaths involved infants who were male (54.8%), non-Hispanic Black or non-Hispanic White (32.3% and 29.0% respectively) and were born in Cook County (71.0% in Chicago and 16.1% in Suburban Cook County). Eight perinatal deaths occurred during one of the three COVID-19 waves between 2020 and 2022, with two deaths occurring during the respiratory syncytial virus (RSV) and influenza outbreak from December 2017 to January 2018. However, the infection status of the mother was unknown in these perinatal deaths.

Of the five children who died between the ages of 1 week and 4 months, four died during sleep from suspected sudden unexpected infant death (SUID). However, a confirmation of sudden infant death syndrome (SIDS) was not provided on the death certificates. Of the early childhood deaths involving children 1 to 3 years of age, two were determined to be homicides and one died from encephalopathy related to a congenital malformation of the brain.

Veteran Status

Compared to general population decedents, there was a lower proportion of PEH known to be veterans based on Illinois death records (10.2% vs 18.4% in the general population decedents). The Peoria Public Health Region had the highest proportion of PEH veteran decedents (17.8%) and the Marion region had the lowest proportion (6.5%). However, research indicates that veterans are at increased risk of homelessness (Fargo 2012; Tsai 2016; Naifeh 2023), and data from the Veteran's Administration and U.S. Census show that the proportion of the population who are veterans is substantially higher in persons 65 years and older. Taking into account that the average age of death among PEH is almost 20 years younger than the general Illinois population, the younger age of PEH decedents likely explains the apparent lower proportion of veterans who are homeless relative to the decedents in the general population. Table 7 presents the proportion of living veterans among the general Illinois population, PEH veteran decedents, and veteran decedents in the general population. After stratifying by age, the percent of PEH decedents reported to be veterans is proportional to or exceeds the proportion observed among living Illinois residents.

Table 7: Veteran Status Based on Illinois Death Records, 2017-2022: People Experiencing Homelessness Compared to All Other Deaths Occurring in Illinois			
Age Group	Percent of Living Illinois Population Who Are Veterans (2022)*	Percent of All PEH Deaths Who Were Veterans	Percent of All Other Illinois Deaths Who Were Veterans
18 to 34 years	1.5%	2.4%	2.3%
35 to 54 years	3.2%	3.5%	4.9%
55 to 64 years	5.1%	12.7%	8.5%
65 to 74 years	8.6%	19.6%	18.1%
75 years and over	15.3%	19.5%	23.9%

* US Census estimates of Illinois residents who are veterans in 2022

Marital Status and Indicators of Social Support at Time of Death

Research demonstrates that people experiencing homelessness have low social support and higher reported loneliness (Cummings 2022). Intimate relationships and social support networks reduce the incidence and severity of adverse health outcomes, in particular psychiatric conditions and substance use (Holt-Lunstad 2010; Harandi 2017; Cummings 2022; Hu 2023).

Table 8 presents the reported marital status and key informant relationship to the decedent. Among PEH who died in the current analysis, there were 2.7 times more who had never married compared to decedents in the general population (44.8% vs 16.5%). However, the marital status of PEH decedents varied widely. In the Marion region, 25.8% were married at the time of death as compared to 12.0% among all PEH decedents. Across the rural regions of Illinois, a far greater proportion of PEH decedents were divorced or separated at the time of death (ranging between 29.3% and 39.6%; see Appendix B for more details). When stratified by race-ethnicity, the proportion who were never married was substantially higher among both non-Hispanic Black (53.0%) and Hispanic or Latino PEH (61.7%) compared to non-Hispanic White PEH (36.7%), but non-Hispanic White PEH were more likely to be divorced or separated (non-Hispanic Black, 12.5%; Hispanic or Latino, 12.1%; non-Hispanic White, 28.2%).

In addition, only 64.3% of the PEH decedents had a family member who was the key informant for providing personal information about the decedent to the individual completing the death certificate, as compared to 94.5% of deaths in the general population. The proportion of key informants who were family members of the PEH decedent varied across the state. Outside of Cook County, 80% or more of PEH had a family member provide information to the responsible party completing the death certificate. In contrast, in Suburban Cook County only 67.0% of key informants were family members, and in Chicago only 54.7%. Corresponding with prior research, both marital status and the relationship of the key informant to the decedent provide evidence that PEH decedents have greater social isolation relative to the general population; PEH residing in Cook County appear to be the most socially isolated. However, in the absence of detailed data on the personal social networks of PEH decedents, it is unclear if this relates to lifelong progressive social isolation, the result of recent estrangement from family and friends, or difficulty in contacting family members of recently deceased PEH because of an absence of articles of identification.

Widows

There were 158 PEH decedents whose marital status was widowed at the time of death; 53.4% of which were female. By comparison, only 23.3% of all PEH decedents were female. A total of 14.1% of all PEH female decedents were widows, as compared to 3.8% of all PEH male decedents who were widowers. Compared to all non-widowed PEH decedents, female widows were primarily non-Hispanic White (58.8%) with a mean age of 75.5 years, and disproportionately born outside the United States, primarily in Europe or the Caribbean (14.1% foreign-born). Almost all PEH female widows had a family member who was the key informant on the death certificate (91.8%), which is similar to the general population of all non-PEH decedents (94.5%). In addition, only 14.1% tested positive for a drug associated with substance use disorders and nearly all died from chronic health conditions, particularly diseases of the circulatory and respiratory systems, cancers, or infections. Compared to all PEH decedents, female widows disproportionately died in the Rockford, Metro East (East St. Louis), and Marion (southern Illinois) regions (27.0% vs 8.3% of general population decedents; 20 of the 85 widows died in these three regions). Only 12.9% were living in a nursing home or long-term care facility at the time of death.

Table 8: Marital Status and Relationship of Informant to People Dying Based on Illinois Death Records, 2017-2022: People Experiencing Homelessness Compared to All Other Deaths Occurring in Illinois		
	PEH Deaths Statewide (N=2,520)	All Other Deaths Statewide (N=688,573)
Marital Status		
Never Married	1,128 (44.8%)	112,847 (16.5%)
Married or Civil Union	178 (7.1%)	234,215 (34.2%)
Divorced or Separated	497 (19.7%)	110,139 (16.1%)
Widowed	158 (6.3%)	226,541 (33.1%)
Unknown	559 (22.2%)	4,831 (0.7%)
Relationship of Informant to Decedent*		
Family Member		
Child or Stepchild	480 (19.0%)	316,382 (46.2%)
Sibling	518 (20.6%)	59,147 (8.6%)
Parent or Stepparent	395 (15.7%)	46,287 (6.8%)
Spouse or Partner	118 (4.7%)	197,607 (28.8%)
Niece or Nephew	43 (1.7%)	16,289 (2.4%)
Grandchild	8 (0.3%)	5,940 (0.9%)
Other Relative	58 (2.3%)	5,374 (0.8%)
Medical Records	442 (17.5%)	3,335 (0.5%)
Intake, Facility, or Health Care Staff	291 (11.5%)	3,315 (0.5%)
Coroner, Medical Examiner, or Funeral Home	79 (3.1%)	1,476 (0.2%)
Power of Attorney	28 (1.1%)	17,232 (2.5%)
Friend	23 (0.9%)	4,825 (0.7%)
Guardian	21 (0.8%)	2,913 (0.4%)
Religious Representative	7 (0.3%)	128 (0.0%)
Other Public Official	5 (0.2%)	112 (0.0%)
Unknown	4 (0.2%)	8,211 (1.2%)

* Per death certificate guidelines, the informant should be "someone who truly knows the answers to the relevant questions about the decedent and will provide truthful and accurate information."

Current Place of Residence and Place of Birth

Among PEH who died in Illinois, there is some evidence that PEH decedents have a higher degree of geographic mobility as compared to the general population (defined as dying in the same state as they were born), as well as more missing information on their death certificates. The latter likely reflects an absence of key informants related to the decedent and missing articles of identification on the decedent at the time of death (McGivern 2017). Of the PEH decedents, 81.8% were Illinois residents, 1.0% were residents of neighboring states, 0.6% were residents of another U.S. state or territory, 0.3% were residents of a foreign country, and 16.4% had no known place of residency. By comparison, 98.0% of decedents in the general population had Illinois residency, 1.2% were residents of neighboring states, and 0.7% were residents of another U.S. state or territory.

When place of birth was evaluated, a greater percentage of people experiencing homelessness had unknown places of birth compared to the general population (9.7% vs. 1.5%). The data further indicated that PEH may have greater geographic mobility than the general Illinois population. As compared to the general population decedents, fewer PEH were known to be born in Illinois (50.7% vs 62.0%), but only slightly fewer PEH were born outside of the U.S. (7.7% vs 10.0%). However, this gap may not be very large depending on the birthplace of the large number of PEH for whom the place of birth is not known. Table 9 presents the place of birth of both PEH and general Illinois population decedents.

Table 9: Place of Birth of Decedents Based on Illinois Death Records, 2017-2022: People Experiencing Homelessness Compared to All Other Deaths Occurring in Illinois		
Birth County/Region	PEH Deaths Statewide (N=2,520)	All Other Deaths Statewide (N=688,573)
Africa	11 (0.4%)	660 (0.1%)
Asia, Other	12 (0.5%)	6,741 (1.0%)
Canada	5 (0.2%)	1,177 (0.2%)
Caribbean	7 (0.3%)	1,370 (0.2%)
Central America	20 (0.8%)	2,631 (0.4%)
China	2 (0.1%)	2,158 (0.3%)
Europe	29 (1.2%)	16,835 (2.5%)
Mexico	64 (2.5%)	20,073 (2.9%)
Middle East	9 (0.4%)	1,662 (0.2%)
Oceania	1 (0.0%)	1 (0.0%)
Poland	21 (0.8%)	7,590 (1.1%)
Russia	6 (0.2%)	815 (0.1%)
South America	6 (0.2%)	1,189 (0.2%)
South Asia	1 (0.0%)	4,280 (0.6%)
United States (only top 10 states shown)	2,082 (82.6%)	609,044 (88.5%)
Illinois	1,278 (50.7%)	426,721 (62.0%)
Mississippi	55 (2.2%)	23,769 (3.5%)
Indiana	32 (1.3%)	12,142 (1.8%)
Missouri	30 (1.2%)	16,696 (2.4%)
Wisconsin	25 (1.0%)	10,885 (1.6%)
Tennessee	24 (1.0%)	7,515 (1.1%)
Puerto Rico	22 (0.9%)	4,808 (0.7%)
Arkansas	21 (0.8%)	8,914 (1.3%)
Michigan	21 (0.8%)	7,860 (1.1%)
Ohio	20 (0.8%)	6,405 (0.9%)
Unknown County/Region	244 (9.7%)	10,385 (1.5%)

* Only the ten states with the highest number of decedents are shown.

Foreign-Born Decedents Who Experienced Homelessness

Compared to U.S. born PEH decedents, the 194 foreign-born PEH decedents were disproportionately Hispanic or Latino (42.3% vs 6.0%) and Asian (7.7% vs 0.5%), and more likely to be married or in a civil union at the time of death (14.9% vs 7.0%). There were a disproportionate number of foreign-born PEH decedents who both had only completed primary education (22.2% vs 6.5%) or completed a bachelor's or higher degree (12.9% vs 5.1%) relative to U.S. born PEH decedents. Foreign-born PEH decedents compared to all other PEH decedents were less likely to die from a drug-related overdose (20.7% vs 32.4%), but disproportionately died from cold-related injuries (6.2% vs 3.1%), infectious diseases (11.9% vs 5.9%), and diseases of blood-forming organs (5.2% vs 1.2). Despite a lower proportion of foreign-born, PEH decedents tested positive for opioids (14.4% vs 29.0%), stimulants (6.7% vs 17.0%), or sedative-hypnotics (2.1% vs 4.2%), a greater proportion compared to all other PEH tested positive for alcohol at the time of death (26.8% vs 13.6%) and for alcohol-related liver disease (3.1% vs 1.8%).

Work History and Usual Occupation

The persons completing the death certificates are trained to collect information about the decedent's usual occupation -- the job the decedent worked at most of their lives. The CDC NIOSH Industry and Occupation Computerized Coding System (NIOCCS) data tool was used to code the occupation information provided on the death certificate into Standard Occupational Classification Codes (SOC). However, a large proportion of the death certificates were not coded by NIOCCS (38.3% of PEH decedent's occupations were uncoded). NIOCCS was unable to code many records even though 97.7% of occupation fields had a valid occupation inputted. For this reason, the uncoded occupations were analyzed manually. The data provides some insights into the occupational histories of PEH (Table 10).

The most commonly reported primary occupations of PEH were transportation and material moving jobs (15.4%; n=271 out of 389 were general laborers within this occupational category), construction and extraction jobs (7.8%; n=116 out of 196 were general laborers), and food preparation and serving related jobs (3.4%; n=51 out of 85 were cooks). Twenty-five PEH decedents had been employed in public sector jobs, of which six were former police officers, two were paramedics, and one was a correctional officer.

When analyzing the uncoded original job titles provided on the death certificate, the vast majority of PEH were employed in general labor jobs rather than skilled trade jobs. This coincides with research showing that many of the same individual-level risk factors that contribute to housing instability or homelessness often serve as barriers to obtaining and maintaining employment. Many of these risk factors are more prevalent among PEH, such as poverty; difficulty remaining in school,

Table 10: Occupations Reported on Illinois Death Records, 2017-2022: People Experiencing Homelessness Compared to All Other Deaths Occurring in Illinois		
Occupation Category (Based on SOC Coding)	PEH Deaths Statewide (N=2,520)	All Deaths Statewide (N=688,573)
Architecture and Engineering	12 (0.5%)	9,389 (1.4%)
Arts, Design, Entertainment, Sports, and Media	25 (1.0%)	5,887 (0.9%)
Building and Grounds Cleaning and Maintenance	48 (1.9%)	13,993 (2.0%)
Business and Financial Operations	18 (0.7%)	7,783 (1.1%)
Community and Social Service	16 (0.6%)	5,390 (0.8%)
Computer and Mathematical	8 (0.3%)	3,356 (0.5%)
Construction and Extraction	196 (7.8%)	36,671 (5.3%)
Education, Training, and Library	20 (0.8%)	23,175 (3.4%)
Farming, Fishing, and Forestry	3 (0.1%)	8,744 (1.3%)
Food Preparation and Serving Related	85 (3.4%)	15,512 (2.3%)
Health Care Practitioners and Technical	33 (1.3%)	17,540 (2.5%)
Health Care Support	31 (1.2%)	9,809 (1.4%)
Installation, Maintenance, and Repair	38 (1.5%)	11,741 (1.7%)
Legal	11 (0.4%)	3,629 (0.5%)
Life, Physical, and Social Science	4 (0.2%)	1,511 (0.2%)
Management	33 (1.3%)	27,140 (3.9%)
Office and Administrative Support	61 (2.4%)	42,703 (6.2%)
Personal Care and Service	16 (0.6%)	7,067 (1.0%)
Production	65 (2.6%)	39,904 (5.8%)
Protective Services	29 (1.2%)	8,552 (1.2%)
Sales and Related	69 (2.7%)	35,108 (5.1%)
Transportation and Material Moving	389 (15.4%)	71,751 (10.4%)
Did not work - Disabled	82 (3.3%)	10,379 (1.5%)
Did not work - Homemaker	112 (4.4%)	96,670 (14.0%)
Did not work - Never Worked	150 (6.0%)	11,868 (1.7%)
Uncoded by NIOCCS	966 (38.3%)	163,301 (23.7%)

including vocational programs; a history of incarceration; severe mental illness; gaps in employment or housing histories; poor credit ratings; lack of personal/professional networks; and a lack of a permanent address and contact information (Burke 2013; Zlotnick 2002; Shier 2012; van der Geest 2014). Strikingly, there were twice as many PEH who were reported to have not worked because of a disability compared to the general population (3.3% vs 1.5%) and 3.5 times as many who never worked for unspecified reasons (6.0% vs 1.7%).

Geographic Distribution of Decedents Who Experienced Homelessness

Tables 11 and 12 show the distribution of PEH decedents by IDPH regions and continuum of care jurisdictions. Consistent with PEH research, nearly all the decedents died in urban counties (n=2,381; 94.5% of all PEH decedents). Of PEH decedents, 83.7% died in the IDPH Westchester Region, which covers the greater Chicago metropolitan area. By comparison, only 60.8% of the general population decedents died within the Westchester Region. The majority of PEH deaths occurred in the city of Chicago (57.8%).

Based on PIT counts, an estimated 4 of every 100 PEH die each year, which is nearly identical to prior published research from Massachusetts (Roncarati 2018). The average crude annual mortality rates per 100 PEH were highest in the following continuum of care jurisdictions: West Central Illinois, Will County, Suburban Cook County, and Chicago (see Table 12). However, PIT counts are recognized to substantially undercount people affected by housing instability, including those experiencing literal homelessness as defined by HUD. Therefore, this mortality rate is substantially inflated because so many people experiencing homelessness (the denominator of the rate) are not identified in the PIT.

Table 11: Distribution of Identified Deaths of People Experiencing Homelessness by Illinois Department of Public Health Regions and Continuum of Care Regions: Statewide Illinois Death Records, 2017-2022

Continuum of Care	Average PIT Count*	Rockford Region (N=114)	Peoria Region (N=101)	Metro East Region (N=82)	Marion Region (N=31)	Champaign Region (N=83)	Westchester — West Chicago Region (N=271)	Westchester — Suburban Cook (N=382)	Westchester — Chicago (N=1,456)	CoC Number
Northern Illinois Homeless	402	91	0	0	0	0	0	0	0	IL-501
Northwestern	233	23	31	0	0	0	0	0	0	IL-518
Central Illinois	387	0	4	0	0	36	15	0	0	IL-512
Home For All	332	0	45	0	0	0	0	0	0	IL-507
West Central Illinois	89	0	21	8	0	0	0	0	0	IL-519
Heartland	269	0	0	17	0	0	0	0	0	IL-513
Homeless Action Council	258	0	0	26	0	0	0	0	0	IL-508
Madison County	130	0	0	23	0	0	0	0	0	IL-504
South Central	121	0	0	7	2	7	0	0	0	IL-515
Southern Illinois	430	0	0	1	29	0	0	0	0	IL-520
Decatur	149	0	0	0	0	12	0	0	0	IL-516
Urbana-Champaign	154	0	0	0	0	28	0	0	0	IL-503
DuPage County	374	0	0	0	0	0	47	0	0	IL-514
Kane County	396	0	0	0	0	0	56	0	0	IL-517
Lake County	309	0	0	0	0	0	49	0	0	IL-502
McHenry County	148	0	0	0	0	0	29	0	0	IL-500
Will County	276	0	0	0	0	0	75	0	0	IL-506
Suburban Cook County	923	0	0	0	0	0	0	382	0	IL-511
Chicago	5,447	0	0	0	0	0	0	0	1,456	IL-510
Total Deaths of People Experiencing Homelessness	~	114 (4.5%)	101 (4.0%)	82 (3.3%)	31 (1.2%)	83 (3.3%)	271 (10.8%)	382 (15.2%)	1,456 (57.8%)	~
All Deaths Statewide Population	~	44,295 (6.5%)	72,075 (10.5%)	75,684 (11.0%)	33,951 (5.0%)	45,989 (6.7%)	143,643 (21.0%)	153,633 (22.4%)	119,303 (17.4%)	~

Continuum of Care Jurisdiction	CoC Number	Average PIT Count Sheltered and Unsheltered	PEH Deaths Statewide (N=2,520)	Crude Annual Rate per 100 PEH based on PIT	All Other Deaths Statewide (N=688,573)
Northern Illinois Homeless CoC	IL-501	402	91 (3.6%)	3.77	27,863 (4.1%)
Northwestern CoC	IL-518	233	54 (2.1%)	3.86	42,407 (6.2%)
Central Illinois CoC	IL-512	387	55 (2.2%)	2.37	29,891 (4.4%)
Home For All CoC	IL-507	332	45 (1.8%)	2.26	29,355 (4.3%)
West Central Illinois CoC	IL-519	89	29 (1.2%)	5.41	17,993 (2.6%)
Heartland CoC	IL-513	269	17 (0.7%)	1.05	16,184 (2.4%)
Homeless Action Council CoC	IL-508	258	26 (1.0%)	1.68	24,455 (3.6%)
Madison County CoC	IL-504	130	23 (0.9%)	2.95	16,442 (2.4%)
South Central CoC	IL-515	121	16 (0.6%)	2.21	22,595 (3.3%)
Southern Illinois CoC	IL-520	430	30 (1.2%)	1.16	33,607 (4.9%)
Decatur CoC	IL-516	149	12 (0.5%)	1.34	8,083 (1.2%)
Urbana-Champaign CoC	IL-503	154	28 (1.1%)	3.03	11,316 (1.7%)
DuPage County CoC	IL-514	374	47 (1.9%)	2.10	44,313 (6.5%)
Kane County CoC	IL-517	396	56 (2.2%)	2.36	21,889 (3.2%)
Lake County CoC	IL-502	309	49 (1.9%)	2.65	25,444 (3.7%)
McHenry County CoC	IL-500	148	29 (1.2%)	3.27	11,415 (1.7%)
Will County CoC	IL-506	276	75 (3.0%)	4.54	32,385 (4.7%)
Suburban Cook County CoC	IL-511	923	382 (15.2%)	6.90	153,633 (22.4%)
Chicago CoC	IL-510	5,447	1,456 (57.8%)	4.46	119,303 (17.4%)
Total	~	10,825	2,520	3.88	688,573

Table 12: Distribution of Identified Deaths and Crude Annual Mortality Rates for People Experiencing Homelessness by Continuum of Care (CoC) Regions, 2017-2022*

* Average PIT counts only include years with full counts of both sheltered and unsheltered PEH.

People Experiencing Homelessness in Rural Illinois Counties

There were 139 PEH (5.5% of all PEH decedents) who died in rural counties where supportive services can be difficult to access because of large coverage areas and fewer service providers. For this report, counties with a population of less than 60,000 were defined as rural (Illinois Primary Health Care Association definition). Rural counties were identified based on population totals reported in the 2020 U.S. Census. All rural PEH decedents died in the following six continuum of care jurisdictions (out of 19 statewide CoC jurisdictions): Northwestern CoC, South Central CoC, Southern Illinois CoC, West Central Illinois CoC, Will CoC, and Central Illinois CoC.

Despite the low number of rural PEH decedents in this analysis, rural PEH differed substantially from urban PEH in terms of demographics, indicators of social support, and contributing causes of death. Rural PEH compared to urban PEH decedents are disproportionately non-Hispanic White (84.9% vs. 45.1%), female (34.5% vs 22.5%), older (61.0 vs 55.4 years, mean age at death) with two-fold more 75 years and older at time of death (19.4% vs 8.1%). Compared to urban PEH, a substantially greater proportion of rural PEH decedents did not graduate from high school (28.8% vs 18.4%). Also, a greater proportion of rural PEH decedents were born in the United States (91.4% vs 81.8%), as well as born in Illinois (63.3% vs 49.8%). While deaths of urban PEH are relatively evenly distributed across the year with a small increase in December, rural PEH decedents disproportionately died in June, August, and September.

Rural PEH also had indicators of greater social support. Rural PEH decedents were disproportionately more likely to be married or previously married (divorced, separated, and widowed) than urban PEH (67.6% vs. 30.9%). Compared to urban PEH, rural PEH decedents were also more likely to have a family member who was the key informant for providing personal information to the individual completing the death certificate (87.8% vs. 62.7%).

When evaluating the contributing causes of death, rural PEH disproportionately died from the following chronic health conditions (vs urban PEH): lung cancer (4.3% vs 1.7%), diabetes (12.9% vs 5.0%), acute myocardial infarction and cardiac

arrest (12.9% vs 5.4%), congestive heart failure (8.6% vs 3.2%), and chronic obstructive pulmonary disease (COPD; 13.7% vs 4.3%). Rural PEH were also more likely to suffer a traumatic injury before death (20.1% vs 11.8%), particularly from suicide (5.0% vs 1.5%) and homicide (4.3% vs 2.8%). However, when compared to urban PEH, rural PEH were less likely to die from cold-related exposure (0.7% vs 4.0%) or drug-related overdoses (13.7% vs 33.9%). Rural PEH decedents were less likely to test positive for fentanyl (7.9% vs. 23.9%), heroin (0.7% vs 10.2%), cocaine (0.7% vs 14.5%), or any sedative-hypnotic (0.0% vs 4.1%). Despite the lower proportion of rural PEH dying from drug-related overdoses, more than three times were testing positive for amphetamines compared to urban PEH (6.5% vs 2.0%).

Temporal Distribution of Deaths Involving People Experiencing Homelessness

Figure 2 shows the monthly trend in deaths between January 2017 and December 2022 for PEH only and the entire Illinois population. The monthly trend in deaths of PEH increased significantly by 1% per month since 2017, independent of the deaths occurring during the three COVID-19 waves between 2020-2022. By comparison, the trend in the general population of decedents has increased 0.1% per month (p<0.001) between 2017-2022 after adjusting for the three COVID-19 waves in 2020-2022. In fact, among PEH, there has been a cumulative increase of 36.6% in deaths since the start of the COVID-19 pandemic, while there has been only a 6.1% increase in deaths in the general population over the same time period, after accounting for the three COVID-19 waves (**note**: many COVID-19 related deaths occurred outside of the three waves and likely explains the increase in mortality in the general population). When stratifying by public health region, there were significant increases in the monthly trend in deaths of PEH in Rockford, Peoria, Champaign, Suburban Cook County, and Chicago.

Figure 2: Trend in Deaths Among People Experiencing Homelessness and Total State Population in Illinois, 2017-2022
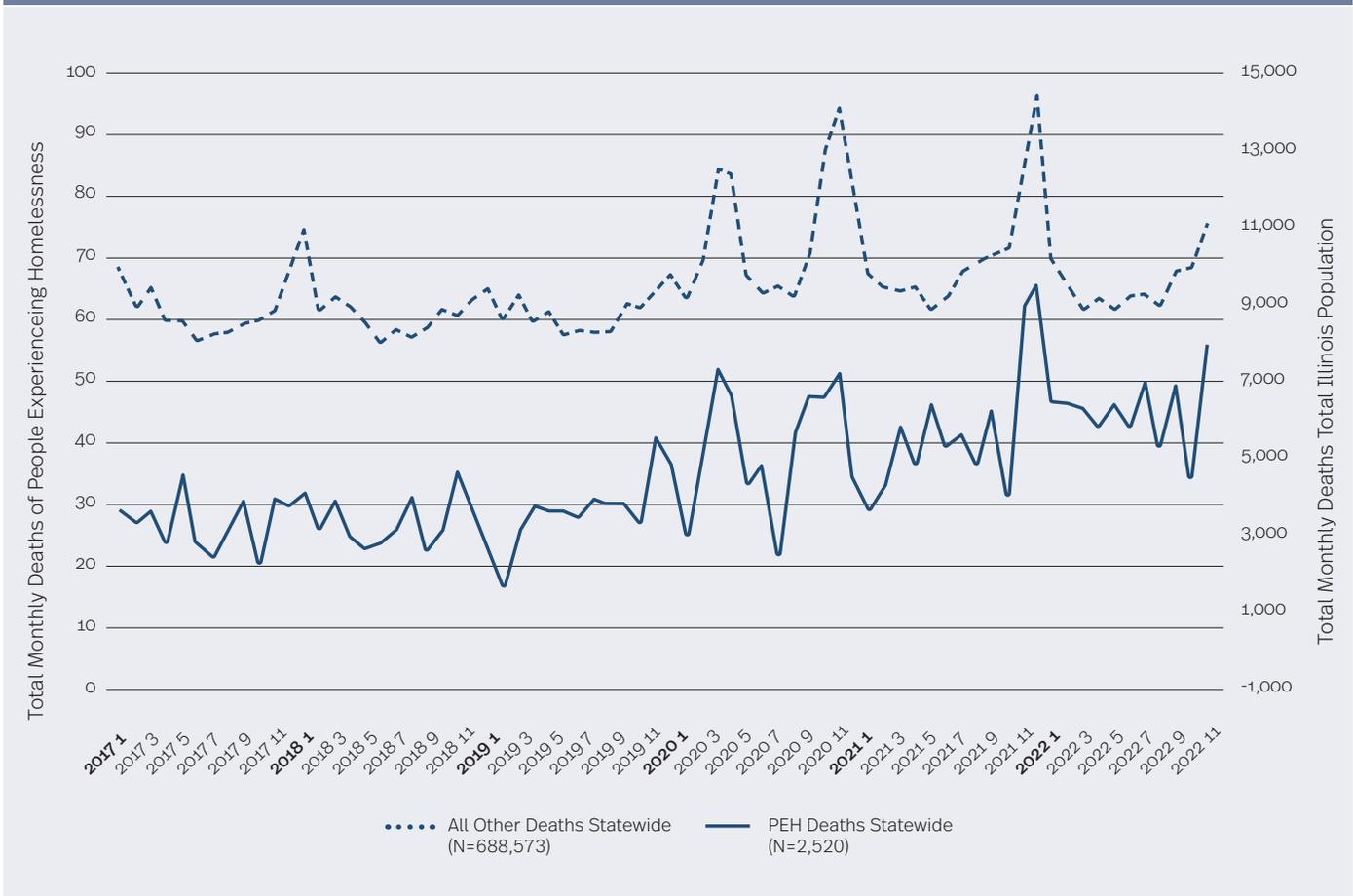
Explainer: As can be seen in Figure 2, there has been a substantial increase in mortality since the start of the COVID-19 pandemic. There are numerous studies discussing the increase in mortality in the general population (Rossen 2022; COVID-19 Excess Mortality Collaborators 2022). Statistical models were run that adjusted for the increase associated with the COVID-19 pandemic. The reported percent change reflects the change in mortality independent of any increase associated with the three COVID-19 waves between 2020-2022.

