

March 2025

Mortality Rates and Causes of Death Among People Experiencing Homelessness in LA County: 2017-2023



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Introduction

This is our sixth annual report on mortality rates and causes of death among people experiencing homelessness (PEH) in LA County. Using available data from the LA County Office of the Medical Examiner, the California Department of Public Health, the Los Angeles Homeless Services Authority (LAHSA), and Hedderson Demographics, the Los Angeles County Department of Public Health (DPH) has been monitoring annual trends in mortality rates and causes of death among PEH since 2019.

From its inception, this effort was designed to inform the planning and implementation of recommended strategies for preventing and reducing mortality among PEH in LA County. The recommendations in each year's report are developed by a multi-agency homeless mortality prevention workgroup with representation from multiple LA County departments, along with the LA County Chief Executive Office (CEO) Homeless Initiative and LAHSA. They are also reviewed and vetted by community stakeholders in the homeless services field and by youth and adults with lived experience of homelessness.

We are grateful for the tireless efforts of all of these organizations and individuals as we strive together to bring our unhoused neighbors indoors and work to ensure their ongoing physical and mental health and safety.

Executive Summary

2023 marked the second year in a row that the mortality rate among PEH in LA County remained high but stable, after two years of alarming increases from 2019 to 2021 (**Figure 1**). Those earlier increases were driven primarily by a rapid rise in fentanyl overdoses, but also by the COVID-19 pandemic and notable increases in transportation-related injury deaths and homicides. Despite a continued rise in drug overdose mortality in 2022 (**Figure 2**), that year saw the beginning of the current plateau in overall mortality, due to a sharp drop-off in COVID-19 deaths and a stabilization of deaths from transportation-related injuries. The continued plateau in overall mortality in 2023 was driven by a leveling-off of drug overdose mortality that year, despite an increase in coronary heart

disease (CHD) mortality and a decrease in homicide mortality. Transportation-related injury mortality remained high but stable in 2023.

The plateauing of drug overdose mortality—the leading cause of death among PEH since 2017— from 2022 to 2023 mirrors recent trends in drug overdose mortality for LA County as a whole.[1] The plateau among PEH was evident across racial and ethnic groups and for both men and women (**Figures 5 & 8**) and was likely influenced by the range of drug use treatment, prevention and harm reduction strategies that have been included and updated in our report's recommendations over the past several years. While complete data on naloxone-induced fentanyl overdose reversals are not available, recent increases in the availability of naloxone across LA County likely played a role (**Figure 3**). Two thousand twenty-three also saw a plateau in the percentage of PEH overdose deaths involving fentanyl (**Figure 10**) and a decrease in the percentage involving fentanyl alone (**Figure 13**). Nevertheless, the drug overdose mortality rate among PEH in 2023 was nearly three times greater than in 2019 so there is still much work to be done. PEH-targeted drug overdose prevention and harm reduction services (**Recommendations 4-9**), along with mental health and substance use treatment services (**Recommendations 13-15**) are critical components of this work.

The increase in CHD mortality (the second leading cause of death among PEH in LA County since 2017) in 2023 was the largest single year increase in this cause of death since we began reporting. The increase was evident among men and women (**Figure 9**) but was concentrated among White PEH (**Figure 6**). We thought this increase in CHD mortality might be related to increased identification of CHD deaths; 2023 was the first full year of implementation of new homeless fields in the California state electronic death reporting system. This state-level change in the way homeless deaths are recorded appears to have been associated with an increase in the percentage of PEH deaths identified through a review of state death records alone, i.e., because they were not Medical Examiner (ME) cases (**see Methods Appendix and Figure A-1**).

¹ LA County Alcohol and Other Drug Surveillance Dashboard

While the majority of PEH deaths meet criteria for ME investigation, those that do not are more likely to occur in hospitals and long-term care facilities from natural causes, including CHD. The availability of a new homeless checkbox in the death reporting system may make it easier for attending healthcare providers to identify these decedents as homeless. However, while the 2023 PEH deaths identified from state deaths records alone were more likely to be from natural causes compared to ME investigated deaths, they were not more likely to be caused by CHD. So, while we believe that some of the increase in the total number of PEH deaths identified in 2023 may be the result of improved state reporting methods, this does not appear to hold true for CHD deaths specifically. Regardless, one year of data does not constitute a trend, so we will wait to see the 2024 mortality data before drawing further conclusions about recent CHD mortality trends in this population. The PEH-targeted preventive and chronic health care service strategies described in **Recommendations 10-12** are critical for ensuring proper cardiac-related health care for our unhoused neighbors.

Transportation-related injury has been the third leading cause of death among PEH in LA county since we began reporting. Each year approximately 95% of these deaths occur among pedestrians and cyclists. From 2019 to 2021, the mortality rate from these traffic-related deaths increased by 50% to 253 per 100,000 (**Figure 2**), a rate that has remained virtually unchanged now for three years in a row. In 2023, an unhoused pedestrian or cyclist was killed approximately every other day in LA County by a moving vehicle (**Table 1**). That same year, PEH were 20 times more likely to die from transportation-related injuries than LA County residents as a whole (**Table 5**). PEH are more vulnerable to traffic deaths because they are more likely to live in close proximity to roadways. Thus, the housing-related recommendations in this report (**Recommendations 1-3**) are key to reducing these deaths. Meanwhile, in the coming year we will also be analyzing state traffic collision data linked to our ME data on PEH traffic deaths to inform the local policy and program strategies described in **Recommendation 17**.

With the exception of 2020 and 2021, at the height of the COVID-19 pandemic, homicide has consistently been the fourth leading cause of death among PEH in LA County (**Figure 2**). In parallel with drug overdoses and traffic deaths, the homicide rate has also risen in recent years, from 120 per 100,000 in 2019 to 213 per 100,00 in 2022, a 78% increase. Two thousand twenty-three saw a much welcome 25% decrease in homicide mortality to 159 per 100,000 (**Figure 2**). The rise in homicides among PEH paralleled a similar rise in the LA County population, although the latter rate began to fall in 2022,¹ a little ahead of the rate among PEH. We do not have data on the specific circumstances of these deaths, but living unsheltered likely puts PEH at greater risk of victimization from violent acts so our housing recommendations (**Recommendations 1-3**) are key to reducing deaths from homicide.

Rates of suicide, the fifth leading cause of death among PEH, have remained relatively stable overall since we began reporting, although 2023 saw an increase in the number of suicides among women despite a decrease among men. Mental health and housing services can also help reduce these deaths.

There are a few notable additions to our report this year. Like last year, we have included heat maps indicating geographic areas of concentration of PEH deaths overall and for some of the leading causes of death. This year we have also included tables with precise numbers of deaths by Zip Code (**Tables A-2 and A-3**). We hope these more detailed data will help with the targeting of prevention efforts, while still adhering to state data confidentiality rules.

In previous years we have calculated mortality rate ratios (MRRs) which compare all-cause and cause specific mortality rates among PEH to those in the general LA County population. In 2023, the all-cause MRR increased to 4.5, meaning that PEH died at 4.5 times the rate of the general population that year (**Figure 14**). This increase in the MRR was largely due to a decrease in the LA County mortality rate, as the rate among PEH remained relatively stable. This year we also calculated MRRs for gender and racial and ethnic sub-groups (**Table 4**).

¹ <https://lapdonline>

Most noteworthy from these new findings are the racial and ethnic differences. The mortality rate among Latino PEH was 4.8 times the rate among Latinos in the general population—close to the overall MRR for 2023. However, White PEH had a mortality rate 7.0 times greater than Whites in the general population, while mortality among Black PEH was 2.7 times greater than the rate among Black people in the general population. When considered in conjunction with our findings over the past several years that mortality rates among White PEH have been one-and-a-half to two times greater than rates among Black PEH (**Figure 4**), these new findings shed more light on racial and ethnic inequities in homelessness in LA County.

Unlike other major racial and ethnic groups, Black people are disproportionately represented among PEH in LA County, comprising 30% of the PEH population and only 9% of the general population. This suggests that Black people are at greater risk of experiencing homelessness than people of other races and ethnicities. If this greater risk of falling into homelessness is not associated with a greater risk of dying while homeless, then this could explain the smaller mortality difference between unhoused and housed Black people compared to other racial and ethnic groups. Meanwhile, among those who are already experiencing homelessness, Black mortality rates are considerably lower than White mortality rates (**Figure 4**). It has been hypothesized that this phenomenon arises because Black people are more likely to become homeless due to economic hardship and discrimination resulting from structural racism, while homelessness among White people is more often triggered by poor health, disability, and drug use.¹

In feedback sessions about our findings with LA County stakeholders, it has been suggested that lower mortality rates among Black PEH compared to White PEH could also be influenced by coping strategies Black people have developed in response to historical adversity. This is also entirely plausible and deserves further investigation.

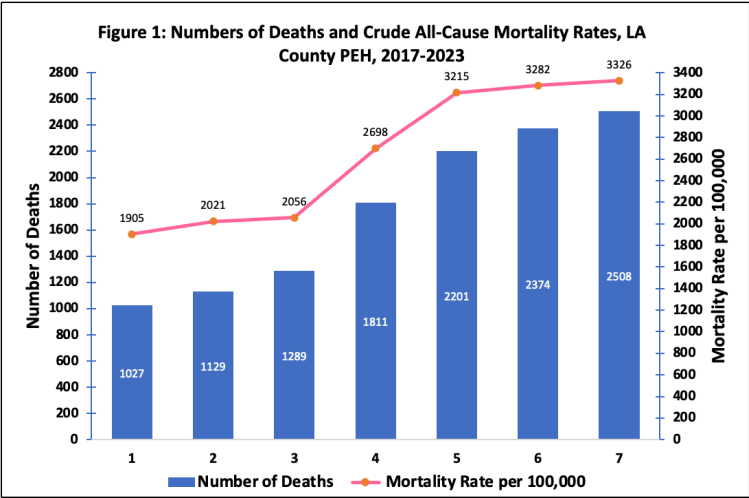
While data on racial and ethnic trends and patterns in mortality among our unhoused neighbors can help to spark additional research to explore these phenomena, our ultimate goal with these reports is to provide as complete and accurate data as possible to inform efforts to prevent and reduce mortality among all of LA County's homeless residents, which includes targeted attention to marginalized and underserved groups (**Recommendation 9**). It is our hope that the physical and mental health, substance use, safety, and housing-related strategies outlined in our recommendations will help us achieve this goal. We greatly appreciate all the input we have received from stakeholders, and we welcome and encourage continued engagement in the future.

