

# Michigan HIV Mortality 2022

Data as of July 2024



The HIV Mortality Report includes death data among persons with HIV in Michigan (PWH). This slide set highlights key observations related to HIV mortality and causes of death and is meant to guide care and prevention strategies. To view the tables used to create this slide set, please see the HIV Mortality Report Tables.

For care-related assessments (estimated undiagnosed, in care, viral suppression, and maintained undetectable), see the Continuum of Care Report. For Linkage-related assessments see the Trends Report.

All reports may be found on the website: [Michigan.gov/HIVSTI](https://Michigan.gov/HIVSTI).

# Key Definitions & History

## Key Definitions: Mortality Rates

A rate is a count compared to an underlying population (in this case per 1,000). By presenting data as a rate (rather than a count), comparisons may be made across various geographic and demographic groups.

**Mortality Rate:** For every 1,000 persons with HIV (PWH), the number who died.

Mortality rates can be presented as crude rates or age-adjusted rates.

The importance of age-adjusting mortality rates is explored in the next slide. For now, here is the calculation for Michigan's crude HIV mortality rate among Black males:

- On January 1, 2021, there were **7,078** Black males living with HIV.
- During 2021, there were **283** Black males newly diagnosed with HIV.
- That means that in 2021, there were a total of **7,078 + 283** or **7,361** Black males with HIV in Michigan, including Black males who died during 2021.
- Of all Black males with HIV in Michigan in 2021, **162** of them died.
- $\frac{162}{7,361} = 0.02201$
- That means for every one Black male with HIV in Michigan, 0.02201 of them died in 2021. This obviously does not make practical sense, so we calculate mortality rates per 1,000 PWH:  $0.02201 \times 1,000 = 22.0$  which means for every 1,000 Black males with HIV in Michigan, 22 died in 2021.

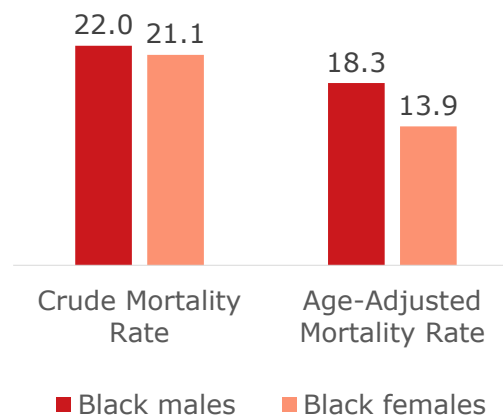
For more detail on rates, please see our five-minute [Epidemiology 101 video](#).

## Crude rates vs age-adjusted rates

Age is a significant confounder (or contributor) for death, as the likelihood of death increases with age. Therefore, the age distribution of a population strongly influences its mortality rate.