Table 13: Trends in Deaths by Year, Month, and Weekday Based on Illinois Death Records, 2017-2022: People Experiencing Homelessness Compared to All Other Deaths Occurring in Illinois		
	PEH Deaths Statewide (N=2,520)	All Other Deaths Statewide (N=688,573)
Year of Death		
2017	330 (13.1%)	106,646 (15.5%)
2018	334 (13.3%)	106,892 (15.5%)
2019	342 (13.6%)	105,829 (15.4%)
2020	478 (19.0%)	128,754 (18.7%)
2021	476 (18.9%)	120,977 (17.6%)
2022	560 (22.2%)	119,475 (17.4%)
Month of Death		
January	220 (8.7%)	66,694 (9.7%)
February	170 (6.7%)	55,583 (8.1%)
March	205 (8.1%)	57,221 (8.3%)
April	219 (8.7%)	56,965 (8.3%)
May	213 (8.5%)	57,049 (8.3%)
June	203 (8.1%)	52,124 (7.6%)
July	194 (7.7%)	52,978 (7.7%)
August	202 (8.0%)	53,623 (7.8%)
September	200 (7.9%)	53,671 (7.8%)
October	220 (8.7%)	57,053 (8.3%)
November	206 (8.2%)	59,800 (8.7%)
December	268 (10.6%)	65,812 (9.6%)
Weekday of Death		
Monday	412 (16.3%)	99,341 (14.4%)
Tuesday	321 (12.7%)	98,019 (14.2%)
Wednesday	350 (13.9%)	97,450 (14.2%)
Thursday	364 (14.4%)	97,547 (14.2%)
Friday	371 (14.7%)	99,353 (14.4%)
Saturday	368 (14.6%)	98,898 (14.4%)
Sunday	334 (13.3%)	97,965 (14.2%)

PEH Deaths During the COVID-19 Pandemic

Since the start of the COVID-19 pandemic in 2020, there has not been a major change in the characteristics of PEH decedents in terms of age, gender, level of education, marital status, or veteran status. However, there has been an increase in deaths involving non-Hispanic Black people experiencing homelessness (pre-2020 vs 2020 and later; 36.3% vs 42.1%). There have also been modest increases in deaths in the Rockford IDPH region, Suburban Cook County, and Chicago. There does appear to be a modest decline in the proportion of PEH dying outdoors or other informal settings (any outdoor setting, vehicle, public buildings, abandoned buildings; 24.5% vs. 19.6%), offset by an increase in the proportion dying in (1) a hospital (37.8% vs. 44.5%) or (2) an emergency shelter, hotel, or motel (4.5% vs. 6.4%).

Since 2020, 86 of 1,426 PEH decedents were noted to be positive for COVID-19 at the time of death, of which the contributing cause of death for five of those was drug-related overdoses, three died from cold exposure, one person committed suicide, and one died from a work-related injury. Almost all of those positive for COVID-19 at their time of death died during one of the three COVID-19 waves (n=66; 76.7%). Part of the increase in PEH deaths since the start of the COVID-19 pandemic appears to be driven by an increase in fatal drug-related overdoses (27.1% of all deaths before the start of the COVID-19 pandemic vs 33.2% of all deaths following the start of the COVID-19 pandemic). There has been an increase in the proportion of PEH deaths testing positive for three or more drugs on a toxicology screen (11.9% vs 18.8%) and increases in the proportion testing positive for fentanyl (23.2% vs 29.6%), cocaine (10.3% vs 16.4%), and amphetamines (1.2% vs. 3.2%). The increase in drug-related overdoses is discussed further below.

Table 13 presents the distribution of the PEH decedents date of death by year, month, and day of week. When evaluating the seasonal pattern of PEH deaths, the proportion of deaths involving PEH are slightly elevated in December. The weekday pattern indicates that deaths involving PEH statewide are highest on Mondays, but when stratified by region there are distinct patterns. In the Champaign region, deaths are highest on Mondays, Wednesdays, and Fridays. In Peoria and Metro East, the proportion of deaths is highest on Thursdays. There is insufficient data in the death records to explain the seasonal or weekday patterns.

Table 14: Place of Death and Disposition Method of People Dying Based on Illinois Death Records, 2017-2022: People Experiencing Homelessness Compared to All Other Deaths Occurring in Illinois		
	PEH Deaths Statewide (N=2,520)	**All Other Deaths Statewide (N=688,573)**
Place of Death (as recorded on death certificate)		
Decedent's Home	0 (0%)	220,725 (32.1%)
Emergency Shelter	75 (3.0%)	17 (0.0%)
Hospice Facility	73 (2.9%)	31,314 (4.5%)
Hospital	1,049 (41.6%)	260,220 (37.8%)
Hotel or Motel	65 (2.6%)	711 (0.1%)
Nursing Home or Long-Term Care Facility	92 (3.7%)	139,277 (20.2%)
Park, Forest, Wooded Area, Field, Riverbank, Yard	71 (2.8%)	416 (0.1%)
Parking Lot, Alley, Sidewalk, Street, Vacant Lot, Bridge, Abandoned Building, Railroad, Train Station, Bus Stop, Airport	268 (10.6%)	2,972 (0.4%)
Public Building, including Park District, Police Station, Restaurant, Library, School, Business	26 (1.0%)	82 (0.0%)
Residence Unknown	44 (1.7%)	944 (0.1%)
Residence of Family or Friend	89 (3.5%)	3,889 (0.6%)
Scene - Unspecified	167 (6.6%)	2,379 (0.3%)
Temporary Residence and Transitional Housing	475 (18.8%)	0 (0.0%)
Vehicle	15 (0.6%)	193 (0.0%)
Unknown	11 (0.4%)	25,434 (3.7%)
Disposition Method		
Burial	509 (20.2%)	299,316 (43.7%)
Cremation	1,979 (78.5%)	368,437 (53.8%)
Donation	24 (1.0%)	7,620 (1.1%)
Entombment	5 (0.2%)	13,108 (1.9%)
Other	3 (0.1%)	92 (0.0%)

Place of Death and Disposition Method of PEH Decedent Remains

Table 14 shows the place of death and disposition method of PEH decedents. PEH decedents primarily died in (1) a hospital (41.6%); (2) an emergency shelter, temporary residence, or transitional housing (including a hotel or motel; 24.4%); or (3) the outdoors and other informal settings (any outdoor setting, vehicle, public buildings, abandoned buildings; 21.7%). By comparison, only 0.1% of statewide general population decedents died in a hotel, motel, or temporary residence and 1.0% died outdoors or in other informal settings. In Metro East and Marion public health regions, 28.0% and 32.3% respectively of PEH died outdoors. The city of Chicago had the largest proportion who died at a temporary residence and transitional housing facility (22.7%) and the Westchester West Chicago Public Health Region had the largest proportion of PEH dying in a hotel or motel (7.4%). Compared to the general population, PEH decedents are disproportionately cremated (78.5% vs 53.8%).

A detailed table of the place of death and disposition method of deaths involving PEH by IDPH regions are available in the Appendix B.

Examples of Difficulties Managing Chronic Health Conditions

Example 1: PEH with diabetes have difficulty paying for and storing diabetic medications. Without refrigeration, insulin degrades when exposed to extreme temperatures and/or light.

Example 2: A common treatment for hypertension are diuretics, but lack of access to bathrooms can reduce the ability to use such drugs.

Contributing Causes of Death of People Experiencing Homelessness

Many decedents have more than one contributing cause of death listed on the death certificate. In this report, all contributing causes of death listed for each decedent were analyzed in accordance with Centers for Disease Control and Prevention (CDC) recommendations (multiple causes of death; Nashelsky 2003; McGivern 2017). Coinciding with PEH decedents being approximately 20 years younger on average at the time of death than the general population, a lower proportion of PEH died from chronic health conditions associated with the aging process, such as diseases of the circulatory, respiratory, and nervous systems; or cancer. However, PEH disproportionately died from drug-related overdoses (32.9% vs 3.4%), traumatic injuries (12.3% vs 3.6%), and excessive cold (3.8% vs 0.1%). In addition, the proportion of PEH with alcohol cirrhosis was twice as high as reported in the general population (1.7% vs 0.8%). Table 15 presents the contributing causes of death for both PEH and all statewide decedents.

The most common causes of traumatic injury among PEH decedents were homicides (n=74; 2.9%), transportation-related incidents in which PEH were primarily injured as pedestrian roadway users (n=52 pedestrian-related incidents, out of 72 transportation-related deaths), suicides (n=44; 1.7%), falls (n=33; 1.3%), and drowning (n=26; 1.0%). Only two of the decedents who drowned tested positive for a drug associated with substance use disorders, and the intent could not be determined in over half of the drownings (n=16; 61.5%). The remainder of the drowning-related deaths were determined to be accidental. There were also three electrical-related deaths, all of which involved contact with the electrified rail on Chicago Transit Authority tracks. A total of 18 PEH also died from exposure to gases, fumes, and vapors, of whom seven died from carbon monoxide poisoning. While the overall number of poisonings from gases, fumes, and vapors is low among PEH when compared to the general population, there were three times more involving carbon monoxide poisoning and four times more involving other gases, fumes, and vapors.

The distribution of contributing causes of death among PEH varied across public health regions. A detailed table of regional variations is available in Appendix B.

In the current analysis, age-standardized mortality rates were unable to be calculated because of the lack of adequate estimates of PEH in Illinois by discrete age groups. However, research shows that PEH have substantially higher overall standardized mortality rates than the general population (Nielsen 2011; Aldridge 2018; Roncarati 2018) and aging-related frailty and other health conditions appear approximately 20 years earlier than in the general population (Salem 2014; Brown 2017; Stenius-Ayoade 2017). Corresponding with past research, in the current study, the average age of death among PEH was almost 20 years younger than in the general population. Major risk factors associated with premature death included substance use and other comorbid psychiatric conditions that are more prevalent among PEH (Levitt 2009; Roy 2010; Nielsen 2011; Vila-Rodriguez 2013), and a myriad of social, economic, and nutritional risk factors associated with earlier onset and poor management of chronic health conditions (Salem 2014).

Therefore, the lower proportion of PEH with chronic illnesses as a contributing factor of death relative to the general population should be viewed with caution. When accounting for the earlier age of onset of these conditions, the risk of death from chronic illnesses is likely higher among Illinois PEH as demonstrated in prior studies that have data on the age distribution of all PEH (Stenius-Ayoade 2017; Roncarati 2018). The distribution of contributing causes of death in Illinois PEH was similar to those reported in many other studies evaluating PEH (Stenius-Ayoade 2017; Roncarati 2018; Cawley 2022; Fine 2023; Minnesota Department of Health 2023).

Access to general health and psychiatric services, as well as housing programs, is strongly associated with reduced morbidity and mortality in PEH (Nyamathi 2000; Roy 2010; Nielsen 2011; Roncarati 2020; Richards 2022). In this way, increased access to both housing and health care that meets the needs of people experiencing homelessness is an important public health intervention. The drivers of homelessness are structural.

Homicides

Past studies have shown that PEH have a higher prevalence of assault-related injuries (Nyamathi 2000; Stenius-Ayoade 2017; Cawley 2022; Fine 2023). **In the current study, people experiencing homelessness were almost three times more likely to be murdered compared to the general population of Illinois (2.9% vs 1.0%).** Most PEH homicide victims were assaulted with firearms (48.6%), blunt or bodily force (20.3%), or sharp objects (13.5%). Compared to all PEH deaths, PEH who were murdered were disproportionately 44 years or younger (47.3% vs 19.5%), non-Hispanic Black (54.1% vs 39.2%), never married (66.2% vs 44.1%), and had a family member who was the key informant on the death certificate (75.7% vs 63.9%). Only 9.5% (n=7) of PEH who were murdered tested positive for drugs associated with substance use disorders and three of them were determined to be intentionally poisoned. There were a disproportionate number of homicides of PEH in downtown Rockford (n=5; see map 1) and along Interstate 74 from the Indiana to Iowa borders (Danville to Davenport; n=7 murders; see map 2). However, there is insufficient data in the death records for a comprehensive forensic assessment of these murders and there is no evidence in the death records that these murders were committed by one person or a coordinated group.

Cold-Related Injuries

Over the six years, 96 PEH had cold exposure identified as a contributing cause of death. The majority of these people tested positive for a drug associated with substance use disorders (n=57; 59.4%) and most of the remainder had a circulatory or respiratory disease (n=21; 21.9%) or a nutritional deficiency (n=4; 4.2%). By comparison, only 37.3% of all other deaths involving PEH tested positive for a drug associated with substance use disorders. Comparing cold-related deaths involving PEH with all other PEH decedents, those dying from cold-related injuries disproportionately tested positive for alcohol (36.5% vs 14.6%) and, despite almost the same proportion testing positive for opioids (29.2% vs 26.7%), cold-related deaths were more likely to also test positive for at least one additional drug that is a known respiratory depressant or a sedative that can increase the risk of death when taken at the same time as an opioid (41.7% vs 18.4%). The majority of PEH who died from cold-related injuries were found deceased in an outdoor setting (69.8%; forests, parks, urban outdoor settings, abandoned buildings). The remainder died in a hospital (n=26) or an unknown residence (n=3). Almost all the cold-related deaths occurred in the IDPH Westchester Region (greater metropolitan Chicago area; 91 of 96 cold-related deaths).

When compared to all deaths involving PEH, cold-related deaths disproportionately involved males (89.6% vs 75.4%), PEH between the ages 45-64 years (65.6% vs 51.0%), and non-Hispanic Whites (58.3% vs 47.1%). Only 21.9% of PEH who died from cold-related injuries were born in Illinois compared to 51.9% of all other PEH who died during this period. In addition, only 35.4% of PEH who died from cold-related injuries had a family member who was the key informant for providing personal information about the decedent to the individual completing the death certificate (compared to 65.4% among all other PEH-involved deaths). The characteristics of PEH dying from cold-related injuries correlate with several known risk factors: (1) the aging process and underlying medical conditions that impact thermoregulation, increases the risk of cold-related cardiovascular dysfunction and the ability to recover from hypothermia; (2) exposures to alcohol and other drugs that increase vasoconstriction on the skin, resulting in feeling warm, but a reduction in core temperature; (3) a subgroup of PEH who move to Illinois who may have a greater difficulty acclimating to cold temperatures or do not have adequate cold-weather clothing; and (4) a possibly higher degree of inadequate social support and corresponding lack of intermittent access to a temporary shelter with family or friends during very cold weather events.

	PEH Deaths Statewide (N=2,520)	All Other Deaths Statewide (N=688,573)
Infectious diseases	157 (6.2%)	57,326 (8.4%)
HIV Positive	25 (1.0%)	1,124 (0.2%)
Septicemia	119 (4.7%)	47,287 (6.9%)
Hepatitis	12 (0.5%)	1,719 (0.3%)
Cancer	185 (7.3%)	152,960 (22.3%)
Head and Neck	11 (0.4%)	4,383 (0.6%)
Colon	16 (0.6%)	11,210 (1.6%)
Pancreas	10 (0.4%)	11,497 (1.7%)
Bronchus, Lung	47 (1.9%)	35,429 (5.2%)
Congenital malformations deformations and chromosomal abnormalities	9 (0.4%)	3,067 (0.4%)
Disease blood-forming organs	38 (1.5%)	21,102 (3.1%)
Endocrine, metabolic, and nutritional diseases	244 (9.7%)	100,767 (14.7%)
Diabetes	137 (5.4%)	60,650 (8.9%)
Nutritional Deficiencies	15 (0.6%)	11,012 (1.6%)
Fluid and Electrolyte Disorders	24 (1.0%)	8,387 (1.2%)
Disease of the circulatory system	889 (35.3%)	347,948 (50.8%)
Hypertension	321 (12.7%)	104,472 (15.2%)
Acute Myocardial Infarction and Cardiac Arrest	148 (5.9%)	83,694 (12.2%)
Congestive Heart Failure	89 (3.5%)	86,648 (12.6%)
Atherosclerotic Heart Disease	216 (8.6%)	75,454 (11.0%)
Cerebral Occlusion, Stenosis, Hemorrhage, Stroke	63 (2.5%)	39,620 (5.8%)
Diseases of the nervous system	84 (3.3%)	72,905 (10.6%)
Parkinson's Disease	12 (0.5%)	12,310 (1.8%)
Epilepsy	11 (0.4%)	5,048 (0.7%)
Diseases of the digestive system	158 (6.3%)	44,182 (6.4%)
Liver Diseases, Alcohol-Related	44 (1.7%)	5,234 (0.8%)
Liver Cirrhosis (Alcohol not specifically attributed)	34 (1.3%)	8,573 (1.3%)
Diseases of the genitourinary system	107 (4.2%)	61,657 (9.0%)
Chronic Renal Failure	44 (1.7%)	26,458 (3.9%)
Diseases of the respiratory system	363 (14.4%)	172,038 (25.1%)
Chronic Obstructive Pulmonary Disease	122 (4.8%)	59,976 (8.8%)
Respiratory Failure	149 (5.9%)	74,882 (10.9%)
Diseases of the skin and subcutaneous tissue	12 (0.5%)	5,206 (0.8%)
Diseases of the musculoskeletal system and connective tissue	21 (0.8%)	11,006 (1.6%)
Injury and poisoning	1,112 (44.1%)	69,042 (10.0%)
Drug Overdose*	830 (32.9%)	23,215 (3.4%)
Traumatic Injury	309 (12.3%)	24,924 (3.6%)
Work-Related Death (Injured at Work)	1 (0.0%)	818 (0.1%)
Suicide	44 (1.7%)	8,608 (1.3%)
Homicide (Assault)	74 (2.9%)	7,037 (1.0%)
Excessive Heat	4 (0.2%)	104 (0.0%)
Excessive Cold	96 (3.8%)	860 (0.1%)
Certain conditions originating in the perinatal period	26 (1.0%)	3,044 (0.4%)

Table 15: Contributing Causes of Death Based on Illinois Death Records, 2017-2022: People Experiencing Homelessness Compared to All Other Deaths Occurring in Illinois

*   Drug-related overdoses only include cases where a drug was identified as a contributing cause of death. There were 130 PEH decedents that tested positive for at least one drug associated with substance use disorders, but the coroner or medical examiner determined that the drug exposure did not contribute to the individual's death. These 130 deaths are not included in the above table.

Map 1: Homicides Downtown Rockford	Map 2: Homicides along Highway 74, Danville to Davenport

Suicides

There were 44 suicides involving PEH identified in the death records, most commonly by hanging (n=19), poisoning (n=8), hit by train or vehicle (n=6), or a firearm (n=5). Compared to PEH decedents who did not die from suicide, PEH who died from suicide disproportionately involved people between the ages of 15-44 years (55.6% vs. 19.6%), females (31.1% vs 23.1%), non-Hispanic Whites (64.4% vs 47.2%), and Hispanics or Latinos (15.6% vs 8.4%). Corresponding with the younger age of PEH who died from suicide, a disproportionate number had a parent as the informant on the death certificate (40.0% vs 15.2%). Only 15.6% of PEH who committed suicide tested positive for drugs associated with substance use disorders.

Drug-Related Deaths

The pharmaceutical agents identified on the death certificates were analyzed. However, not all decedents had an autopsy and the type of toxicological screening available varied widely by jurisdiction, which impacts the level of detail reported on death certificates. In addition, some cases tested positive for pharmaceutical agents and drugs associated with substance use disorders, but the agents were not attributed to the death by the coroner or medical examiner. For example, if an opioid was determined to be used for pain management in a terminal cancer patient or if a person was murdered, then the drugs identified in a toxicology screen may not be listed as a contributing cause of death. For this specific section, all toxicology findings were reported, even for cases where the drug was not identified as a contributing factor in the death.

Over the six years, 38.1% (n=960) of PEH and 4.9% (n=33,565) of the general population decedents tested positive for drugs associated with substance use disorders. This is consistent with research showing that the prevalence of substance use disorders and risk of drug-related overdose are elevated among PEH (Nyamathi 2000; Levitt 2009; Roy 2010; Nielsen 2011; Vila-Rodriguez 2013; Bennett 2019).

Of those testing positive for drugs associated with substance use disorders, 830 of PEH (86.5%) and 23,215 of the general population decedents (69.2%) had a drug-related overdose identified as a contributing factor on the death certificate. Of those testing positive for drugs associated with substance use disorders, 15.8% of PEH tested positive for three or more substances as compared to only 1.2% of the general population decedents. Table 16 enumerates polydrug exposures in decedents. When stratified by race-ethnicity, a greater proportion of Hispanic or Latino PEH decedents tested positive for drugs associated with substance use disorders (51.4%) as compared to non-Hispanic Black (37.2%) or non-Hispanic White (38.6%) PEH decedents.

Table 17 presents the distribution of substances identified through toxicological screening of decedents. Among PEH, the most common agents identified on the toxicology screens were fentanyl analogs, alcohol, cocaine, and heroin. Of those testing positive for any opioid (n=676), 251 (37.1%) also tested positive for at least one other agent known to increase the risk of respiratory depression or sedation when taken in combination with an opioid. By comparison with the general population, of those testing positive for any opioid (n=16,357), 35.1% (n=5,745) also tested positive for at least one other agent known to increase the risk of respiratory depression or general sedation.

Table 16: Number of Drugs Associated with Substance Use Disorders Noted in Toxicology Screening on Illinois Death Records, 2017-2022: People Experiencing Homelessness Compared to All Other Deaths Occurring in Illinois		
Number of Drugs Associated with Substance Use Disorders Noted in Toxicology Screen	PEH Deaths Statewide (N=2,520)	All Other Deaths Statewide (N=688,573)
None	1,560 (61.9%)	655,008 (95.6%)
1	340 (13.5%)	19,443 (2.8%)
2	222 (8.8%)	5,841 (0.9%)
3	191 (7.6%)	4,317 (0.6%)
4 or more	207 (8.2%)	3,964 (0.6%)

Table 17: Positive Toxicology Screening for Drugs Associated with Substance Use Disorders Based on Illinois Death Records, 2017-2022: People Experiencing Homelessness Compared to All Other Deaths Occurring in Illinois		
	PEH Deaths Statewide (N=2,520)	All Other Deaths Statewide (N=688,573)
Drugs associated with substance use disorders*	960 (38.1%)	33,565 (4.9%)
Alcohol	390 (15.5%)	17,817 (2.6%)
Opioids	676 (26.8%)	16,357 (2.4%)
Fentanyl Analogs and Precursors	582 (23.1%)	12,712 (1.9%)
Heroin	245 (9.7%)	5,878 (0.9%)
Methadone	35 (1.4%)	1,054 (0.2%)
Unspecified Opioids	87 (3.5%)	3,380 (0.5%)
Stimulants	391 (15.5%)	9,443 (1.4%)
Amphetamine	58 (2.3%)	2,473 (0.4%)
Cocaine	347 (13.8%)	7,184 (1.0%)
Methylphenidate	0 (0.0%)	11 (0.0%)
Other Stimulants	6 (0.2%)	343 (0.1%)
Sedative-Hypnotics and Anxiolytics	98 (3.9%)	2,824 (0.4%)
Barbiturates	4 (0.2%)	113 (0.0%)
Benzodiazepines	40 (1.6%)	1,598 (0.2%)
Other (including Gabapentin and Xylazine)	59 (2.3%)	1,301 (0.2%)
Cannabinoids	0 (0.0%)	68 (0.0%)
Other Hallucinogens (including Ketamine, PCP, LSD, MDA, MDMA)	12 (0.5%)	567 (0.1%)
Inhalants and Other Volatile Solvents	0 (0.0%)	13 (0.0%)
Muscle Relaxants and Related Drugs	2 (0.1%)	356 (0.1%)
Other Polysubstance Use	1 (0.0%)	8 (0.0%)
Organic Solvents (ICD-10 T52)	1 (0.0%)	43 (0.0%)

* The total counts reported by drug are higher in this table than what is shown in the contributing cause of death table. This table counts all people who tested positive for any drug (shown above). In the contributing cause of death table, 130 cases tested positive for pharmaceutical agents and illicit drugs, but the agents were not attributed to the death by the coroner or medical examiner. These cases are not counted in the contributing cause of death table, but they are counted in this table.

PEH with drug-related deaths were similar to all other PEH decedents with the exception that they died younger (mean age: 48.1 vs 59.6 years). In addition, drug-related deaths involving PEH were more likely to occur outdoors (31.2% vs 17.0%), in an emergency shelter, hotel, or motel (11.2% vs 2.8%); or in a residence of a family member or friend (7.5% vs 1.6%).

There were 38 PEH who tested positive for xylazine and 519 people positive for xylazine in the general population of decedents. None of the decedents tested positive for xylazine alone. All of the statewide decedents testing positive for xylazine also tested positive for an opioid (99% were fentanyl analogs). In addition, 92% of these individuals tested positive for at least one additional substance in combination with xylazine and an opioid (i.e., tested positive for three or more substances).

A detailed table of the reported toxicology findings by IDPH regions is available in Appendix B.

The increase in the number of deaths involving PEH since 2020 has been driven in part by an increase in the number of drug-related overdose deaths. Over the six years, PEH drug-related overdose deaths increased by 1.7% per month (p<0.001), in contrast, all PEH deaths not involving drug-related overdoses increased by 0.5% per month (p<0.001) between 2017 and 2022, after controlling for the COVID-19 pandemic. This is driven by a precipitous increase in fentanyl-related overdoses that are more potent than other opioids, such as heroin (fentanyl-involved deaths increased by 2.5% per month; p<0.001; see Figure 3) and the combination of opioids with other drugs that potentiate respiratory depression or sedation (2.0% increase per month; p<0.001). Figure 4 shows the decline in drug-related overdoses between 2017-2022 involving heroin alone (no other drug combinations) out of all opioid-involved deaths. Both figures 3 and 4 illustrate the shift from lesser potent to more potent opioids over the six-year period, which is further complicated by an increase in polydrug exposures that potentiate respiratory depression or sedation.