¹Bagget TP, Hwang SW, O'Connell JJ, et. al. Mortality Among Homeless Adults in Boston. *JAMA Intern Med.* 2013; 173 (3): 189-195.

Findings and Takeaways

Number of Deaths and Crude All-Cause Mortality Rates (Figure 1)

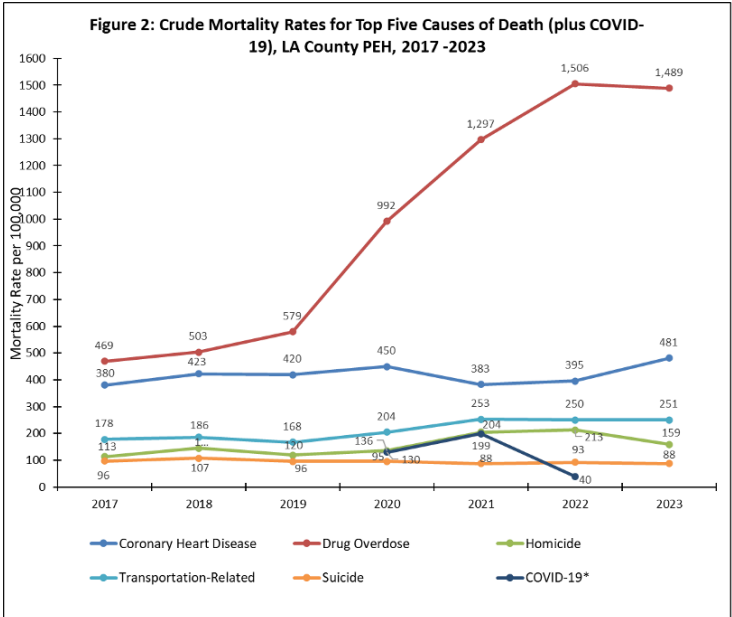
In 2023 the number of deaths among PEH increased to 2,508. Some of this increase may be due to the addition, in mid-2022, of a homeless checkbox in the state electronic death reporting system—an improvement in the way homeless deaths are counted in California (see **Methods Appendix**). The all-cause crude mortality rate, which accounts for increases in the total homeless population over time, increased to 3,326 per 100,000 in 2023. This represents a one percent increase in the mortality rate compared to the previous year, following a two percent increase in 2022.



Takeaway: After an alarming 56% increase in the all-cause mortality rate from 2019 to 2021, a leveling-off of the rate in 2022 has continued through 2023. However, the rate remains much higher than pre-2020 levels.

Crude Mortality Rates for Top Five Causes of Death (Figure 2)

With the exception of 2020 and 2021 when COVID-19 was among the top five causes of death among PEH, drug overdose, coronary heart disease (CHD), transportation-related injury, homicide, and suicide have consistently been the top five causes of death. In 2023, these five causes accounted for 75% of all deaths among PEH. In 2023, the drug overdose mortality rate remained stable at 1,489 per 100,000. The CHD mortality rate increased to 481 per 100,000. The transportation-related injury mortality rate remained stable at 251 per 100,000. Approximately 95% of these deaths each year are among pedestrians and cyclists. The homicide rate decreased to 159 per 100,000, and the suicide rate remained stable at 88 per 100,000.



¹In our May 2024 report, we reported a leveling off of the overdose mortality rate in 2022. However, we later discovered there were an unusually high number of unexplained causes of death in our 2022 provisional death file due to a backlog of Medical Examiner cases requiring toxicology testing that year. We have updated the cause-specific trends in **Figure 2** based on specified causes of death in the final 2021 and 2022 death files. The 2023 provisional death file used for this report had far fewer unexplained causes of death than the 2022 provisional file, but the 2023 overdose rate may increase slightly when we update the causes of death for next year's report.

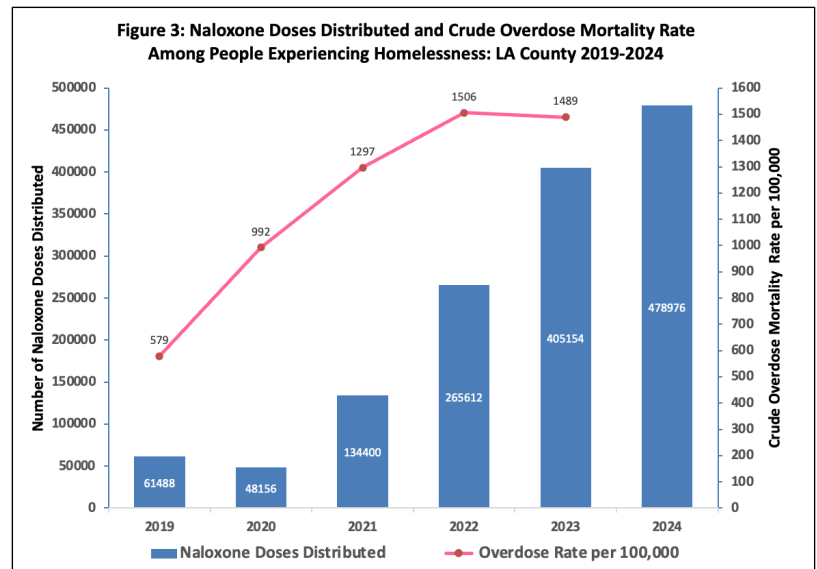
Takeaways:

1. In 2023, the drug overdose mortality rate plateaued after three years of alarming increases, but the rate remains much higher than pre-2020 levels.
2. 2023 saw the largest increase in CHD mortality since our reporting began. One year of data does not make a trend but we will continue to monitor this closely.
3. After a 50% increase in traffic-related deaths from 2019 to 2021 the rate has stabilized, but has remained stubbornly high through 2023.
4. After a 78% increase in homicide mortality from 2019 to 2022, the homicide rate decreased by 25% in 2023, although the rate is still higher than it was in 2019 and 2020.
5. The suicide rate has remained relatively stable over time.

California Naloxone Program Doses Distributed to LA County, and Drug Overdose Mortality Rates (Figure 3)

Naloxone is an opioid overdose reversal medication that has been available in California without a prescription for several years. Following the rapid rise of fentanyl (a highly potent synthetic opioid) overdoses in California beginning in 2020, the state began ramping up its distribution of naloxone to local counties as a key harm reduction strategy.

Figure 3 shows the trend in overdose mortality among LA County PEH in relation to the trend in doses of naloxone distributed to LA County service providers. While we don't yet have overdose mortality data for 2024, the number of naloxone doses distributed continued to increase in 2024, reaching 478,976 that year.



Takeaways:

1. The number of naloxone doses distributed began increasing in 2021, but it was not until 2023 that the drug overdose rate showed signs of leveling-off.
2. These data do not account for other factors that may have contributed to this leveling-off, but they suggest that this harm reduction strategy may have been associated with a reduction in overdose mortality, once a critical mass of naloxone doses was available.
3. We do not yet have 2024 data on overdose mortality, but the number of naloxone doses distributed continued to rise in 2024.

Numbers of Deaths from the Top Five Causes by Race/Ethnicity, Gender, and Age Group (Tables 1-3)

In 2023, 37% of PEH deaths were among Latino PEH who comprised an estimated 43% of the PEH population (**Appendix Table A-1**). Twenty-seven percent of the deaths were among Black PEH who comprised an estimated 32% of the PEH population. Thirty-two percent of the deaths were among White PEH who comprised an estimated 19% of the PEH population. These percentages were similar in 2022 (**Table 1**).

Cause	2022						2023						Total
	Latino	Black	White	Asian	AIAN ²	Total ³	Latino	Black	White	Asian	AIAN ²	Total ³	2022 + 2023
	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)
Drug Overdose	392	276	373	26	12	1089	408	321	356	18	12	1123	2212
	44%	45%	49%	46%	55%	46%	44%	48%	45%	38%	48%	45%	45%
Coronary Heart Disease	76	87	112	*	*	286	104	119	120	14	*	363	649
	9%	14%	15%	*	*	12%	11%	18%	15%	29%	*	14%	13%
Transportation-Related Injury⁴	83	35	56	*	*	181	74	56	54	*	*	189	370
	9%	6%	7%	*	*	8%	8%	8%	7%	*	*	8%	8%
Homicide	81	48	24	*	*	154	71	28	18	*	0	120	274
	9%	8%	3%	*	*	6%	8%	4%	2%	*	0%	5%	7%
Suicide	31	11	23	*	0	67	33	*	21	*	0	66	133
	3%	2%	3%	*	0%	3%	4%	*	3%	*	0%	3%	3%
ALL Causes of Death⁵	892	613	760	56	22	2374	926	671	791	48	25	2508	4882
	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%

* Non-zero cells with less than 11 deaths are suppressed per state vital records data reporting rules.
 1 Native Hawaiian/Pacific Islander, multiracial, and missing categories not included per state vital records data reporting rules.
 2 American Indian/Alaska Native
 3 These totals add up to more than the sum of the listed racial and ethnic groups because they include all racial and ethnic groups and responses with missing data for race and ethnicity.
 4 >95% of transportation-related injury deaths occurred among pedestrians and cyclists.
 5 These totals add up to more than the sum of the top five causes of death because they include deaths from all causes.

In 2023, 18% of PEH deaths were among female PEH who comprised an estimated 31% of the PEH population, while 82% of deaths were among male PEH who comprised an estimated 68% of the PEH population. These percentages were similar in 2022 (**Table 2**).

Cause	2022			2023			Total
	Male	Female	Total	Male	Female	Total	2022 + 2023
	n(%)	n(%)	n(%)	n(%)	n(%)	n(%)	
Drug Overdose	894	195	1089	916	207	1123	2212
	45%	49%	46%	44%	46%	45%	45%
Coronary Heart Disease	258	28	286	320	43	363	649
	13%	7%	12%	16%	10%	14%	13%
Transportation-Related Injury²	131	50	181	143	46	189	370
	7%	13%	8%	7%	10%	8%	8%
Homicide	140	14	154	100	20	120	274
	7%	4%	6%	5%	4%	5%	7%
Suicide	58	*	67	50	16	66	133
	3%	*	3%	2%	4%	3%	3%
ALL Causes of Death³	1976	398	2374	2059	448	2508	4882
	100%	100%	100%	100%	100%	100%	100%

* Non-zero cells with less than 11 deaths are suppressed per state vital records data reporting rules.
 1 In 2022, all PEH decedents were coded as male or female on the death certificate. In 2023, all but one of the PEH decedents were coded as male or female.
 2 >95% of transportation-related injury deaths occurred among pedestrians and cyclists.
 3 These totals add up to more than the sum of the top five causes of death because they include deaths from all causes.

