

HIV Trends

New diagnoses 2013-2022

Data as of July 2023



The HIV Trend Report includes persons diagnosed with HIV while living in Michigan. This slide set highlights key HIV diagnosis trends over the past 10 years and is meant to guide care and prevention strategies. Changes in short term trends - such as an outbreak - are monitored by the HIV Surveillance Program monthly. To view the tables used to create this slide set, confidence intervals, and other geographic and demographic breakdowns, please see the HIV Trends Tables.

When available, census data are used to calculate rates of new diagnoses. For populations where census data are not available (for example, number of persons who inject drugs), the proportion of newly diagnosed persons who fall into a given category are assessed. Using rates and proportions (rather than counts) when comparing regions, demographic groups, or changes over time is critical. For further explanation, see our 5 minute [Epidemiology 101 video](#).

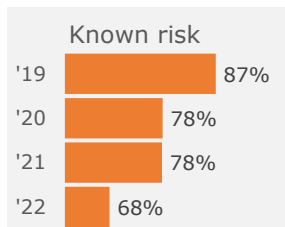
Negative binomial regression and Poisson distributions are utilized to determine statistically significant changes in new diagnoses over the preceding 10 years. For simplicity, statistically significant changes ($p < 0.05$) are referred to as "significant" increases or decreases. Important trends where $0.05 \leq p \leq 0.1$ are referred to as "marginally significant". Often non-significant trends that visually appear significant are due to large variability year to year. When something is "significant" it means we are 95% sure the upward or downward trend is real. When there's a lot of variability we can't be sure - for example it's possible there were a couple fluke years and there's not really a change. Brown trendlines indicate a significant change while the grey trendlines indicate changes not significantly different from zero ($p < 0.05$).

Overview 2013-2022

- It's likely there is a surplus of PWH unaware of their status due to the 2020 diagnosis dip and low diagnoses 2021-2022. *(see slide 4)*
- Lack of risk data creates challenges around curbing rapid transmission networks – especially among persons who inject drugs. *(see slide 3)*
- Diagnoses increased in Allegan, Ottawa, and Grand Traverse Counties *(see slide 12)*, and among 25-34 year olds *(see slide 17)*.
- Diagnoses decreased among Oakland, Washtenaw, and Wayne County (including Detroit) residents *(see slides 9-11)*, Black/AA persons *(see slide 15)*, 15-24, and 35+ year olds *(see slide 17)*.
- Linkage to and engagement in care improvements are leveling off. *(see slide 21)*
- New diagnoses among young (15-29 year old) Black/AA men significantly declined. **Given shifting age groups, the priority population will transition to 20-34 year old Black men.** *(see slides 17 & 23)*

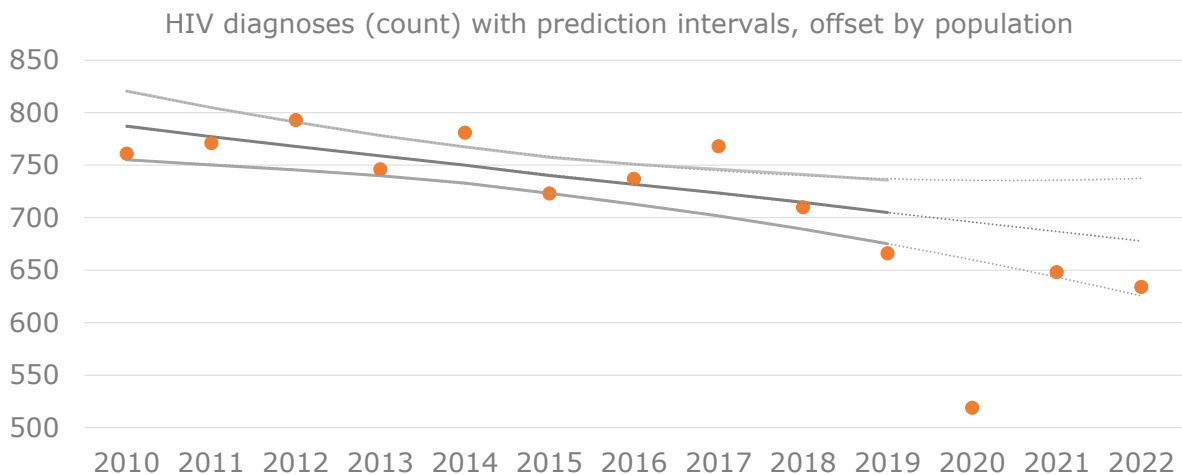
Notes

- Trendlines and significance testing do not include 2020. Further information is on the next slide.
- Trends are a measure of new diagnoses, not new infections. Historically, new diagnoses were a consistent proxy for new infections. This may still be the case, but the drop in testing during 2020 has made the relationship questionable. Further information is on the next slide.



Partner Services (PS) and contact tracing fatigue is negatively impacting testing history and risk ascertainment. Since 2020, the public is less inclined to speak with PS staff resulting in low completion levels for these two measures. For this reason, this slide deck does not include either of these topics.