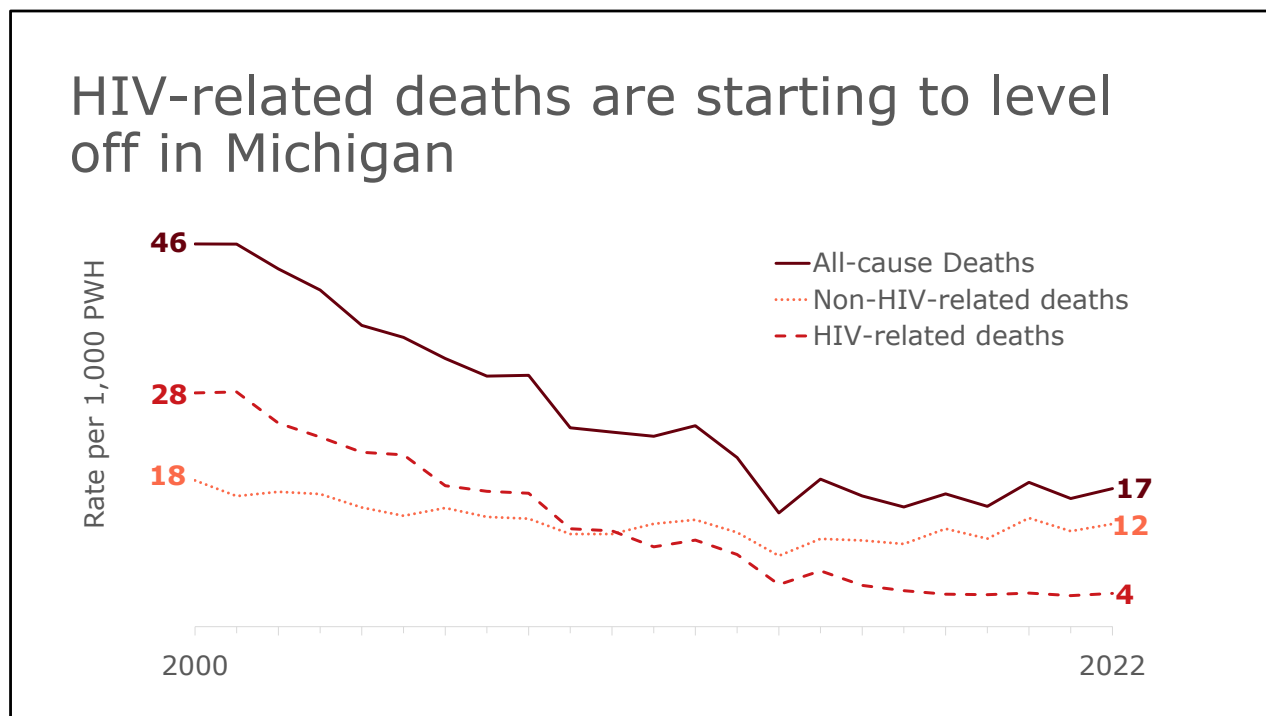
In 2021, the crude mortality rate among Black males with HIV compared to that of Black females with HIV suggested they had similar rates of death.

Accounting for their age distributions by calculating age-adjusted rates revealed that Black males with HIV experienced death at higher rates than Black females with HIV.



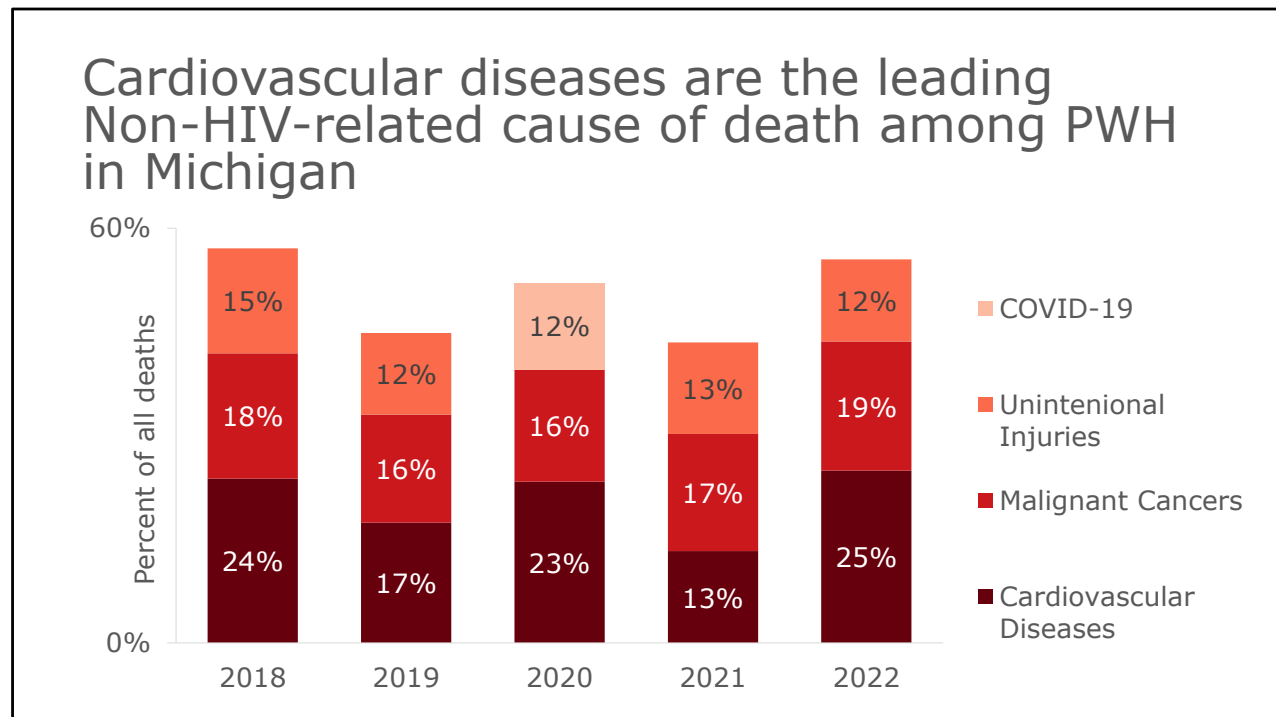
Age-adjusted mortality rates should only be compared to other age-adjusted mortality rates calculated using the same standard population.