In both 2022 and 2023 only 38% of PEH deaths occurred among those aged 55 and older. This was due in large part to the high numbers of drug overdose deaths among younger PEH (**Table 3**).

Table 3: Top 5 Causes of Death among PEH by Age Group¹, 2022 and 2023

Cause	2022						2023						Total
	18-34	35-44	45-54	55-64	65+	Total ²	18-34	35-44	45-54	55-64	65+	Total ²	
	n(%)	n(%)	n(%)	n(%)	n(%)		n(%)	n(%)	n(%)	n(%)	n(%)	n(%)	
Drug Overdose	263 60%	260 57%	253 53%	220 36%	92 30%	1089 46%	259 62%	306 60%	246 50%	237 37%	72 23%	1123 45%	2212 45%
Coronary Heart Disease	0 0%	* *	25 5%	135 22%	111 36%	286 12%	* *	* *	42 8%	160 25%	136 43%	363 14%	649 13%
Transportation-Related Injury³	53 12%	36 8%	32 7%	38 6%	21 7%	181 8%	46 11%	41 8%	41 8%	36 6%	24 8%	189 8%	370 8%
Homicide	42 10%	52 11%	31 7%	22 4%	* *	154 6%	39 9%	40 8%	20 4%	15 2%	* *	120 5%	274 7%
Suicide	25 6%	16 4%	14 3%	* *	* *	67 3%	19 5%	17 3%	16 3%	12 2%	* *	66 3%	133 3%
ALL Causes of Death⁴	440 100%	457 100%	475 100%	606 100%	305 100%	2374 100%	417 100%	513 100%	495 100%	634 100%	317 100%	2508 100%	4882 100%

* Non-zero cells with less than 11 deaths are suppressed per state vital records data reporting rules

1 There were 14 deaths from all causes among PEH <18 years old in 2022 and 2023 combined. Age data were missing for 209 PEH deaths in 2022 and 2023 combined.

2 These totals add up to more than the sum of the listed age groups because they include decedents <18 and those with missing age data.

3 >95% of transportation-related injury deaths occurred among pedestrians and cyclists

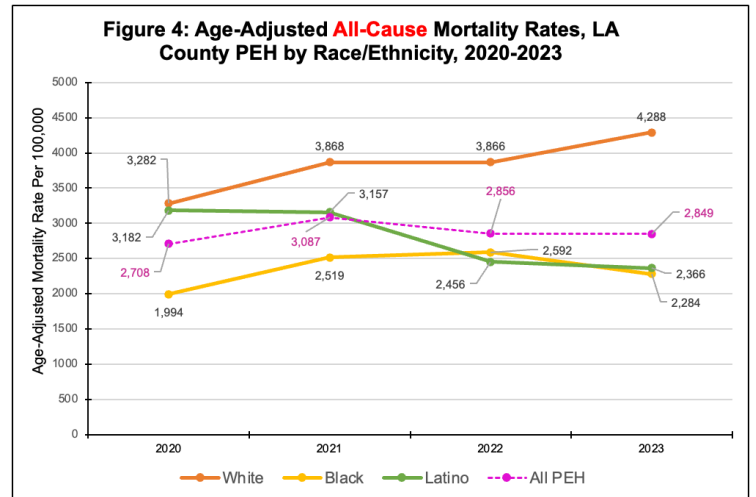
4 These totals add up to more than the sum of the top five causes of death because they include deaths from all causes.

Takeaways:

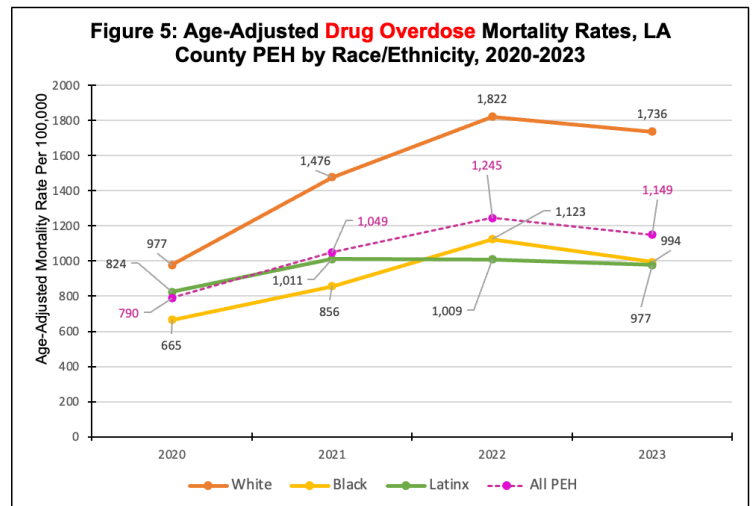
1. There were fewer homicide deaths among Latino, Black and White PEH in 2023 compared to 2022.
2. There were more CHD deaths among Latino, Black, White and Asian PEH in 2023 compared to 2022.
3. There were fewer overdose deaths among Whites in 2023 compared to 2022.
4. In 2022 and 2023 CHD was the second leading cause of death among males, but among females transportation-related injury was the second leading cause of death.
5. From 2022 to 2023, while the numbers of homicide and suicide deaths both decreased among males, they both increased among females.
6. From 2022 to 2023, the number of deaths among PEH aged 18-34 decreased overall and for each of the top five causes of death. From 2022 to 2023, the number of homicide deaths decreased for every age group.

Age-Adjusted All-Cause, Drug Overdose and Coronary Heart Disease (CHD) Mortality Rates, by Race and Ethnicity¹ (Figures 4-6)^{2, 3}

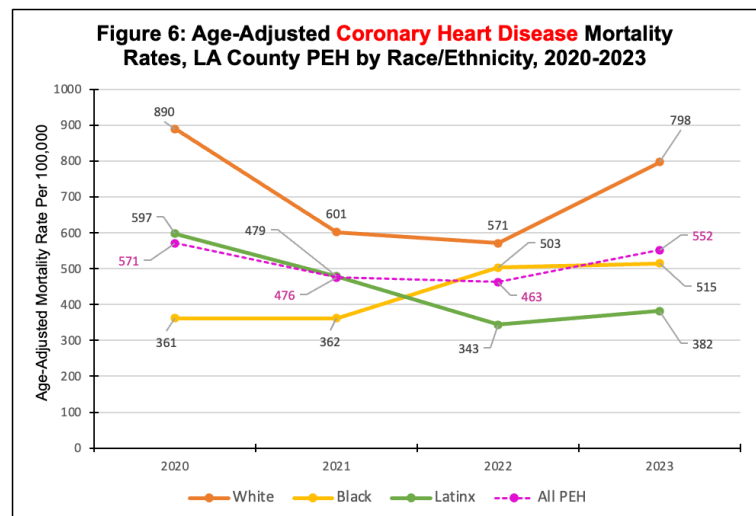
In 2023, the all-cause mortality rate increased slightly among White PEH and decreased slightly among Black PEH. Among Latino PEH the rate stabilized in 2023 after a 23% decrease in 2022. The rate has been consistently higher among White PEH compared to Black and Latino PEH and the gap widened in 2023 (Figure 4).



After two years of increases, 2023 saw a stabilizing of the drug overdose mortality rate among White PEH and an 11% decrease in the rate among Black PEH. The Latino overdose rate has remained stable since 2021. Overdose mortality has been consistently higher among White PEH compared to Black and Latino PEH (Figure 5).



2023 saw a 40% increase in CHD mortality among White PEH following a stabilizing of the rate in 2022. Among Black PEH, CHD mortality remained stable in 2023 after increasing by 40% in 2022. Among Latino PEH, CHD mortality increased by 11% in 2023 after decreasing by 43% from 2020 to 2022. CHD mortality has been consistently higher among White PEH compared to Black and Latino PEH, although the size of the gap has fluctuated from year to year (Figure 6).



We compared White-Black differences in all-cause mortality after removing overdose and CHD deaths (separately and combined) from the equation. Under each scenario, the White mortality rate remained similarly higher than the Black rate.

¹ In this section, increasing or decreasing trends that are <5% are reported as stable. Those that are >=5% but <10% are reported as slight trends. Those that are >=10% are reported as percentages. ² American Indians/Alaska Natives, Asians, and Native Hawaiians/Pacific Islanders are not included in these graphs per state vital records data reporting rules. ³ The age groupings for age adjustment of 2023 rates were slightly different from those in previous years (see Methods footnote on page 27 for more details).

Takeaways:

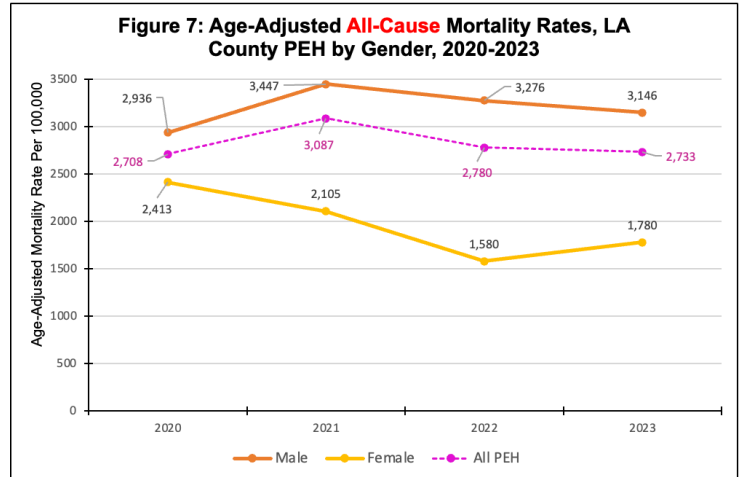
1. Since 2020, the all-cause mortality rate has been higher among White PEH than Black PEH, approaching an almost two-fold difference by 2023. This overall racial difference in mortality cannot be attributed solely to differences in drug overdose and CHD mortality.
2. Drug overdose and CHD mortality have also been consistently higher among White PEH than Black PEH, although there has been greater annual variation in CHD mortality between the two groups.
3. Researchers have found similar White-Black mortality differences among PEH in other US cities. One theory offered is that the difference can be attributed to structural racism, which makes it easier for Black people to fall into homelessness due to socioeconomic hardship alone, while White people are less likely to become homeless unless they have already suffered major trauma, ill-health, or drug use, all of which increase the risk of mortality.¹ It is also possible that Black people's development of coping strategies in response to historical adversity contributes to their lower mortality rates compared to Whites. Neither of these theories have been tested.
4. Mortality rates among Latino PEH have also been consistently lower than rates among Whites. The structural racism and coping strategies hypotheses may explain these differences as well.
5. There is some evidence that the decrease in Latino mortality rate from 2021 to 2022 was due to an increase in the proportion of PEH who were Latino in 2022 due to economic hardship during the COVID-19 pandemic. These new Latino PEH were relatively young and healthy.²

¹ Bagget TP, Hwang SW, O'Connell JJ, et al. Mortality Among Homeless Adults in Boston. *JAMA Intern Med.* 2013; 173 (3): 189-195.