Figure 3: Percent of People Experiencing Homelessness with Fentanyl Identified as a Contributing Cause of Death Based on Illinois Death Records, 2017-2022
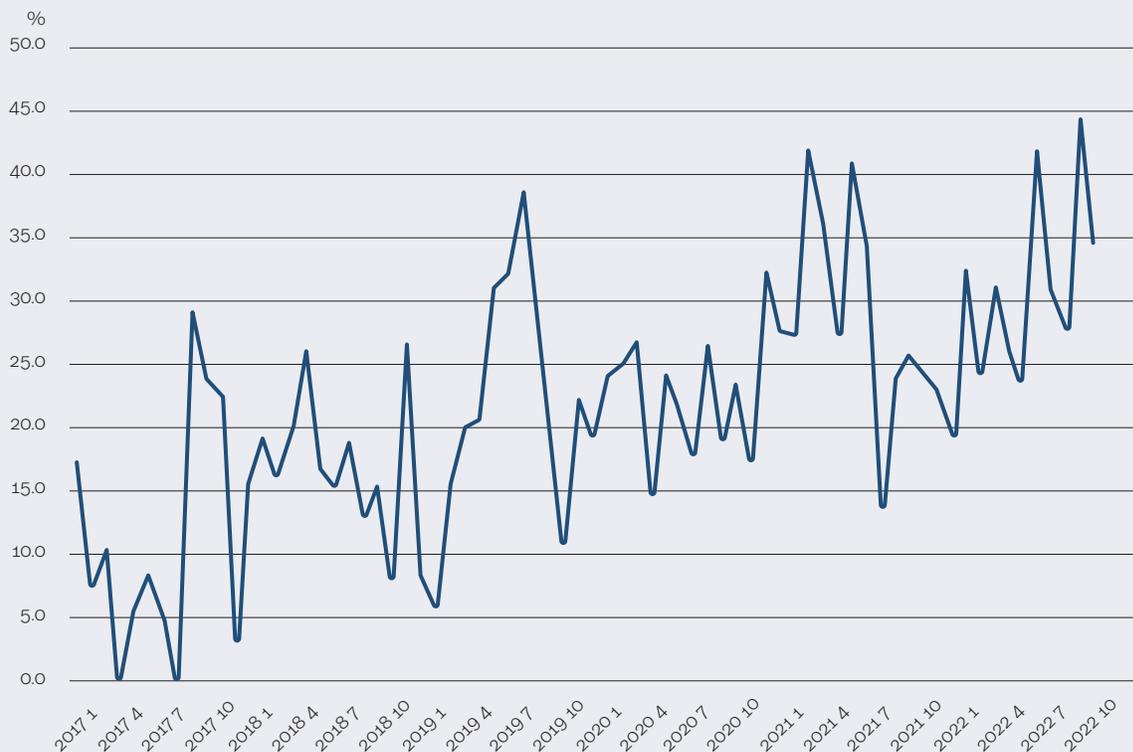
Figure 4: Percent of Opioid Positive Toxicology Screens that Tested Positive for Heroin Alone Among People Experiencing Homelessness Based on Illinois Death Records, 2017-2022
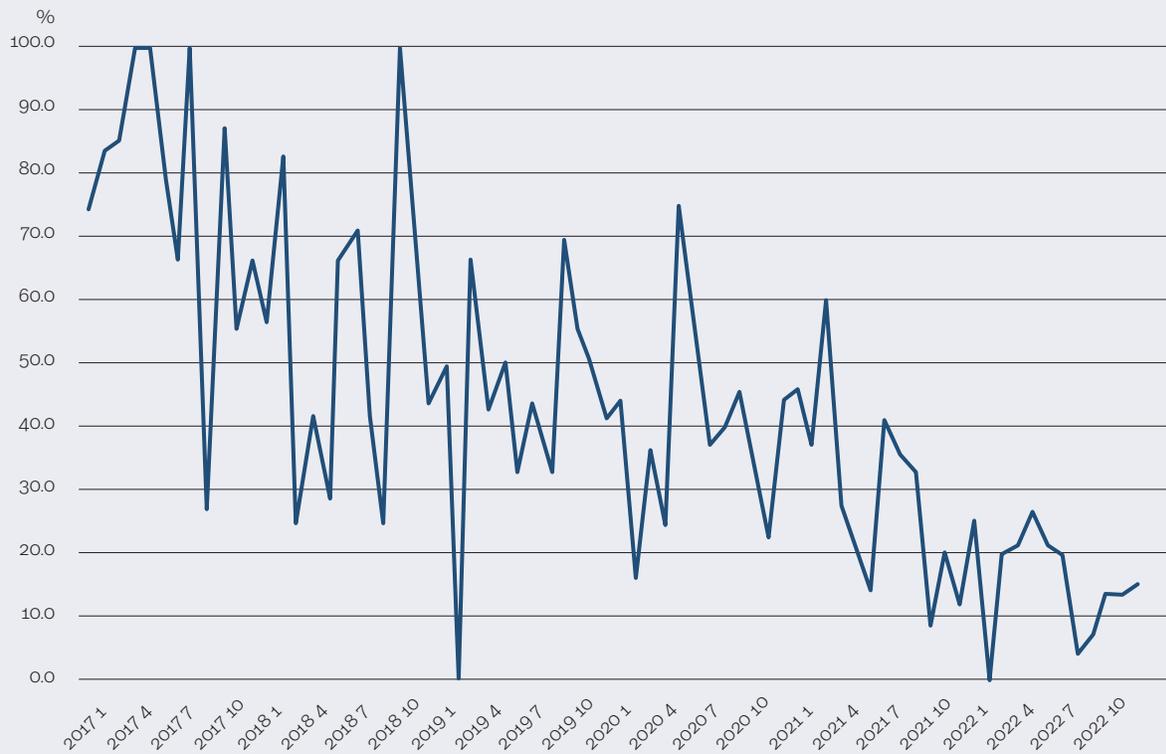
Technical Explanation

The toxicology findings show that PEH decedents in Chicago have the highest proportion testing positive for fentanyl analogs and/or heroin. While the death certificates indicate there are more drug-related deaths in Cook County, it may in part be explained by different resources available across jurisdictions. Some jurisdictions have greater resources to conduct autopsies and comprehensive toxicology testing. As a demonstration, in Cook County 54.4% of PEH decedents did not have an autopsy, while in other regions 61-76% of PEH decedents did not have an autopsy. Specifically, for drug-related deaths, only 10.4% of PEH decedents did not have an autopsy in Cook County, while in other public health regions, 30-40% of PEH decedents did not have an autopsy. The role of drug-involved overdoses may be undercounted in some regions.

Morbidity of People Experiencing Homelessness in Illinois, 2017-2022: Analysis of Cumulative Hospital Utilization

Key Findings

- A total of 1,428,984 hospital visits, including emergency department (ED), outpatient, and inpatient visits, for PEH were identified in the Illinois statewide hospital records for years 2017-2022, with 12.6% (179,413) being coded with Z59 at the time of their visit.

- The Greater Chicagoland Region (IDPH Region 6 Westchester, Suburban Cook and Chicago CoCs, and EMS Regions 7-11) represents a large majority of visits for PEH and the majority of visits occurred within urban counties in Illinois (86.9%). However, there were PEH visits identified in every region, even when stratifying by visit type and coding status.

- Seasonally, the proportion of hospitalizations with admissions peaks in August and ED visits in cold weather months (November-January).

- The top six categories of comorbidities include diagnoses related to drug abuse, hypertension, alcohol abuse, psychoses, chronic pulmonary disease, and depression.

- Approximately 15-20% of visits, depending on type and coding, were injuries. The vast majority were classified as accidental injuries; however, there were 28,860 visits from assaults and 15,578 visits from suicide attempts within the six years.

- Of temperature-related injuries, cold injuries were the most common. Heat-related injuries were more common in ED visits (9.5% of temperature-related injuries with Z59 code and 17.6% without) than admissions (2.9% of temperature-related injuries in visits with a Z59 code and 5.5% without).

- The total costs billed for PEH utilizing Illinois hospitals was $16,429,817,828 for 2017-2022. The median bill per visit was approximately $19,000 for admissions and $2,500 for ED visits regardless of Z59 code.

- The majority of discharges across visit categories were routine, generally to home or self-care. This was slightly higher in visits coded for homelessness with Z59 for both admissions and ED visits. For PEH, this often results in barriers to appropriate continued care or treatment, as amenities available to support this for stably housed individuals are often not available to people experiencing homelessness (e.g., ability to store medications properly, take medications as directed, establish a relationship with a primary care provider, etc.).

Overview of the Rationale and Methodology Used to Identify PEH in Hospital Data

While studying the mortality of PEH is a worthwhile and informative endeavor, the morbidity and health concerns of PEH were assessed through their contact with the hospital system in Illinois. Studying the morbidity and health concerns of people experiencing homelessness through their contact with Illinois hospitals provides an upstream point of contact with the health care and public health systems that could serve as an earlier prevention point to opportunities to increase quality of life and disrupt the unjust early mortality seen in this population.

To assess morbidity, outpatient and inpatient hospital data was analyzed for the period of January 1, 2017, through December 31, 2022. The outpatient database includes all patients treated in emergency departments or other hospital-based outpatient services (e.g., radiologic elective procedures) for less than 24 hours who were not admitted as an inpatient to the hospital. These are referred to as ED visits throughout the report. The inpatient database includes all patients treated for 24 hours or more in Illinois hospitals for any medical reason. These are referred to as admissions throughout the report. Both datasets include information on patient demographics (age, race, gender), clinical outcomes (diagnoses, hospital procedures, and discharge status), and economic outcomes (hospital charges and payer source).

Hospital visits involving PEH were identified in two stages.

1. **Stage 1**: Hospital records with an ICD-10 (this is a diagnostic coding system used by all health care entities) code of Z59 (including Z59.00, Z59.01, Z59.02, and Z59.09) which is used to identify patients experiencing homelessness.

2. **Stage 2**: After creating a unique list of patients who had a Z59 code shown on any ED visit or admission between 2017-2022 (stage 1), the IDPH informatics team identified other hospital visits involving these individuals where a Z59 code was not listed. Visits by these people during the covered time both before and after the Z59 code appears were included.

In stage one, all records with an ICD-10 code of Z59 for "homelessness" were identified in accordance with previous studies using hospital data (International Classification of Diseases, Tenth Revision [ICD-10; Geneva, Switzerland: World Health Organization; 1992]; Madigan, 2020; Madigan, 2021). The ICD-10 Z59 code captures people with a lack of housing,

including people living in permanent/temporary housing or a shelter, and explicitly identifies the following subgroups: nomad, nomadism (i.e., new term for hobo), social migrant, tramp, transient, vagabond, vagabondage, and vagrancy (all are terms used in the ICD-10 code book). In stage one, 179,413 visits involving PEH were identified.

However, research conducted by the UIC Office of the Vice Chancellor of Health Affairs and UI Health demonstrated that the majority of hospital visits involving homeless people do not have a corresponding Z59 code. To address these issues, in stage two, the IDPH informatics team identified all other hospital visits involving any person who had a Z59 code shown on any ED visit or admission. In stage 2, an additional 1,249,571 visits involving PEH during 2017-2021 were identified. All hospital visits for people who ever had a Z59 code used in their hospital records between 2017-2022, including visits without a corresponding Z59 code, are captured in this dataset. However, individuals whose homelessness was never recorded by medical providers in the hospital setting would be entirely missed in this analysis. These latter cases will likely involve a disproportionate number of people who are homeless for brief periods for economic reasons in the absence of major mental health or legal risk factors (e.g., those "doubled-up" following recent eviction, foreclosure, separation, or loss of employment). In addition, the analysis between people who were homeless for the entire six-year period and those who experienced intermittent or short-term homelessness was not able to be differentiated. A proportion of the people included in this analysis likely experienced homelessness only for a part of the six years. Data from Illinois CoCs shows that of the total sheltered and unsheltered PEH approximately 15-20% return to homelessness within 24 months of placement in housing (USHUD 2024b). However, research consistently demonstrates that there are persistent adverse health effects associated with episodic, intermittent, or short-term homelessness. In addition, the demographics and health conditions identified among these patients are similar to previously published research. The UIC research team did not have access to personal identifiers.

Because the focus of this report is on cumulative hospital care utilization, total hospital visits were analyzed. Most PEH had multiple ED visits and hospital admissions between 2017-2022. Past research shows that PEH with mental health conditions have higher hospital care utilization that may skew the demographics, comorbidities, and reasons for hospital care when analyzing the data at the visit level alone. For this reason, data on unique people is summarized to better characterize patient demographics and comorbidities (in the following chapter). In the primary analysis of hospital visits, data by visits in which the person was identified as experiencing homelessness is stratified by the presence of a Z59 code and visits in which they were not identified as experiencing homelessness through the Z59 code. In the latter hospital visits, these individuals may be experiencing homelessness at the time of the hospital visit or may have housing at the time of the hospital visit, reflecting intermittent housing instability. The hospital data does not provide detailed information on the history of housing instability at the time of the visit. The data by level of hospital care is further stratified by ED visits only vs admissions to the hospital. ED visits and admissions substantially differ by several factors, such as the reason for the hospital visit, severity of medical conditions, and health outcomes (Table 18).

Table 18: Data Stratification in Morbidity Analysis			
Hospital Admissions (inpatient)		ED Visits (outpatient)	
Visit contains Z59 Homelessness Code	Visit does not contain Z59 Homelessness Code	Visit contains Z59 Homelessness Code	Visit does not contain Z59 Homelessness Code
Note: Visits that do not contain the Z59 Homelessness Code are for patients who had the Z59 code marked at some time during another visit during the 2017-2022 time period.			

Demographics of Hospital Visits of PEH

A total of 1,428,984 visits involving 62,158 people experiencing homelessness were identified in the Illinois statewide hospital records for the years 2017-2022, with 12.6% (179,413) of the visits coded with Z59. That is, while 62,158 people had homelessness coded during at least one hospital visit between 2017-2022, hospital staff did not code their housing status as homeless during the vast majority of their hospital visits (87.4% of visits not coded with a Z59 code). Table 19 presents the demographics of these visits involving PEH stratified by visit type (ED and admissions) and Z59 coding status. The demographics are generally in alignment with what was observed in the mortality data and other studies of hospital utilization of PEH (Madigan, 2021). Visits were predominantly by males (67.0% overall). Males also had a higher proportion of visits with a Z59 code for homelessness. PEH were predominantly between the ages of 25 and 64 at the time of hospital visit, regardless of visit type or coding. There were 18,079 visits by youth under 18 years of age (1.3% of visits) and 94,739 visits by individuals 65-years-of-age and older (6.6% of visits).

PEH identified as non-Hispanic Whites (41.4% of visits) and Black/African Americans (44.3% of visits) accounted for more than 80% of the hospital visits; however, the proportion varied by visit type and coding status with non-Hispanic Whites accounting for 43.2% (versus 38.1%) of admissions coded with Z59 and Black/African Americans accounting for 51.7% (versus 35.9%) of ED visits coded with Z59.

The rate at which Black or African American Illinoisans experience homelessness, as well as rates of hospital visits by Black or African American PEH found in this study, are vastly disproportionate to their share of the Illinois population (Arenas, 2024). Black/African American Illinoisans are approximately 14% of the total state population but make up 58% of those experiencing literal homelessness (Arenas 2024; IL OPEH 2023a). In Illinois, Black residents are almost eight times more likely to be homeless than White residents (Arenas 2024). The staggering disparity aggravates pervasive racial health inequities and outcomes (Arenas 2024). Addressing racial inequities in rates of homelessness and housing is a crucial component of closing racial inequities in health outcomes and life expectancy (Arenas 2024).

Table 20 presents the crude annual hospital utilization rates (all visits combined) for PEH for the years 2017-2022. The table presents crude rates stratified by race-ethnicity, age, and gender. Because of an absence of quality data enumerating PEH, PIT counts were used to calculate these rates. Similarly to the data presented in the mortality chapter, these rates are not standardized ("corrected" for differences in the age distribution of these populations) and should be interpreted with caution. Other strategies to obtain more comprehensive denominator data are being explored. In addition to the challenges with the denominator data for these rates, there are concerns regarding the comprehensiveness of the numerator (i.e., total hospital visits). Data are absent regarding who gets identified and coded with a Z59 code when visiting a hospital, and how coding for homelessness has changed over time. To help address this, rates are presented using all visits in the dataset and rates that limit to using visits only if a person was directly coded with Z59 in that calendar year.

Most visits were by Illinois residents (95.8% overall). Medicaid was the most common form of insurance coverage (60.8%), followed by Medicare (19.5%). Nearly 10% of visits were identified as self-pay (i.e., uninsured), and the proportion of self-pay visits was higher in ED visits, particularly if coded with Z59. While the Patient Protection and Affordable Care Act substantially increased access to Medicaid coverage among PEH in Illinois (Madigan 2021), a large proportion of visits continue to not be covered by insurance. The lack of insurance coverage disproportionately involves non-Illinois residents (24.5% of their visits were self-pay), but 8.2% of visits by Illinois residents were not covered by insurance. Unlike the mortality data, there is no information available in the hospital data related to country of birth, education level, veteran status, marital status, or social support.

	ADMISSIONS CODED WITH Z59 (N=84,326)		OTHER ADMISSIONS (N=255,799)		ED VISITS CODED WITH Z59 (N=95,087)		OTHER ED VISITS (N=993,772)		TOTAL (N=1,428,984)	
Gender										
Male	62,485	74.1	175,545	68.6	69,582	73.2	649,083	65.3	956,695	66.9
Female	21,825	25.9	80,242	31.4	25,494	26.8	344,667	34.7	472,228	33.0
Unspecified	16	0.0	12	0.0	11	0.0	22	0.0	61	0.0
Age										
Under 1 year old	107	0.1	343	0.1	68	0.1	528	0.1	1,046	0.1
1 to 4 years	41	0.1	146	0.1	164	0.2	1,447	0.1	1,798	0.1
5 to 9 years	83	0.1	196	0.1	124	0.1	1,054	0.1	1,457	0.1
10 to 14 years	142	0.2	922	0.4	112	0.1	2,773	0.3	3,949	0.3
15 to 19 years	1,200	1.4	5,810	2.3	1,000	1.1	21,691	2.2	29,701	2.1
20 to 24 years	5,278	6.3	16,030	6.3	4,374	4.6	65,290	6.6	90,972	6.4
25 to 34 years	18,214	21.6	52,240	20.4	17,548	18.5	207,516	20.9	295,518	20.7
35 to 44 years	17,718	21.0	51,128	20.0	20,288	21.3	200,188	20.1	289,322	20.2
45 to 54 years	19,124	22.7	57,914	22.6	21,860	23.0	222,801	22.4	321,699	22.5
55 to 64 years	16,975	20.1	52,855	20.7	22,276	23.4	206,687	20.8	298,793	20.9
65 to 74 years	4,693	5.6	15,191	5.9	6,243	6.6	54,413	5.5	80,540	5.6
75 years and older	751	0.9	3,034	1.2	1,030	1.1	9,384	0.9	14,199	1.0
Under 18 years old	561	0.7	3,891	1.5	644	0.7	12,983	1.3	18,079	1.3
Mean Age (sd)	44.53	14.1	44.70	14.6	46.28	14.1	44.38	14.4	44.58	14.4
Race/Ethnicity										
White, non-Hispanic	36,446	43.2	100,948	39.5	34,097	35.9	420,155	42.3	591,646	41.4
Hispanic/Latino	5,859	6.9	18,272	7.1	6,207	6.5	69,715	7.0	100,053	7.0
Black/ African American	32,130	38.1	112,510	44.0	49,173	51.7	439,776	44.3	633,589	44.3
Asian	442	0.5	1,249	0.5	519	0.5	3,916	0.4	6,126	0.4
Native Hawaiian/ Pacific Islander	1,344	1.6	3,721	1.5	253	0.3	3,747	0.4	9,065	0.6
American Indian/ Alaska Native	159	0.2	461	0.2	158	0.2	1,745	0.2	2,523	0.2
Multiple	458	0.5	1,263	0.5	544	0.6	5,180	0.5	7,445	0.5
Other	7,185	8.5	16,528	6.5	3,877	4.1	47,339	4.8	74,929	5.2
Declined	303	0.4	847	0.3	259	0.3	2,199	0.2	3,608	0.3
Payer type										
Medicaid	53,071	62.9	148,158	57.9	54,626	57.4	612,688	61.7	868,543	60.8
Medicare	15,992	19.0	60,320	23.6	17,827	18.7	185,008	18.6	279,147	19.5
Commercial Insurance	7,039	8.3	23,780	9.3	6,402	6.7	75,020	7.5	112,241	7.9
HMO	863	1.0	3,447	1.3	771	0.8	12,059	1.2	17,140	1.2
Self-Administered (Company)	52	0.1	146	0.1	46	0.0	933	0.1	1,177	0.1
Self-Pay	5,380	6.4	13,820	5.4	13,269	14.0	88,178	8.9	120,647	8.4
Other	1,929	2.3	6,128	2.4	2,146	2.3	19,886	2.0	30,089	2.1
Illinois Resident	77,315	91.7	247,557	96.8	85,646	90.1	958,387	96.4	1,368,905	95.8

Table 19: General Characteristics of PEH Treated in Illinois Hospitals by Visit, 2017-2022

	Crude Annual Hospital Utilization Rates People Experiencing Homelessness - All Visits*						Crude Annual Hospital Utilization Rates People Experiencing Homelessness - All Visits if a PEH had at least one Z59 code during the calendar year*					
Table 20: Crude Annual Hospital Utilization Rates for PEH by Year, 2017-2022												
	2017	2018	2019	2020	2021*	2022	2017	2018	2019	2020	2021*	2022
Total Hospital Utilization	2,193.8	2,389.2	2,531.5	2,248.8	2,283.8	2,367.5	1,140.8	1,289.7	1,400.7	1,301.3	1,255.5	1,446.1
Gender												
Male	2,455.8	2,713.5	2,888.7	2,616.7	2,610.6	2,660.8	1,380.7	1,573.0	1,699.4	1,629.5	1,546.8	1,745.9
Female	1,830.9	1,949.9	2,059.4	1,745.4	1,830.8	1,957.3	801.7	898.5	998.5	846.6	842.5	1,010.9
Unspecified	5.7	41.5	29.5	14.3	15.7	31.5	2.9	17.1	22.7	11.4	4.5	31.5
Age at Death												
Under 18 years	194.6	151.0	150.7	99.3	99.6	89.5	36.1	34.0	47.2	30.0	33.1	42.9
18 to 24 years	2,013.3	2,265.6	2,091.3	1,819.4	1,747.5	1,533.2	835.7	992.1	905.6	946.8	915.9	951.4
25 years and older	2,899.5	3,186.6	3,400.9	2,960.3	3,013.6	3,159.8	1,562.2	1,767.5	1,927.8	1,735.4	1,669.3	1931.4
Unspecified	~	~	~	~	~	~	~	~	~	~	~	~
Ethnicity												
Hispanic or Latino	1,555.8	1,458.3	1,674.3	1,410.6	1,502.9	1,526.3	816.1	774.1	880.0	769.5	808.0	932.1
Race												
American Indian or Alaska Native	1,066.2	798.7	1,091.0	825.6	771.4	780.0	627.9	438.5	568.7	481.7	367.3	407.7
Asian	1,143.6	1,183.8	1,254.4	1,092.7	1,374.5	1,565.2	623.1	600.0	698.9	632.3	906.7	844.9
Black or African American	1,577.0	1,789.7	1,862.6	1,688.7	1,701.4	1,856.5	858.7	1024.2	1,090.2	1,042.0	989.1	1,177.8
Native Hawaiian or Pacific Islander	8,535.0	5,650.0	7,728.6	7,081.0	7,083.7	5,336.4	5,720.0	3,796.9	5,019.0	4,414.3	3,604.2	3,613.6
White (including Hispanic or Latino Ethnicity)	2,776.2	2,918.3	3,156.1	2,744.4	2,822.2	2,874.5	1,366.7	1,464.6	1,633.3	1,465.6	1,884.2	1,679.3
Multiracial, Declined, or Other	7,128.7	7,361.6	11,576.3	10,378.9	8,118.3	5,933.7	3,772.4	4,089.9	6,496.9	6,148.2	4,869.2	3,697.5

Race and ethnicity were kept independent of each other because the Point-In-Time counts through 2022 do not provide counts of race stratified by ethnicity.

* Crude annual mortality rates for PEH using HUD PIT counts for the denominator. Many CoCs were unable to provide complete PIT counts in 2021 because of the COVID-19 pandemic. 2021 PIT counts were corrected using the average between the 2020 and 2022 counts.

It was not feasible to calculate age-standardized rates because the PIT counts lacked detailed age categories through 2022.

Geographic Distribution of Hospital Visits by PEH

Table 21 presents the geographical distribution of PEH in the hospital data by IDPH region, CoC jurisdictions, counties classified as urban or rural, and emergency medical services (EMS) regions. These different regions are used by health care service providers, departments of public health, and homelessness service providers. The Greater Chicagoland Region (IDPH Region 6 Westchester, Suburban Cook and Chicago CoCs, and EMS regions 7-11) represents a large majority of visits for PEH and the majority of visits occurred within urban counties in Illinois (86.9%). However, there are PEH visits identified in every region, even when stratifying by visit type and coding status.

Temporal Distribution of Hospital Visits by PEH

Table 22 presents the temporal distribution of hospital visits by year, month, and day of week for PEH. In contrast to the mortality data, there is no clear trend related to the COVID-19 pandemic or other identifiable factors. When looking at annual rates, it may appear there is a slight decline in hospital visits by PEH; however, there are too many unknowns related to how the hospitalizations are coded and captured for this population and what fluctuations may be occurring in the PEH general population. Seasonally, the proportion of hospitalizations with admissions peaks in August, while ED visits peak in cold weather months (November-January). These seasonal patterns may reflect weather and increased environmental stressors; however, there is insufficient data to fully explain these patterns. When looking at hospitalizations of PEH by day of the week, all visit types are more predominant during the weekdays, which is similar to general population hospital patterns.

Primary Diagnosis and Common Comorbidities Identified in Hospital Visits by PEH

Table 23 shows the primary diagnoses for hospital visits and Table 24 describes the number and types of comorbidities present for hospital visits by PEH using the Elixhauser Comorbidity Index. For admissions, mental disorders were the most common primary diagnosis, and symptoms (non-specific to certain diseases or disorders) were the most common reason for ED visits. Other common primary diagnoses include those related to musculoskeletal and connective tissue disorders and drug or alcohol abuse. Of note, 1,809 visits were flagged as being related to an individual's work and 4,694 were for victims of a crime.

The top six categories of comorbidities were the same across all visit types, although their prevalence and ranking shifted depending on the visit type. These top six categories align strongly with the primary diagnoses and include diagnoses related to drug use, hypertension, alcohol use, psychoses, chronic pulmonary disease, and depression. Patients admitted to the hospital had a higher mean number of comorbidities identified per visit, and the percentage of visits involving patients with three or more comorbidities per visit was also considerably higher in admissions (63.9% of admissions compared to 16.7% of ED visits with a Z59 code; 64.6% of admissions compared to 11.6% of ED visits without a Z59 code). Admissions were also much more likely to have a higher prevalence of nearly every comorbidity group, including those representing severe conditions. This is consistent with previous reporting on PEH (Lombardi 2020; Madigan 2021; Rollins 2022). It is also likely due to several factors, such as having better health histories and coding for admitted patients compared to outpatient or emergency department patients, as well as more severe conditions requiring additional health care treatment and resources.

Substance use disorders consistently appear as a top primary diagnosis, comorbidity, and cause of injury. A detailed breakdown of the substances identified is provided in Table 25. More than half of visits note that patients suffered from substance use disorders (52.1%) and 11.8% are coded for intoxication at the time of the hospital visit from a variety of substances. The most common agents cited are nicotine, alcohol, stimulants, and opioids.

People experiencing homelessness are poisoned by a variety of pharmaceutical and non-pharmaceutical agents, including agents associated with substance use disorders. Table 26 presents a detailed overview of the substances involved in poisoning cases. There were 62,714 visits (4.4%) involving poisoning and these visits were more likely to have admissions. The most common agents included narcotics/psychodysleptics, other psychotropic drugs not otherwise classified, diuretics/other drugs not otherwise classified, and antiepileptic/sedative/hypnotics. There were no poisonings from noxious seafood, mycotoxins in food, strychnine, carbon disulfide, nitroglycerin, or other nitrics.