HIV diagnoses dropped significantly during 2020 due to lack of testing

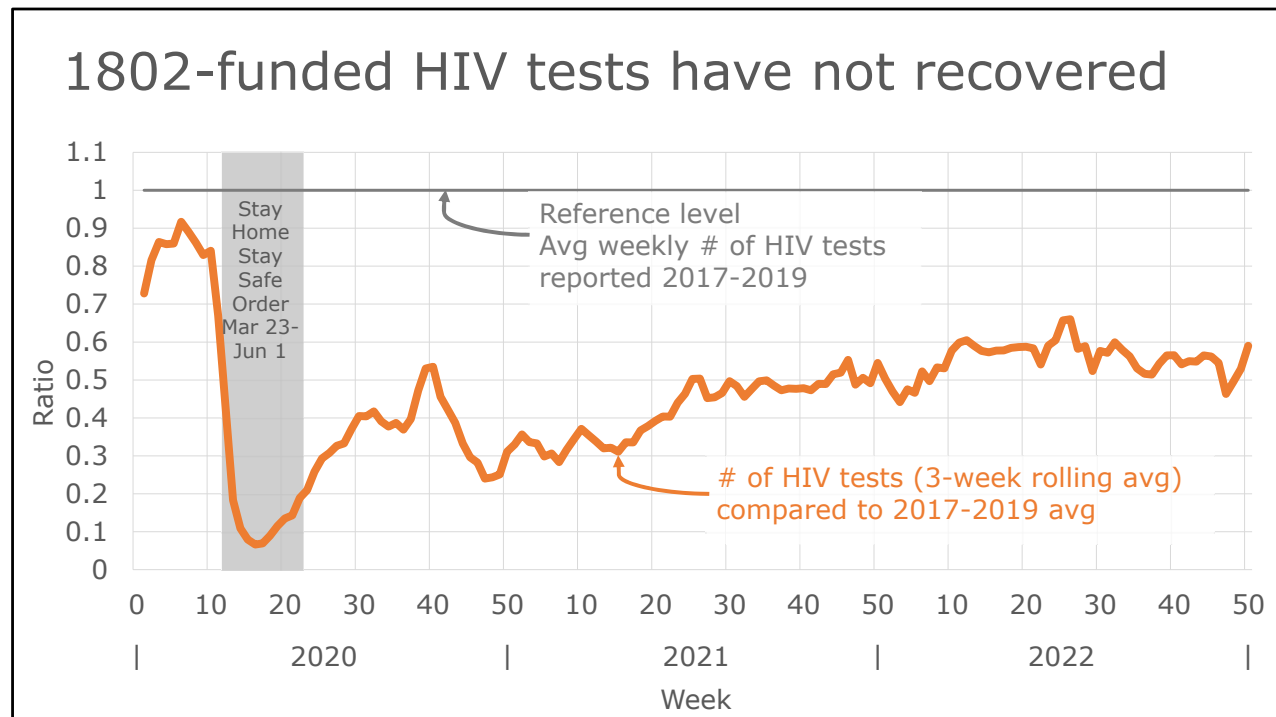


Given the 2010-2019 trend (grey line with prediction intervals), new diagnoses during 2020 were 25% lower than expected. The magnitude of this drop was most likely due to lack of testing, not a decrease in actual transmissions. STI's, specifically Syphilis diagnoses among men who have sex with men, did not decline during 2020 or 2021 – a relatively good proxy for HIV transmissions.

The Stay Home Stay Safe (SHSS) order from March 23 – June 1 closed all non-essential businesses, including many HIV testing sites. Post SHSS, Local Health Departments (LHD's) and Community Based Organizations (CBO's) switched from walk-in HIV testing to testing by appointment only which greatly reduced testing volume. Most diagnoses during 2020 occurred in primary care settings or in Emergency Departments.

New diagnoses during 2021 and 2022 appear to be on the low end of the normal range suggesting those missed during 2020 likely remain undiagnosed along with additional missed diagnoses 2021-2022. Receiving a diagnosis early and getting into HIV care improves the individual's prognosis and reduces the risk of further transmissions. Additionally, the low diagnoses during 2021 and 2022 may be amplifying moderate decreases or masking increases. Therefore, this year's Trends Report only includes general overviews – we're still waiting to see COVID's full impact on the HIV landscape.

As a final note, the diagnosis pattern seen here (where 2020 is far outside the prediction interval and 2021 is inside the low end) was observed across MI, in Detroit metro counties, the west side of the state, rural areas, etc.

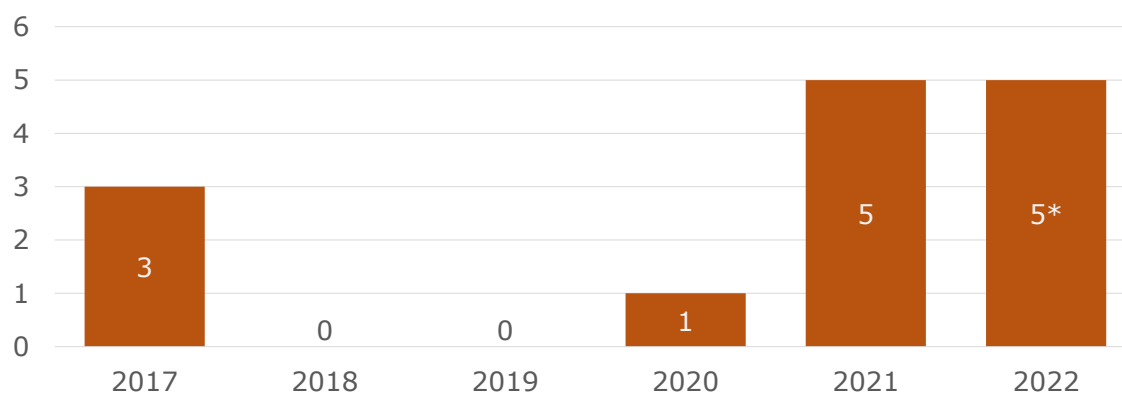


- 1802-funded tests (tests funded by CDC through surveillance and prevention), while only accounting for a small portion of all HIV tests run in the state, are responsible for 15-20% of all new diagnoses.
- These tests are conducted at local health departments (LHD's), Community Based Organizations (CBO's), and select Emergency Rooms (ER's)
- Testing dropped during SHSS and has not returned to normal levels (testing volume is significantly lower than previous years and weekly testing remains at ~60% of normal levels during 2022 so far).

Note: the last 2 weeks of each year are excluded as there's a large amount of testing variability around the holidays.