Unless otherwise stated, all mortality rates presented throughout this slide set are age-adjusted.



Before 2014, prevalence counts were calculated by adding new diagnoses to the previous year's prevalence and subtracting total deaths. This method ignores movement. Historically (pre-1998), movement was minimal as most PWH did not survive long after diagnosis. Therefore, residence at diagnosis was the focus. Beginning in 2014, efforts to update current address began, and prevalence counts switched from calculations based on residence at diagnosis to current address. Prior to 2014, crude rates are presented due to the unreliability of calculated prevalence estimates broken down by age prior to 2014, which is why there's a dip in rates starting in 2014.

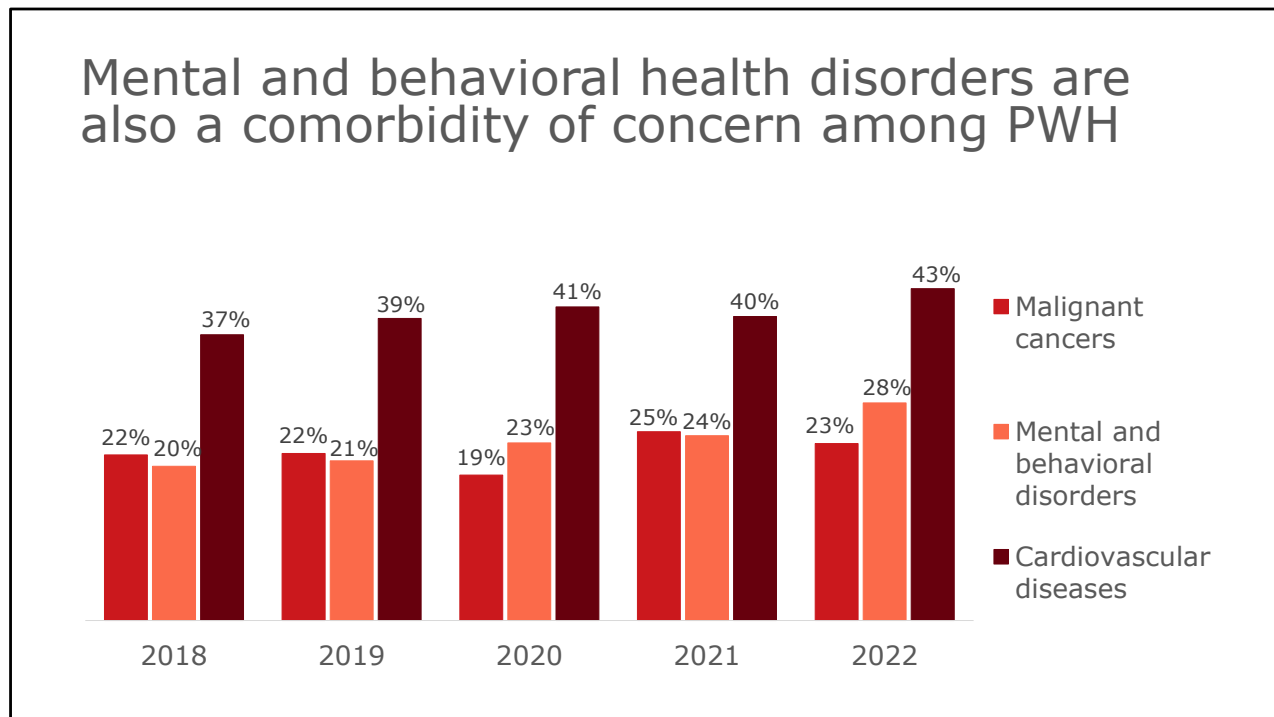
The number of **HIV-related deaths** decreased by 58% between 2000 and 2022, leading to a sharp decrease in the number and rate of **All-cause deaths** among PWH in Michigan, but they are starting to level off. Some demographic populations of PWH in Michigan are experiencing higher rates of HIV-related deaths than others, so improving health outcomes among these groups may lead to further decreases.