	ADMISSIONS CODED WITH Z59 (N=84,326)		OTHER ADMISSIONS (N=255,799)		ED VISITS CODED WITH Z59 (N=95,087)		OTHER ED VISITS (N=993,772)		TOTAL (N=1,428,984)	
IDPH Region										
Rockford Region	2,445	2.9	8,984	3.5	2,267	2.4	43,893	4.4	57,589	4.0
Peoria Region	4,244	5.0	13,435	5.3	3,322	3.5	66,737	6.7	87,738	6.1
Metro East Region	7,038	8.4	14,497	5.7	7,153	7.5	87,266	8.8	115,954	8.1
Marion Region	2,197	2.6	6,332	2.5	1,983	2.1	38,158	3.8	48,670	3.4
Champaign Region	3,579	4.2	10,665	4.2	3,988	4.2	60,399	6.1	78,631	5.5
Westchester Region-Chicago	33,540	39.8	113,039	44.2	44,027	46.3	391,454	39.4	582,060	40.7
Westchester Region-Suburban Cook County	11,512	13.7	41,042	16.0	12,822	13.5	127,316	12.8	192,692	13.5
Westchester Region West Chicago	12,760	15.1	39,563	15.5	10,084	10.6	143,164	14.4	205,571	14.4
Out of state/unknown	7,011	8.3	8,242	3.2	9,441	9.9	35,385	3.6	60,079	4.2
CoC Jurisdiction										
Central Illinois CoC	2,017	2.4	7,006	2.7	2,118	2.2	37,400	3.8	48,541	3.4
Chicago CoC	33,540	39.8	113,039	44.2	44,027	46.3	391,454	39.4	582,060	40.7
Decatur CoC	641	0.8	1,794	0.7	358	0.4	10,696	1.1	13,489	0.9
DuPage County CoC	3,045	3.6	9,291	3.6	3,005	3.2	31,128	3.1	46,469	3.3
Heartland CoC	1,784	2.1	4,316	1.7	3,364	3.5	30,577	3.1	40,041	2.8
Home For All CoC	2,150	2.6	6,518	2.6	1,890	2.0	31,992	3.2	42,550	3.0
Homeless Action Council CoC	1,780	2.1	3,855	1.5	1,598	1.7	19,625	2.0	26,858	1.9
Kane County CoC	2,357	2.8	6,642	2.6	2,021	2.1	29,880	3.0	40,900	2.9
Lake County CoC	2,601	3.1	7,599	3.0	1,679	1.8	27,243	2.7	39,122	2.7
Madison County CoC	2,634	3.1	3,996	1.6	1,586	1.7	21,524	2.2	29,740	2.1
McHenry County CoC	1,207	1.4	3,491	1.4	583	0.6	12,615	1.3	17,896	1.3
Northern Illinois Homeless CoC	1,964	2.3	6,963	2.7	1,808	1.9	34,000	3.4	44,735	3.1
Northwestern CoC	1,555	1.8	6,135	2.4	1,596	1.7	32,234	3.2	41,520	2.9
South Central CoC	1,276	1.5	3,504	1.4	870	0.9	20,766	2.1	26,416	1.9
Southern Illinois CoC	2,195	2.6	6,292	2.5	1,988	2.1	37,201	3.7	47,676	3.3
Suburban Cook County CoC	11,512	13.7	41,042	16.0	12,822	13.5	127,316	12.8	192,692	13.5
Urbana-Champaign CoC	1,061	1.3	3,264	1.3	1,652	1.7	17,633	1.8	23,610	1.7
West Central Illinois CoC	1,064	1.3	2,739	1.1	289	0.3	11,664	1.2	15,756	1.1
Will County CoC	2,932	3.5	10,071	3.9	2,392	2.5	33,439	3.4	48,834	3.4
Out of State/Unknown	7,011	8.3	8,242	3.2	9,441	9.9	35,385	3.6	60,079	4.2
Urbanicity										
Rural Counties	5,475	6.5	17,248	6.7	4,664	4.9	100,184	10.1	127,571	8.9
Urban Counties	71,840	85.2	230,309	90.0	80,982	85.2	858,203	86.4	1,241,334	86.9
Out of state/unknown	7,011	8.3	8,242	3.2	9,441	9.9	35,385	3.6	60,079	4.2
EMS Regions										
1	1,117	1.3	4,937	1.9	2,146	2.3	40,168	4.0	48,368	3.4
2	2,000	2.4	7,574	3.0	2,230	2.4	41,240	4.2	53,044	3.7
3	3,486	4.1	8,165	3.2	2,549	2.7	43,149	4.3	57,349	4.0

Table 21: Spatial Distribution of PEH Treated in Illinois Hospitals by Visit, 2017-2022

	ADMISSIONS CODED WITH Z59 (N=84,326)		OTHER ADMISSIONS (N=255,799)		ED VISITS CODED WITH Z59 (N=95,087)		OTHER ED VISITS (N=993,772)		TOTAL (N=1,428,984)	
Table 21 (continued): Spatial Distribution of PEH Treated in Illinois Hospitals by Visit, 2017-2022										
4	4,012	4.8	10,764	4.2	4,567	4.8	59,526	6.0	78,869	5.5
5	1,532	1.8	5,217	2.0	2,206	2.3	40,827	4.1	49,782	3.5
6	36,743	43.6	122,607	47.9	49,043	51.6	384,511	38.7	592,904	41.5
7	19,652	23.3	57,322	22.4	16,389	17.2	163,903	16.5	257,266	18.0
8	2,614	3.1	9,234	3.6	3,956	4.2	65,169	6.6	80,973	5.7
9	1,580	1.9	7,120	2.8	2,229	2.3	34,625	3.5	45,554	3.2
10	573	0.7	1,902	0.7	853	0.9	11,349	1.1	14,677	1.0
11	6,392	7.6	9,608	3.8	2,922	3.1	33,426	3.4	52,348	3.7
Out of state/unknown	4,625	5.5	11,349	4.4	5,997	6.3	75,879	7.6	97,850	6.9

* Spatial data is based on the patient's reported primary residence ZIP code. ZIP codes that partially lie in Chicago and surrounding areas are included in the Chicago counts.

	ADMISSIONS CODED WITH Z59 (N=84,326)		OTHER ADMISSIONS (N=255,799)		ED VISITS CODED WITH Z59 (N=95,087)		OTHER ED VISITS (N=993,772)		TOTAL (N=1,428,984)	
Table 22: Temporal Distribution of PEH Treated in Illinois Hospitals by Visit, 2017-2022										
Year										
2017	12,130	14.4	44,008	17.2	12,452	13.1	167,693	16.9	236,283	16.5
2018	14,413	17.1	45,665	17.9	15,150	15.9	179,604	18.1	254,832	17.8
2019	14,668	17.4	45,890	17.9	16,639	17.5	181,439	18.3	258,636	18.1
2020	14,963	17.7	42,190	16.5	17,173	18.1	160,981	16.2	235,307	16.5
2021	13,680	16.2	40,552	15.9	15,346	16.1	154,918	15.6	224,496	15.7
2022	14,472	17.2	37,494	14.7	18,327	19.3	149,137	15.0	219,430	15.4
Month										
January	7,009	8.3	21,638	8.5	8,417	8.9	81,640	8.2	118,704	8.3
February	6,268	7.4	19,637	7.7	7,805	8.2	75,150	7.6	108,860	7.6
March	6,692	7.9	21,927	8.6	8,355	8.8	84,853	8.5	121,827	8.5
April	6,677	7.9	20,888	8.2	7,958	8.4	81,469	8.2	116,992	8.2
May	6,926	8.2	21,811	8.5	7,472	7.9	85,726	8.6	121,935	8.5
June	7,082	8.4	21,485	8.4	7,157	7.5	83,838	8.4	119,562	8.4
July	7,579	9.0	22,486	8.8	7,513	7.9	88,123	8.9	125,701	8.8
August	7,756	9.2	22,641	8.9	7,486	7.9	87,118	8.8	125,001	8.7
September	7,167	8.5	21,138	8.3	6,980	7.3	83,609	8.4	118,894	8.3
October	7,183	8.5	21,365	8.4	8,295	8.7	84,303	8.5	121,146	8.5
November	6,988	8.3	20,089	7.9	8,767	9.2	79,015	8.0	114,859	8.0
December	6,999	8.3	20,694	8.1	8,882	9.3	78,928	7.9	115,503	8.1
Day										
Sunday	3,568	4.2	15,315	6.0	12,422	13.1	117,257	11.8	148,562	10.4
Monday	15,860	18.8	46,411	18.1	13,409	14.1	147,934	14.9	223,614	15.6
Tuesday	15,210	18.0	44,239	17.3	14,001	14.7	152,935	15.4	226,385	15.8
Wednesday	14,348	17.0	41,379	16.2	13,837	14.6	152,377	15.3	221,941	15.5
Thursday	13,679	16.2	40,534	15.8	13,994	14.7	150,934	15.2	219,141	15.3
Friday	16,030	19.0	46,588	18.2	14,191	14.9	148,378	14.9	225,187	15.8
Saturday	5,631	6.7	21,333	8.3	13,233	13.9	123,957	12.5	164,154	11.5

Table 23: Primary Diagnosis for PEH Treated in Illinois Hospitals by Visit, 2017-2022									
	ADMISSIONS CODED WITH Z59 (N=84,326)		OTHER ADMISSIONS (N=255,799)		ED VISITS CODED WITH Z59 (N=95,087)		OTHER ED VISITS (N=993,772)		TOTAL (N=1,428,984)	
Primary Diagnosis									
Mental Disorders	47,684	56.6	121,680	47.6	13,493	14.2	94,918	9.6	277,775	19.4
Substance Use Disorder	8,203	9.7	29,223	11.4	12,710	13.4	128,508	12.9	178,644	12.5
Musculoskeletal and Connective Tissue Conditions	1,205	1.4	3,587	1.4	10,798	11.4	97,813	9.8	113,403	7.9
Disorders of the Respiratory System	3,058	3.6	11,359	4.4	3,611	3.8	50,808	5.1	68,836	4.8
Disorders of the Circulatory System	4,615	5.5	16,760	6.6	2,079	2.2	22,238	2.2	45,692	3.2
Poisoning from Medications	1,601	1.9	5,702	2.2	1,275	1.3	23,191	2.3	31,769	2.2
Diseases of the Skin	2,118	2.5	4,108	1.6	2,496	2.6	22,787	2.3	31,509	2.2
Digestive Disorders	902	1.1	5,151	2.0	1,108	1.2	23,354	2.4	30,515	2.1
Traumatic Injury									
Superficial Contusion/ Injury	38	0.0	153	0.1	1,690	1.8	23,536	2.4	25,417	1.8
Fracture	849	1.0	2,359	0.9	1,049	1.1	19,017	1.9	23,274	1.6
Open Wound	156	0.2	436	0.2	951	1.0	18,518	1.9	20,061	1.4
Sprain or Strain	9	0.0	32	0.0	447	0.5	12,634	1.3	13,122	0.9
Traumatic Brain Injury	341	0.4	1,206	0.5	148	0.2	2,435	0.2	4,130	0.3
Burns	81	0.1	162	0.1	96	0.1	1,349	0.1	1,688	0.1
Foreign Body	34	0.0	212	0.1	25	0.0	1,296	0.1	1,567	0.1
Dislocation	17	0.0	42	0.0	35	0.0	1,418	0.1	1,512	0.1
Internal Injury of the Torso (including spine)	147	0.2	510	0.2	14	0.0	223	0.0	894	0.1
Air Pressure Injury	14	0.0	23	0.0	92	0.1	306	0.0	435	0.0
Crush Injury	4	0.0	7	0.0	7	0.0	153	0.0	171	0.0
Amputation or Avulsion	5	0.0	16	0.0	3	0.0	96	0.0	120	0.0
Unspecified Injury	32	0.0	63	0.0	265	0.3	5,138	0.5	5,498	0.4
Infectious Disease	2,558	3.0	8,456	3.3	1,381	1.5	12,366	1.2	24,761	1.7
Diabetes	1,654	2.0	6,275	2.5	1,226	1.3	12,156	1.2	21,311	1.5
Pregnancy and Perinatal-Related									
Pregnancy Complications	1,091	1.3	4,439	1.7	747	0.8	14,388	1.4	20,665	1.4
Pregnancy with Abortive Outcome	16	0.0	58	0.0	22	0.0	656	0.1	752	0.1
Congenital Anomalies	12	0.0	68	0.0	6	0.0	505	0.1	591	0.0
Encounter for Delivery	8	0.0	56	0.0	0	0.0	3	0.0	67	0.0
Perinatal Conditions	5	0.0	9	0.0	1	0.0	38	0.0	53	0.0

Table 23 (continued): Primary Diagnosis for PEH Treated in Illinois Hospitals by Visit, 2017-2022									
	ADMISSIONS CODED WITH Z59 (N=84,326)		OTHER ADMISSIONS (N=255,799)		ED VISITS CODED WITH Z59 (N=95,087)		OTHER ED VISITS (N=993,772)		TOTAL (N=1,428,984)	
Other Disorders of the Central Nervous System	796	0.9	3,295	1.3	834	0.9	13,242	1.3	18,167	1.3
Disorders of the Oral Cavity	23	0.0	149	0.1	405	0.4	12,148	1.2	12,725	0.9
Liver Conditions	847	1.0	5,136	2.0	212	0.2	6,231	0.6	12,426	0.9
Anemias	319	0.4	3,299	1.3	189	0.2	8,022	0.8	11,829	0.8
Disorders of the Eye and Ear	64	0.1	158	0.1	485	0.5	10,955	1.1	11,662	0.8
Hereditary Degenerative Diseases of the Centra Nervous System	145	0.2	511	0.2	973	1.0	9,311	0.9	10,940	0.8
Other Urinary Tract Conditions	184	0.2	781	0.3	466	0.5	9,354	0.9	10,785	0.8
Disorders of Female Organs	49	0.1	217	0.1	239	0.3	9,602	1.0	10,107	0.7
Kidney Disorders	708	0.8	2,747	1.1	222	0.2	5,293	0.5	8,970	0.6
Other Metabolic Disorders	489	0.6	2,384	0.9	524	0.6	4,661	0.5	8,058	0.6
Blood Vessel Disorders	33	0.0	86	0.0	436	0.5	7,151	0.7	7,706	0.5
Malignant Neoplasms	471	0.6	1,308	0.5	92	0.1	5,041	0.5	6,912	0.5
Disorders of Male Genital Organs	57	0.1	250	0.1	134	0.1	3,379	0.3	3,820	0.3
Cold Related Injury	393	0.5	186	0.1	974	1.0	1,276	0.1	2,829	0.2
Blood Disorders	50	0.1	248	0.1	32	0.0	2,058	0.2	2,388	0.2
Diseases of the Peripheral Nervous System	43	0.1	236	0.1	124	0.1	1,887	0.2	2,290	0.2
Poisoning from Other Substances (non-drug agents)	116	0.1	354	0.1	78	0.1	1,331	0.1	1,879	0.1
Inflammatory Diseases of the Central Nervous System	44	0.1	142	0.1	145	0.2	1,057	0.1	1,388	0.1
Thyroid Disorder	40	0.0	78	0.0	21	0.0	1,051	0.1	1,190	0.1
Other Environmental/ Asphyxiation/Deprivation	6	0.0	23	0.0	422	0.4	474	0.1	925	0.1
Other Endocrine Disorders	54	0.1	175	0.1	5	0.0	260	0.0	494	0.0
Coagulation Disorders	33	0.0	145	0.1	11	0.0	246	0.0	435	0.0
White Blood Cell Disorders	14	0.0	73	0.0	16	0.0	257	0.0	360	0.0
Nutritional Deficiency	42	0.0	72	0.0	19	0.0	95	0.0	228	0.0
Other Blood Disorders	8	0.0	28	0.0	0	0.0	57	0.0	93	0.0
Contact with Hazardous Body Fluids	0	0.0	0	0.0	6	0.0	42	0.0	48	0.0
Symptoms	983	1.2	4,264	1.7	19754	20.8	200,068	20.1	225,069	15.8
Abnormal Findings	100	0.1	294	0.1	146	0.2	6,017	0.6	6,557	0.5
Other/Uncoded	1,758	2.1	7,008	2.7	12348	13.0	83,358	8.4	104,472	7.3

Table 24: Common Comorbidities Based on the Elixhauser Comorbidity Index Identified in PEH Treated in Illinois Hospitals by Visit, 2017-2022									
	ADMISSIONS CODED WITH Z59 (N=84,326)		OTHER ADMISSIONS (N=255,799)		ED VISITS CODED WITH Z59 (N=95,087)		OTHER ED VISITS (N=993,772)		TOTAL (N=1,428,984)	
Mean Number of Comorbidities (sd)	3.3	1.8	3.5	1.9	1.3	1.4	1.0	1.2	1.6	1.8
Number of Patients with 3+ Comorbidities	53,900	63.9	165,349	64.6	15,863	16.7	115,220	11.6	350,332	24.5
Type of Comorbidity										
Congestive Heart Failure	6,092	7.2	25,846	10.1	2,734	2.9	26,096	2.6	60,768	4.3
Cardiac Arrhythmia	8,565	10.2	27,757	10.9	3,828	4.0	32,283	3.2	72,433	5.1
Valvular Disease	1,379	1.6	5,106	2.0	425	0.4	3,753	0.4	10,663	0.7
Pulmonary Circulation Disorders	1,436	1.7	5,672	2.2	278	0.3	1,999	0.2	9,385	0.7
Peripheral Vascular Disorders	1,685	2.0	6,538	2.6	639	0.7	6,914	0.7	15,776	1.1
Hypertension Uncomplicated	23,102	27.4	75,138	29.4	17,534	18.4	160,368	16.1	276,142	19.3
Hypertension Complicated	6,727	8.0	30,944	12.1	3,178	3.3	29,154	2.9	70,003	4.9
Paralysis	627	0.7	3,112	1.2	237	0.2	1,764	0.2	5,740	0.4
Other Neurological Disorders	8,938	10.6	33,159	13.0	3,975	4.2	42,113	4.2	88,185	6.2
Chronic Pulmonary Disease	19,256	22.8	68,307	26.7	11,440	12.0	116,021	11.7	215,024	15.0
Diabetes Uncomplicated	6,483	7.7	24,464	9.6	6,479	6.8	59,690	6.0	97,116	6.8
Diabetes Complicated	6,006	7.1	24,921	9.7	2,946	3.1	28,526	2.9	62,399	4.4
Hypothyroidism	3,001	3.6	12,876	5.0	991	1.0	10,741	1.1	27,609	1.9
Renal Failure	4,184	5.0	21,024	8.2	1,675	1.8	18,936	1.9	45,819	3.2
Liver Disease	5,725	6.8	19,025	7.4	1,449	1.5	14,820	1.5	41,019	2.9
Peptic Ulcer Disease Excluding Bleeding	557	0.7	2,861	1.1	108	0.1	1,033	0.1	4,559	0.3
AIDS/HIV	1,347	1.6	3,598	1.4	899	0.9	5,049	0.5	10,893	0.8
Lymphoma	157	0.2	635	0.2	54	0.1	728	0.1	1,574	0.1
Metastatic Cancer	470	0.6	1,770	0.7	75	0.1	1,443	0.1	3,758	0.3
Solid Tumor without Metastasis	1,023	1.2	3,757	1.5	270	0.3	6,850	0.7	11,900	0.8
Rheumatoid Arthritis/ Collagen	736	0.9	3,040	1.2	393	0.4	5,085	0.5	9,254	0.6
Coagulopathy	3,405	4.0	12,462	4.9	549	0.6	4,004	0.4	20,420	1.4
Obesity	8,522	10.1	34,860	13.6	1,768	1.9	16,175	1.6	61,325	4.3
Weight Loss	3,782	4.5	10,465	4.1	463	0.5	2,316	0.2	17,026	1.2
Fluid and Electrolyte Disorders	16,590	19.7	58,677	22.9	3,766	4.0	25,533	2.6	104,566	7.3
Blood Loss Anemia	252	0.3	888	0.3	31	0.0	328	0.0	1,499	0.1
Deficiency Anemia	4,046	4.8	10,547	4.1	799	0.8	3,320	0.3	18,712	1.3
Alcohol Abuse	25,537	30.3	67,195	26.3	16,020	16.8	138,419	13.9	247,171	17.3
Drug Abuse	45,612	54.1	112,637	44.0	15,947	16.8	107,420	10.8	281,616	19.7
Psychoses	30,726	36.4	89,659	35.1	15,400	16.2	86,285	8.7	222,070	15.5
Depression	34,447	40.8	84,639	33.1	11,988	12.6	80,805	8.1	211,879	14.8

	ADMISSIONS CODED WITH Z59 (N=84,326)		OTHER ADMISSIONS (N=255,799		ED VISITS CODED WITH Z59 (N=95,087)		OTHER ED VISITS (N=993,772)		TOTAL (N=1,428,984)	
Any Substance Use Disorder (SUD) Diagnosis	68,743	81.5	188,271	73.6	51,055	53.7	436,687	43.9	744,756	52.1
SUD-Cannabinoids	20,297	24.1	46,401	18.1	4,018	4.2	22,884	2.3	93,600	6.6
SUD-Alcohol	25,291	30.0	65,948	25.8	15,909	16.7	136,006	13.7	243,154	17.0
SUD-Hallucinogens/ MDMA/PCP	1,537	1.8	3,201	1.3	437	0.5	4,135	0.4	9,310	0.7
SUD-Inhalants/ Gases/Solvents	93	0.1	306	0.1	19	0.0	297	0.0	715	0.1
SUD-Opioids	15,896	18.9	43,220	16.9	5,823	6.1	53,822	5.4	118,761	8.3
SUD-Sedatives/Hypnotics/ Anxiolytics	3,215	3.8	8,852	3.5	564	0.6	4,360	0.4	16,991	1.2
SUD-Stimulants	25,710	30.5	56,174	22.0	6,941	7.3	35,721	3.6	124,546	8.7
SUD-Polysubstance Abuse	4,620	5.5	11,530	4.5	3,598	3.8	26,465	2.7	46,213	3.2
Any Intoxication at Time of Hospital Visit	9,235	11.0	26,626	10.4	11,654	12.3	121,374	12.2	168,889	11.8
Intoxicated-Cannabinoids	340	0.4	1,755	0.7	90	0.1	807	0.1	2,992	0.2
Intoxicated-Alcohol	6,050	7.2	16,355	6.4	9,915	10.4	95,573	9.6	127,893	8.9
Intoxicated-Hallucinogen/ MDMA/PCP	117	0.1	389	0.2	72	0.1	1,037	0.1	1,615	0.1
Intoxicated-Inhalants/ Volatile Solvents	5	0.0	3	0.0	0	0.0	18	0.0	26	0.0
Intoxicated-Opioids	1,461	1.7	4,214	1.6	1,128	1.2	20,460	2.1	27,263	1.9
Intoxicated-Sedatives/ Hypnotic/Anxiolytics	898	1.1	3,007	1.2	231	0.2	1,944	0.2	6,080	0.4
Intoxicated-Stimulants	1,115	1.3	3,972	1.6	379	0.4	2,643	0.3	8,109	0.6
Intoxication-Cocaine	896	1.1	3,366	1.3	252	0.3	1,504	0.2	6,018	0.4
Nicotine	47,101	55.9	124,329	48.6	35,266	37.1	285,424	28.7	492,120	34.4

Table 25: Detailed Substance Use Disorder Information for PEH Treated in Illinois Hospitals, 2017-2022

Table 26: Detailed Poisoning from Pharmaceutical and Non-Pharmaceutical Agents* for PEH Treated in Illinois Hospitals, 2017-2022									
	ADMISSIONS CODED WITH Z59 (N=84,326)		OTHER ADMISSIONS (N=255,799)		ED VISITS CODED WITH Z59 (N=95,087)		OTHER ED VISITS (N=993,772)		TOTAL (N=1,428,984)	
Pharmaceutical Agents									
Psychotropic Drugs Not Otherwise Classified	2,270	2.7	5,929	2.3	361	0.4	2,881	0.3	11,441	0.8
Diuretics/Other Drugs Not Otherwise Classified	901	1.1	2,607	1.0	287	0.3	2,946	0.3	6,741	0.5
Antiepileptic/Sedative/ Hypnotic	987	1.2	3,318	1.3	258	0.3	2,168	0.2	6,731	0.5
Hormones, including Synthetics	695	0.8	2,209	0.9	117	0.1	576	0.1	3,597	0.3
Systemic Hematological Agents	354	0.4	1,497	0.6	62	0.1	523	0.1	2,436	0.2
Analgesics/Antipyretic/Rheum	310	0.4	1,009	0.4	66	0.1	603	0.1	1,988	0.1
Cardiovascular System Drugs	306	0.4	875	0.3	73	0.1	431	0.0	1,685	0.1
Autonomic Nervous System Drugs	191	0.2	591	0.2	21	0.0	255	0.0	1,058	0.1
Muscle/Respiratory Drugs	143	0.2	410	0.2	58	0.1	419	0.0	1,030	0.1
Antibiotics	192	0.2	502	0.2	18	0.0	190	0.0	902	0.1
Anti-infectives/Antiparasitics	99	0.1	190	0.1	12	0.0	55	0.0	356	0.0
Gastrointestinal System Drugs	32	0.0	142	0.1	7	0.0	72	0.0	253	0.0
Skin/Eye/Ear/Mouth Drugs	29	0.0	75	0.0	7	0.0	85	0.0	196	0.0
Anesthetics/ Therapeutic Gases	22	0.0	75	0.0	2	0.0	42	0.0	141	0.0
Non-Pharmaceutical Agents									
Venomous Animals/Plants	31	0.0	46	0.0	20	0.0	455	0.0	552	0.0
Other Gases/Fumes/Vapors	29	0.0	77	0.0	17	0.0	238	0.0	361	0.0
Corrosive Substances	19	0.0	67	0.0	10	0.0	113	0.0	209	0.0
Metals	18	0.0	70	0.0	3	0.0	56	0.0	147	0.0
Carbon Monoxide	15	0.0	43	0.0	11	0.0	77	0.0	146	0.0
Organic Solvents	21	0.0	21	0.0	3	0.0	31	0.0	76	0.0
Pesticides	19	0.0	19	0.0	3	0.0	26	0.0	67	0.0
Noxious Food (not seafood)	5	0.0	7	0.0	4	0.0	37	0.0	53	0.0
Soaps/Detergents	1	0.0	15	0.0	1	0.0	28	0.0	45	0.0
Aliphatic/Aromatic Hydrocarbons	1	0.0	0	0.0	0	0.0	2	0.0	3	0.0
Other Inorganic Substances	1	0.0	0	0.0	0	0.0	2	0.0	3	0.0
Cyanides	0	0.0	1	0.0	0	0.0	2	0.0	3	0.0
Paints/Dyes	0	0.0	0	0.0	0	0.0	3	0.0	3	0.0
Benzene Derivatives	0	0.0	1	0.0	0	0.0	0	0.0	1	0.0
Unspecified Other Substances	66	0.1	257	0.1	30	0.0	520	0.1	873	0.1

*Cases of poisoning shown in the table do not include drug-related overdoses associated with substance use disorders.

Injuries of PEH Treated in Illinois Hospitals

Table 27 describes the injuries presented in PEH at Illinois hospitals, including the intent and general cause. Approximately 15-20% of visits were injuries, depending on type (ED visits vs admissions) and the presence of coding for homelessness. The majority were classified as accidental injuries. Importantly, there were 28,860 visits from assaults and 15,578 visits from suicide attempts within the six-year period. ED visits were more likely to be from assaults and admissions were more likely to involve suicide attempts. Following a suicide attempt, it is standard protocol to either admit the patient or transfer the patient to a psychiatric facility to comprehensively assess the continued risk of self-harm.

The most common causes of injury include (Table 27): poisoning (including non-drug poisoning), falls, assaults or homicides, temperature-related injury, and transportation incidents, including motor vehicle crashes. Assaults most commonly involved bodily force, and suicide attempts most often involved poisoning. Cold injuries presented more than 10 times as often as heat injuries. Heat-related injuries were more commonly treated in the ED and people with cold injuries were more likely to be admitted. Transportation incidents most often involved pedestrians and bicyclists being struck. This is similar to other findings related to injuries in PEH (Silver 2024) and the analysis of mortality data presented in the previous chapter.

Severity Measures, Cost of Care, and Discharge Status of PEH Treated in Illinois Hospitals

Table 28 describes various measures used as proxies for the severity of health conditions and health care burden. The majority of visits were for emergent care (78.0%) or urgent care (6.5%) with only 10.8% related to elective health care services. Elective visits generally involve two pathways: a planned visit to the ED to undergo diagnostic procedures, investigations, and treatment without hospital admission (including ambulatory surgeries); or a planned visit to the hospital for admission (including planned surgeries and drug treatment programs). For admissions, the median length of stay in the hospital was five days, with half of visits falling within 3-7 days, and required mechanical ventilation in 10,489 (3.1%) of admissions.