SHiNe network identification was high 2021 & 2022, despite low diagnoses

SHiNe networks with ≥ 5 members identified in Michigan, 2017-2022

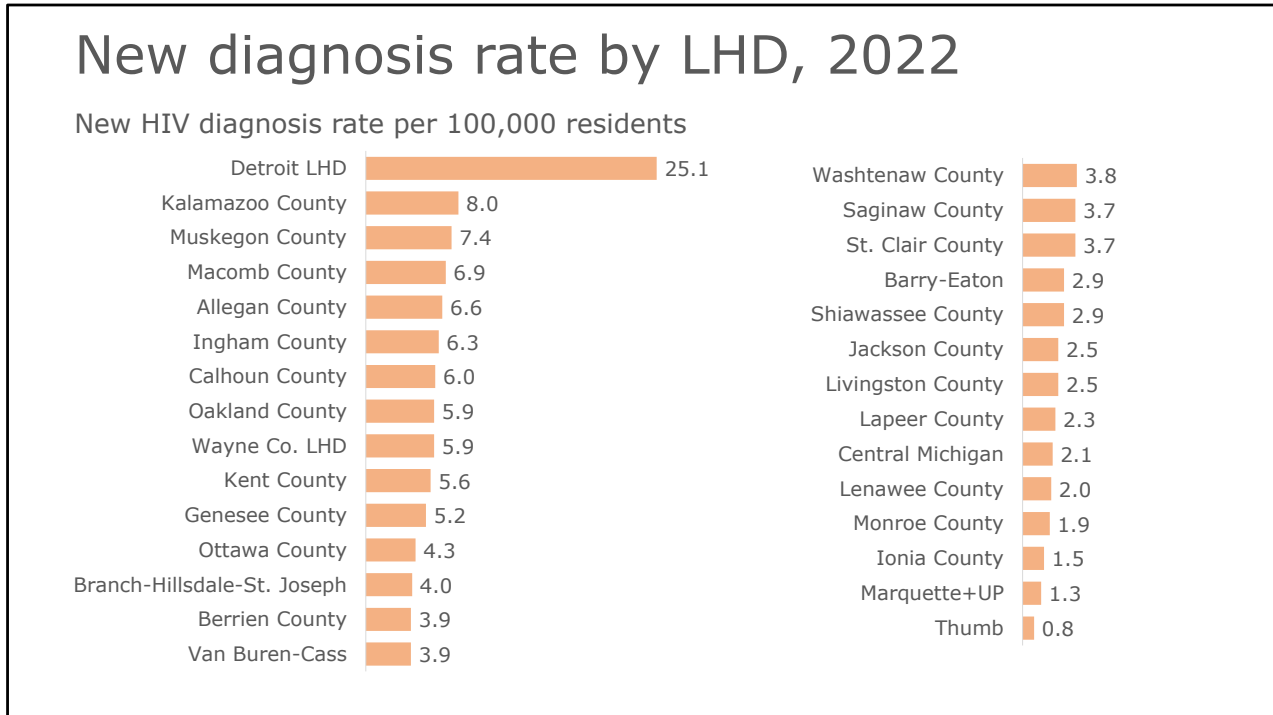


*One of the SHiNe networks was a previously identified network (9.8) growing rapidly enough to reach a Phase 2 response

Aside from Syphilis diagnoses among men who have sex with men, low testing volume during 2020, and lower than expected diagnoses during 2021 & 2022, the elevated frequency of Phase I SHiNe (Shared HIV Networks) detection during 2021 and 2022 indicate an increase in missing diagnoses. Networks are associated with recent and rapid dissemination of HIV within a network or community. Phase I indicates at least 5 persons were identified in a network within 12 months. MDHHS monitors and responds to these networks to ensure newly diagnosed individuals are linked to care, novel patterns of HIV transmission are tracked and understood, and PWH have access to support and resources as they move through the continuum of care. Unlike other trends monitoring, SHiNe doesn't rely as heavily on complete levels of diagnosis. As long as enough members of the network are diagnosed and receive an HIV genotype, rapidly growing networks can be detected.

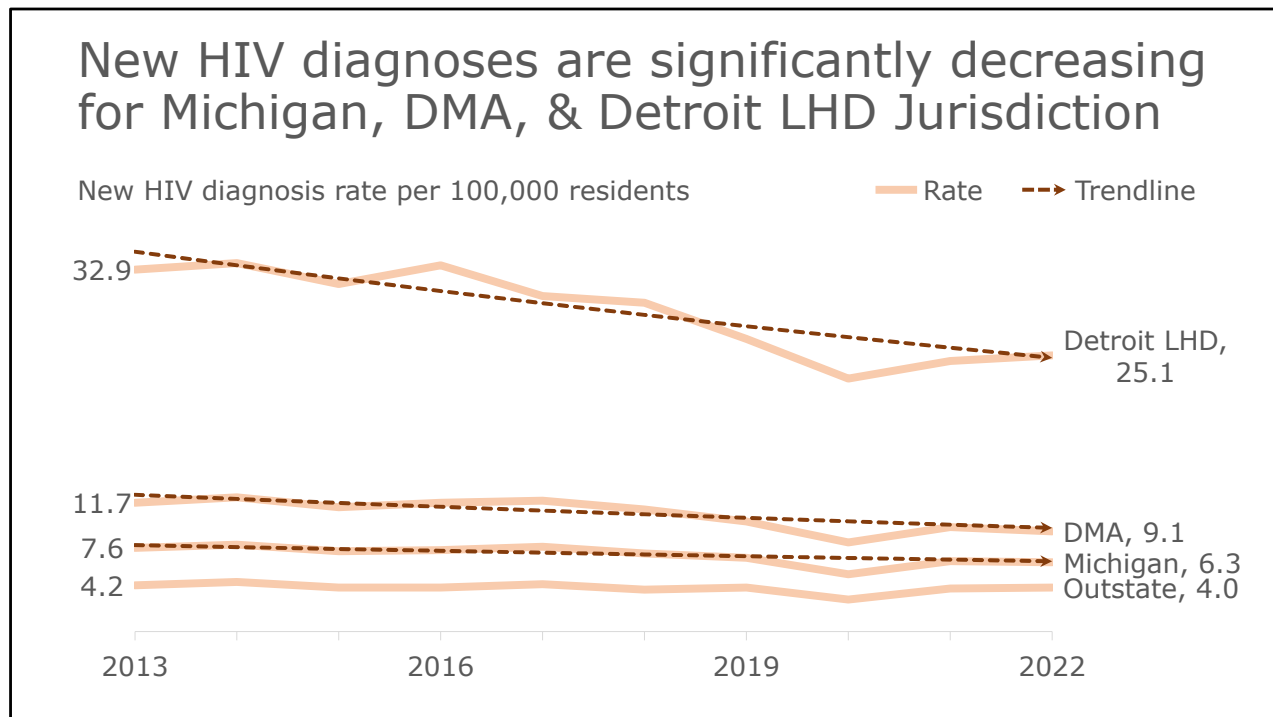
MDHHS only identified 3 SHiNe networks when the program was initiated in 2017, and one was detected during 2020. However, 5 networks were identified during 2021 and 2022 despite continued low number of diagnoses. One of the networks from 2021, continued to grow rapidly during 2022 and reached a Phase II response. Phase II indicates over 8 new individuals within the network were diagnosed within 12 months. The elevated frequency of SHiNe networks, may indicate that the rate of new infections has not slowed, but that testing has not yet caught up with the undiagnosed new infections from 2020.