The data presented on this slide are not referenced in the accompanying tables but highlight potential comorbidities that may have gone unaddressed in the care of PWH by looking at the top 3 leading non-HIV-related (underlying) causes of death annually over the past five years. Cardiovascular diseases, malignant cancers, and accidents (unintentional injuries) were consistently the most common, with COVID-19 being among the top 3 in 2020. The number of PWH with an underlying or contributing cause of death due to COVID-19 has consistently declined since 2020.

Between 2018 and 2022, deaths with cardiovascular diseases and malignant cancers as an underlying cause represented anywhere between 30% and 44% of all deaths in Michigan, highlighting a need for whole-person care coordination, which may help to reduce the total number of deaths among PWH.

The next slide will look at the leading causes of deaths referenced on the final page of the accompanying tables. These highlight the most common comorbidities noted as underlying or contributing causes of death among PWH.



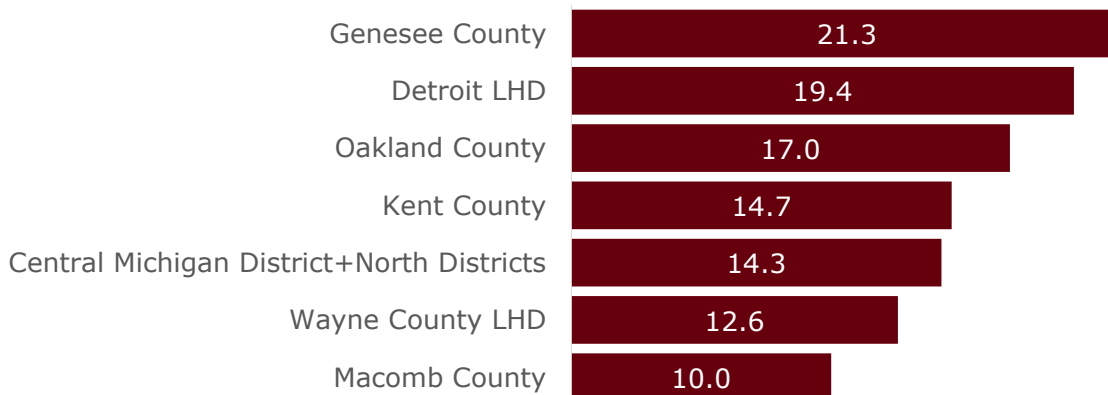
Cardiovascular diseases, mental and behavioral disorders, and malignant cancers were the most common comorbid conditions among PWH who died in 2022. Mental and behavioral disorders include dementia, neurodevelopmental disorders that affect cognitive function and behavior (e.g., intellectual disabilities and schizophrenia), as well as disorders caused by substance abuse. As the proportion of PWH who had an underlying or contributing cause of death due to malignant cancers fluctuated, the proportion who had an underlying or contributing cause of death due to cardiovascular diseases and mental and behavioral disorders steadily increased between 2018 and 2022, with the largest increase occurring in mental and behavioral disorders.