The total hospital charges for people experiencing homelessness utilizing Illinois hospitals was $16,429,817,828 for 2017-2022 (in 2020 U.S. dollars). The median bill per visit was approximately $19,000 for admissions and $2,500 for ED visits regardless of Z59 code.

The majority of discharges across visit categories were to home or self-care. This was slightly higher in visits coded with Z59 for both admissions and ED visits. PEH, discharges to "home" or "self-care" often result in barriers to appropriate continued care or treatment, as amenities available to support this for stably housed individuals are often not available (ability to store medications properly, take medications as directed, maintain a relationship with a primary care provider, etc.).

Discharge to another health care facility was far more likely to occur for patients who were admitted, because of the additional complications and condition severity, as well as discharges to continued psychiatric care for those who attempted suicide. Approximately 5% of visits resulted in the person leaving against medical advice, which was slightly higher in visits without a Z59 code for both admissions and ED visits. A total of 3,720 (0.3%) visits involved patients dying in the hospital or discharged to hospice care. These outcomes were more common following a hospital admission.

Table 27: Injuries of PEH Treated in Illinois Hospitals, 2017-2022									
	ADMISSIONS CODED WITH Z59 (N=84,326)		OTHER ADMISSIONS (N=255,799)		ED VISITS CODED WITH Z59 (N=95,087)		OTHER ED VISITS (N=993,772)		TOTAL (N=1,428,984)	
Intent of Injury (includes traumatic injuries and poisoning)									
Accidental	13,066	15.5	37309	14.6	11,071	11.6	136017	13.7	197,463	13.8
Assault	1,117	1.3	2301	0.9	1,979	2.1	23463	2.4	28,860	2.0
Self-Harm/Suicide	2,311	2.7	6011	2.3	623	0.7	6633	0.7	15,578	1.1
Undetermined intent	103	0.1	222	0.1	38	0.0	482	0.0	845	0.1
Not an injury case (illness case)	67,729	80.3	209956	82.1	81,376	85.6	827177	83.2	1,186,238	83.0
Cause of Injury (includes traumatic injuries and poisoning)									
Accidental explosion	8	0.0	19	0.0	3	0.0	49	0.0	79	0.0
Animals - bite or contact with	173	0.2	249	0.1	370	0.4	2,775	0.3	3,567	0.2
Assault or homicide, including firearms	962	1.1	1,987	0.8	1,786	1.9	21,454	2.2	26,189	1.8
Contact with non-powered hand tool	0	0.0	4	0.0	3	0.0	161	0.0	168	0.0
Cut or piercing instrument	138	0.2	307	0.1	152	0.2	4,402	0.4	4,999	0.3
Drowning	0	0.0	0	0.0	1	0.0	2	0.0	3	0.0
Electric current	3	0.0	9	0.0	6	0.0	67	0.0	85	0.0
Ergonomic and motion-related hazards	43	0.1	76	0.0	282	0.3	5,135	0.5	5,536	0.4
Exposure to other inanimate mechanical forces, including constriction by hair, rubber band, jewelry	1	0.0	3	0.0	6	0.0	117	0.0	127	0.0
Falls - slips, trips, at level, one level to another	2,306	2.7	6,714	2.6	2,917	3.1	37,924	3.8	49,861	3.5
Firearm - undetermined intent firearm discharge	8	0.0	34	0.0	1	0.0	31	0.0	74	0.0
Firearm - non assault cases	73	0.1	305	0.1	43	0.0	533	0.1	954	0.1
Heat Sources, including smoke, jumping out of burning structure, or hit by falling debris	104	0.1	265	0.1	92	0.1	1,211	0.1	1,672	0.1
Legal intervention	19	0.0	34	0.0	28	0.0	539	0.1	620	0.0
Machinery	2	0.0	24	0.0	4	0.0	337	0.0	367	0.0
Medical error	839	1.0	4,257	1.7	116	0.1	1,561	0.2	6,773	0.5
Nature or environment - cataclysmic storms, tornadoes, earthquakes, volcanoes, avalanches, floods	0	0.0	0	0.0	1	0.0	1	0.0	2	0.0
Nature or environment - exposure to sunlight	2	0.0	1	0.0	11	0.0	23	0.0	37	0.0
Poisoning (includes pharmaceutical and non-pharmaceutical agents)*	6,399	7.6	18,925	7.4	2,123	2.2	29,167	2.9	56,614	4.0
Radiation (includes ionizing, radon, UV, non-ionizing)	1	0.0	3	0.0	5	0.0	17	0.0	26	0.0
Struck by or against or caught, crushed, jammed or pinched in or between objects	204	0.2	520	0.2	423	0.4	10,435	1.1	11,582	0.8
Suicide, including poisoning and firearms	658	0.8	1,680	0.7	195	0.2	2,509	0.3	5,042	0.4
Temperature-related injury	1,029	1.2	725	0.3	1,491	1.6	2,219	0.2	5,464	0.4
Transportation incident, including motor vehicle collisions	602	0.7	1,570	0.6	590	0.6	11,353	1.1	14,115	1.0
No injury or unspecified means of injury	69,741	82.7	215,670	84.3	82,482	86.7	842,961	84.8	1,210,854	84.7

*Poisoning includes exposures to pharmaceutical and non-pharmaceutical agents, in addition to drug-related overdoses.

Table 28: Severity Measures and Discharge Status of PEH Treated in Illinois Hospitals, 2017-2022										
	ADMISSIONS CODED WITH Z59 (N=84,326)		OTHER ADMISSIONS (N=255,799)		ED VISITS CODED WITH Z59 (N=95,087)		OTHER ED VISITS (N=993,772)		TOTAL (N=1,428,984)	
Admission Type										
Elective	9,755	11.6	32,983	12.9	1,336	1.4	110,149	11.1	154,223	10.8
Emergency	58,023	68.8	169,577	66.3	85,621	90.0	800,849	80.6	1,114,070	78.0
Trauma Center	560	0.7	1,849	0.7	159	0.2	2,062	0.2	4,630	0.3
Urgent Care	15,785	18.7	50,831	19.9	1,624	1.7	23,885	2.4	92,125	6.4
Newborn	53	0.1	266	0.1	0	0.0	0	0.0	319	0.0
Unknown	150	0.2	293	0.1	6,347	6.7	56,827	5.7	63,617	4.5
Hospital Treatment										
Treated in a facility with a Level 1 or 2 trauma unit	33,587	39.8	88,513	34.6	51,907	54.6	463,843	46.7	637,850	44.6
Median days in hospital (IQR)	5	3-8	5	3-7	NA	NA	NA	NA	5	3-7
Required mechanical ventilation	1,783	2.1	8,706	3.4	0	0.0	0	0.0	10,489	0.7
Underwent surgical intervention	5,999	7.1	25,345	9.9	711	0.7	29,727	3.0	61,782	4.3
Median hospital charges	$19,167		$18,788		$2,465		$2,731		$4,256	
Discharge Status										
Routine Discharge (Home/ Home Health Home Care Services)	64,085	76.0	188,479	73.7	83,109	87.4	855,264	86.1	1,190,937	83.3
Discharge to Another Health Care Facility	11,631	13.8	39,402	15.4	2,173	2.3	28,436	2.9	81,642	5.7
Discharge to a Psychiatric Facility	2,576	3.1	6,562	2.6	5,649	5.9	52,756	5.3	67,543	4.7
Discharged to Court/ Law Enforcement	328	0.4	1,177	0.5	301	0.3	6,798	0.7	8,604	0.6
Expired During Course of Hospitalization	275	0.3	1,501	0.6	36	0.0	702	0.1	2,514	0.2
Discharged to Hospice Care at Home or Medical Facility	162	0.2	795	0.3	25	0.0	224	0.0	1,206	0.1
Left Against Medical Advice	4,520	5.4	16,545	6.5	3,214	3.4	45,260	4.6	69,539	4.9
Other/Unspecified	749	0.9	1,338	0.5	580	0.6	4,332	0.4	6,999	0.5

Morbidity of People Experiencing Homelessness in Illinois, 2017-2022: Analysis of Hospital Data at the Unique Patient Level

Key Findings

- Between 2017-2022, 62,158 unique people with a median of 14 hospital visits per person had a total of 1,428,984 ED visits and hospital admissions.

- Nearly all PEH (93.9%) in the hospital dataset visited an Illinois hospital more than once between 2017-2022.

- During years a person had at least one visit coded for homelessness, they had an average of seven ED visits and 2.5 hospital admissions. By comparison, during years a person had no visits coded for homelessness, they had an average of 1.7 ED visits and 0.4 hospital admissions.

- 25% of PEH had 28 or more visits over the six years and one person had 1,470 hospital visits. These individuals visited Illinois hospitals 926,372 times during the six years (65% of total hospital visits). This subset of people who were high utilizers of medical care in the hospital setting were disproportionately female, between the ages of 45-64 years, non-Hispanic Black, living in Chicago, and had multiple serious comorbidities.

- The 25% of PEH who were high utilizers of medical care in the hospital setting were disproportionately diagnosed with an array of serious cardiovascular, respiratory, neurologic, and renal disorders. The high level of hospital care utilization was not limited to people with psychiatric and substance use disorders.

- These data support the hypothesis that hospital utilization increases during periods of unstable housing, particularly among those with chronic conditions that are exacerbated by homelessness.

Method of De-duplication and Creating a Unique Patient Dataset

Nearly all PEH (93.9%) in the hospital dataset visited an Illinois hospital more than once between 2017-2022. To identify unique people, the hospital data file was deduplicated using a numeric code created by the IDPH informatics team. Each individual had a unique numeric code. Records involving the same person were identified by the informatics team using first and last name, date of birth, and gender. For the analysis of the unique patient dataset, a single record was retained for each unique individual. If a person had been admitted to a hospital, the most recent hospital admission was retained. If the person was never admitted to a hospital, then the most recent ED visit was retained. Admission data was prioritized over ED visit data because comorbidities are better characterized during hospital admissions. As an example, in this study, inpatient visits had substantially more ICD-10 codes listed than ED visits. On average, each admission had 11.4 ICD-10 codes listed on the medical record compared to 4.2 on each ED visit's record.

A pool of patient visits was randomly sampled and evaluated for the consistency of reporting gender, race-ethnicity, and ICD-10 codes for comorbidities. There was a high level of agreement for gender; on only two out of 13,201 records the listed gender differed across an individual's records. There was a higher level of incongruity for race-ethnicity. Consistent with prior research (Maizlish 2006; Liebler 2017; Johnson 2023), the highest variability in reported race-ethnicity was for patients who primarily identify as Hispanic or Latino but was congruent across approximately 97% of records for those who primarily identify as non-Hispanic Black or non-Hispanic White (see Table 29). There was also a high degree of variability in the documentation of comorbidities across a patient's hospital visits. Chronic illnesses and psychiatric conditions were not consistently reported across visits. On most visits, chronic conditions were simply omitted (not coded). However, when a chronic illness and psychiatric disorder was listed across multiple visits for the same person, similar ICD-10 codes were used.

Rationale for Analysis of Hospital Data at the Unique Patient Level

The previous section focused on an analysis of cumulative hospital care utilization of PEH. In summary, between 2017-2022, there were a total of 1,428,984 ED visits and admissions involving PEH; 76.2% were ED visits while the remainder involved hospital admissions. However, prior research demonstrated that PEH utilized hospital-level medical care at a higher rate than the general population (Giannouchos 2021; Madigan 2021) because of a myriad of difficulties in accessing alternative forms of medical care. These included inadequate access to phones or the internet to make or confirm appointments, financial barriers that limited transportation and paying medical fees, difficulty finding providers that accepted Medicaid or uninsured patients, stigma, higher mobility of PEH, intermittent incarceration, and a higher incidence of medical emergencies and severe chronic conditions – all of which also make it difficult to establish and maintain relationships with individual medical providers, particularly in a non-emergent setting. Because PEH have higher hospital care utilization, most PEH were likely treated multiple times in Illinois hospitals during the six years. This section presents a description of the hospital data at the unique patient level.

Table 29: Variability in Self-Reported or Identified Race-Ethnicity for the Same Patients* Across Multiple Hospital Visits

Primary Race-Ethnicity Reported	Total	Percent
Black or African American	7,698	97.3% consistent
Different race-ethnicity reported		
Other Race	199	2.5%
White Non-Hispanic	15	0.2%
Multiracial	1	0.0%
Hispanic or Latino	2,935	77.9% consistent
Different race-ethnicity reported		
Other Race	559	14.8%
White Non-Hispanic	224	5.9%
Declined	17	0.5%
Black or African American	32	0.8%
White Non-Hispanic	3,477	97.8% consistent
Different race-ethnicity reported		
Multiracial	16	0.5%
Other Race	47	1.3%
Black or African American	2	0.1%
Native Hawaiian or Pacific Islander	12	0.3%

* Based on a random sample of the pool of PEH patients in the hospital dataset.

Table 30: Demographics of People Experiencing Homelessness in Illinois, 2017-2022: Unique People Who Sought Care in an Illinois Hospital Compared to All PEH Deaths Occurring in Illinois

	Unique Patients Reporting Homelessness (N=62,158)	Decedents who were Homeless at Time of Death (N=2,520)
Gender		
Male	42,295 (68.0%)	1,914 (76.0%)
Female	19,839 (31.9%)	586 (23.3%)
Unspecified	24 (0.0%)	20 (0.8%)
Mean Age at Death (standard deviation)	44.8 (15.7)	56.3 (16.6)
Perinatal Deaths: 0 to 7 days	227 (0.4%)	36 (1.4%)
1 to 4 years	176 (0.3%)	4 (0.2%)
5 to 9 years	218 (0.4%)	0 (0.0%)
10 to 14 years	258 (0.4%)	1 (0.0%)
15 to 19 years	1,190 (1.9%)	6 (0.2%)
20 to 24 years	4,115 (6.6%)	28 (1.1%)
25 to 34 years	12,958 (20.8%)	171 (6.8%)
35 to 44 years	12,231 (19.7%)	306 (12.1%)
45 to 54 years	12,388 (19.9%)	491 (19.5%)
55 to 64 years	12,783 (20.6%)	808 (32.1%)
65 to 74 years	4,499 (7.2%)	393 (15.6%)
75 and older	1,115 (1.8%)	220 (8.7%)
Unspecified	0 (%)	56 (2.3%)
Race/Ethnicity		
American Indian/ Alaska Native	121 (0.2%)	10 (0.4%)
Asian	406 (0.7%)	28 (1.1%)
Hispanic or Latino	4,841 (7.8%)	214 (8.5%)
Native Hawaiian or Pacific Islander	733 (1.2%)	3 (0.1%)
Non-Hispanic Black	23,576 (37.9%)	998 (39.6%)
Non-Hispanic White	27,694 (44.6%)	1,197 (47.5%)
Other / Unspecified	4,787 (7.7%)	70 (2.8%)

Description of Patient Demographics of People Experiencing Homelessness at the Unique Patient Level

The 1.4 million Illinois hospital visits involved 62,158 unique people with a median of 14 hospital visits per person over the six years (2017-2022; 75th percentile, 28 visits). Table 30 shows the demographic characteristics of individuals experiencing homelessness based on the most recent hospital admission, and if the person was never admitted to a hospital, then the most recent ED visit. Similar to the general morbidity analysis of all hospital visits, the unique PEH patient population were disproportionately male (68.0%) with an average age of 44.8 years (based on the most recent visit) and were disproportionately non-Hispanic White (44.6%) or non-Hispanic Black (37.9%). The demographics of PEH patients treated in the hospital setting were also similar to the demographics of PEH decedents (Table 30; also see chapter on mortality in this report). This indicates that a similar group of PEH are identified using the methodology to identify cases in the hospital data and vital records. While there is substantial overlap in demographic distributions in the mortality data, person-level hospital data, and visit-level hospital data, the age groups are one area that diverges between the visit-level and person-level hospital data. This demonstrates the need to further examine morbidity data using both methods.

Patterns of Hospital Care Utilization

The average person in the study had 23 total combined ED visits and admissions over the six years (median of 14). However, the average of total hospital visits can be misleading regarding hospital care utilization. In any given year, the median number of ED visits was one per year and the median number of hospital admissions was zero. This discrepancy between individual years and the average across the six-year totals (i.e., cumulative median visits of 14) is explained by two key drivers. First, at the individual level, the pattern of utilization is characterized by long periods with few hospital visits followed by brief intensive periods of high hospital utilization. Second, there are a fraction of PEH patients who are frequent utilizers of hospital care. Only 1% of the 62,158 PEH had two or more ED visits every year in addition to at least one annual hospital admission between 2017-2022.

It appears that surges in hospital utilization were related to when a person was experiencing homelessness. Figure 6 showed that 75.6% of PEH had a Z59 code only for one year indicating that a proportion of the patient population may not be homeless for the entire six-year period and/ or rampant undercoding of homelessness by hospital medical coders. Furthermore, during the years a person had at least one visit coded for homelessness, they had an average of seven ED visits and 2.5 admissions. By comparison, during years the same person had no visits coded for homelessness, they had an average of 1.7 ED visits and 0.4 admissions (see Figures 5A and 5B). While this assumes that a person was experiencing homelessness only during years they had a respective Z59 code, the

> During the years a person is identified through Z59 codes as experiencing homelessness, hospital utilization increases substantially, and during years there is no evidence an individual is experiencing homelessness, hospital utilization decreases substantially.

change in hospital utilization is substantial and consistent with prior research that showed that hospital utilization increased during periods of homelessness. Homelessness impacts health through numerous social, economic, health behaviors, and nutritional risk factors associated with earlier onset and poor management of chronic health conditions (Salem 2014), including broader situational circumstances (e.g., lack of housing, transportation, phones, financial resources) that limit access to alternative health care services (Lin 2015; Madigan 2021). Furthermore, PEH experience numerous physical hazards that increase the risk of traumatic injury, as well as environmental and social factors that exacerbate underlying psychiatric conditions.

Figure 5A and 5B: Mean Emergency Department Visits and Hospital Admissions During Years a Person Had at Least One Visit Coded For Homelessness (Navy) Compared to Years The Same Person Had No Visits Coded For Homelessness (Light Blue)
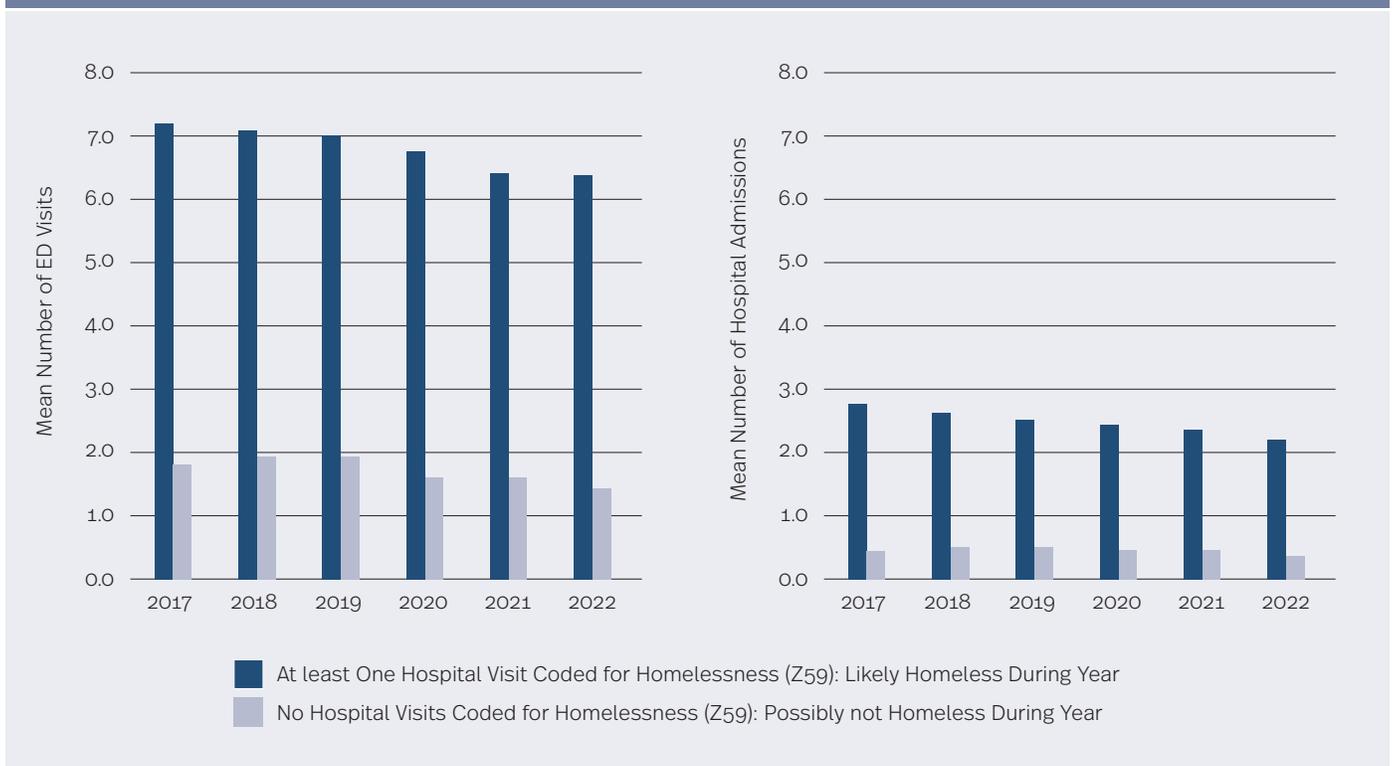

■ At least One Hospital Visit Coded for Homelessness (Z59): Likely Homeless During Year
■ No Hospital Visits Coded for Homelessness (Z59): Possibly not Homeless During Year

	1 to 5 Total Hospital Visits (Lower Quartile)	6 to 14 Total Hospital Visits (Second Quartile)	15 to 27 Total Hospital Visits (Third Quartile)	28 to 71 Total Hospital Visits (Upper Quartile, exc. Extreme outliers)	72 or more Total Hospital Visits (Extreme outliers)
Mean Number of Comorbidities (sd)	2.1 (1.8)	2.7 (1.9)	3.1 (2.0)	3.5 (2.1)	3.9 (2.1)
Percent with 3+ Comorbidities	34.2%	47.1%	56.0%	65.0%	72.3%
Type of Comorbidity					
Congestive Heart Failure	3.9%	6.3%	8.2%	10.4%	11.2%
Cardiac Arrhythmia	7.7%	9.4%	10.8%	12.0%	12.8%
Valvular Disease	1.1%	1.5%	1.8%	2.2%	1.6%
Pulmonary Circulation Disorders	1.4%	2.0%	2.0%	2.5%	2.2%
Peripheral Vascular Disorders	1.3%	2.0%	2.3%	2.7%	2.9%
Hypertension Uncomplicated	17.1%	21.8%	25.9%	29.0%	34.6%
Hypertension Complicated	4.2%	7.3%	9.5%	12.2%	12.8%
Paralysis	0.6%	0.9%	1.1%	1.2%	1.0%
Other Neurological Disorders	6.9%	9.5%	11.5%	15.7%	20.7%
Chronic Pulmonary Disease	11.1%	16.2%	22.4%	28.4%	34.3%
Diabetes Uncomplicated	4.8%	6.1%	7.1%	9.1%	11.4%
Diabetes Complicated	4.1%	5.8%	7.4%	9.6%	9.9%
Hypothyroidism	2.2%	3.1%	4.1%	5.1%	5.6%
Renal Failure	2.7%	4.9%	6.0%	8.2%	8.3%
Liver Disease	4.7%	5.7%	6.8%	8.2%	9.0%
Peptic Ulcer Disease ex. bleeding	0.3%	0.6%	0.7%	0.9%	1.1%
AIDS/HIV	0.8%	1.0%	1.4%	1.2%	1.9%
Lymphoma	0.1%	0.2%	0.2%	0.2%	0.1%
Metastatic Cancer	0.7%	1.3%	1.4%	1.3%	0.7%
Solid Tumor without Metastasis	1.1%	1.9%	2.4%	2.4%	1.6%
Rheumatoid Arthritis/collagen	0.4%	0.8%	0.9%	1.5%	1.0%
Coagulopathy	3.4%	4.4%	4.8%	5.6%	6.6%
Obesity	5.8%	9.2%	10.9%	13.7%	14.6%
Weight Loss	3.7%	5.0%	5.5%	5.5%	5.5%
Fluid and Electrolyte Disorders	15.8%	19.8%	22.6%	24.9%	26.0%
Blood Loss Anemia	0.2%	0.3%	0.3%	0.3%	0.2%
Deficiency Anemia	3.0%	3.3%	3.7%	4.4%	5.3%
Alcohol Abuse	20.9%	22.7%	23.4%	25.8%	30.5%
Drug Abuse	30.5%	39.5%	43.8%	42.8%	42.2%
Psychoses	20.3%	23.6%	27.0%	30.8%	38.4%
Depression	25.1%	30.6%	32.7%	32.3%	31.9%

Table 31: Hospital Utilization by Number of Total ED Visits and Admissions Stratified by Major Comorbidities* Among People Experiencing Homelessness Treated in Illinois Hospitals, 2017-2022

* Comorbidities are based on the Elixhauser Comorbidity Index

Additionally, there were a fraction of PEH who were high utilizers of medical care in the hospital setting; 25% of individual PEH had 28 or more visits over the six years and one had 1,470 hospital visits. These individuals visited Illinois hospitals 926,372 times during the six years (65% of total hospital visits) and were disproportionately female, between the ages of 45-64 years, non-Hispanic Black, living in Chicago, and had multiple serious comorbidities.

A quarter of patients experiencing homelessness accounted for 65% of the total hospital visits involved in the study cohort between 2017-2022.

The high level of hospital care utilization was not limited to people with psychiatric and substance use disorders (see Table 31). PEH who were high utilizers of medical care in the hospital setting were disproportionately diagnosed with an array of serious cardiovascular, respiratory, neurologic, and renal disorders (see Table 31; based on the Elixhauser Comorbidity Index). In contrast, PEH who were uninsured (self-pay) and those who were not residents of Illinois had far fewer total hospital visits over the six-year period. These data support the hypothesis that hospital utilization increases during periods of unstable housing particularly among those with chronic health conditions.

Coding for Homelessness in the Hospital Setting

The patients identified in the hospital data had homelessness coded at least once during any of their hospital visits between 2017-2022 but, in many of the visits, there was no code for homelessness. Figure 6 shows that 75.6% of PEH had a Z59 code only during one year indicating that a proportion of the patient population may not be homeless over the entire six-year period and/or there is rampant undercoding of homelessness by hospital medical coders. Only 286 patients had a Z59 code at least on one hospital visit each of the six years and another 652 patients had a Z59 code at least once a year over five years.