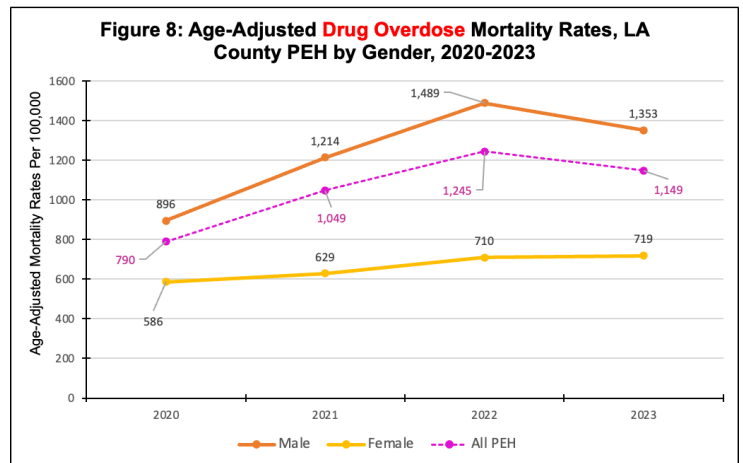
² Delgado Garcia MA, Chinchilla M, Henwood B, et al. Latino-Hispanic Unsheltered Homelessness Before and After COVID-19. *AJPH.* 2024; 114(S6): S510-S514.

Age-Adjusted All-cause, Drug Overdose and Coronary Heart Disease (CHD) Mortality Rates, by Gender¹(Figures 7-9)²

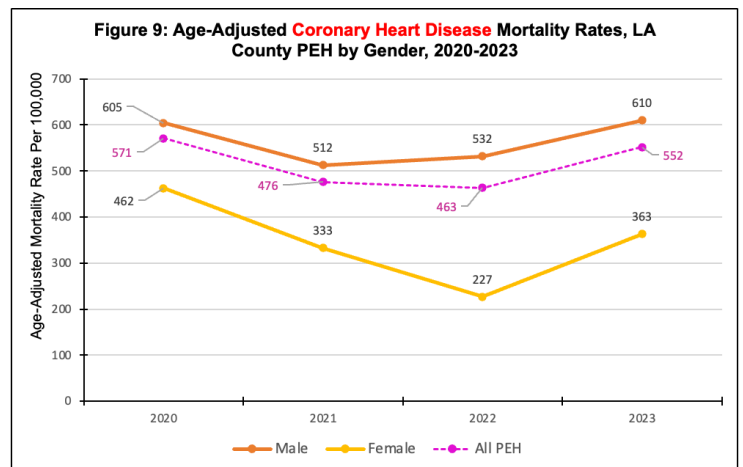
From 2021 to 2023, the all-cause mortality rate decreased slightly among males. Among females, the rate decreased by 35% from 2020 to 2022, followed by a 13% increase in 2023. All-cause mortality has been consistently higher among males compared to females and the gap has increased over time (Figure 7).



From 2020 to 2022, the drug overdose mortality rate increased by 66% among males and by 21% among females. In 2023, the overdose mortality rate decreased slightly among males and stabilized among females. The rate has been consistently higher among males compared to females and the gap has increased over time (Figure 8).



After stabilizing in 2022, the CHD mortality rate increased by 15% among males in 2023. After a sharp decrease in CHD mortality among females from 2020 to 2022, the rate increased by 60% in 2023. The CHD mortality rate has been consistently higher among males compared to females and the gap has increased over time (Figure 9).



We compared male-female differences in all-cause mortality after removing drug overdose and CHD deaths (separately and combined) from the equation. Under each scenario the male mortality rate remained similarly higher than the female rate.

¹ In this section, increasing or decreasing trends that are <5% are reported as stable. Those that are >=5% but <10% are reported as slight trends. Those that are >=10% are reported using percentages.

² The age groupings for age adjustment of 2023 rates were slightly different from those in previous years (see Methods footnote on page 27 for more details).

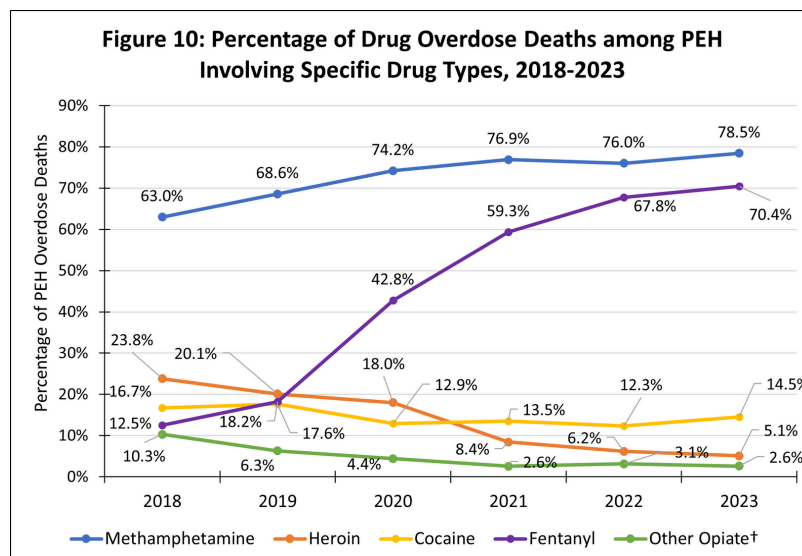
Takeaways:

1. Since 2020, the all-cause mortality rate has been higher among males than females, reaching a more than two-fold difference in 2022 before a narrowing of the gap in 2023. This overall gender difference in mortality cannot be attributed solely to differences in drug overdose and CHD mortality.
2. From 2020 to 2022, the overdose mortality rate increased more rapidly among males than females, and in 2022 the male rate was more than double the female rate. The gap narrowed in 2023 when the male rate fell slightly while the female rate remained stable.
3. Due to a sharp reduction in CHD mortality among females from 2020 to 2022, the male CHD mortality rate was more than double that of females in 2022. This was followed in 2023
- by a 60% increase in CHD mortality among females and a 15% increase among males, which narrowed the gap.
4. Across the U.S., male mortality rates are typically higher than female rates, but the gender differences are not as great as what we found among PEH in LA County. The reasons for the wide gender gap in mortality among LA County PEH are not well understood.
5. Qualitative evidence suggests that female PEH who use drugs prefer methamphetamine because its sleep depriving effects protect them from potential predators.¹ Methamphetamine is less deadly than fentanyl, which could partially explain the lower overdose mortality rate among females compared to males.

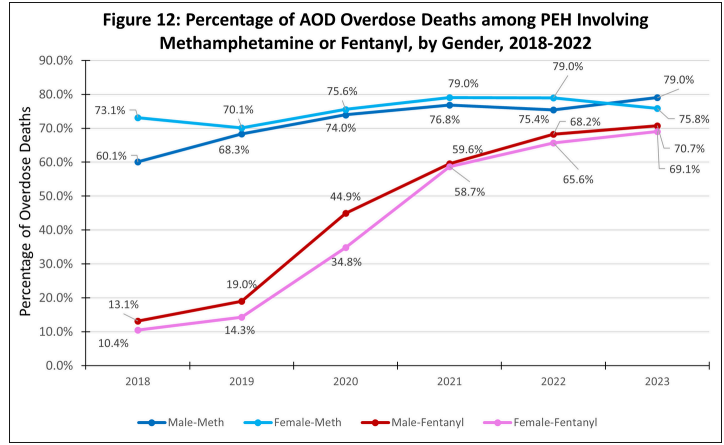
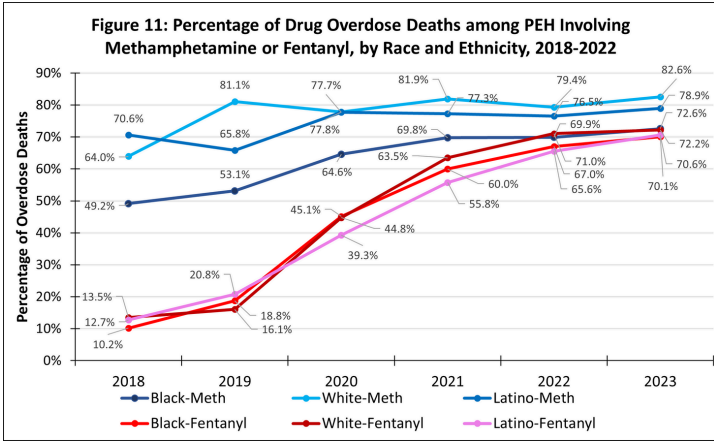
¹ Los Angeles Homeless Services Authority Lived Experience Advisory Board. 2019 communication.

Percentage of Drug Overdose Deaths Involving Specific Drug Types, by Race/Ethnicity and Gender (Figures 10-13)¹

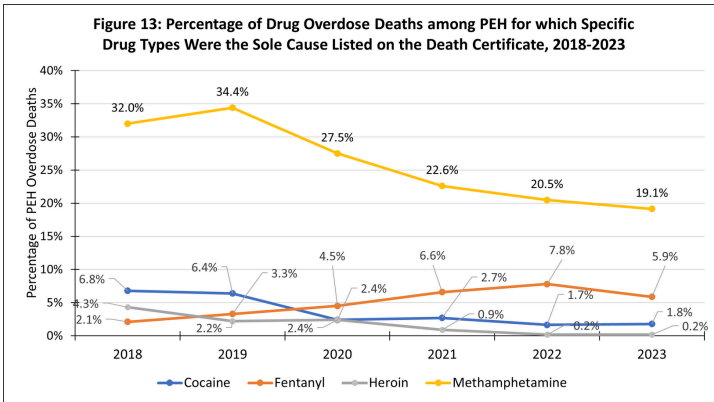
In 2023, 78.5% of all PEH overdose deaths involved methamphetamine and 70% involved fentanyl (Figure 10). Most overdose deaths involve multiple drugs, and in 2023 55% involved both fentanyl and methamphetamine (not shown). Cocaine was involved in 14.5% of overdose deaths and no other drug type was involved in more than 5% of overdoses.