Chronic comorbidities are common among PWH, and in many cases are more prevalent in PWH compared to the general population and should be managed alongside their HIV disease.

# Geographic Distribution



## In 2022, PWH in the Genesee and Detroit LHD jurisdictions died at higher rates when compared others



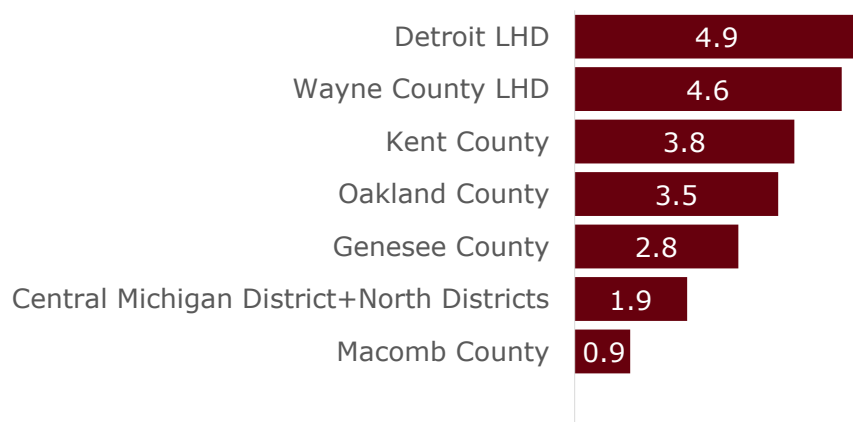
Deaths among PWH in Genesee County accounted for just 5% of all deaths among PWH in Michigan but occurred at higher rates compared to other LHD jurisdictions in 2022. This is the second year in a row that we have seen the highest mortality rates among PWH in Genesee County when compared to other LHD jurisdictions in the state. Flint is driving this trend with a mortality rate of 27.9 per 1,000 PWH, which represents the highest mortality rate among cities where 10 or more deaths occurred in 2022.

PWH within the Detroit LHD jurisdiction accounted for the highest proportion of deaths (36%) in Michigan and have the second highest mortality rate when compared to PWH in other jurisdictions.

These deaths may be due to any cause. The next slide looks at HIV-related deaths by LHD jurisdiction.

NOTE: Mortality rates are only presented for LHD jurisdictions with 10 or more deaths. The **Detroit Local Health Department** (LHD) jurisdiction includes persons living in the cities of Detroit, Highland Park, Hamtramck, Harper Woods, or the Grosse Pointes. The **Wayne County LHD** includes persons living in Wayne County outside the Detroit LHD. **Central Michigan District+North Districts** includes Bay, Benzie-Leelanau, Central Michigan District, District 10, District 2, District 4, Grand Traverse, Mid Michigan District, Midland, Northwest MI Com Health Agency.