To evaluate the proportion of hospital visits involving PEH that were coded for homelessness, the analysis was restricted to patients who had a Z59 coded during at least five of the six years between 2017-2022 (n=938 patients). These patients are likely homeless for all or most of the period, which provides a more accurate estimate of the frequency of Z59 coding by Illinois hospitals. The proportion of ED visits coded for homelessness (ICD-10 code Z59) was approximately 20% from 2020 forward and was a little over 40% for admissions for most of the period. This indicates that coding for homelessness does not occur during the majority of hospital visits even among those who are likely homeless for long periods. If hospital staff are not coding the majority of hospital visits involving individuals experiencing long-term homelessness, then there are probably many PEH who are never coded for homelessness and not counted in this analysis. These latter cases will likely involve a disproportionate number of people who are homeless for brief periods for economic reasons in the absence of major mental health or legal risk factors (e.g., those "doubling-up" following recent eviction, foreclosure, separation). The low level of coding for homelessness on hospital records is consistent with preliminary findings reported by UI Health partners.
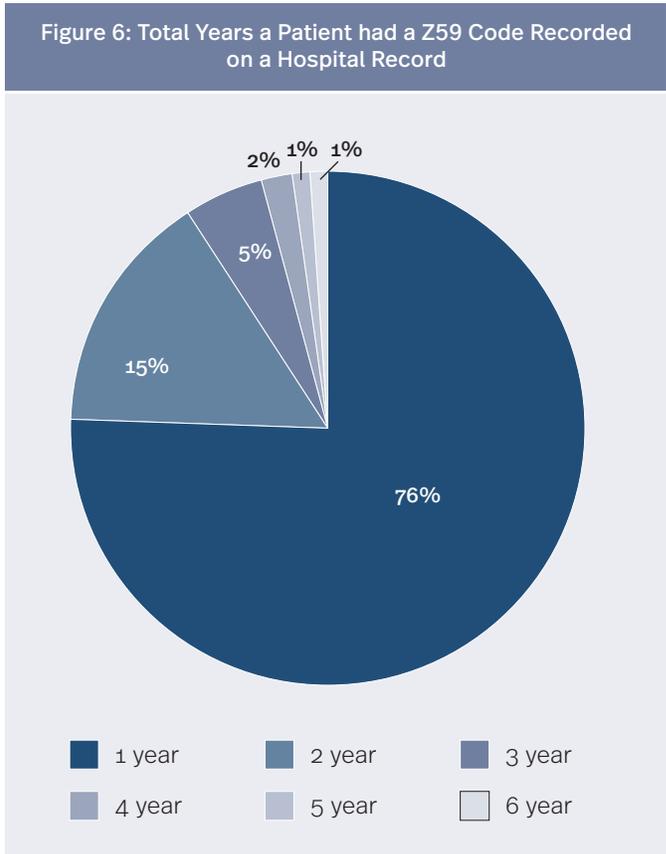
There also appear to be differences in the proportion coded for homelessness by race-ethnicity, gender, and age. Table 32 presents coding for homelessness for ED visits and Table 33 presents coding for homelessness for admissions. A greater proportion of non-Hispanic Black patients were coded for homelessness in ED visits, but a greater proportion of non-Hispanic White patients were coded for homelessness among those admitted to a hospital. In addition, males were more likely to be coded for homelessness in both ED visits and admissions. When evaluating coding by age group, in the ED setting, a slightly higher proportion of younger and older patients were coded for homelessness. Among those admitted to hospitals, coding was substantially higher for children under the age of 5 years and lowest in those 75 years and older.

Figure 6: Total Years a Patient had a Z59 Code Recorded on a Hospital Record

Legend: 1 year, 2 year, 3 year, 4 year, 5 year, 6 year

Values: 76%, 15%, 5%, 2%, 1%, 1%

Table 32: Percent of ED Visits per Year Involving People Experiencing Homelessness Coded with an ICD-10 Code for Homelessness Stratified by Race-Ethnicity, Gender, and Age

	2017	2018	2019	2020	2021	2022
ED Visits	6.9	7.8	8.4	9.6	9.0	10.9
Race-Ethnicity						
Hispanic or Latino	6.7	7.1	7.5	8.4	8.2	10.1
Non-Hispanic Black	7.7	8.6	9.6	10.9	10.1	12.6
Non-Hispanic White	6.1	6.8	7.0	8.0	7.7	9.4
Gender						
Female	5.5	6.2	7.1	7.9	7.0	8.6
Male	7.7	8.6	9.1	10.4	10.0	12.1
Age in Years						
Under 1	7.1	7.5	8.3	8.4	12.7	17.3
1 to 4	16.3	13.7	9.1	14.0	11.1	16.0
5 to 9	11.1	17.7	12.5	11.2	11.0	15.2
10 to 14	12.2	8.6	6.4	7.1	2.8	11.8
15 to 19	5.7	4.9	3.7	5.1	6.4	9.4
20 to 24	4.4	5.0	5.0	6.0	7.1	9.1
25 to 34	5.4	6.8	7.4	8.5	8.4	9.5
35 to 44	6.4	7.9	8.1	9.5	9.3	11.7
45 to 54	7.4	8.1	8.6	9.9	8.8	10.8
55 to 64	7.8	8.3	9.4	11.0	9.9	11.6
65 to 74	8.8	8.9	10.1	10.9	9.4	12.3
75 and older	8.4	7.8	10.5	11.9	11.2	13.3

Table 33: Percent of Hospital Admissions per Year Involving People Experiencing Homelessness Coded with an ICD-10 Code for Homelessness Stratified by Race-Ethnicity, Gender, and Age

	2017	2018	2019	2020	2021	2022
Admissions	21.7	24.0	24.2	26.2	25.3	27.8
Race-Ethnicity						
Hispanic or Latino	22.7	23.9	23.6	25.8	24.8	26.1
Non-Hispanic Black	19.3	21.8	22.1	24.0	23.4	25.0
Non-Hispanic White	23.3	25.6	25.9	27.6	26.7	30.3
Gender						
Female	19.0	20.9	21.5	22.2	21.4	24.6
Male	22.8	25.3	25.4	27.8	27.0	29.2
Age in Years						
Under 1	14.9	34.4	42.4	37.9	35.8	54.2
1 to 4	28.9	13.0	26.1	8.0	14.3	41.4
5 to 9	34.4	28.2	38.5	25.0	14.3	21.2
10 to 14	34.3	21.9	33.6	13.8	21.7	15.9
15 to 19	15.4	17.2	22.4	19.0	24.5	29.4
20 to 24	21.1	22.9	23.2	26.2	25.7	30.0
25 to 34	21.6	24.0	25.1	27.2	26.1	29.9
35 to 44	21.7	24.5	25.1	27.5	26.8	29.6
45 to 54	22.9	24.5	23.9	25.6	25.9	28.0
55 to 64	20.8	23.8	23.7	25.9	24.3	25.8
65 to 74	22.2	22.8	22.7	24.3	20.4	22.7
75 and older	21.8	23.0	23.2	21.3	21.6	18.8

Conclusion

Building on existing research, this report documents severe health inequities between people experiencing homelessness in Illinois and other residents. This population experiences a high burden of mortality and morbidity, specifically related to life expectancy, the burden of chronic disease, accidental and violent injury victimization, substance use, and cold- and heat-related mortality. Through research into morbidity and mortality data, the goal was to shine a light on opportunities to improve systems of care for people experiencing homelessness in the state. It is important to understand that homelessness is not inevitable, but rather is driven by structural forces, such as housing costs and gaps in safety net programs. Therefore, efforts to improve the health of people experiencing homelessness should seek both to strengthen systems of care for PEH and to change the conditions that drive housing instability and homelessness. As advocates and practitioners have long understood, housing is a health-promoting intervention. The IDPH and the University of Illinois Chicago School of Public Health look forward to working with partners to build and act on this report.

Appendix A: Abbreviations

ACS – American Community Survey (U.S. Census Bureau)

CoC - continuum of care

COPD - Chronic obstructive pulmonary disease

DOE – U.S. Department of Education

ED – Emergency department

ES - Emergency shelter

GED - General Educational Development (General Education Diploma)

HIV – Human immunodeficiency virus

HMIS - Homeless Management Information System (software application that integrates data on people receiving services from homeless service providers within a continuum of care [CoC] jurisdiction)

HUD – U.S. Department of Housing and Urban Development

ICD-10 - International Classification of Diseases 10th Revision

IDPH – Illinois Department of Public Health

ILCS - Illinois Compiled Statutes

LGBTQ – lesbian, gay, bisexual, transgender, and queer

NIOCCS - NIOSH Industry and Occupation Computerized Coding System

OPEH – Illinois Office to Prevent and End Homelessness

PEH – People Experiencing Homelessness

PIT - Point-in-Time (count of sheltered and unsheltered people occurs on a single night of the year)

PUMS - Public Use Microdata Series

SD – Standard deviation (statistical term)

SH - Safe haven

SIDS - Sudden Infant Death Syndrome

SOC - Standard Occupational Classification

SUID - Sudden Unexpected Infant Death

TH - Transitional housing

Appendix B: Detailed Tables

Estimates of People Living Doubled-Up with Others For Economic Reasons in Illinois, 2017-2022
Doubled-Up Homelessness Estimates Based on 200% Poverty Line Cut-off*

	2017	2018	2019	2020	2021	2022
Annual Total	299,340	275,042	224,334	229,900	218,892	185,432
Gender						
Male	134,578 (45.0%)	122,564 (44.6%)	103,057 (45.9%)	109,128 (47.5%)	99,593 (45.5%)	91,836 (49.5%)
Female	164,762 (55.0%)	152,478 (55.4%)	121,277 (54.1%)	120,772 (52.5%)	119,299 (54.5%)	93,596 (50.5%)
Age at Death						
Under 18 years	73,665 (24.6%)	80,849 (29.4%)	58,143 (25.9%)	68,755 (29.9%)	68,361 (31.2%)	55,764 (30.1%)
18 to 24 years	71,391 (23.8%)	65,409 (23.8%)	53,679 (23.9%)	53,379 (23.2%)	48,159 (22.0%)	43,094 (23.2%)
25 years and older	154,284 (51.5%)	128,784 (46.8%)	112,512 (50.2%)	107,766 (46.9%)	102,372 (46.8%)	86,574 (46.7%)
Ethnicity						
Hispanic or Latino	108,272 (36.2%)	98,741 (35.9%)	75,240 (33.5%)	81,615 (35.5%)	75,243 (34.4%)	63,433 (34.2%)
Race						
American Indian or Alaska Native	2,194 (0.7%)	1,478 (0.5%)	1,506 (0.7%)	2,581 (1.1%)	3,752 (1.7%)	809 (0.4%)
Asian	14,930 (5.0%)	15,873 (5.8%)	11,985 (5.3%)	10,532 (4.6%)	8,378 (3.8%)	11,860 (6.4%)
Black or African American	95,409 (31.9%)	89,844 (32.7%)	65,601 (29.2%)	83,834 (36.5%)	72,837 (33.3%)	55,247 (29.8%)
Native Hawaiian or Pacific Islander	280 (0.1%)	104 (0.0%)	141 (0.1%)	89 (0.0%)	149 (0.1%)	464 (0.3%)
White (including Hispanic or Latino Ethnicity)	126,173 (42.2%)	117,569 (42.7%)	113,184 (50.5%)	59,925 (26.1%)	61,001 (27.9%)	55,061 (29.7%)
Multiracial, Declined, or Other	60,354 (20.2%)	50,174 (18.2%)	31,917 (14.2%)	72,939 (31.7%)	72,775 (33.2%)	61,991 (33.4%)
Veteran	3,807 (1.3%)	2,729 (1.0%)	3,117 (1.4%)	2,692 (1.2%)	3,501 (1.6%)	1,987 (1.1%)

*The methods developed by Richards et al (2022) were modified. This table shows the estimates of people living doubled up
for economic reasons using a cut-off of 200% above the poverty line which corresponds to cut-offs used by many US agencies.
Richards et al (2022) uses a cut-off of 125% above the poverty line which will likely be more precise in that it does not include
false matches, but it also likely excludes many people doubling up for economic reasons with modestly higher incomes which are
insufficient if they have mulitple dependents.

Illinois Population Estimates, 2017-2022 US Census Bureau
US Census Bureau, American Community Survey 1-Year Estimates

	2017	2018	2019	2020	2021	2022
Total Illinois Population	12,802,023	12,741,080	12,671,821	12,716,164	12,671,469	12,582,032
Gender						
Male	6,294,900	6,266,062	6,217,305	6,247,083	6,264,364	6,229,035
Female	6,507,123	6,475,018	6,454,516	6,469,081	6,407,105	6,352,997
Unspecified	~	~	~	~	~	~
Age at Death						
Under 18 years	2,895,090	2,855,802	2,814,679	2,855,433	2,800,177	2,716,206
18 to 24 years	1,199,876	1,178,902	1,162,448	1,174,031	1,140,595	1,172,987
25 years and older	8,707,057	8,706,376	8,694,694	8,686,700	8,730,697	8,692,839
Unspecified	~	~	~	~	~	~
Ethnicity						
Hispanic or Latino	2,206,927	2,208,868	2,216,300	2,190,696	2,277,330	2,299,726
Race						
American Indian or Alaska Native	29,910	35,846	32,600	33,972	84,713	86,968
Asian	694,968	717,938	717,992	709,567	728,531	754,911
Black or African American	1,818,986	1,793,079	1,790,212	1,796,660	1,722,604	1,689,724
Native Hawaiian or Pacific Islander	4,860	5,317	4,511	5,196	5,780	7,352
White (including Hispanic or Latino Ethnicity)	9,119,912	9,135,145	9,044,059	8,874,067	7,770,962	7,683,527
Multiracial, Declined, or Other	1,133,387	1,053,755	1,082,447	1,296,702	2,358,879	2,359,550

**US Census changed race categories in 2021 resulting in substantial decline in "White Alone";
also there was a substantial increase in residents identifying as AIAN and multiracial

Identification of People Experiencing Homelessness in Illinois Death Records by Each Query Stage
Statewide Illinois Death Records, 2017-2022

	Rockford Region (N=114)	Peoria Region (N=101)	Metro East Region (N=82)	Marion Region (N=31)	Champaign Region (N=83)	Westchester Region - West Chicago (N=271)	Westchester Region - Suburban Cook (N=382)	Westchester Region - Chicago (N=1,456)
Homeless Keywords[1]	20 (17.5%)	18 (17.8%)	27 (32.9%)	14 (45.2%)	19 (22.9%)	62 (22.9%)	26 (6.8%)	100 (6.9%)
No Known Residential Address[2]	55 (48.2%)	41 (40.6%)	34 (41.5%)	16 (51.6%)	29 (34.9%)	85 (31.4%)	198 (51.8%)	618 (42.4%)
Shelter Street Address Match[3]	42 (36.8%)	46 (45.5%)	20 (24.4%)	3 (9.7%)	36 (43.4%)	129 (47.6%)	159 (41.6%)	776 (53.3%)
Shelter Name Keyword Match[4]	5 (4.4%)	2 (2.0%)	4 (4.9%)	1 (3.2%)	2 (2.4%)	4 (1.5%)	3 (0.8%)	22 (1.5%)

*Counts of cases are not independent. Cases could be identified in one or more stage of querying records. Final counts used in main analysis are deduplicated.

[1] Homeless keywords - matching on words recommended by HUD and used in prior reports. Keywords examples include homeless, shelter, temporary, transitional housing, recovery housing.

[2] No address - matching on missing residential address only, other address fields are not queried. Examples of residential addresses with unknown addresses includes: na, not available, unknown, unknown homeless, no fixed address.

[3] Shleter address match - Matches on shelter street address and city using SQL code, direct matching to all shelters and CoC service providers in Illinois. Shelter list built from HUD HIC lists, OPEH and other lists provided by local/state service providers

List includes transitional housing (TH), safe havens (SH), rapid re-housing (RRH), and other permanent housing (OPH) if there is a fixed address and address location provides services for PEH.

[4] Shelter name keywords - Matches on shelter name using SQL code, direct matching to all shelters and CoC service providers in Illinois. Shelter list built from HUD lists, OPEH office, and lists provided by local CoCs. List includes transitional housing (TH), safe havens (SH), rapid re-housing (RRH), and other permanent housing (OPH) if there is a fixed address and address location provides services for PEH.

Demographics of People Experiencing Homelessness Decedents by Public Health Regions
Statewide Illinois Death Records, 2017-2022

	Rockford Region (N=114)	Peoria Region (N=101)	Metro East Region (N=82)	Marion Region (N=31)	Champaign Region (N=83)	Westchester Region - West Chicago (N=271)	Westchester Region - Suburban Cook (N=382)	Westchester Region - Chicago (N=1,456)
Gender								
Male	80 (70.2%)	73 (72.3%)	59 (72.0%)	21 (67.7%)	58 (69.9%)	198 (73.1%)	288 (75.4%)	1,137 (78.1%)
Female	34 (29.8%)	28 (27.7%)	23 (28.0%)	10 (32.3%)	25 (30.1%)	73 (26.9%)	86 (22.5%)	307 (21.1%)
Unspecified	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	8 (2.1%)	12 (0.8%)
Mean Age at Death (sd)	55.0 (sd=18.1)	58.9 (sd=16.9)	55.8 (sd=17.7)	56.7 (sd=12.8)	55.9 (sd=16.3)	56.4 (sd=18.0)	57.5 (sd=17.2)	55.9 (sd=16.0)
0 to 4 years	2 (1.8%)	0 (0.0%)	1 (1.2%)	0 (0.0%)	1 (1.2%)	2 (0.7%)	7 (1.6%)	27 (1.9%)
5 to 9 years	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
10 to 14 years	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.1%)
15 to 19 years	1 (0.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (0.7%)	0 (0.0%)	3 (0.2%)
20 to 24 years	1 (0.9%)	1 (1.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	7 (2.6%)	6 (1.6%)	13 (0.9%)
25 to 34 years	7 (6.1%)	8 (7.9%)	10 (12.2%)	1 (3.2%)	7 (8.4%)	22 (8.1%)	24 (6.3%)	92 (6.3%)
35 to 44 years	22 (19.3%)	14 (13.9%)	10 (12.2%)	8 (25.8%)	10 (12.0%)	39 (14.4%)	44 (11.5%)	159 (10.9%)
45 to 54 years	26 (22.8%)	18 (17.8%)	17 (20.7%)	3 (9.7%)	16 (19.3%)	47 (17.3%)	60 (15.7%)	304 (20.9%)
55 to 64 years	27 (23.7%)	26 (25.7%)	25 (30.5%)	8 (25.8%)	25 (30.1%)	73 (26.9%)	121 (31.7%)	503 (34.5%)
65 to 74 years	15 (13.2%)	16 (15.8%)	7 (8.5%)	7 (22.6%)	14 (16.9%)	46 (17.0%)	71 (18.6%)	217 (14.9%)
75 and older	13 (11.4%)	18 (17.8%)	12 (14.6%)	2 (6.5%)	10 (12.0%)	33 (12.2%)	35 (9.2%)	97 (6.7%)
Unspecified	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (6.5%)	0 (0.0%)	0 (0.0%)	14 (3.9%)	40 (2.7%)
Race/Ethnicity								
American Indian/Alaska Native	2 (1.8%)	1 (1.0%)	1 (1.2%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.3%)	5 (0.3%)
Asian	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (1.1%)	5 (1.3%)	20 (1.4%)
Hispanic or Latino	4 (3.5%)	4 (4.0%)	1 (1.2%)	1 (3.2%)	3 (3.6%)	27 (10.0%)	24 (6.3%)	150 (10.3%)
Native Hawaiian or Pacific Islander	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.3%)	2 (0.1%)
Non-Hispanic White	76 (66.7%)	83 (82.2%)	68 (82.9%)	25 (80.6%)	62 (74.7%)	211 (77.9%)	199 (52.1%)	473 (32.5%)
Non-Hispanic Black	32 (28.1%)	13 (12.9%)	11 (13.4%)	4 (12.9%)	17 (20.5%)	30 (11.1%)	132 (34.6%)	759 (52.1%)
Other / Unspecified	0 (0.0%)	0 (0.0%)	1 (1.2%)	1 (3.2%)	1 (1.2%)	0 (0.0%)	20 (5.2%)	47 (3.2%)
Education								
8th Grade or Less	7 (6.1%)	8 (7.9%)	3 (3.7%)	2 (6.5%)	6 (7.2%)	25 (9.2%)	27 (7.1%)	100 (6.9%)
9th to 12th Grade, No High School Diploma	11 (9.6%)	17 (16.8%)	10 (12.2%)	8 (25.8%)	9 (10.8%)	34 (12.5%)	44 (11.5%)	170 (11.7%)
High School	60 (52.6%)	46 (45.5%)	43 (52.4%)	14 (45.2%)	43 (51.8%)	109 (40.2%)	128 (33.5%)	426 (29.3%)
Associate Degree	4 (3.5%)	4 (4.0%)	3 (3.7%)	1 (3.2%)	2 (2.4%)	7 (2.6%)	22 (5.8%)	38 (2.6%)
College but No Degree	9 (7.9%)	8 (7.9%)	7 (8.5%)	1 (3.2%)	7 (8.4%)	39 (14.4%)	41 (10.7%)	124 (8.5%)
Bachelors Degree	2 (1.8%)	3 (3.0%)	3 (3.7%)	1 (3.2%)	4 (4.8%)	15 (5.5%)	11 (2.9%)	57 (3.9%)
Masters Degree	0 (0.0%)	3 (3.0%)	1 (1.2%)	0 (0.0%)	1 (1.2%)	4 (1.5%)	2 (0.5%)	12 (0.8%)
Doctoral Degree	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (2.4%)	2 (0.7%)	2 (0.5%)	9 (0.6%)
Unknown	21 (18.4%)	12 (11.9%)	12 (14.6%)	4 (12.9%)	9 (10.8%)	36 (13.3%)	105 (27.5%)	520 (35.7%)
Veteran	11 (9.6%)	18 (17.8%)	10 (12.2%)	2 (6.5%)	6 (7.2%)	27 (10.0%)	48 (12.6%)	134 (9.2%)

Marital Status and Indicators of Social Support of People Experiencing Homelessness Decedents by Public Health Regions Statewide Illinois Death Records, 2017-2022

	Rockford Region (N=114)	Peoria Region (N=101)	Metro East Region (N=82)	Marion Region (N=31)	Champaign Region (N=83)	Westchester Region - West Chicago (N=271)	Westchester Region - Suburban Cook (N=382)	Westchester Region - Chicago (N=1,456)
Marital Status								
Never Married	48 (42.1%)	33 (32.7%)	24 (29.3%)	5 (16.1%)	29 (34.9%)	117 (43.2%)	177 (46.3%)	695 (47.7%)
Married or Civil Union	7 (6.1%)	15 (14.9%)	13 (15.9%)	8 (25.8%)	14 (16.9%)	24 (8.9%)	27 (7.1%)	70 (4.8%)
Divorced or Separated	32 (28.1%)	40 (39.6%)	24 (29.3%)	10 (32.3%)	29 (34.9%)	79 (29.2%)	77 (20.2%)	206 (14.1%)
Widowed	14 (12.3%)	6 (5.9%)	10 (12.2%)	4 (12.9%)	6 (7.2%)	26 (9.6%)	23 (6.0%)	69 (4.7%)
Unknown	13 (11.4%)	7 (6.9%)	11 (13.4%)	4 (12.9%)	5 (6.0%)	25 (9.2%)	78 (20.4%)	416 (28.6%)
Relationship of Informant to decedent								
Family Member	94 (82.5%)	88 (87.1%)	65 (79.3%)	26 (83.9%)	73 (88.0%)	222 (81.9%)	256 (67.0%)	796 (54.7%)
Child or Stepchild	21 (18.4%)	31 (30.7%)	22 (26.8%)	9 (29.0%)	20 (24.1%)	62 (22.9%)	71 (18.6%)	244 (16.8%)
Sibling	30 (26.3%)	21 (20.8%)	13 (15.9%)	7 (22.6%)	19 (22.9%)	68 (25.1%)	94 (24.6%)	266 (18.3%)
Parent or Stepparent	29 (25.4%)	22 (21.8%)	19 (23.2%)	4 (12.9%)	19 (22.9%)	64 (23.6%)	62 (16.2%)	176 (12.1%)
Spouse or Partner	5 (4.4%)	11 (10.9%)	9 (11.0%)	5 (16.1%)	11 (13.3%)	18 (6.6%)	21 (5.5%)	38 (2.6%)
Niece or Nephew	1 (0.9%)	1 (1.0%)	0 (0.0%)	1 (3.2%)	1 (1.2%)	3 (1.1%)	5 (1.3%)	31 (2.1%)
Grandchild	1 (0.9%)	1 (1.0%)	0 (0.0%)	0 (0.0%)	1 (1.2%)	1 (0.4%)	0 (0.0%)	4 (0.3%)
Other Relative, including Cousin, Aunt, Uncle, Grandparent, Godparents	7 (6.1%)	1 (1.0%)	2 (2.4%)	0 (0.0%)	2 (2.4%)	6 (2.2%)	3 (0.8%)	37 (2.5%)
Medical Records	0 (0.0%)	0 (0.0%)	1 (1.2%)	0 (0.0%)	0 (0.0%)	1 (0.4%)	72 (18.8%)	368 (25.3%)
Intake, Facility, or Health Care Staff	1 (0.9%)	1 (1.0%)	3 (3.7%)	0 (0.0%)	1 (1.2%)	4 (1.5%)	38 (9.9%)	243 (16.7%)
Coroner, Medical Examiner, or Funeral Home	15 (13.2%)	8 (7.9%)	9 (11.0%)	5 (16.1%)	6 (7.2%)	28 (10.3%)	2 (0.5%)	6 (0.4%)
Power of Attorney	1 (0.9%)	2 (2.0%)	0 (0.0%)	0 (0.0%)	1 (1.2%)	4 (1.5%)	4 (1.0%)	16 (1.1%)
Friend	2 (1.8%)	1 (1.0%)	2 (2.4%)	0 (0.0%)	1 (1.2%)	3 (1.1%)	3 (0.8%)	11 (0.8%)
Guardian	0 (0.0%)	0 (0.0%)	2 (2.4%)	0 (0.0%)	1 (1.2%)	6 (2.2%)	3 (0.8%)	9 (0.6%)
Religious Representative	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (0.8%)	4 (0.3%)
Other public official	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (1.1%)	0 (0.0%)	2 (0.1%)
Unknown	1 (0.9%)	1 (1.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.3%)	1 (0.1%)

Place of Birth of People Experiencing Homelessness Decedents by Public Health Regions
Statewide Illinois Death Records, 2017-2022

Birth County/Region	Rockford Region (N=114)	Peoria Region (N=101)	Metro East Region (N=82)	Marion Region (N=31)	Champaign Region (N=83)	Westchester Region - West Chicago (N=271)	Westchester Region - Suburban Cook (N=382)	Westchester Region - Chicago (N=1,456)
Africa	0 (0.0%)	0 (0.0%)	1 (1.2%)	0 (0.0%)	1 (1.2%)	2 (0.7%)	2 (0.5%)	5 (0.3%)
Asia	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (0.7%)	2 (0.5%)	8 (0.5%)
Canada	1 (0.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (0.7%)	0 (0.0%)	2 (0.1%)
Caribbean	0 (0.0%)	0 (0.0%)	1 (1.2%)	0 (0.0%)	0 (0.0%)	1 (0.4%)	2 (0.5%)	3 (0.2%)
Central America	2 (1.8%)	1 (1.0%)	0 (0.0%)	0 (0.0%)	2 (2.4%)	1 (0.4%)	2 (0.5%)	12 (0.8%)
China	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (0.1%)
Europe	0 (0.0%)	1 (1.0%)	3 (3.7%)	0 (0.0%)	0 (0.0%)	3 (1.1%)	8 (2.1%)	14 (1.0%)
Mexico	3 (2.6%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	6 (2.2%)	11 (2.9%)	44 (3.0%)
Middle East	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.4%)	4 (1.0%)	4 (0.3%)
Oceania	1 (0.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Poland	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.4%)	4 (1.0%)	16 (1.1%)
Russia	1 (0.9%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.4%)	4 (1.0%)	0 (0.0%)
South America	0 (0.0%)	0 (0.0%)	1 (1.2%)	0 (0.0%)	1 (1.2%)	1 (0.4%)	1 (0.3%)	2 (0.1%)
South Asia	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.4%)	0 (0.0%)	0 (0.0%)
United States (only top 10 states shown)	103 (90.4%)	99 (98.0%)	75 (91.5%)	29 (93.5%)	78 (94.0%)	238 (87.8%)	313 (81.9%)	1,147 (78.8%)
Illinois	69 (60.5%)	63 (62.4%)	48 (58.5%)	18 (58.1%)	53 (63.9%)	157 (57.9%)	213 (55.8%)	657 (45.1%)
Mississippi	0 (0.0%)	2 (2.0%)	1 (1.2%)	0 (0.0%)	0 (0.0%)	3 (1.1%)	8 (2.1%)	41 (2.8%)
Indiana	0 (0.0%)	2 (2.0%)	1 (1.2%)	1 (3.2%)	2 (2.4%)	4 (1.5%)	6 (1.6%)	16 (1.1%)
Missouri	0 (0.0%)	6 (5.9%)	9 (11.0%)	1 (3.2%)	0 (0.0%)	4 (1.5%)	3 (0.8%)	7 (0.5%)
Wisconsin	3 (2.6%)	3 (3.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	6 (2.2%)	2 (0.5%)	11 (0.8%)
Tennessee	2 (1.8%)	2 (2.0%)	1 (1.2%)	1 (3.2%)	2 (2.4%)	3 (1.1%)	0 (0.0%)	13 (0.9%)
Puerto Rico	0 (0.0%)	1 (1.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.4%)	0 (0.0%)	19 (1.3%)
Arkansas	0 (0.0%)	1 (1.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	5 (1.3%)	15 (1.0%)
Michigan	0 (0.0%)	1 (1.0%)	0 (0.0%)	0 (0.0%)	1 (1.2%)	2 (0.7%)	2 (0.5%)	15 (1.0%)
Ohio	1 (0.9%)	0 (0.0%)	1 (1.2%)	0 (0.0%)	1 (1.2%)	2 (0.7%)	2 (0.5%)	13 (0.9%)
Unknown County/Region	3 (2.6%)	0 (0.0%)	1 (1.2%)	2 (6.5%)	1 (1.2%)	11 (4.1%)	29 (7.6%)	197 (13.5%)