¹ Percentages of drug types sum to more than 100% for each year because each overdose can involve multiple drug types.



Trends in fentanyl involvement in overdose deaths were similar across racial/ethnic groups. Methamphetamine has been involved in a somewhat smaller percentage of Black overdose deaths, but the difference has decreased over time (**Figure 11**). Trends in fentanyl and methamphetamine involvement in overdose deaths were very similar among men and women (**Figure 12**).



The percentage of overdose deaths involving only one drug type decreased from 46.3% in 2019 to 27.0% in 2023 (not shown). In 2023, 19.1% of overdose deaths involved methamphetamine alone, and the percentage of overdose deaths involving fentanyl alone decreased for the first time since we began tracking the data (**Figure 13**). The median age at death for overdoses involving only methamphetamine was 52, compared to 43 for all other overdose deaths (not shown).

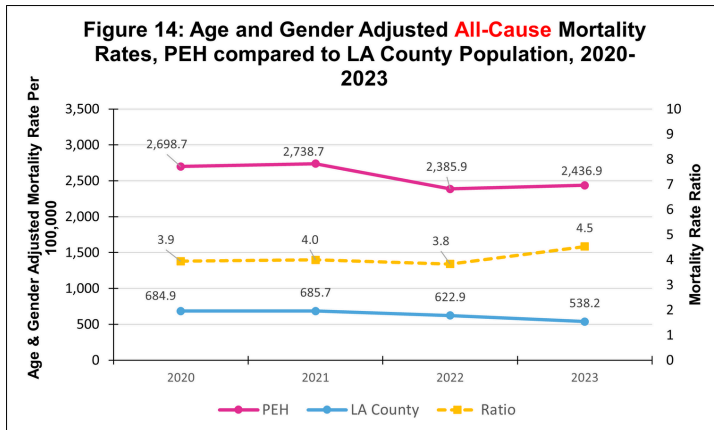
Takeaways:

1. Since 2018, methamphetamine has been involved in the highest percentage of overdose deaths, reaching 78.5% in 2023. However, most overdose deaths involve multiple drugs and the recent rapid increase in overdose mortality among PEH can be attributed to the increasing involvement of fentanyl, a highly potent synthetic opioid that can be lethal in small doses.
2. The percentage of overdose deaths involving fentanyl increased rapidly from 12.5% in 2018 to 70.4% in 2023. However, the percentage in 2023 was similar to the percentage in 2022, suggesting that the trend in fentanyl involvement may be starting to level-off.
3. Recent trends in methamphetamine and fentanyl involvement in overdose deaths are similar among White, Black and Latino PEH and among male and female PEH.
4. Since 2018, the percentage of overdose deaths involving heroin and other opiates has decreased, such that in 2023 only 5.1% of overdoses involved heroin and 2.6% involved other opiates.
5. Overdose deaths among PEH are increasingly involving multiple drug types. In 2023, only 27% of overdose deaths involved one drug alone, with 19.1% involving only methamphetamine and 5.9% involving only fentanyl.

6. In 2023, the median age at death for methamphetamine only overdoses was 52, compared to 43 for all other overdose deaths. Methamphetamine only overdoses tend to occur among older adults due to the damaging effects of long-term methamphetamine use on cardiovascular health.¹

¹ Ben-Yahuda O, and Siecke, N. Crystal Methamphetamine: A Drug and Cardiovascular Epidemic. JACC: Heart Failure. 2018; 6 (3).

Mortality Rates Among People Experiencing Homelessness Compared to the General LA County Population, by Race and Ethnicity and Cause of Death: (Figure 14; Tables 4-5)



After adjusting for age and gender, the 2023 all-cause mortality rate among PEH was 2,437 per 100,000, compared to 538 per 100,000 for LA County as a whole (Figure 14). Dividing these two rates gives us a mortality rate ratio (MRR) of 4.5, which means that PEH died at four and half times the rate of people in the general population in 2023. The all-cause MRR was stable at close to 4.0 from 2020 to 2022 but increased in 2023 due to a decrease in the LA County mortality rate (the PEH rate remained stable).

Table 4: Age-Adjusted Mortality Rate Ratios, by Gender and Race and Ethnicity, PEH Compared to LA County Population, 2023

Mortality Rate Ratio				
Gender		Race and Ethnicity*		
Male	Female	Black	Latino	White
4.9	4.0	2.7	4.8	7.0

* Estimates for racial and ethnic subgroups could not be adjusted for both age and gender due to data limitations. Other racial and ethnic groups are not included per state vital records data reporting rules.

Table 5: Age and Gender Adjusted Mortality Rate Ratios for Top Five Causes of Death (Plus COVID-19), PEH Compared to LA County Population, 2020-2023

Cause of Death	Mortality Rate Ratio			
	2020	2021	2022	2023
Drug Overdose	37.2	38.2	40.6	48.8
Coronary Heart Disease	5.3	4.5	4.0	5.9
Transportation-Related Injury	22.4	17.8	17	20.2
Homicide	19.2	16	17.8	16.1
Suicide	8.5	8.3	8.4	8.4
COVID-19	1.1	2.3	0.5	NA*

*In 2023 there fewer than 11 PEH COVID-19 deaths, so no MRR is shown per state vital records reporting rules.

Males experiencing homelessness in 2023 died at almost five times the rate of males in the general population, while females experiencing homelessness died at four times the rate of females in the general population (Table 4). With regard to race and ethnicity, the MRR was highest for Whites, with White PEH dying at seven times the rate of White people in the general population in 2023. Latino PEH died at 4.8 times the rate of Latinos in the general population, and Black PEH died at 2.7 times the rate of Black people in the general population.

Table 5 shows the MRRs for each of the top five causes of death among PEH from 2020-2023.² In 2023, the drug overdose mortality rate was almost 49 times greater among PEH than in LA County as a whole, up from 40.6 in 2022, due to a decrease in the LA County overdose mortality rate in 2023.³ The CHD mortality rate was almost 6 times greater among PEH in 2023, a 50% increase from 2022, due to an increase in the rate among PEH and a simultaneous decrease in the rate for LA County.

² Note: the 2023 MRRs in Table 5 are all greater than the all-cause MRR (4.5) for that year (Figure 14). This is because several of the top causes of death in the general population (e.g., Alzheimer's, stroke, diabetes, cancer) are relatively rare causes of death among PEH.

³ The drug overdose MRRs are very high because drug addiction often causes people to fall into homelessness.

The transportation-related injury MRR increased to 20 in 2023, up from 17 in 2022, largely due to a decrease in transportation-related mortality in LA County in 2023.¹ Homicide was the only top cause of death for which the MRR decreased in 2023 due a decrease in the homicide rate among PEH that exceeded the decrease in the LA County population. For the past four years the suicide MRR has held steady, with PEH dying from suicide at about eight and a half times the rate of the LA County population. In 2021, the COVID-19 mortality rate was 2.3 times greater among PEH than in the general LA County population, but for all other years the rate among PEH was the same or less than in the general LA County population.

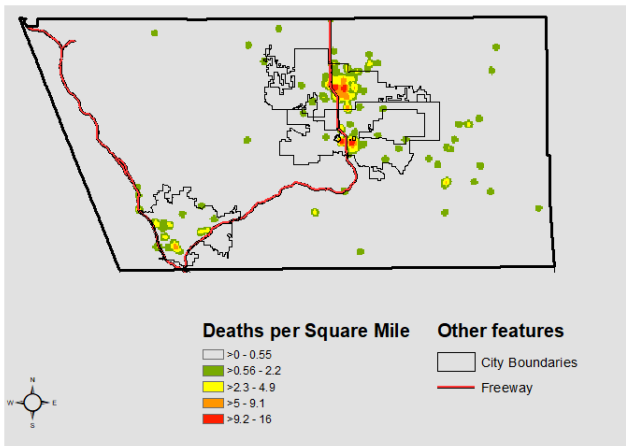
Takeaways:

1. In 2023, the mortality rate among LA County PEH was 4.5 times greater than the rate for LA County as a whole. This mortality rate ratio (MRR) increased from 3.8 in 2022, due largely to a 14% decrease in the LA County mortality rate in 2023.
2. In 2023, males experiencing homelessness died at 4.9 times the rate of males in the total LA County population, while females experiencing homelessness died at 4.0 times the rate of females in the total LA County population.
3. In 2023 White PEH died at 7.0 times the rate of White people in the total LA County population. Latino and Black PEH died at 4.8 and 2.7 times the rate of Latino and Black people in the total LA County population.
4. In 2023, the drug overdose mortality rate among LA County PEH was 48.8 times greater than the rate in the general population. The CHD mortality rate was 5.9 times greater among PEH than in the general population. The traffic injury mortality rate was 20.2 times greater among PEH. The homicide rate was 16.1 times greater among PEH, and the suicide rate was 8.4 times greater among PEH than in the general population.

¹ Most PEH in LA County are unsheltered and often live in close proximity to road traffic. They are also more likely to be pedestrians when involved in traffic collisions, which increases the likelihood of fatal injuries.

Geographic Distribution of Deaths (Heat Maps 1-6; Tables A-2 and A-3)¹

**Heat Map 1: Deaths from All Causes Among PEH, 2022 - 2023
North Los Angeles County (n=195)***



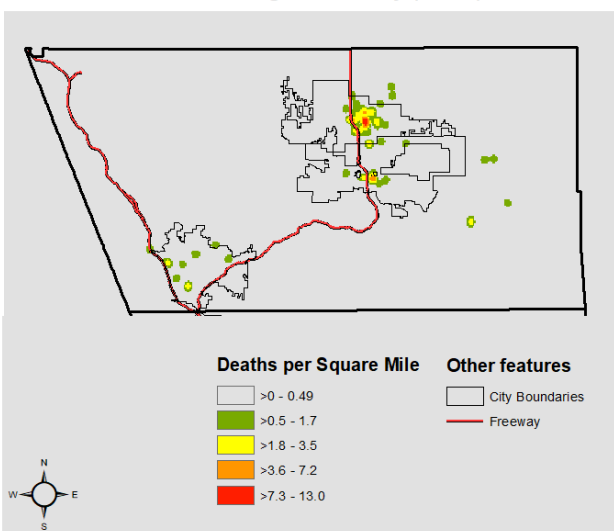
In 2022 and 2023 combined, there were a total of 216 PEH deaths in northern LA County, which includes the Santa Clarita Valley to the southwest and the Antelope Valley to the north. 195 of these deaths are included in **Heat Map 1**.