## In 2022, Detroit and Wayne County LHDs had the highest rates of HIV-related deaths

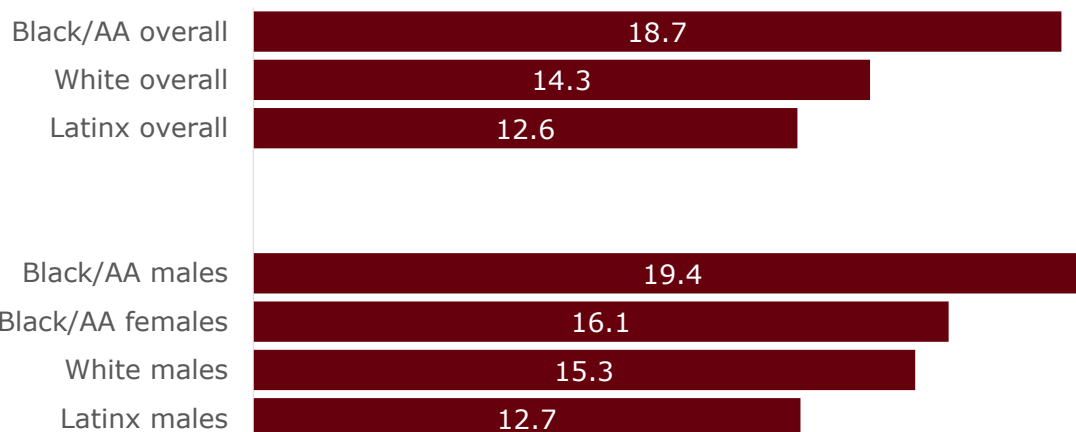


The Detroit and Wayne County LHD jurisdictions had the highest HIV-related mortality rates in 2022. Improving care outcomes for residents with HIV in this area will likely reduce the numbers and rates of death among PWH in these areas.

NOTE: Mortality rates are only presented for LHD jurisdictions with 10 or more deaths.

# Demographic Distribution

## Black males and black females had the highest mortality rates in Michigan in 2022

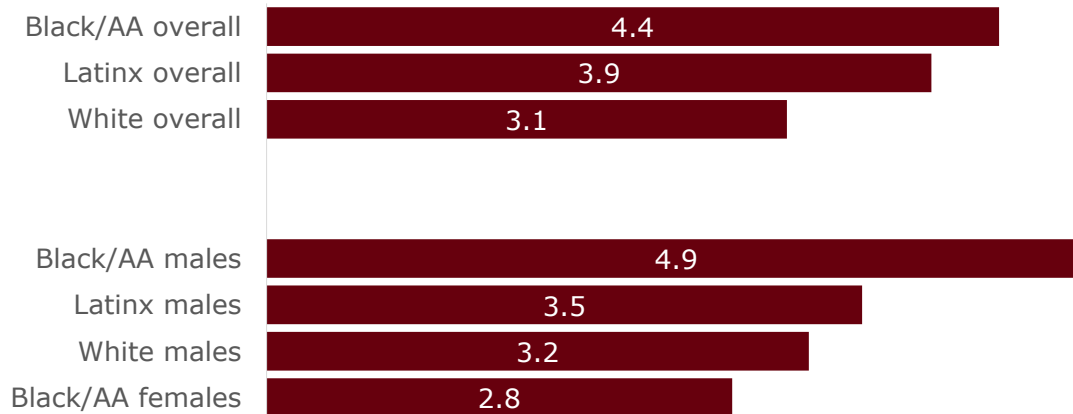


Deaths among Black males and Black females accounted for 56% of all deaths among PWH in Michigan in 2022 and they also had the highest mortality rates.

These deaths may be due to any cause. The next slide looks at HIV-related deaths by race/birth sex.

NOTE: Mortality rates are not presented for White or Latinx females due to low numbers of deaths reported among those groups. As such, any rates among these groups should be interpreted with caution.

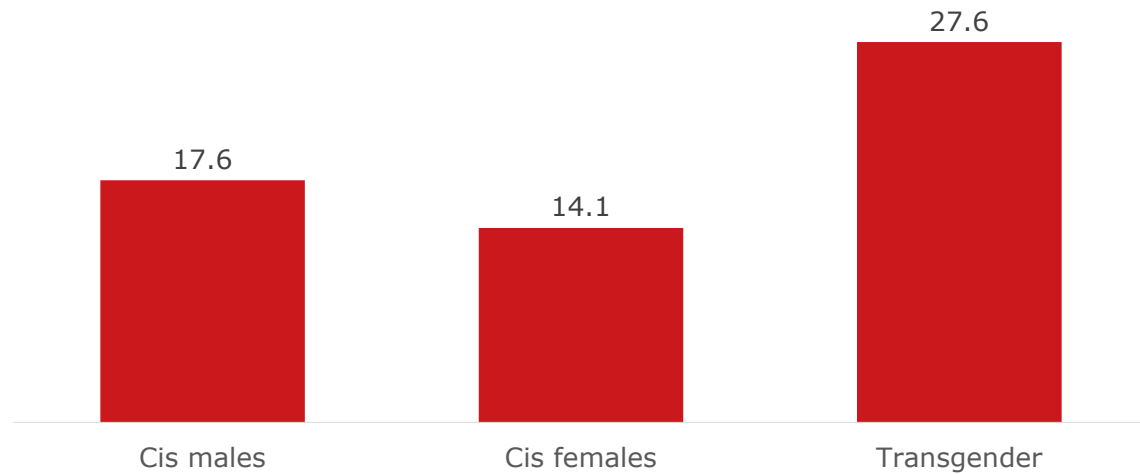
## Black males also had the highest HIV-related mortality rates in 2022