Geographic Trends



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 Co. LHD** includes person living in Wayne County outside the Detroit LHD. **Central Michigan** includes persons living in the lower peninsula in counties other than those listed.

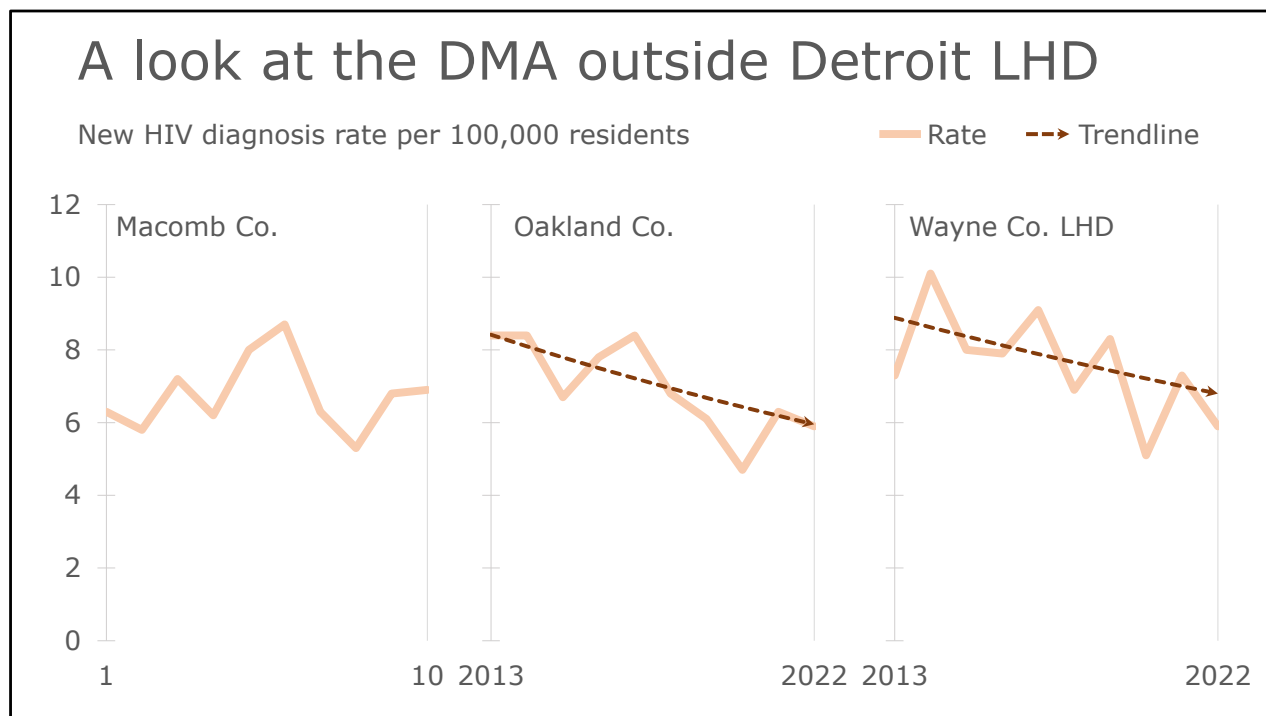
The Thumb includes Huron, Sanilac, and Tuscola Counties.



The **Detroit Local Health Department** (LHD) jurisdiction includes persons living in the cities of Detroit, Highland Park, Hamtramck, Harper Woods, or the Grosse Pointes. **DMA** is the Detroit Metro Area and includes Lapeer, Macomb, Monroe, Oakland, St. Clair, and Wayne (including Detroit) counties. **Outstate** includes persons living in Michigan outside the DMA.

The rate of new diagnoses significantly declined among residents of the Detroit LHD jurisdiction, the DMA, and the state of Michigan as a whole. There was no significant change in the Outstate region as a whole. New diagnoses decreased an average of 3.6% per year in the Detroit LHD and 3.0% per year in the DMA. The significant drop among City of Detroit residents drove these declines along with a significant decrease among Oakland County residents and those in Wayne County outside Detroit. Because the majority of persons diagnosed with HIV in Michigan reside in the DMA, the decrease at the state level (2.3% per year) is primarily due to the decrease in the DMA.

Brown trendlines indicate a significant change ($p < 0.05$) while an absence of a trendline indicates changes not significantly different from zero.