*Out of 216 total deaths, 21 were not included because they occurred in hospitals and no event location was available (19), or no cause of death was available (2).

The highest concentrations of PEH deaths occurred in Palmdale just east and west of Highway 14 near Palmdale Boulevard, and in Lancaster east of Highway 14 in West Lancaster and South Downtown Lancaster. Newhall (part of Santa Clarita) was an area of minor concentration. There were 73 drug overdose deaths among PEH in northern LA County, 66 of which are included in **Heat Map 2**. The highest concentration of drug overdose deaths occurred in South Downtown Lancaster. Palmdale Central City, east of Highway 14, was an area of minor concentration.

*Out of 73 deaths, 7 were not included because they occurred in hospitals and no event location was available.

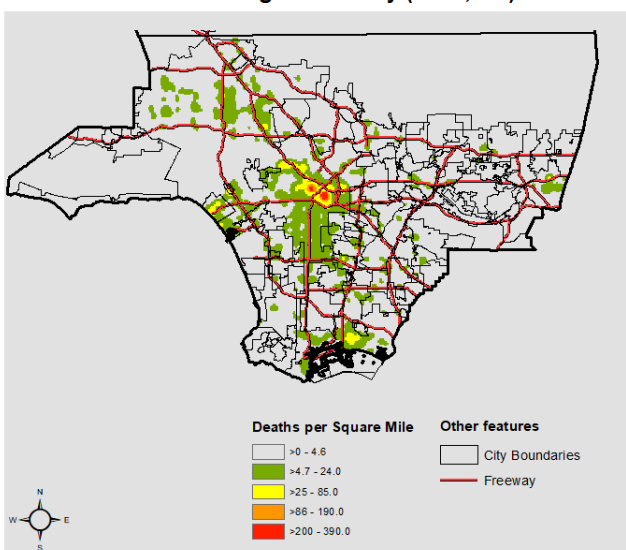
**Heat Map 2: Overdose Deaths Among PEH, 2022 - 2023
North Los Angeles County (n= 66)***



In 2022 and 2023 combined, there were 4,666 PEH deaths in the southern portion of LA County, which includes all other LA County cities and communities. 4,031 of these deaths are included in **Heat Map 3**. Up to 24 deaths per square mile occurred in a wide range of cities and neighborhoods, including the San Fernando Valley in the west, Pomona in the east, Wilmington and San Pedro in the south, and most of central and south Los Angeles. However, the highest concentrations of PEH deaths occurred in Downtown LA/Skid Row and Westlake/MacArthur Park. Minor concentrations occurred in areas adjacent to those two areas, along with Hollywood, East Hollywood, North Hollywood, Santa Monica, Venice, Veterans Administration, Downtown Long Beach, Lynwood, and Pomona.

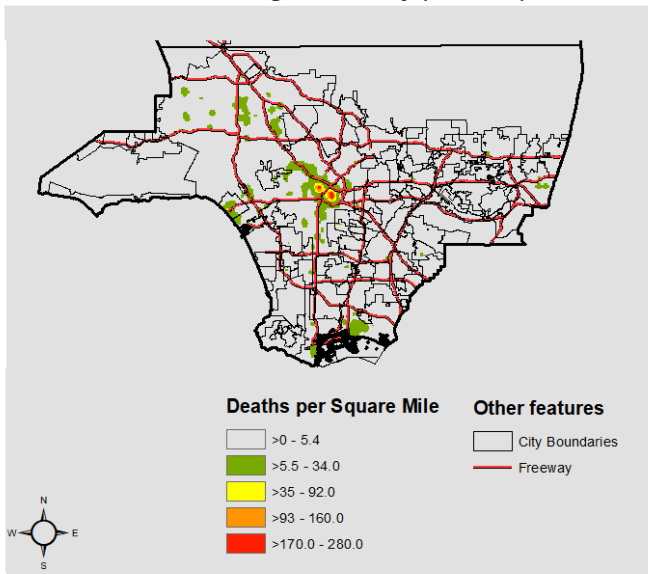
*Out of 4,666 total deaths, 635 were not included because they occurred in hospitals and no event location was available (599), or no cause of death was available (36).

**Heat Map 3: Deaths from All Causes Among PEH, 2022 - 2023
South Los Angeles County (n = 4,031)***



¹Tables A-2 and A-3 (methods appendix) list the numbers of PEH deaths (all-cause and drug overdose) by Zip Code.

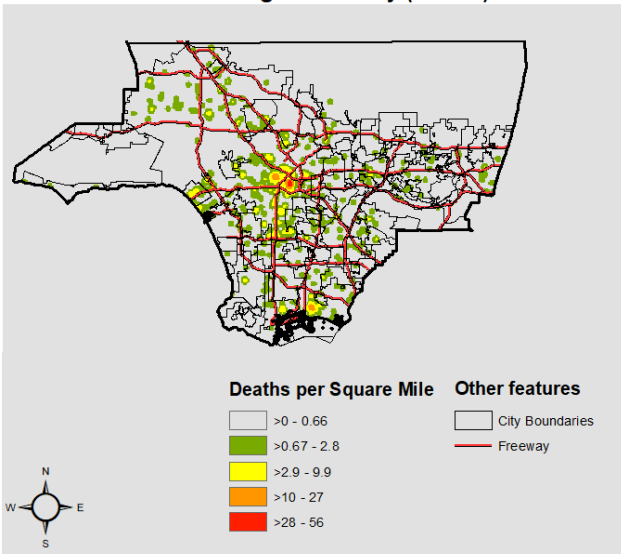
Heat Map 4: Overdose Deaths Among PEH, 2022 - 2023
South Los Angeles County (n= 1,930)*



There were 2,139 drug overdose deaths among PEH in southern LA County, 1,930 of which are included in **Heat Map 4**. The highest concentrations of drug overdose deaths occurred in Downtown LA/Skid Row, Westlake/MacArthur Park, and adjacent areas.

*Out of 2,139 total deaths, 209 were not included because they occurred in hospitals and no event location was available.

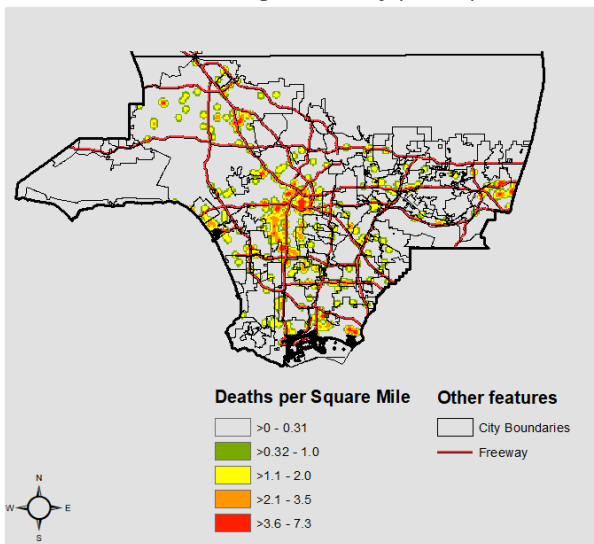
Heat Map 5 : Coronary Heart Disease Deaths Among PEH, 2022 - 2023
South Los Angeles County (n= 546)*



There were 624 CHD deaths among PEH in southern LA County, 546 of which are included in **Heat Map 5**. The highest concentrations of CHD deaths occurred in Downtown LA/Skid Row, Westlake/MacArthur Park, and Downtown Long Beach. However, the large number of yellow areas on the map indicate the wide geographic distribution of CHD deaths among PEH in southern LA County.

*Out of 624 CHD deaths, 78 were not included because they occurred in hospitals and no event location was available (74), or no death address was available (4).

Heat Map 6: Transportation-Related Deaths Among PEH, 2022 - 2023
South Los Angeles County (n= 345)*



There were 347 transportation-related injury deaths in southern LA County, 345 of which are included in **Heat Map 6**. The large number of red and orange areas on the map indicates that these deaths were not concentrated in a subset of LA County neighborhoods. Deaths from transportation-related injuries were spread out across many areas of LA County.

*Out of 347 transportation related- deaths, 2 were not included because they occurred in hospitals and no event location was available.

Takeaways:

1. Recent deaths among PEH in northern LA County were concentrated in the urban cores of Lancaster and Palmdale.
2. Recent deaths among PEH in southern LA County were most concentrated in Downtown LA/Skid Row and Westlake/MacArthur Park. Other areas of minor concentrations included Hollywood, East Hollywood, North Hollywood, Santa Monica, Venice, Veterans Administration, Downtown Long Beach, Lynwood, and Pomona.
3. Recent drug overdose deaths among PEH in southern LA County were most concentrated in Downtown LA/Skid Row and Westlake/MacArthur Park.
4. Recent coronary heart disease deaths among PEH in southern LA County were most concentrated in Downtown LA/Skid Row, Westlake/MacArthur Park, and Downtown Long Beach. Minor areas of concentration were widely distributed across the region (see Heat Map 5).
5. Recent transportation-related injury deaths among PEH in southern LA County were not concentrated in any specific areas, but rather were spread widely across the County.

Recommendations

Ensure Rapid Access to Housing and Shelter that are Responsive to the Needs of LA County Residents Experiencing Homelessness

1. Ensure that agency staff providing outreach and engagement services, and physical health, mental health, substance use, and social services to Los Angeles County residents experiencing homelessness, are regularly trained on the most current versions of the Homeless Management Information System (HMIS) tools (e.g., VI-SPDAT) to facilitate linkage to housing options.
2. Sustain and expand LA County's supply of permanent supportive housing and interim housing options—including Recovery Bridge Housing, Recovery Housing, and Mental Health Service Act Housing—that align with the individual needs of LA County residents experiencing homelessness.

3. Expand the range of housing options, across the housing continuum, that are responsive to the needs of the community, such that people who use drugs will not lose their housing due to substance use. Ensure that there is recovery-oriented housing available to residents who benefit from abstinence-focused living environments, and that all congregate housing settings have readily available overdose prevention services.