Black males also had the highest HIV-related mortality rates in 2022, which are driving the high HIV-related mortality rates among Black PWH overall. Latinx PWH had the second highest HIV-related mortality rate, largely driven by Latinx males. Improving care outcomes for these populations, especially that of Black males who make up the highest proportion (41%) of all deaths among PWH in Michigan, may lead to a decrease in the total number and rate of death among PWH in Michigan.

NOTE: HIV-related mortality rates are not presented for White or Latinx females due to low numbers of deaths reported among those groups. As such, any rates among these groups should be interpreted with caution.

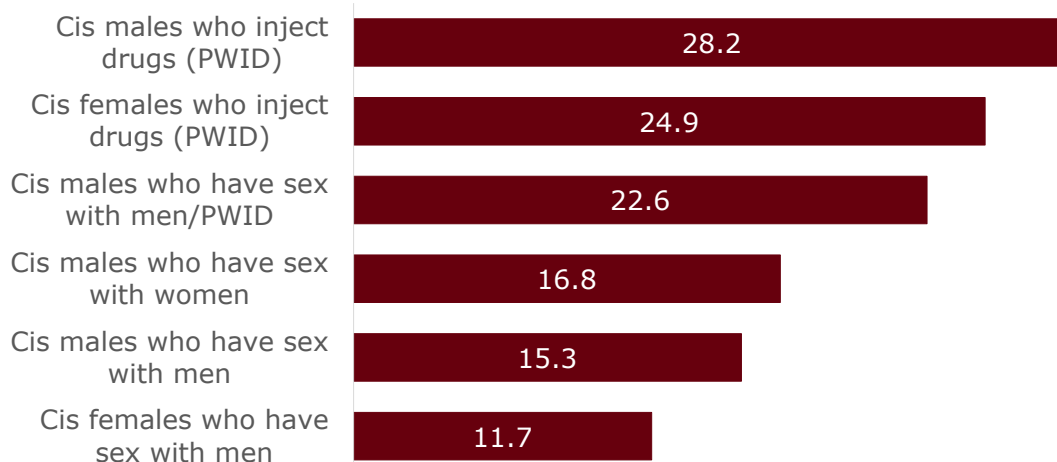
## In 2022, mortality rates among transgender PWH were still high