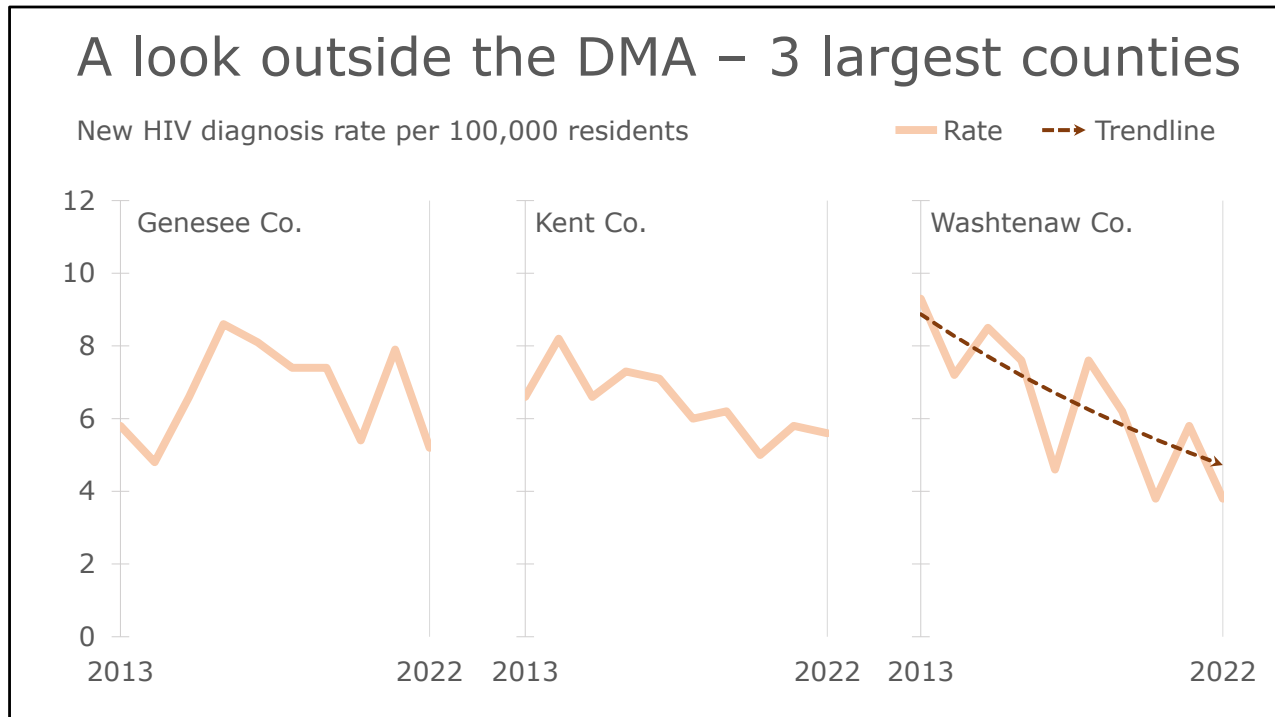


NOTE: The y-axis scale is the same for all graphs.

The **Detroit Local Health Department** (LHD) jurisdiction includes persons living in the cities of Detroit, Highland Park, Hamtramck, Harper Woods, or the Grosse Pointes. **DMA** is the Detroit Metro Area and includes Lapeer, Macomb, Monroe, Oakland, St. Clair, and Wayne (including Detroit) counties.

- The new diagnosis rates continue to increase in Macomb, but the low diagnoses 2021-2022 (likely due to lack of testing) is preventing the trend from being statistically significant.
- Oakland County significantly decreased by 3.8% per year.
- Wayne Co. LHD (Wayne Co. outside the Detroit LHD jurisdiction) significantly decreased by 3.0% per year.
- No significant changes were observed among Lapeer, Monroe, or St. Clair Counties.

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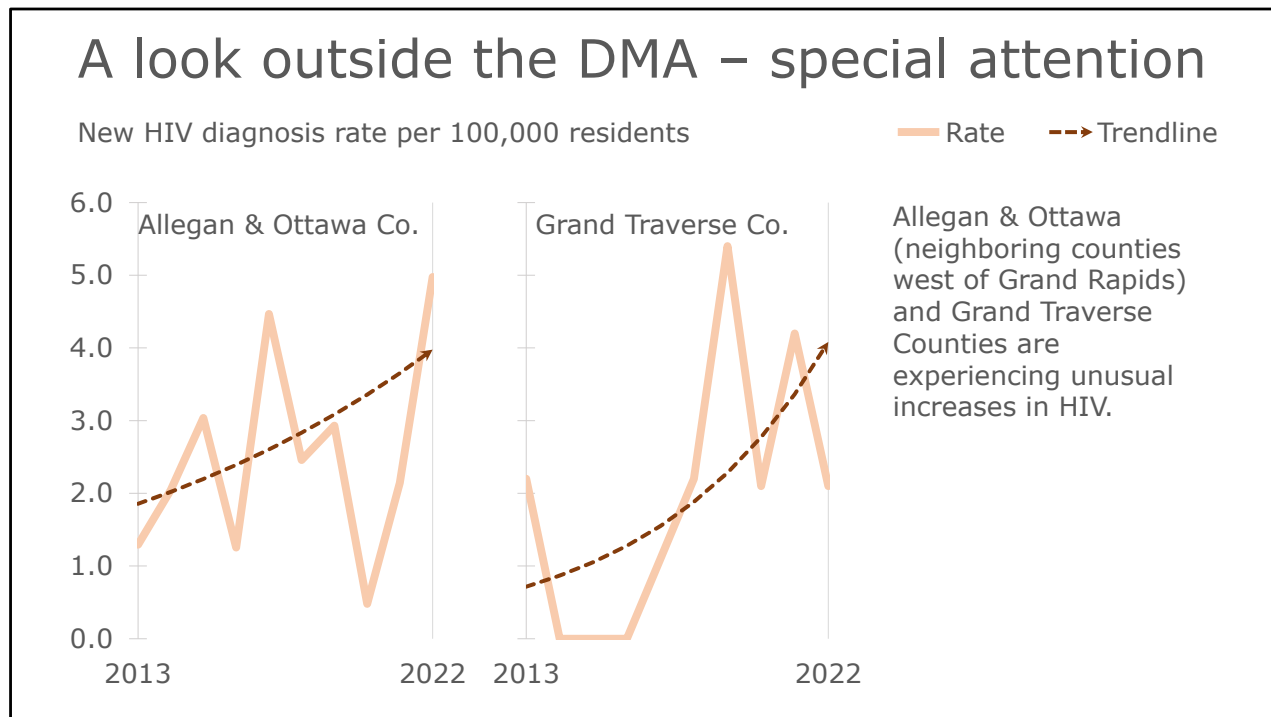


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DMA is the Detroit Metro Area and includes Lapeer, Macomb, Monroe, Oakland, St. Clair, and Wayne (including Detroit) counties.