Expand Harm Reduction and Overdose Prevention Outreach, Engagement and Response, Prioritizing Los Angeles County Residents Experiencing Homelessness at Highest Risk for Overdose

4. Advance legislation, regulation, and local engagement and advocacy that make the continuum of substance use prevention, harm reduction services, and substance use treatment more accessible. This includes continuing to identify and advance opportunities to establish safer consumption sites when there is a legal pathway to do so.

5. Sustain and expand harm reduction and overdose prevention service infrastructure—including syringe services, naloxone and fentanyl test strip distribution and education, oxygen administration, low-threshold access to addiction medications like buprenorphine and methadone, and screening and referral for substance use treatment and other physical and mental health services—for people in jails, hospitals and congregate residential settings, and through street-based outreach and engagement teams, to reach LA County residents experiencing homelessness where they reside and receive services.

6. Sustain and expand drop-in spaces, with low barriers to access, where Los Angeles County residents experiencing homelessness can access harm reduction services, including linkage and referral to substance use treatment and other needed physical and mental health services in a friendly and welcoming environment.

7. Sustain and expand telehealth and mobile physical health, mental health, and substance use services to meet the needs of Los Angeles County residents experiencing homelessness where they reside.

8. Integrate peer-driven and peer-led services to ensure that people with lived experience have a direct role in shaping and delivering services to Los Angeles County residents experiencing homelessness.

9. Support the development and expansion of outreach and engagement, harm reduction, overdose prevention, and substance use field- and facility-based services for Black, Indigenous, and people of color, and transgender, gender non-conforming, and intersex residents experiencing homelessness.

Ensure that Physical Health, Mental Health, and Substance Use Treatment Services are Available and Responsive to the Needs of LA County Residents Experiencing Homelessness

10. Train all health care and social service providers in field- and facility-based settings to better understand and accommodate the special needs of LA County residents experiencing homelessness (e.g., food insecurity, high stress, lack of storage space and of control over their physical environment) when making chronic disease management recommendations. Providers can accommodate these special needs while delivering cardiac care and other disease and case management, including simplifying medication regimens, addressing the social and psychiatric needs of clients, and delivering health and social care in a non-judgmental and appropriately paced way.

11. Sustain and expand comprehensive primary and preventive care services for LA County residents experiencing homelessness, prioritizing those at risk for or suffering from coronary heart disease and other chronic conditions, including street medicine programs, mobile clinics, and case management that links clients to needed facility-based medical care.

12. Expedite and facilitate patient access to cardiac testing, specialty medications, and cardiac procedures, as well as voluntary placement in recuperative care and other supportive interim housing settings to better diagnose or manage cardiac disease. Ensure ready access to high quality cardiologists integral to the care of clients with complex cardiac conditions.

13. Sustain and expand mental health services for LA County residents experiencing homelessness including the full range of outreach and engagement, and community and congregate setting-based services for LA County residents experiencing homelessness who may also be experiencing serious mental illness.

14. Sustain and expand LA County's Reaching the 95% (R95) Initiative to make substance use treatment increasingly available to LA County residents through removing abstinence as a required prerequisite to initiating treatment services, extending the duration of engagement in substance use treatment services, and increasing the presence of community-based outreach and engagement teams to help LA County residents experiencing homelessness receive needed substance use treatment services.

15. Sustain and expand FDA-approved addiction medication services, with minimal barriers to access, across all physical health, mental health, and substance use treatment providers in LA County. Additionally, implement clinically effective medication services effective at treating substance use disorder in each setting where these can be feasibly provided.

16. Train all health care and social service providers in field- and facility-based settings to better understand and accommodate the special needs of LA County residents experiencing homelessness (e.g., food insecurity, high stress, lack of storage space and of control over their physical environment) when making chronic disease management recommendations. Providers can accommodate these special needs while delivering cardiac care and other disease and case management, including simplifying medication regimens, addressing the social and psychiatric needs of clients, and delivering health and social care in a non-judgmental and appropriately paced way.

Reduce Traffic Deaths among Los Angeles County Residents Experiencing Homelessness

17. Collaborate with municipalities and unincorporated communities to identify concentrations of fatal injury collisions involving LA County residents experiencing homelessness to inform community planning (e.g., pedestrian plans) and strengthen local infrastructure, programming, and policy interventions that can prevent future traffic deaths.

Methods

PEH Deaths and Population Denominators

Calculating annual homeless mortality rates requires estimates of the number of deaths among PEH and the total mid-year population of PEH each year. Most deaths among PEH are investigated by the Los Angeles County Department of Medical Examiner (ME). To identify the latter, we begin with all deaths flagged as homeless by the ME in our annual ME data file.¹ Next, from among those cases not initially flagged by the ME, we identify and add those with emergency shelter or transitional housing facility addresses in one or more address fields.² Finally, remaining cases with homeless key words³ in the investigator notes fields are independently reviewed by two analysts using Department of Housing and Urban Development (HUD) homelessness criteria.⁴ Discrepancies are adjudicated by the full team, and cases deemed to meet HUD criteria are added to the ME PEH death count for that year.

To identify PEH deaths not investigated by the ME, ME PEH records are matched annually with California state death certificate records for LA County. Non-matching state death records are searched for evidence of homelessness, including: 1) emergency shelter and transitional housing addresses in any address fields, and 2) a homeless flag in the new state death record homeless field.⁵ Decedents identified as PEH solely based on data from state death records are added to the count of ME PEH deaths to arrive at a final PEH death count for the year. Please see **Methods Appendix** for an analysis of the potential impact of the new state death record homeless fields on our count of deaths among PEH.

To estimate mid-year homeless population denominators for annual rate calculations, we calculate the average of two consecutive January point-in-time (PIT) homeless counts.⁶ Because the PIT count was not conducted in January 2021 due to the COVID-19 pandemic, we used the average of the PIT counts for 2020 and 2022 as a proxy for the 2021 count (**Table A-1**).

Causes of Death

We determine causes of death based on International Classification of Disease (ICD-10) cause of death codes in the underlying cause of death field in the state death record database. These codes are captured for ME PEH cases matched with state death records, and for additional PEH deaths identified solely from state death record data. ICD-10 codes are grouped into cause of death categories according to standards set by the US Centers for Disease Control (CDC).

- ¹ The ME investigates all violent, sudden, or unusual deaths; unattended deaths; and deaths where the deceased does not have a physician (Govt. Code, § 27491). We obtain our annual ME data file on May 1st of the following year to allow four months for pending cases to be resolved.
- ² Shelter and transitional housing addresses are obtained from the HUD mandated annual Housing Inventory Counts from the Los Angeles, Long Beach, Pasadena, and Glendale homeless services authorities.
- ³ Key words included: homeless, transient, shelter, lives in van, lives in car, lives in vehicle, no fixed abode, no known residence, tent, encampment, indigent, skid row, vagrant, shed, Room Key, HomeKey, PEH, and institution.
- ⁴ https://files.hudexchange.info/resources/documents/HomelessDefinition_RecordkeepingRequirementsandCriteria.pdf
- ⁵ On April 27th, 2022, new homeless fields were added to the state electronic death record system (EDRS). Prior to that, we searched the address fields for homeless key words, and location descriptions consistent with prior state instructions to local registrars on how to fill out address fields for homeless decedents.
- ⁶ The annual PIT count is conducted by the Los Angeles Homeless Services Authority (LAHSA). For example, our estimate of the mid-year population denominator for 2019 is the average of the January 2019 and 2020 counts.

Geocoding of PEH Deaths

To explore the geographic patterning of PEH deaths we use ArcMap to geocode death locations from ME and state death record data. When someone is transported to a hospital after a traumatic event and then dies in the hospital, ME investigators try to determine the event location. When available, we geocode the event location since it is more useful for targeting prevention efforts. If a death occurs in a hospital and no event location is available (this is the case for 10-15% of PEH deaths each year), we do not include it on the map. We use geocoded location data to create heat maps that show the geographic distribution of deaths from all cause and from each of the top three causes of death. Each map indicates the number and percentage of deaths not included because they occurred in hospitals and no event location was available or because no address information was available.

Comparing Mortality Rates Among PEH Sub-Groups and Between PEH and the Total LA County Population

Using PEH demographic survey data collected in conjunction with the annual PIT count (**Table A-1**), we compare age-adjusted trends in all-cause, drug overdose, and coronary heart disease mortality rates among PEH by race/ethnicity and gender.² Age group data prior to 2020 did not conform to standards required for age adjustment of mortality rates. Because no PEH demographic survey was conducted in January 2021 due to the COVID-19 pandemic, we used the average of the 2020 and 2022 demographic estimates as a proxy for 2021. The 2010 LA County population was used as the standard population for the calculation of age-adjusted mortality rates.

We also compare all-cause and cause-specific mortality rates among PEH to those in the total LA County population. For this comparison, we calculate the annual age and gender-adjusted mortality rates for each group and then divide the PEH rates by the LA County rates to produce mortality rate ratios (MRRs). LA County demographic data are provided by Hedderson Demographic

Services and LA County death data come from Provisional Annual Death Data Files for LA County.² The 2010 LA County population was used as the standard population for age and gender adjustment.

Drug Type Analysis for Overdose Deaths

To determine the types of drugs that contribute to overdose deaths, we perform a text-based analysis of ME and state death record cause of death fields for PEH with drug overdose as the underlying cause of death. This analysis is based on a methodology developed and published by epidemiologists at the Food and Drug Administration and the National Center for Health Statistics.³ Any type of drug mentioned as a primary or contributing cause of death is deemed to be a contributing factor for that death, and multiple drugs can contribute to the same death. Using this methodology, each drug type is ranked according to the percentage of deaths to which it contributed.

¹ PEH Demographic estimates are available only for the Los Angeles Continuum of Care which excludes Long Beach, Glendale, and Pasadena. To produce countywide estimates, we assume that the age, gender, and racial/ethnic makeup of the PEH populations in those three cities are the same as that of the rest of LA County. This assumption is reasonable based on available data. Beginning in 2023, the PEH age-group categories available for age adjustment changed slightly. Prior to 2023, the age categories used were: <18; 18-29; 30-39; 40-49; 50-59; 60-69; 70+. In 2023 these changed to: <18; 18-24; 25-34; 35-44; 45-54; 55-64; 65-69; 70+.