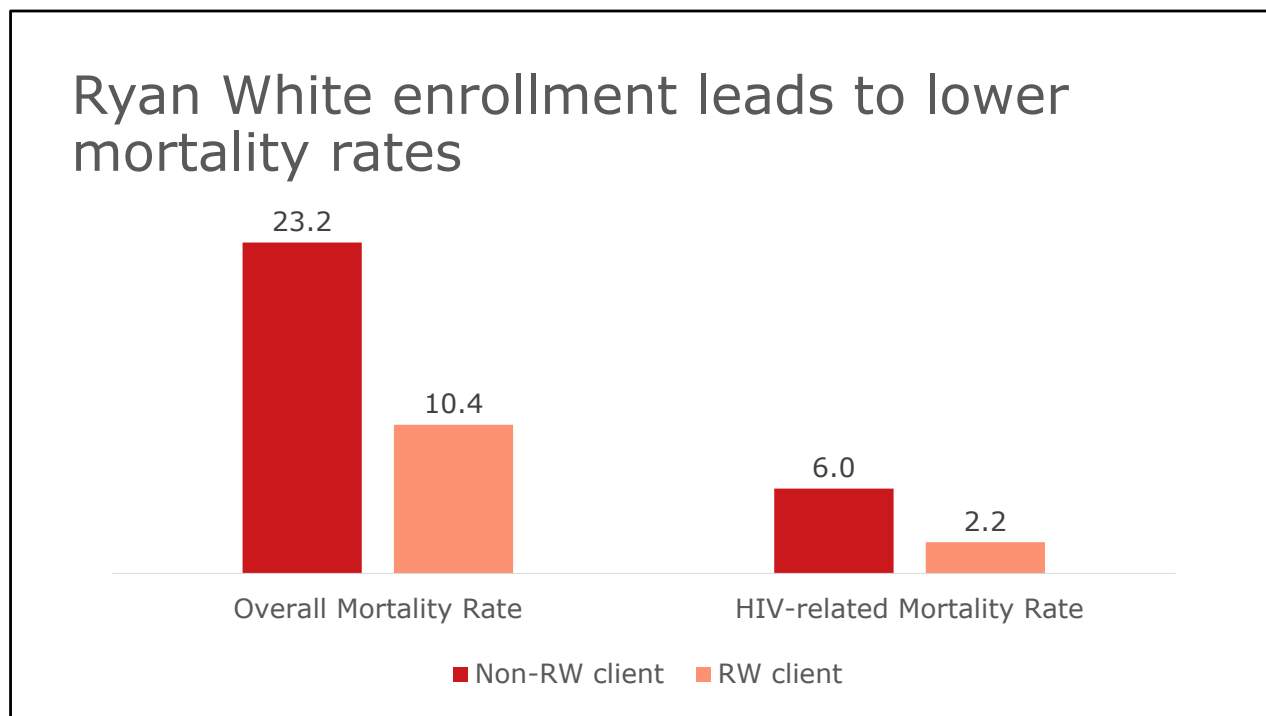
Transgender PWH make up a small proportion of all PWH in Michigan (2%) and a similar proportion of deaths among PWH (1%). However, their mortality rate in 2022 was close to 27.6 deaths per 1,000 transgender PWH. That's 1.5 times higher than the mortality rates among cis males and cis females with HIV in Michigan. Their HIV-related mortality rates are comparable to cis males, suggesting that there are non-HIV related causes contributing to the high mortality rates among this population. Please note that with such a small number of deaths among transgender PWH (5), their mortality rates should be interpreted with some caution.

The median age at death among transgender PWH is also considerably lower at 49 years compared to that of cis males and cis females at 57 years, each.

## As of 2022, PWH who inject drugs continue to have notably high mortality rates



Even though the population of PWH who inject drugs tends to be older, the mortality rate is still extremely high among persons who inject drugs (PWID) after adjusting for age. This population tends to also have high a rate of HIV-related deaths which suggests they may not be receiving the HIV care or treatment they need.



Ryan White (RW) clients (PWH who are enrolled in RW and received at least 1 service in 2022) experience lower rates of overall mortality when compared to non-RW clients. PWH who are enrolled in RW also tend to have better HIV care and viral suppression outcomes which can help reduce the likelihood of an HIV-related death.



## Mortality Summary

- The overall mortality rate and HIV-related mortality rate have decreased dramatically over the course of the HIV epidemic in Michigan but are starting to level off.
- The most common comorbidities that contribute to deaths among PWH are cardiovascular diseases, mental and behavioral disorders, and malignant cancers, highlighting a continued need for whole person care coordination.
- Genesee and the Detroit LHD represent the areas with the highest mortality rates among PWH.
- Transgender PWH have significantly higher mortality rates and shorter lifespans compared to cis males and cis females and this is likely due to external factors that are not directly related to their diagnoses.
- It is critical to continue intervention efforts among Black males and PWID to decrease the mortality rates among these populations.
- Lower mortality rates among Ryan White clients further highlights the importance of engaging and retaining eligible PWH in the Ryan White program.