Between 2013 and 2022, Genesee and Kent Counties did not experience significant changes in the HIV diagnosis rate. New diagnoses among Washtenaw County residents decreased significantly by 6.8% per year.

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NOTE: The y-axis scale is the same for all graphs.

DMA is the Detroit Metro Area and includes Lapeer, Macomb, Monroe, Oakland, St. Clair, and Wayne (including Detroit) counties.

- New diagnoses are significantly increasing in Allegan & Ottawa Counties by 8.8% per year. This trend is not confined to any particular city within the counties. The average annual new diagnosis rate has nearly doubled since the early 2010's.
- The extremely low level of diagnoses in Grand Traverse (no more than one or two a year with zero new diagnoses 2014-2016) gave way to a minimum of two diagnoses a year since 2018 with 5 in 2019 and 4 in 2021.

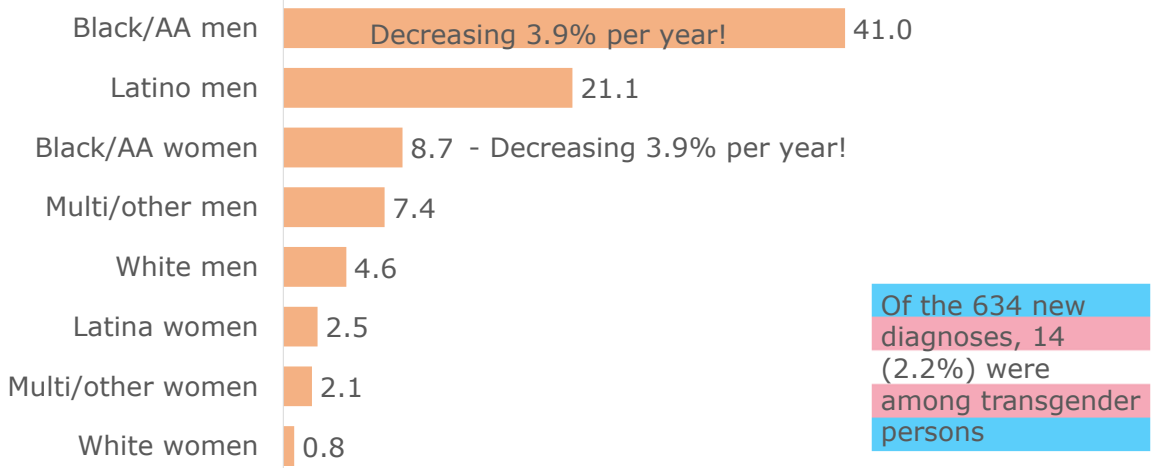
Additionally, network detection activities have identified both these areas several times over the last few years. See slide 6 for more information on network detection. MDHHS continues to monitor these counties closely for continued increases.

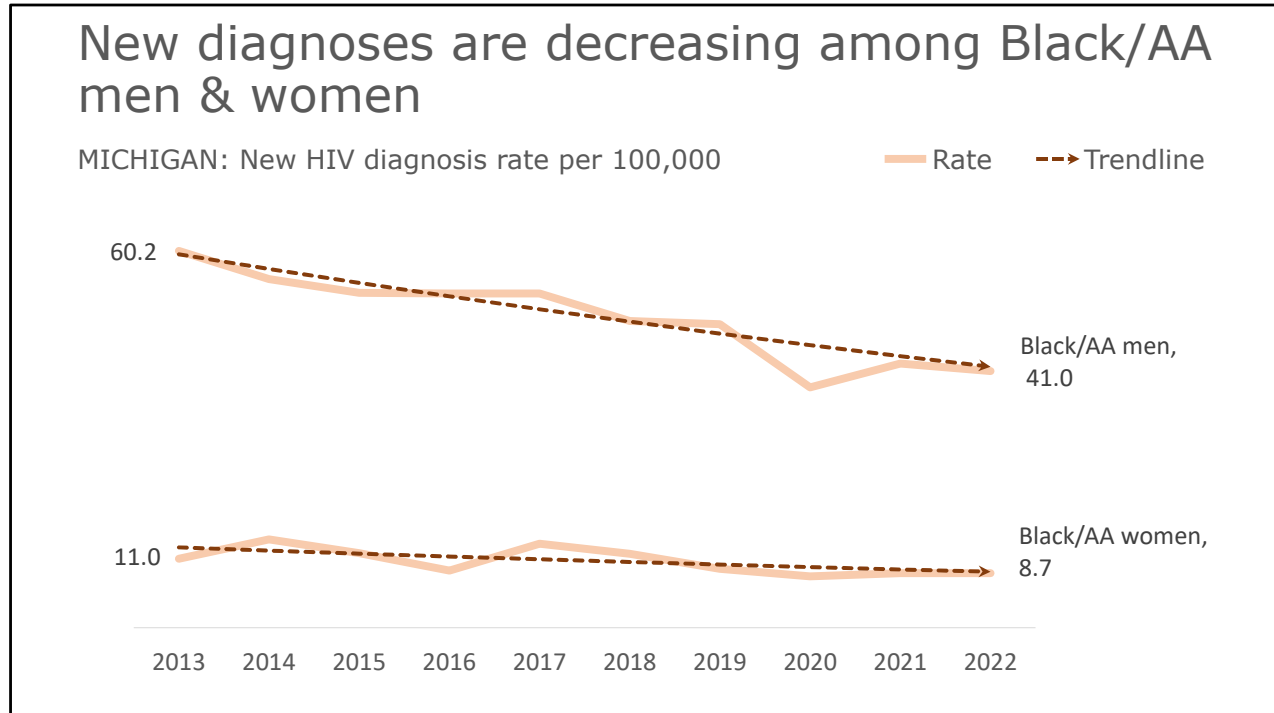
Brown trendlines indicate a significant change ($p < 0.05$) while an absence of a trendline indicates changes not significantly different from zero.