Trends by Year, Month and Weekday of People Experiencing Homelessness Who Died in Illinois by Public Health Regions Statewide Illinois Death Records, 2017-2022

	Rockford Region (N=114)	Peoria Region (N=101)	Metro East Region (N=82)	Marion Region (N=31)	Champaign Region (N=83)	Westchester Region - West Chicago (N=271)	Westchester Region - Suburban Cook (N=382)	Westchester Region - Chicago (N=1,456)
Year of Death								
2017	14 (12.3%)	15 (14.9%)	11 (13.4%)	4 (12.9%)	12 (14.5%)	44 (16.2%)	55 (14.4%)	175 (12.0%)
2018	10 (8.8%)	13 (12.9%)	11 (13.4%)	5 (16.1%)	9 (10.8%)	51 (18.8%)	37 (9.7%)	198 (13.6%)
2019	16 (14.0%)	9 (8.9%)	14 (17.1%)	6 (19.4%)	10 (12.0%)	44 (16.2%)	46 (12.0%)	197 (13.5%)
2020	23 (20.2%)	17 (16.8%)	12 (14.6%)	6 (19.4%)	13 (15.7%)	48 (17.7%)	68 (17.8%)	291 (20.0%)
2021	21 (18.4%)	23 (22.8%)	13 (15.9%)	5 (16.1%)	21 (25.3%)	35 (12.9%)	74 (19.4%)	284 (19.5%)
2022	30 (26.3%)	24 (23.8%)	21 (25.6%)	5 (16.1%)	18 (21.7%)	49 (18.1%)	102 (26.7%)	311 (21.4%)
Month of Death								
January	10 (8.8%)	8 (7.9%)	11 (13.4%)	2 (6.5%)	6 (7.2%)	25 (9.2%)	35 (9.2%)	123 (8.4%)
February	5 (4.4%)	8 (7.9%)	7 (8.5%)	1 (3.2%)	5 (6.0%)	16 (5.9%)	27 (7.1%)	101 (6.9%)
March	8 (7.0%)	9 (8.9%)	3 (3.7%)	1 (3.2%)	6 (7.2%)	24 (8.9%)	37 (9.7%)	117 (8.0%)
April	12 (10.5%)	9 (8.9%)	6 (7.3%)	4 (12.9%)	6 (7.2%)	29 (10.7%)	30 (7.9%)	123 (8.4%)
May	10 (8.8%)	9 (8.9%)	5 (6.1%)	3 (9.7%)	7 (8.4%)	23 (8.5%)	30 (7.9%)	126 (8.7%)
June	7 (6.1%)	4 (4.0%)	8 (9.8%)	6 (19.4%)	7 (8.4%)	18 (6.6%)	27 (7.1%)	126 (8.7%)
July	11 (9.6%)	11 (10.9%)	7 (8.5%)	3 (9.7%)	8 (9.6%)	14 (5.2%)	25 (6.5%)	115 (7.9%)
August	7 (6.1%)	8 (7.9%)	7 (8.5%)	4 (12.9%)	7 (8.4%)	24 (8.9%)	32 (8.4%)	113 (7.8%)
September	10 (8.8%)	9 (8.9%)	4 (4.9%)	1 (3.2%)	11 (13.3%)	23 (8.5%)	27 (7.1%)	115 (7.9%)
October	12 (10.5%)	8 (7.9%)	8 (9.8%)	1 (3.2%)	2 (2.4%)	26 (9.6%)	36 (9.4%)	127 (8.7%)
November	11 (9.6%)	9 (8.9%)	7 (8.5%)	4 (12.9%)	7 (8.4%)	20 (7.4%)	33 (8.6%)	115 (7.9%)
December	11 (9.6%)	9 (8.9%)	9 (11.0%)	1 (3.2%)	11 (13.3%)	29 (10.7%)	43 (11.3%)	155 (10.6%)
Weekday of Death								
Monday	24 (21.1%)	19 (18.8%)	10 (12.2%)	6 (19.4%)	17 (20.5%)	41 (15.1%)	56 (14.7%)	239 (16.4%)
Tuesday	16 (14.0%)	7 (6.9%)	9 (11.0%)	3 (9.7%)	7 (8.4%)	35 (12.9%)	41 (10.7%)	203 (13.9%)
Wednesday	14 (12.3%)	10 (9.9%)	11 (13.4%)	4 (12.9%)	17 (20.5%)	32 (11.8%)	62 (16.2%)	200 (13.7%)
Thursday	12 (10.5%)	22 (21.8%)	19 (23.2%)	5 (16.1%)	8 (9.6%)	42 (15.5%)	49 (12.8%)	207 (14.2%)
Friday	16 (14.0%)	16 (15.8%)	14 (17.1%)	5 (16.1%)	17 (20.5%)	40 (14.8%)	51 (13.4%)	212 (14.6%)
Saturday	20 (17.5%)	18 (17.8%)	8 (9.8%)	5 (16.1%)	10 (12.0%)	40 (14.8%)	59 (15.4%)	208 (14.3%)
Sunday	12 (10.5%)	9 (8.9%)	11 (13.4%)	3 (9.7%)	7 (8.4%)	41 (15.1%)	64 (16.8%)	187 (12.8%)

Place of Death and Disposition Method of People Experiencing Homelessness Who Died in Illinois by Public Health Regions
Statewide Illinois Death Records, 2017-2022

	Rockford Region (N=114)	Peoria Region (N=101)	Metro East Region (N=82)	Marion Region (N=31)	Champaign Region (N=83)	Westchester Region - West Chicago (N=271)	Westchester Region - Suburban Cook (N=382)	Westchester Region - Chicago (N=1,456)
Place of Death (as recorded on death certificate)								
Decedent's Home	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)	0 (0%)
Emergency Shelter	7 (6.1%)	4 (4.0%)	4 (4.9%)	1 (3.2%)	5 (6.0%)	7 (2.6%)	7 (1.8%)	40 (2.7%)
Hospice Facility	0 (0.0%)	0 (0.0%)	5 (6.1%)	0 (0.0%)	0 (0.0%)	8 (3.0%)	14 (3.7%)	46 (3.2%)
Hospital	56 (49.1%)	47 (46.5%)	28 (34.1%)	12 (38.7%)	36 (43.4%)	109 (40.2%)	202 (52.9%)	559 (38.4%)
Hotel or Motel	2 (1.8%)	4 (4.0%)	1 (1.2%)	0 (0.0%)	3 (3.6%)	20 (7.4%)	16 (4.2%)	19 (1.3%)
Nursing Home or Long Term Care Facility	3 (2.6%)	5 (5.0%)	8 (9.8%)	2 (6.5%)	5 (6.0%)	29 (10.7%)	12 (3.1%)	28 (1.9%)
Park, Forest, Wooded Area, Field, Riverbank, Yard	3 (2.6%)	3 (3.0%)	3 (3.7%)	4 (12.9%)	0 (0.0%)	6 (2.2%)	12 (3.1%)	40 (2.7%)
Parking Lot, Alley, Sidewalk, Street, Vacant Lot, Bridge, Abandoned Bldg, Railroad, Train Station, Bus Stop, Airport	9 (7.9%)	10 (9.9%)	16 (19.5%)	4 (12.9%)	9 (10.8%)	21 (7.7%)	45 (11.8%)	154 (10.6%)
Public Building, including park district, police station, restaurant, library, school, businesss	2 (1.8%)	1 (1.0%)	1 (1.2%)	0 (0.0%)	2 (2.4%)	2 (0.7%)	5 (1.3%)	13 (0.9%)
Residence Unknown	0 (0.0%)	0 (0.0%)	2 (2.4%)	1 (3.2%)	0 (0.0%)	12 (4.4%)	2 (0.5%)	27 (1.9%)
Residence of Family or Friend	7 (6.1%)	6 (5.9%)	2 (2.4%)	1 (3.2%)	4 (4.8%)	8 (3.0%)	7 (1.8%)	54 (3.7%)
Scene - Unspecified	3 (2.6%)	3 (3.0%)	2 (2.4%)	2 (6.5%)	5 (6.0%)	4 (1.5%)	15 (3.9%)	133 (9.1%)
Temporary Residence and Transitional Housing	18 (15.8%)	16 (15.8%)	9 (11.0%)	4 (12.9%)	13 (15.7%)	44 (16.2%)	41 (10.7%)	330 (22.7%)
Vehicle	0 (0.0%)	2 (2.0%)	1 (1.2%)	0 (0.0%)	1 (1.2%)	0 (0.0%)	2 (0.5%)	9 (0.6%)
Unknown	4 (3.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.4%)	2 (0.5%)	4 (0.3%)
Disposition Method								
Burial	21 (18.4%)	17 (16.8%)	22 (26.8%)	7 (22.6%)	15 (18.1%)	49 (18.1%)	96 (25.1%)	282 (19.4%)
Cremation	90 (78.9%)	84 (83.2%)	59 (72.0%)	22 (71.0%)	65 (78.3%)	216 (79.7%)	282 (73.8%)	1,161 (79.7%)
Donation	3 (2.6%)	0 (0.0%)	1 (1.2%)	0 (0.0%)	2 (2.4%)	5 (1.8%)	3 (0.8%)	10 (0.7%)
Entombment	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (1.2%)	1 (0.4%)	1 (0.3%)	2 (0.1%)
Other	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (6.5%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.1%)

Contributing Causes of Death of People Experiencing Homelessness by Public Health Regions
Statewide Illinois Death Records, 2017-2022

Contributing Cause of Death*	Rockford Region (N=114)	Peoria Region (N=101)	Metro East Region (N=82)	Marion Region (N=31)	Champaign Region (N=83)	Westchester Region - West Chicago (N=271)	Westchester Region - Suburban Cook (N=382)	Westchester Region - Chicago (N=1,456)
Infectious Diseases	7	17	6	2	4	15	25	81
HIV Positive	2	1	2	0	0	0	4	16
Septicemia	6	13	4	2	4	13	19	58
Hepatitis	0	2	0	0	0	2	2	6
Cancer	8	10	9	4	9	20	34	91
Head and Neck	2	0	0	0	1	0	1	7
Colon	1	0	1	0	2	1	2	9
Pancreas	0	0	0	0	2	1	4	3
Bronchus, Lung	2	1	5	1	1	9	7	21
Congenital malformations, deformations, and chromosomal abnormalities	0	0	0	0	0	2	2	5
Disease of blood forming organs	0	4	2	0	1	5	5	21
Endocrine, metabolic, and nutritional diseases	10	13	10	5	9	22	29	146
Diabetes	5	10	7	3	7	15	16	74
Nutritional Deficiencies	2	2	1	0	0	2	1	7
Fluid and Electrolyte Disorders	3	0	1	0	0	4	3	13
Disease of the circulatory system	35	34	33	11	36	104	125	511
Hypertension	5	8	11	2	9	33	52	201
Acute Myocardial Infarction and Cardiac Arrest	10	8	14	8	10	21	26	51
Congestive Heart Failure	4	8	4	1	8	15	14	35
Atherosclerotic Heart Disease	4	8	10	2	12	37	32	111
Cerebral Occlusion, Stenosis, Hemorrhage, Stroke	4	3	0	0	5	8	13	30
Diseases of the nervous system	5	4	7	1	2	20	13	32
Parkinsons Disease	0	1	2	0	0	4	1	4
Epilepsy	2	1	1	0	0	1	3	3
Diseases of the digestive system	5	10	8	4	6	24	22	79
Liver Diseases, Alcohol-Related	1	4	1	2	4	8	7	17
Liver Cirrhosis	1	0	1	1	0	4	7	20
Diseases of the genitourinary system	9	8	2	2	6	15	16	49
Chronic Renal Failure	2	4	1	0	1	6	9	21
Diseases of the respiratory system	21	24	16	8	16	49	66	163
Chronic Obstructive Pulmonary Disease	6	10	5	3	5	20	20	53
Respiratory Failure	10	11	8	5	11	20	24	60
Diseases of the skin and subcutaneous tissue	0	2	0	0	0	1	2	7
Diseases of the musculoskeletal system and connective tissue	0	2	1	0	0	1	2	15
Injury and poisoning	50	38	35	13	37	121	158	660
Drug-Related Overdose**	31	17	23	7	23	80	115	534
Traumatic Injury	17	20	11	9	13	37	52	150
Work-Related Death	0	0	0	0	0	1	0	0
Suicide***	4	2	1	0	3	6	10	16
Homicide***	6	8	1	1	2	5	9	42
Excessive Heat	0	0	2	0	0	1	0	1
Excessive Cold	1	2	2	0	0	11	15	65
Certain conditions originating in the perinatal period	2	0	0	0	1	2	5	16

*Counts of cases are not independent. Each decedent can have more than one contributing cause of death.

**Drug overdose only includes cases where a drug was identified as a contributing cause of death. There were cases that tested positive for illicit drugs but it was not attributed to the death.

***Both suicides and homicide total counts include cases not involving traumatic injury from poisoning

Positive Toxicology Screening for Drugs Associated with Substance Use Disorders on Illinois Death Records by Public Health Regions
Statewide Illinois Death Records, 2017-2022

	Rockford Region (N=114)	Peoria Region (N=101)	Metro East Region (N=82)	Marion Region (N=31)	Champaign Region (N=83)	Westchester Region - West Chicago (N=271)	Westchester Region - Suburban Cook (N=382)	Westchester Region - Chicago (N=1,456)
Number of Drugs Known to be Abused Noted in Toxicology Screen								
None	82 (71.9%)	77 (76.2%)	58 (70.7%)	22 (71.0%)	54 (65.1%)	173 (63.8%)	243 (63.6%)	851 (58.4%)
1	12 (10.5%)	17 (16.8%)	10 (12.2%)	6 (19.4%)	18 (21.7%)	46 (17.0%)	57 (14.9%)	174 (12.0%)
2	15 (13.2%)	2 (2.0%)	9 (11.0%)	2 (6.5%)	6 (7.2%)	28 (10.3%)	23 (6.0%)	137 (9.4%)
3	5 (4.4%)	4 (4.0%)	2 (2.4%)	0 (0.0%)	3 (3.6%)	15 (5.5%)	25 (6.5%)	137 (9.4%)
4 or more	0 (0.0%)	1 (1.0%)	3 (3.7%)	1 (3.2%)	2 (2.4%)	9 (3.3%)	34 (8.9%)	157 (10.8%)
Substances Known to be Abused	32 (28.1%)	24 (23.8%)	24 (29.3%)	9 (29.0%)	29 (34.9%)	98 (36.2%)	139 (36.4%)	605 (41.6%)
Alcohol	5 (4.4%)	9 (8.9%)	6 (7.3%)	5 (16.1%)	12 (14.5%)	40 (14.8%)	68 (17.8%)	245 (16.8%)
Opioids	27 (23.7%)	10 (9.9%)	18 (22.0%)	3 (9.7%)	14 (16.9%)	64 (23.6%)	89 (23.3%)	451 (31.0%)
Fentanyl Analogs and Precursors	25 (21.9%)	7 (6.9%)	17 (20.7%)	1 (3.2%)	13 (15.7%)	50 (18.5%)	74 (19.4%)	395 (27.1%)
Acetylfentanyl (Analog)	5 (4.4%)	4 (4.0%)	2 (2.4%)	0 (0.0%)	2 (2.4%)	8 (3.0%)	8 (2.1%)	48 (3.3%)
4-ANPP (4-Anilino-N-phenethylpiperidine or Despropionyl fentanyl; Precursor)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (3.2%)	0 (0.0%)	5 (1.8%)	48 (12.6%)	253 (17.4%)
Butyryl Fentanyl (Analog)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.4%)	0 (0.0%)	1 (0.1%)
Carfentanil (Analog)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (0.1%)
Cyclopropyl Fentanyl (Analog)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (0.5%)	7 (0.5%)
Fentanyl	25 (21.9%)	7 (6.9%)	17 (20.7%)	1 (3.2%)	13 (15.7%)	50 (18.5%)	74 (19.4%)	395 (27.1%)
4-Fluoroisobutyryl Fentanyl (4-FIBF; para-fluoroisobutyryl Fentanyl; Analog)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
2-Furanyl Fentanyl (Fu-F; Analog)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	6 (0.4%)
Methoxyacetyl Fentanyl (Analog)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.1%)
Norfentanyl (Metabolite)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.1%)
Para-Fluorobutyryl Fentanyl (4-Fluorobutyryl fentanyl; 4-FBF; Analog)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.4%)	0 (0.0%)	1 (0.1%)
Valerylfentanyl	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.1%)
Heroin	8 (7.0%)	4 (4.0%)	4 (4.9%)	0 (0.0%)	5 (6.0%)	23 (8.5%)	29 (7.6%)	172 (11.8%)
Methadone	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	3 (1.1%)	5 (1.3%)	27 (1.9%)
Unspecified Opioids	3 (2.6%)	2 (2.0%)	3 (3.7%)	3 (9.7%)	1 (1.2%)	9 (3.3%)	19 (5.0%)	47 (3.2%)
Stimulants	9 (7.9%)	9 (8.9%)	10 (12.2%)	4 (12.9%)	10 (12.0%)	40 (14.8%)	58 (15.2%)	251 (17.2%)
Amphetamine	1 (0.9%)	7 (6.9%)	8 (9.8%)	4 (12.9%)	6 (7.2%)	5 (1.8%)	7 (1.8%)	20 (1.4%)
Cocaine	8 (7.0%)	2 (2.0%)	4 (4.9%)	0 (0.0%)	6 (7.2%)	35 (12.9%)	54 (14.1%)	238 (16.3%)
Methylphenidate	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Other Stimulants	0 (0.0%)	1 (1.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (0.7%)	1 (0.3%)	2 (0.1%)
Sedative-Hypnotics and Anxiolytics	2 (1.8%)	1 (1.0%)	3 (3.7%)	0 (0.0%)	2 (2.4%)	4 (1.5%)	17 (4.5%)	69 (4.7%)
Barbiturates	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (1.2%)	0 (0.0%)	1 (0.3%)	2 (0.1%)
Benzodiazepines	0 (0.0%)	1 (1.0%)	0 (0.0%)	0 (0.0%)	1 (1.2%)	1 (0.4%)	7 (1.8%)	30 (2.1%)
Other Sedative-Hypnotics and Anxiolytics (including Chlordiazepoxide, Etizolam, Gabapentin, and Xylazine)	2 (1.8%)	0 (0.0%)	3 (3.7%)	0 (0.0%)	0 (0.0%)	3 (1.1%)	12 (3.1%)	39 (2.7%)
Cannabinoids	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Hallucinogens (including Ketamine, PCP, LSD, MDA, MDMA)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.4%)	4 (1.0%)	7 (0.5%)
Inhalants and Other Volatile Solvents	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)
Muscle Relaxants and Related Drugs	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	2 (0.1%)
Other Polysubstance Use	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.1%)
Any Respiratory Depressant and Sedative	9 (7.9%)	11 (10.9%)	10 (12.2%)	5 (16.1%)	15 (18.1%)	46 (17.0%)	84 (22.0%)	306 (21.0%)
Carbon Monoxide (ICD-10 T58)	0 (0.0%)	2 (2.0%)	0 (0.0%)	0 (0.0%)	0 (0.0%)	1 (0.4%)	1 (0.3%)	3 (0.2%)

*Not all decedents have an autopsy and type of toxicology tests available vary widely by jurisdiction which will impact the level of detail available on the toxicology screen

Counts of cases are not independent. Each case can test positive to more than one agent.

Appendix C: Procedures and Methodology

CHAPTER: BACKGROUND

Data Sources

Sources for Counts of People Experiencing Homelessness

The objective of this report was to utilize three data sources to estimate the total population of people experiencing homelessness (PEH). The three data sources are as follows:

1. Point in Time (PIT) Counts

2. Deduplicated Homeless Management Information System (HMIS) Data

3. Doubled-Up Household Estimates based on American Community Survey (U.S. Census Bureau)

Homeless Management Information System (HMIS) Data

HMIS is a software application that integrates data on people receiving services from homeless service providers within a continuum of care (CoC) area. The purpose of HMIS is to help providers coordinate and optimize services. HMIS is managed by local continuums of care, of which Illinois has 19. While it was designed primarily to improve the efficiency of service providers, it can be used to count sheltered and unsheltered PEH and evaluate programs. Per HUD guidelines, all programs submit client names, Social Security numbers, dates of birth, race-ethnicity, gender, veteran's status, disabling conditions, residence before program entry, ZIP codes of last permanent address, and program entry and exit dates. Some programs also submit data regarding income, education, physical disabilities, developmental disabilities, HIV status, mental health conditions, substance use disorders, history of domestic violence, services received, destination, and reasons for leaving a program.

Comprehensive HMIS data systems were not able to be utilized for this report. While no current data systems that provide population estimates of the homeless population provide complete estimates of PEH, HMIS provides the most accurate estimate of the annual population of those experiencing literal homelessness as defined by HUD. This includes counts of unsheltered individuals living in rough sleeping encampments if they were contacted by a service provider. For example, in Chicago between 2016 and 2022, for each person counted on the PIT there were an additional 4 to 9 people accessing homeless services during the rest of a calendar year captured in HMIS data.

However, HMIS data also has limitations. It does not capture information regarding any PEH or housing instability who do not utilize HMIS-related housing or homelessness services, which includes those temporarily living with friends and family following the loss of housing (e.g., "doubled-up").

Point-in-Time (PIT) Counts of People Experiencing Homelessness

The U.S. Department of Housing and Urban Development (HUD) Point-in-Time (PIT) counts (USHUD, 2024) were used. All 19 continuum of care (CoC) jurisdictions in Illinois participate in the annual count of sheltered and unsheltered people experiencing homelessness. The count is managed, planned, and executed by local CoCs and submitted to HUD. However, because the PIT count of sheltered and unsheltered people occurs on a single night of the year, it misses (1) people experiencing episodic homelessness not occurring on the night of the count, (2) all unsheltered people who have no contact with service providers or do not want to be counted, and (3) those doubling up with family and friends.

While PIT estimates are recognized to undercount people experiencing homelessness, the PIT counts are a valuable source for denominator estimates because the data are (1) readily available; (2) provide counts of PEH stratified by age, gender (including transgender, gender non-conforming), race-ethnicity, veteran status, type of shelter (e.g., ES, TH); and (3) provide counts by CoC jurisdiction.

Twelve CoCs were unable to provide complete sheltered and unsheltered PEH counts in 2021 because of the COVID-19 pandemic and a minority of CoC jurisdictions were unable to provide complete counts sporadically in other years. For calculating statewide annual crude mortality rates by demographic characteristics, the 2021 PIT counts were corrected using the average between the 2020 and 2022 PIT counts (Mortality Chapter). For calculating crude average annual rates by CoC, the average count of unsheltered and sheltered people was used only for years where a complete count was reported in a given CoC jurisdiction (Mortality Chapter).

Estimating Doubled-Up Households from ACS PUMS

The number of people in doubled-up households was estimated using the American Community Survey Public Use Microdata Sample (ACS PUMS; IPUMS USA 2024). ACS is a random sample of 1 in 100 U.S. residents, collecting person and housing unit level data. The annual data files of the one-year ACS PUMS data for 2017-2022 were used. The ACS PUMS had separate data files for housing unit and person-level information. For each year, the housing and person datasets were linked according to guidelines in the technical documentation (U.S. Census, 2024). Because of unstable estimates, the study was only able to provide counts of people doubling-up at the state level.

Methods developed by Richard et al (2022) were used to estimate the total number of people living doubled up in Illinois. The SAS code provided in the supplemental materials was used and the instructions were followed on how to create the PUMS dataset through ACS PUMS (Richard 2022). The modified SAS code for estimating doubled-up people in Illinois is publicly available upon request from the UIC research team.

This measure was constructed based on households and individuals who met the following criteria (see Richards, 2022 for a more detailed description):

1. Household income is less than 125% (lower estimate) or 200% (upper estimate) of the poverty line.

    AND

2. Living in an overcrowded household, defined as more than two people per bedroom.

    AND

3. Someone who lives with relatives who, based on age and relationship, are non-dependents or living arrangements include a non-relative or non-partner.

Estimates of doubling up were calculated using a modified household income of less than 200% of the poverty line. The cut-off of 125% is conservative and likely excludes many households that are doubling up for economic reasons, particularly households with multiple dependents. Many federal and state agencies use the modified 200% above the poverty line cut-off. The lower estimate included individuals living in a household with income below 125% of the federal poverty level that met 1 of the 3 above criteria. The upper estimate included individuals living in a household with income below 200% of the federal poverty level that met 1 of the 3 above criteria. Guidance by Richard et al. (2022) was followed for calculating the poverty line cut-offs, including modifying the median gross rent by year. The median gross rent for a two-bedroom apartment in Illinois by year was as follows: 2017-$977; 2018-$1,000; 2019-$1,023; 2020-$1,035; 2021-$1,107; and 2022-$1,197 (American Community Survey, 2024)

SAS survey procedures were used to obtain estimates. The jackknife variance method was used with 80 replicate weights to estimate the standard error.

CHAPTER: MORTALITY OF PEOPLE EXPERIENCING HOMELESSNESS IN ILLINOIS, 2017-2022

Data Source: Death Certificates

Illinois state law mandates that all death certificates be filed with the Illinois Department of Public Health. These records are typically submitted by funeral home directors with pertinent medical information provided by an attending physician. Death certificates are sent to the local registrar who then forwards them to the IDPH Division of Vital Records. For this analysis, all deaths reported to IDPH occurring between January 1, 2017 and December 31, 2022 were analyzed. Death records included all deaths of Illinois residents, including residents who died outside of Illinois, and non-residents who died within Illinois. Death certificates include data on the decedent's age, race-ethnicity, marital status, veteran status, level of education, birth country/state, date of death, smoking history, pregnancy status, occupation, industry, autopsy findings (if conducted), place of death, disposition method, the relationship of the informant to the decedent, immediate and contributing causes of death, and toxicology finding. For each decedent, up to 20 fields are capturing contributing causes of death using the International Classification of Diseases 10th Revision (ICD-10) coding. The coding of cause of death can be affected by variations in medical practice and diagnostic labeling.

While death certificates do not capture housing status, they do capture the last known residential address, the address of death, and a descriptor of the death location. Information was used regarding the location of death, residence at time of death, and narrative fields to identify potential people who experienced homelessness before death.

Inclusion Criteria Mortality Analysis

Death certificates do not capture specific information on homelessness. For this reason, strategies developed by public health researchers in Minnesota, Boston, Los Angeles County, and San Francisco were used to identify deaths involving PEH (Fine 2023; Minnesota Department of Health 2023; LACDPH 2023; Cawley 2022).

For this report, all cases that met the following criteria were included:

1. Any narrative fields on the death certificate containing a homelessness-related keyword (e.g., homeless, indigent).

        OR

2. All death certificates with an unknown residential address (e.g., "no fixed abode" and "no known residence").

        OR

3. All death certificates with a street address that matched any of the state's emergency shelters (ES), transitional housing facilities (TH), safe havens (SH), and migrant shelters.

        OR

4. All death certificates with keywords that matched any of the project, facility, or agency names of the state's emergency shelters (ES), transitional housing facilities (TH), safe havens (SH), and migrant shelters (e.g., Hope Haven, Salvation Army).