² These mortality data sets are created by the LA County Department of Public Health's Office of Health Assessment and Epidemiology based on death certificate data obtained from the California Department of Public Health. Data for the most recent year are called provisional because they do not yet include out of state deaths for LA County residents.

³ Trinidad J, et al. Using Literal Text from the Death Certificate to Enhance Mortality Statistics: Characterizing Drug Involvement in Deaths. *National Vital Statistics Reports*. 2016; 65 (9): 1-14.

Methods Appendix

Potential Impact of New California Death Record Homeless Fields on PEH Death Count

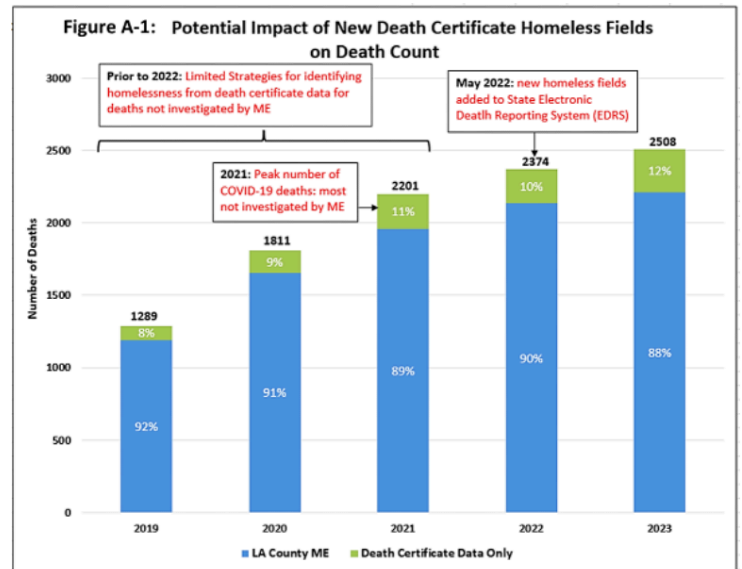
In August of 2020, the California State Department of Public Health (CDPH) announced that it would be updating its Electronic Death Reporting System (EDRS) to include new fields for recording whether a decedent was homeless at the time of death and, if so, whether they were sheltered or unsheltered. After a rollout and training period, the new fields went live in EDRS on April 27th, 2022.

Since we began reporting on mortality among PEH in LA County, state death records have been our only source of data for identifying PEH deaths not investigated by the Medical Examiner (ME). The latter are non-accidental and non-violent deaths, most of which occur in hospitals under the supervision of an attending physician. In contrast, only about 20% of PEH deaths investigated by the ME each year occur in hospitals. Prior to the availability of data from the new EDRS homeless fields, our ability to capture evidence of homelessness from the death records of decedents not investigated by the ME was quite limited and consisted of searching the address fields for: 1) LA County emergency shelter and interim housing addresses, and 2) irregular entries describing locations without an official address (i.e., the previous CDPH instruction for indicating homelessness in EDRS).

If one assumes that a clearer and simpler way of indicating homelessness in EDRS would increase the likelihood that PEH would be correctly identified as such in state death record data, then the recent improvement to the state death reporting system could lead to an increase in the number of PEH deaths we are able to identify, regardless of the number of PEH deaths that actually occurred (i.e., a type of reporting bias).

We strongly support CDPH's improvements in the way homelessness is captured in state death records, as our goal is to report as accurate and complete a count of PEH deaths as possible.

Nevertheless, since 2023 is our first full year of data from the new EDRS homeless fields, we feel it is important to attempt to address the question: "Is the increase in the number PEH deaths we are reporting for 2023 influenced by improvements in the reporting process?" While we can't answer this question definitively, the data presented in **Figure A-1** can help provide some clues.



In 2019, 92% of the 1,289 PEH deaths were identified from ME data. We then identified an additional 103 deaths (8% of the total) from state death records, using the address searching methods previously described. In 2020 and 2021, the percentage of PEH deaths identified from state death records alone increased to 9% and 11%, respectively. However, these increases were influenced by the COVID-19 pandemic when, in 2020 and 2021 combined, COVID-19 caused 5.6% of PEH deaths, most of which were not investigated by the ME. 2022 was the first year we might have seen an impact of the new EDRS homeless fields on the reporting of PEH deaths, with eight months of data available. Also, in 2022 only 1.2% of PEH deaths were from COVID-19. The 10% of PEH deaths identified that year from death records alone is slightly higher than the 8% in the pre-COVID year.

In 2023, when a full year of data from the new EDRS homeless fields was available and COVID-19 accounted for less than half a percent of PEH deaths, 301 PEH deaths (12% of the total) were identified from state data alone. It is not possible to determine how many of those deaths would have been misclassified as non-PEH deaths in the absence of data from the new EDRS homeless fields. However, the fact that 2023 included the highest percentage to date of PEH deaths identified from state death records alone suggests that improved methods for identifying homelessness in those records may have contributed to the increase in PEH deaths identified in 2023. We will continue to track trends in the PEH death count by source of data in future years.

Year	2016	2017	2018	2019	2020	2021 ²	2022	2023	2024
Total Count³	46,874	55,048	52,765	58,936	66,436	67,790	69,144	75,518	75,312
Gender									
Male (incl. trans.)	66%	68%	68%	68%	67%	66.5%	66%	68%	65%
Female (incl. trans.)	33%	32%	31%	31%	32%	32.5%	33%	31%	33%
Age Group⁴									
<18					12%	11%	10%		
18-29					15%	14%	13%		
30-39					20%	22%	24%		
40-49					19%	19%	20%		
50-59					22%	21%	20%		
60-69					11%	11%	11%		
70+					2%	2%	3%		
<18								9%	9%
18-24								5%	4%
25-34								19%	20%
35-44								23%	21%
45-54								19%	20%
55-64								18%	18%
65-69								4%	6%
70+								2%	3%
Race/Ethnicity									
American Indian/ Alaska Native	3%	1%	1%	2%	1%	1%	1%	1%	2%
Asian	2%	1%	1%	2%	1%	1%	1%	2%	1%
Black	39%	40%	36%	33%	34%	32%	30%	32%	30%
Latino	27%	35%	35%	36%	36%	40%	44%	43%	43%
Native Hawaiian/ Other Pac. Islander	.2%	.3%	.4%	.6%	.3%	.3%	.2%	.5%	.5%
White	25%	20%	25%	25%	25%	23%	21%	19%	21%
Multi-racial	5%	2%	1%	2%	2%	2.5%	3%	3%	3%
Shelter Status									
Unsheltered	75%	73%	75%	75%	72%	71%	70%	73%	70%
Sheltered	25%	27%	25%	25%	28%	29%	30%	27%	30%
Chronic Homelessness⁵									
Chronically Homeless	31%	31%	27%	28%	38%	39.5%	41%	45%	42%

¹ These estimates are from LAHSA's Point in time counts (total counts) and demographic surveys (demographic data) conducted in late January of each year.

² Since the point in time count and demographic survey were not conducted in 2021 due to the COVID-19 pandemic, 2021 estimates were calculated by averaging the values for 2020 and 2022.

³ Total count data and sheltered/unsheltered status are for all of LA County. Demographic and chronic homelessness estimates are for the LA CoC only, which excludes Glendale, Pasadena and Long Beach. Percentages do not always add to 100% due to rounding. Source: <https://www.lahsa.org/homeless-count/>

⁴ Available age groupings for age data have changed over the years. beginning in 2020, 10-year age grouping became available, which allowed for more precise age adjustment of mortality rates. In 2023 those 10-year age grouping were adjusted again.

⁵ Chronic homelessness is defined as homelessness of at least 12 months duration (continuous, or at least four separate occasions in the last three years that add up to 12 months), and presence of a qualifying disability.

Table A-2: Number of Deaths from All Causes, LA County PEH by Zip Code, 2022/2023*

Zip Code	# of Deaths	Zip Code	# of Deaths	Zip Code	# of Deaths
90001	36	90048	14	90804	19
90002	22	90057	175	90805	35
90003	61	90058	16	90806	40
90004	32	90059	20	90810	20
90005	25	90061	22	90813	70
90006	42	90062	13	91107	13
90007	33	90063	12	91204	11
90010	12	90064	23	91303	23
90011	38	90065	17	91311	34
90012	85	90066	15	91324	13
90013	136	90073	34	91331	31
90014	99	90201	17	91335	26
90015	60	90220	14	91342	40
90016	16	90221	24	91343	43
90017	59	90230	19	91345	11
90018	20	90242	11	91352	40
90019	28	90248	20	91401	14
90020	13	90250	15	91402	24
90021	112	90255	16	91405	34
90022	21	90262	28	91406	30
90023	36	90265	11	91411	13
90025	28	90280	16	91502	13
90026	45	90291	45	91601	40
90027	36	90292	16	91605	41
90028	69	90301	12	91606	21
90029	29	90304	17	91702	23
90031	25	90401	37	91706	26
90032	17	90404	32	91731	14
90033	61	90405	18	91732	11
90034	19	90640	13	91733	17
90036	11	90650	21	91744	13
90037	33	90660	13	91766	29
90038	13	90670	17	91767	26
90039	17	90706	20	91768	21
90040	17	90710	12	91770	11
90043	13	90712	16	93534	47
90044	43	90731	35	93535	34
90045	14	90744	40	93536	16
90046	16	90802	31	93550	21
90047	34	90803	11	93551	13

*Per California vital records data suppression rules, Zip Codes with fewer than 11 deaths are not included. Excludes hospital deaths for which no event location was available.

Table A-3: Number of Drug Overdose Deaths, LA County PEH by Zip Code, 2022/2023*

Zip code	# of Overdose Deaths	Zip code	# of Overdose Deaths
90003	20	90291	20
90004	20	90401	26
90005	12	90405	11
90006	17	90650	13
90007	12	90731	25
90011	23	90744	13
90012	49	90802	20
90013	90	90804	11
90014	75	90805	13
90015	35	90806	15
90017	40	90813	24
90019	12	91303	13
90021	72	91311	22
90025	14	91335	15
90026	29	91342	14
90027	13	91343	21
90028	47	91352	26
90029	16	91402	12
90031	14	91405	23
90033	14	91406	19
90034	11	91601	29
90037	12	91605	20
90044	13	91606	14
90046	14	91702	11
90047	15	91767	15
90057	127	93534	23
90064	16	93535	12
90221	12		
90230	11		
90262	12		

*Per California vital records data suppression rules, Zip Codes with fewer than 11 deaths are not included. Excludes hospital deaths for which no event location was available.