Demographic Trends

Black/AA men are most affected by HIV

MICHIGAN: New HIV diagnosis rate per 100,000 by race and sex at birth, 2022



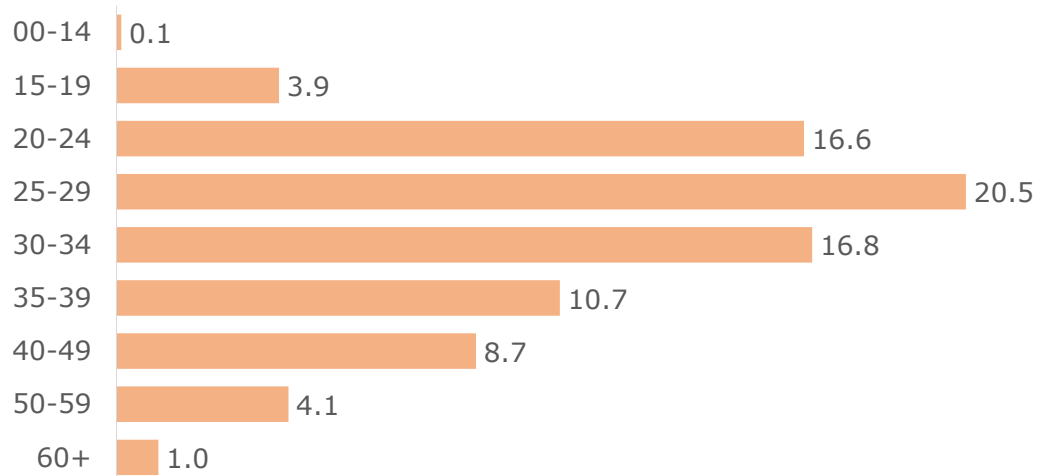


- The new diagnosis rate among Black/AA men significantly decreased by 3.9% per year.
- The new diagnosis rate among Black/AA women significantly decreased by 3.9% per year.
- No significant trends were observed among white or Latinx persons.

Brown trendlines indicate a significant change ($p < 0.05$) while an absence of a trendline indicates changes not significantly different from zero.

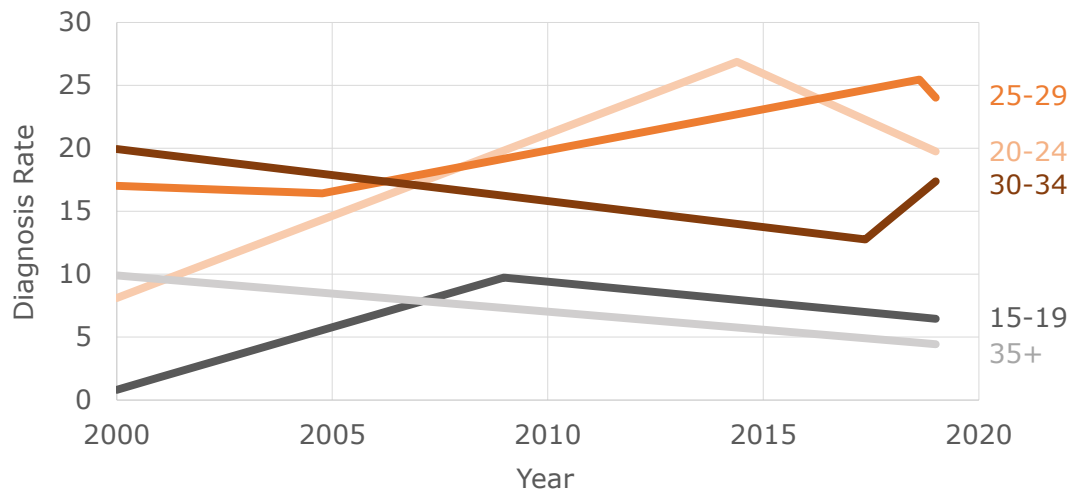
High diagnosis rates among 20-34 yr olds

MICHIGAN: New HIV diagnosis rate per 100,000 by age, 2022



30-34 year olds: an age group of concern?