Diagram of Inclusion Criteria: Identifying People Experiencing Homelessness in Death Certificates

Illinois Death Certificates, January 1, 2017 and December 31, 2022.
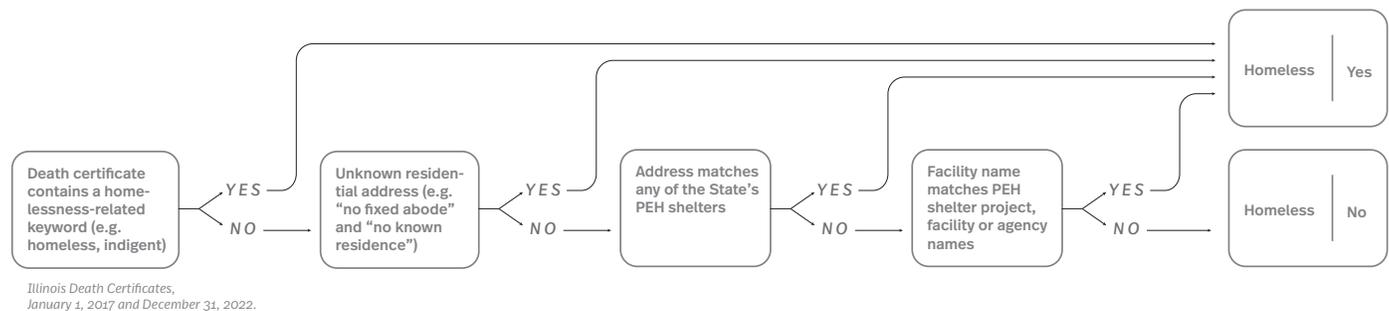
Identifying PEH using keywords

An aggregate list of keywords and phrases was developed based on HUD guidance documentation, documentation by the National Health Care for the Homeless Council (NHCHC 2021), a description of methods in published research, guidance from OPEH and the Cook County Medical Examiner, and UIC School of Public Health past research. After the first pass using a broad list of keywords, the records were validated by reviewing all the location variables and narrative fields to confirm the status of homelessness and eliminate false matches.

In the final inclusion criteria, only the following terms to identify PEH were used:

encampment	lives in van	recovery housing	transient
homeless	lives in vehicle	room key	transitional housing
indigent	lives in shed	shelter	undomiciled
lives in car	lives in camp	skid row	unsheltered
lives in tent	lives in trailer	temporary	vagrant

The keywords that flagged the most homelessness cases were "homeless," "shelter," "temporary," "transitional housing," and "recovery housing." These terms were searched in the following fields on the death certificate: (1) facility name of location of death (item 7b on death certificate), (2) facility address of location of death (item 7b on death certificate), (3) place of death

(item 7c on death certificate), (4) residential address(item 13a-g on death certificate), (5) place of injury (item 32 on death certificate), (6) description of how injury occurred (item 35 on death certificate), (7) decedent's usual occupation (item 50 on death certificate; homeless is listed as occupation), and (8) business/industry (item 51 on death certificate; homeless is listed as industry).

Many keywords were eliminated or modified as recommended in the literature for identifying PEH because they primarily captured deaths of people dying in outdoor settings related to drug overdoses, homicides, suicides, and motor vehicle crashes. However, these cases were too vague and unclear to determine if the death involved a person experiencing homelessness. Nearly all the death certificates with these keywords had a residential address provided and an immediate family member identified the body (informant relation). While unable to verify PEH status, some of these excluded deaths that had these keywords may involve PEH.

The following keywords were excluded or modified because they resulted in a high proportion of false matches after reviewing the location variables and narrative fields:

- "tent" - All death records were clear false matches and matched on a substring of the following words: detention, tenth, persistent, stent, patent. It also identified people camping in tents recreationally. The term was replaced with "lives in tent," which was consistent with the wording used on Illinois death certificates.

- "shed" - Almost all death records were clear false matches and matched on a substring of the following words: "rushed" or "while working in a shed at home." The term was replaced with "lives in shed," which was consistent with the wording used on Illinois death certificates.

- "PEH" - All death records were clear false matches and matched on a substring of the following words: Tepehuanes (Mexico). "Homeless" was used instead, which was consistent with the wording used on Illinois death certificates. No death certificates using PEH about people experiencing homelessness were found. In future iterations, if the term "PEH" is adopted by those completing death certificates, the term will be added to the inclusion criteria and restrict string matches to only words not containing any prefix/suffix alphanumeric values (i.e., match on whole word PEH and ignore words containing the string xx"peh"xx).

- "institution" - All death records identified were clear false matches and matched on substrings of the following words: correctional institution. No adequate substitute keyword was identified to replace "institution."

- "bus bench" - Almost all death records were clear false matches involving people dying near or at a bus bench. The status of homelessness could not be verified. In nearly all cases, a residential address was provided, and an immediate family identified the body (informant relation). If other PEH keywords were provided, these cases were coded as involving PEH.

- "bus stop" - Almost all death records were clear false matches involving people dying near or at a bus stop. The status of homelessness could not be verified. In nearly all cases, a residential address was provided, and an immediate family identified the body (informant relation). If other PEH keywords were provided, these cases were coded as involving PEH.

- "camp" - Almost all death records were clear false matches involving deaths while camping recreationally. This term was replaced with "lives in camp" or "encampment," which was consistent with the wording used on Illinois death certificates.

- "dumpster" - Almost all death records were clear false matches involving drug overdoses, homicides, or suicides, or were too vague and unclear to determine if the death involved a PEH.

- "exposure" - Almost all death records were clear false matches involving cold or heat exposures, but the narratives were too vague and unclear to determine if the death involved a PEH.

- "freeway" - Almost all death records were clear false matches involving motor vehicle crashes or suicides and were too vague and unclear to determine if the death involved a PEH.

- "overpass" - Almost all death records were clear false matches involving motor vehicle crashes or suicides and were too vague and unclear to determine if the death involved a PEH.

- "shopping cart" – This term was not used in Illinois death certificates during this period. It also appears to be too vague and unclear to determine if the death would involve a PEH.

- "trailer" - Almost all death records were clear false matches involving motor vehicle crashes (tractor-trailer). This term was replaced with "lives in trailer," which was consistent with the wording used on Illinois death certificates.

- "train track" - Almost all death records were clear false matches involving homicides or suicides and were too vague and unclear to determine if the death involved people experiencing homelessness.

Below is a complete list of keywords/terms removed from the initial inclusion criteria.

Excluded keywords/phrases that resulted in too many false matches or unclear PEH deaths

Nearly all the cases identified using the keywords and phrases listed below involved suicides, homicides, drug overdoses, and motor vehicle crashes, but they had a residential address. The research team reviewed the narrative fields for these records, and it was unclear if any involved people experiencing homelessness. The list below could be truncated to key substrings of text, but a longer list is presented to show the actual phrasing used on Illinois death certificates.

abandoned building	driveway	lagoon	roadside
abandoned farm	embankment next to rd	lake	roadway
abandoned home	empty grassy lot	landfill	rural area
abandoned house	farm field	lawn of church	rural setting
access rd	field	location found in truck	rural wooded area
access road	flying j park	metro link station	rural wooded lot
alley	forest preserve	national forest	ship yard
alleyway	found in car	near gravel	side of rd
behind building	found in drway	off of rdway	side of rdway
behind business	found in parked car	on st	side of road
behind the residence	found in vehicle	on street	side of roadway
boatyard	gangway	outbuilding	sidewalk
bridge	gas station bathroom	outside	state campground
camp ground	gas station parking lot	outside on ground	state park
camper located on premises	gravel pit	park	storage building
campground	hwy	parked car	storage facility
car	in a grassy ditch	parked truck	store parking lot
cemetery	in a shed	parking garage	train station
church	in automoblie	parking lot	train track
city park	in car	plowed field	under bridge
city park lot	in field	pond	vacant apartment
cornfield	in parked automobile	railrd track	vacant building
creek	in parked vehicle	railroad track	vacant home
creek bed	in parking lot	rdside	vacant house
dead in vehicle	in parking lot	rdway	vacant lot
decedent automobile	in semi truck	rear alley	vehicle
decedents vehicle	in truck	rear lot	viaduct
ditch	in van	residential yard	woods
ditch next to rd	in vehicle	rest area	
drainage ditch	in wooded area	river	
	inside vehicle	river edge	

Identifying PEH with an "Unknown" Residential Address

In the next stage of identifying PEH, death certificates with an unknown residential address (item 13a on the death certificate) were identified. The following text strings are used on Illinois death certificates when the residential address is unknown:

Na	no fixed address
not available	no fixed abode
Unknown	no known residence
unknown homeless	

During the validation stage, all the location variables and narrative fields were reviewed to confirm the status of homelessness and to identify clear false matches. Only 4.8% of the records with no known residential address were likely to not involve PEH. To eliminate any clear false matches, exclusion criteria were added. In cases with an unknown residential address, if the place of death variable on the death certificate indicated that the person died at their home (item 7c on death certificate; i.e., "decedent's home") or in a nursing facility, for this analysis they were not classified as PEH. In addition, if the place of injury field (item 32 on death certificate) indicated that the person died at their home (i.e., "decedent's home"), they were not classified as PEH. Adding these exclusion criteria to this stage of identifying PEH, eliminated all the likely false matches identified during the validation process. However, the excluded cases may, in fact, involve PEH who intermittently stay at a family or friend's residence (e.g., the parental residence of estranged children, with a sibling or grandparent, temporarily "crashing" at a friend's house), and people who are recently separated from a partner, or a person whose private residence was acquired by a nursing home to pay for residential costs.

Identifying PEH by Matching to PEH Housing Programs

To identify shelters and other PEH housing facilities, the housing inventory count (HUD HIC) databases for the years 2017-2022 (USHUD 2024a) were used. The HIC lists were augmented with data obtained from the Illinois Office to Prevent and End Homelessness (Chief Homelessness Officer Christine Haley; IL OPEH 2021; IL OPEH 2023; IDHS 2024), the Chicago CoC (OPEH 2023b), Google and shelterlist.com (Shelter List 2024). The comprehensive list includes emergency shelters (ES), transitional housing facilities (TH), safe havens (SH), and migrant shelters. The list does not include individuals temporarily staying with family or friends (i.e., "doubled-up" or "couch surfing"), individuals residing in privately rented or owned housing (i.e., permanent housing, HUD rental, or mortgage assistance programs), or individuals residing in institutions (e.g., jails, juvenile correctional facilities, foster care, hospital beds, detox centers, hospice, nursing facilities). Based on HUD HIC data, there are approximately 800-1,100 shelters and OPH/RRH sites with fixed addresses in Illinois. The final deduplicated aggregated master list that was used for matching with death records included:

• N= 1,150 unique addresses, but many facilities do not have an address reported (1) to protect victims of domestic violence, (2) if they have multiple sites, or (3) if the agency has changing/varying addresses.

• N=1,324 unique project and/or facility names.

• N=498 unique agency names; many agencies have multiple sites and different names for each site.

The addresses were cleaned to improve matching by removing the suffix notation at the end of street addresses (e.g., removed "st," "street") because of a high degree of variability of naming conventions used on the death certificates. For uniformity, addresses were converted to lowercase, used the unabbreviated naming convention (e.g., converted "mt" to "mount, "st" to "saint, "ft" to "fort"), and removed symbols from names and addresses (removed "-;'<.+?/(),").

Using SQL code, the city name and street address of shelters were matched to the following fields on the death certificate: (1) facility address of location of death (item 7b on death certificate), (2) place of death (item 7c on death certificate; some death certificates had an address in this field), (3) residential address (item 13 on death certificate), (4) place of injury (item 32 on death certificate; some death certificates had an address in this field), and (5) address location of injury (item 34 on death certificate). Validation of this step of the matching showed that even though multiple fields were used for matching addresses, the shelter addresses only matched to the residential address field in the death records (resid_addresslowcase). Furthermore, the validation step identified shelter addresses that had dual use for both general health care services and housing for PEH. If these death certificates did not also have a homelessness keyword, these cases were excluded because there was no means to differentiate PEH decedents from other decedents at these facilities. This included an address for a veterans' home with only 15 beds out of 304 beds designated for homeless veterans and a senior living facility that began to provide shelter to migrants in 2022.

Next, using SQL code, the project, facility, and agency names were matched to the following fields on the death certificate: (1) facility name of location of death (item 7b on death certificate), and (2) place of death (item 7c on death certificate; some death certificates had an address in this field). Validation of this step of the matching identified three primary care hospitals

that have dual use for general health care services and housing for PEH. If these death certificates did not also have a homelessness keyword, the cases were excluded. Many hospitals provide housing to PEH, but because there was no means to distinguish between deaths involving the main health care patient population and PEH, these cases were omitted.

Finally, because there was a lot of variability in how the facility names were written in the HUD HIC and other lists of shelters across years despite having the same address, a list of keywords was developed for recurring shelter names (e.g. Hope Haven, Salvation Army). After validating the matched cases, the following keywords for shelters were removed because they generated too many false matches: "haven" (many hospitals in Illinois include this term in their names), "ignite" (also a name for private medical center), "journey" (similar naming to a hospice facility), "the bridge" (similar naming to a private skilled nursing facility), and "argonne" (similar naming to a cancer center).

Statistical Analysis – Mortality Data (Death Certificates)

SAS software (v 9.4; Cary, NC) was used for all statistical analyses. As part of the descriptive analysis, the following decedent characteristics were summarized:

- Demographic characteristics, including gender, age, race and ethnicity, marital status, level of education, veteran status, birth state/country, state of residence, occupation, and industry.

- Temporal trends, including weekly, seasonal, and annual trends, including focusing on the COVID-19 pandemic.

- Spatial patterns by urban and rural counties, IDPH regions and statewide continuum of care jurisdictions.

- Autopsy information.

- Place of death, disposition of the body, and data on the key informant providing personal information about the decedent to the individual completing the death certificate.

- Contributing causes of death.

- Toxicological data.

- Information about the cause and nature of traumatic injuries.

Frequencies (percentages) were presented for categorical variables and means (standard deviation) for continuous variables. Crude mortality rates per 100 PEH were calculated for key demographic subgroups using Point-in-Time counts.

Spatial data by the seven IDPH regions d and the 19 statewide continuum of care jurisdictions is presented. The Westchester public health region into West Chicago, Suburban Cook County, and the city of Chicago is stratified. Westchester is a new region comprised of the former Bellwood and West Chicago regions. For this report, all counties with a population of less than 60,000 were defined as rural based on the definition used by the Illinois Primary Health Care Association. Rural counties were identified based on population totals reported in the 2020 U.S. Census.

The persons completing the death certificates are trained to collect information about the decedent's usual occupation -- the job the decedent worked at most of their lives. The CDC NIOSH Industry and Occupation Computerized Coding System (NIOCCS) data tool was used to code the occupation information provided on the death certificate into Standard Occupational Classification Codes (SOC). However, a large proportion of the death certificates were not coded by NIOCCS (38.3% of PEH decedent's occupations were uncoded). NIOCCS was unable to code many records even though 97.7% of occupation fields had a valid occupation inputted. For this reason, the uncoded occupations were analyzed manually. When analyzing the uncoded original job titles provided on the death certificate, the vast majority of PEH were employed in general labor rather than in a skilled trade.

CHAPTER: MORBIDITY OF PEOPLE EXPERIENCING HOMELESSNESS IN ILLINOIS, 2017-2022: ANALYSIS OF CUMULATIVE HOSPITAL UTILIZATION

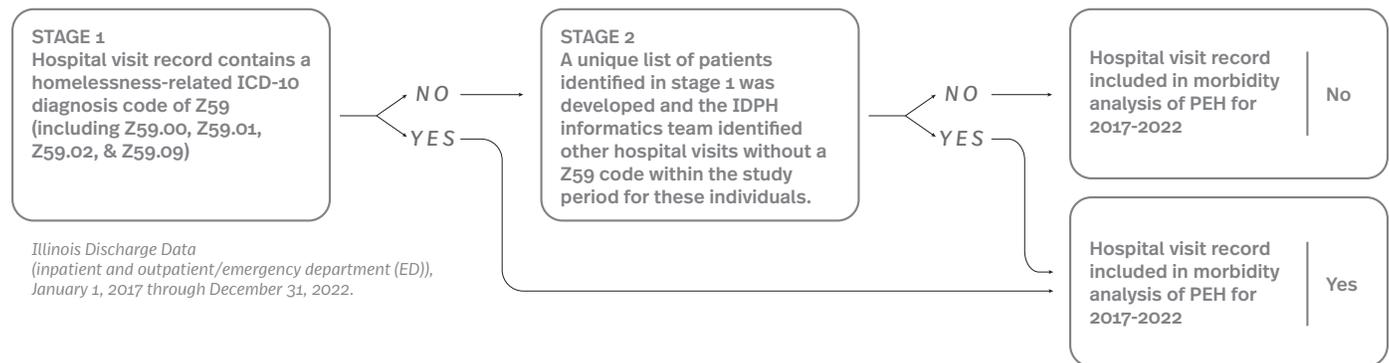### Illinois Outpatient and Inpatient Hospital Data

To assess morbidity, outpatient and inpatient hospital data was analyzed for January 1, 2017, through December 31, 2022. The outpatient database includes patients treated in emergency departments or other hospital-based outpatient services (e.g., radiologic elective procedures) for less than 24 hours who were not admitted as an inpatient to the hospital. These are referred to as ED visits throughout the report. The inpatient database includes all patients treated for 24 hours or more in Illinois hospitals for any medical reason. These are referred to as admissions throughout the report. Both datasets include information on patient demographics (age, race, gender), clinical outcomes (diagnoses, hospital procedures, and discharge status), and economic outcomes (hospital charges and payer source).

Inclusion Criteria for the Morbidity Analysis

Hospital visits involving PEH were identified in two stages.

1. **Stage 1**: All hospital records were included with an ICD-10 (this is a diagnostic coding system used by all health care entities) code of Z59 (including Z59.00, Z59.01, Z59.02, and Z59.09), which is a code used to identify patients experiencing homelessness.

2. **Stage 2**: After creating a unique list of patients who had a Z59 code shown on any ED visit or admission between 2017-2022 (stage 1), the IDPH informatics team identified other hospital visits involving these individuals where a Z59 code was not listed.

Diagram of Inclusion Criteria: Identifying People Experiencing Homelessness in Hospital Records

STAGE 1
Hospital visit record contains a homelessness-related ICD-10 diagnosis code of Z59 (including Z59.00, Z59.01, Z59.02, & Z59.09)

Illinois Discharge Data (inpatient and outpatient/emergency department (ED)), January 1, 2017 through December 31, 2022.

NO / YES

STAGE 2
A unique list of patients identified in stage 1 was developed and the IDPH informatics team identified other hospital visits without a Z59 code within the study period for these individuals.

NO / YES

Hospital visit record included in morbidity analysis of PEH for 2017-2022 — No

Hospital visit record included in morbidity analysis of PEH for 2017-2022 — Yes

In stage one, records were identified with an ICD-10 code of Z59 (including Z59.00, Z59.01 and Z59.02) for "homelessness" in accordance with previous studies using hospital data (International Classification of Diseases, Tenth Revision [ICD-10; Geneva, Switzerland: World Health Organization; 1992]; Madigan 2020; Madigan 2021). The ICD-10 Z59 code captures people who lack housing, including people living in permanent/temporary housing or a shelter, and explicitly identifies the following subgroups: nomad, nomadism (i.e., new term for hobo), social migrant, tramp, transient, vagabond, vagabondage, and vagrancy. In stage one, 179,413 visits involving PEH were identified.

However, these visits could be by the same individual, and research conducted by the UIC Office of the Vice Chancellor of Health Affairs and UI Health demonstrated that the majority of hospital visits involving people who are homeless do not have a corresponding Z59 code. To address these issues, in stage two, the IDPH informatics team identified all other hospital visits involving any person who had a Z59 code shown on any ED visit or admission. The informatics team used linkage methods to identify these other hospital visits of PEH. There are two main methods for linking data: deterministic and probabilistic. Deterministic linkage involves the exact, one-to-one character matching of pre-designated variables. This technique is frequently used when identifiers, such as name, medical record number, and Social Security number, are available. Although deterministic linkage methods intuitively provide greater confidence that different records describe one case, in practice, deterministic linkage is far more complicated. For example, misspelled names, variations in name spelling (Alex and Alexander), or errors in data entry frequently prevent the matching of cases that describe the same person. Probabilistic linkage can solve this problem and is used when identifiers are not available or to augment deterministic linkage. Probabilistic linkage requires the researcher to make assumptions regarding the probability that two different records match and allows for a decision as to which records should be included in the combined data file and attributed to a single case. This technique allows greater flexibility and offers the ability to match a larger number of cases involving the same person but would be missed by deterministic linkage alone.

To identify additional hospital visits where a Z59 code was not used, IDPH linked records on the following variables: first and last name, date of birth, and gender. IDPH standardized the format of all the variables ensuring that the variable types, lengths, cases, and codes were equivalent. In the first step, IDPH identified records that matched exactly on first and last name, date of birth, and gender (deterministic linkage) to the deduplicated list of patients who had a Z59 code used in a prior visit.

In the next step, a probabilistic approach to identify potential patient matches was used, focusing on records that haven't been matched deterministically yet. To improve the efficiency of the matching process, the patient data was first blocked by date of birth. Blocking allows for comparisons only within "blocks" (records with the same date of birth), which reduces

the number of comparisons and speeds up the process. Then matches were scored using Cosine Similarity and Levenshtein Edit Distance to refine potential matches. Cosine similarity is a measure of how similar two strings are to each other; the score ranges from 0 to 1, where a 1 is a perfect match. Levenshtein distance scores the "distance" between two strings by "counting" the minimum number of changes to a string required to make two strings identical. For example, the distance between "Jon" and "John" is 1 (Jo_n). Matches with similar scores of 0.92 or higher were classified as true matches. The model was run by the IDPH informatics team in a Python notebook within an IBM CP4D cloud environment.

In stage 2, an additional 1,249,571 hospital visits involving PEH during 2017-2021 were identified. All visits for people who ever had a Z59 code used in their hospital records between 2017-2022, including visits without a corresponding Z59 code, are captured in this dataset. However, individuals whose homelessness was never recorded by medical providers in the hospital setting are missed in this analysis. These latter cases will likely involve a disproportionate number of people who are homeless for brief periods for economic reasons in the absence of major mental health or legal risk factors (e.g., those "doubled-up" following recent eviction, foreclosure, separation). In addition, there was no means to differentiate between people who were homeless for the entire six-year period and those who experienced intermittent or short-term homelessness. A proportion of the people included in this analysis likely experienced homelessness only for a part of the six years. Data from Illinois CoCs shows that of the total sheltered and unsheltered PEH approximately 15-20% will return to homelessness within 24 months of placement in housing (USHUD 2024b). However, research does show that there are persistent adverse health effects associated with episodic, intermittent, or short-term homelessness. In addition, the demographics and health conditions identified among these patients are similar to previously published research.

Fields with personal identifiers were removed from the final dataset used for the analysis. IDPH created a unique patient identifier to identify unique patients. The UIC research team did not have access to any personal identifiers.

Statistical Analysis – Morbidity Data (Hospital ED Visits and Admissions)

SAS software (v 9.4; Cary, NC) was used for all statistical analyses. Because the focus is on cumulative hospital care utilization, total hospital visits were analyzed. Most PEH had multiple ED visits and hospital admissions between 2017-2022. Past research shows that PEH with mental health conditions have higher hospital care utilization that may skew the demographics, comorbidities, and reasons for hospital care when analyzing the data at the visit level alone. For this reason, data of unique people are summarized to better characterize patient demographics and comorbidities. In the primary analysis of hospital visits, the data is stratified by visits in which the person was identified as experiencing homelessness by the presence of a Z59 code and visits in which they were not identified as experiencing homelessness through the Z59 code. In the latter hospital visits, these individuals may be experiencing homelessness at the time of the hospital visit or have housing, reflecting intermittent housing instability. The hospital data does not provide detailed information on housing instability at the time of the visit. The data is further stratified by level of hospital care: ED visits only vs admissions to the hospital. ED visits and admissions substantially differ by several factors, such as reason for hospital visit, severity, and outcomes.

Data Stratification in Morbidity Analysis			
Hospital Admissions (inpatient)		ED Visits (outpatient)	
Visit contains Z59 Homelessness Code	Visit does not contain Z59 Homelessness Code	Visit contains Z59 Homelessness Code	Visit does not contain Z59 Homelessness Code

Identified PEH in data
2017 – 2022

Analyzed hospital visits*
by PEH Patients
2017 – 2022

All hospital visits
in Illinois, by patient

Patients with at least
one hospital visit
coded with Z59

*Visit **coded***
with Z59

*Visit **not coded***
with Z59

*Admissions and ED visits

In this analysis, data is summarized for both outpatient and inpatient cases.

• Patient characteristics (gender, age, race, and ethnicity)
• Patient comorbidities
• Reason for visit
• Insurance coverage
• Length of stay
• Total hospital costs
• Discharge status

Total hospital charges are in 2020 U.S. dollars adjusted for annual inflation using the BLS Consumer Price Index (CPI-U; BLS 2022). The Elixhauser Comorbidity Index was used to assess comorbidities (Elixhauser 1998). Current procedural terminology (CPT) used for outpatient billing and procedural codes used for inpatient billing describe medical procedures provided during the service that were billed for, such as diagnostic tests, imaging, and surgeries. Procedure codes were analyzed to identify surgical amputations and other relevant procedures. All obstetric visits and information on deliveries including complications were also summarized.

Spatial data is presented by the seven IDPH regions and the 19 statewide continuum of care jurisdictions. The Westchester public health region was stratified into West Chicago, Suburban Cook County, and the city of Chicago. Westchester is a new region comprised of the former Bellwood and West Chicago regions. For this report, counties with a population of less than 60,000 were defined as rural based on the definition used by the Illinois Primary Health Care Association. Rural counties were identified based on population totals reported in the 2020 U.S. Census.

Frequencies (percentages) are presented for categorical variables and means (standard deviation) for continuous variables. Crude hospital utilization rates per 100 PEH were calculated for key demographic subgroups using Point-in-Time counts.

CHAPTER: MORBIDITY OF PEOPLE EXPERIENCING HOMELESSNESS IN ILLINOIS, 2017-2022: ANALYSIS OF HOSPITAL DATA AT THE UNIQUE PATIENT LEVEL

Method of Deduplication and Creating a Unique Patient Dataset

While the primary analysis focuses on cumulative hospital utilization of PEH, a sub-analysis was also conducted to describe individual patients rather than total visits, because heavy hospital users may skew the data presented in the tables. Nearly all PEH (93.9%) in the hospital dataset visited an Illinois hospital more than once between 2017-2022. To identify unique people, the hospital outpatient and inpatient data files were deduplicated. IDPH created a unique numeric code for each person based on identifiable information (first and last name, date of birth, and gender). For the analysis of the unique patient dataset, a single record for each individual was retained. If a person had been admitted to a hospital, the most recent hospital admission was retained. If the person was never admitted to a hospital, then the most recent ED visit was retained. Admission data was prioritized over ED visit data because comorbidities are better characterized during hospital admissions.

To evaluate the reliability of coding, a pool of patient visits of high hospital utilizers was randomly sampled and evaluated for the consistency of reporting gender, race-ethnicity, and ICD-10 codes for comorbidities (the findings are presented in Chapter: Morbidity of People Experiencing Homelessness in Illinois, 2017-2022: Analysis of Hospital Data at the Unique Patient Level). There was a high level of agreement for gender; on only two out of 13,201 records the listed gender differed across an individual's records. In contrast, there was a higher level of incongruity for race-ethnicity. Consistent with prior research (Maizlish, 2006; Liebler, 2017; Johnson, 2023), the highest variability in reported race-ethnicity was for patients who primarily identify as Hispanic or Latino but was congruent across approximately 97% of records for those who primarily identify as non-Hispanic Black or non-Hispanic White (see Table 29). There was also a high degree of variability in the documentation of comorbidities across a patient's hospital visits. Chronic illnesses and psychiatric conditions were not consistently reported across visits. On most visits, these chronic conditions were simply omitted (not coded). However, when a chronic illness and psychiatric disorder was listed across multiple visits for the same person, similar ICD-10 codes were used.

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