MICHIGAN TRENDLINES: New HIV diagnosis rate per 100,000 residents by age

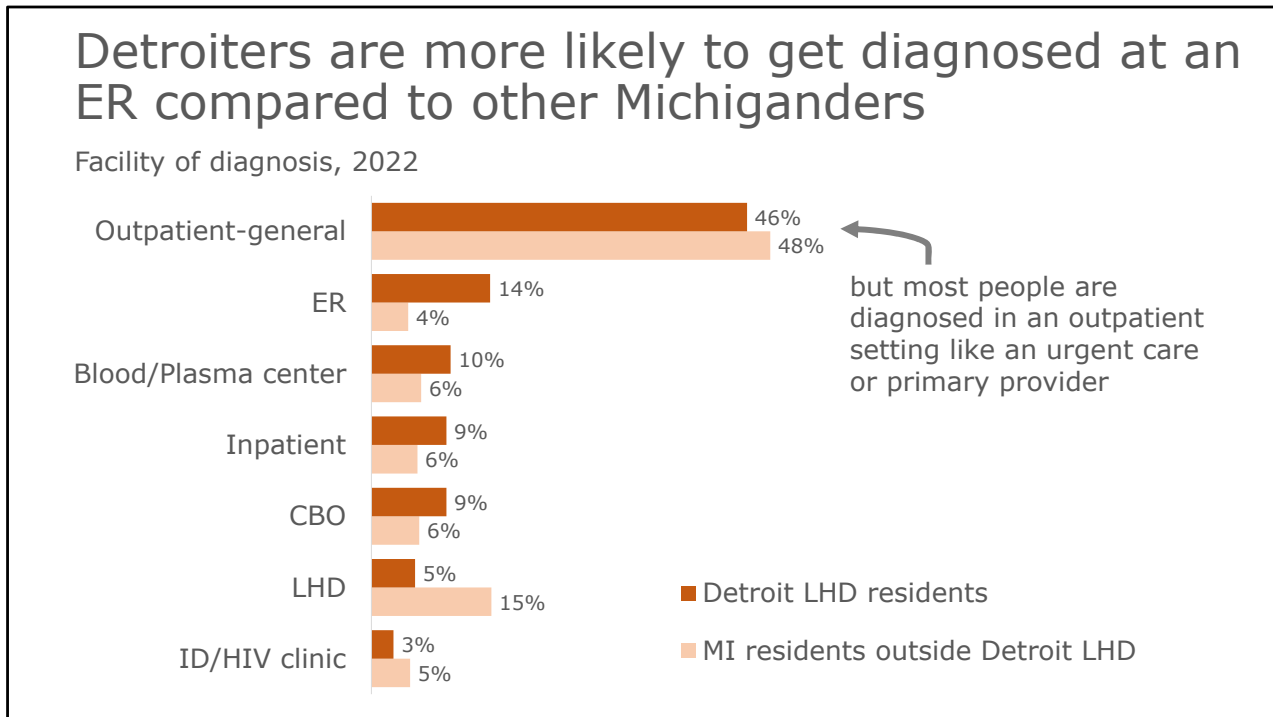


Over the past two decades trends among multiple age groups have changed.

- 15-19 year olds: Historically, HIV was virtually non-existent in this group. Diagnoses steadily rose from 2000-2008 and have slowly declined since.
- 20-24 year olds: new diagnoses rose 2000-2014 maintaining their status as an age group of concern for several years. Since 2014, new diagnoses have steadily decreased in this group, but they remain a closely monitored group as rates of new diagnoses are still high.
- 25-29 year olds: new diagnoses rose 2007- 2017 (trendline rises at 2005), then dropped off steeply in 2018 (trendline pivots closer to 2019). 2021-2022 new diagnoses were below 2019, but plateaued. It's unclear if the steep drop 2018-2019 was true or testing declines began before 2020. Regardless, this age group remains a group of concern.
- 30-34 year olds: new diagnoses consistently decreased 2000-2016 before rising sharply. This age group appears to be a group of concern again after nearly two decades of improvement.
- Persons 35+ have declined steadily or plateaued since 2000.

Significance testing was not conducted. This figure is meant to demonstrate the observed changes in direction of new diagnoses. Trendlines run 2000-2019 as validity of 2020-2022 are unclear and greatly affect several group's latter trendlines. Further assessment is being done to assess the relationship of these changes to shifting age groups of prevalent PWH.

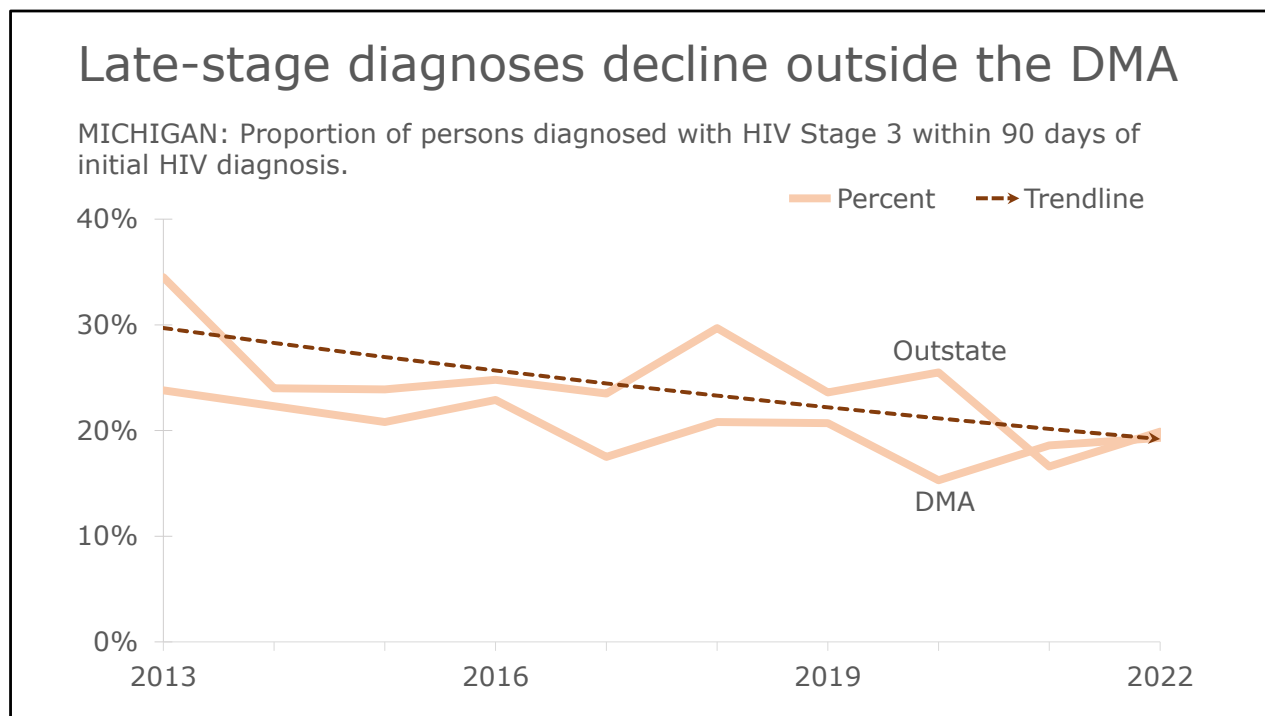
Testing & Linkage Trends



The **Detroit Local Health Department (LHD)** jurisdiction includes persons living in the cities of Detroit, Highland Park, Hamtramck, Harper Woods, or the Grosse Pointes. Facilities of diagnosis among Outstate residents and residents of the DMA outside the Detroit LHD jurisdiction were very similar. Therefore, these groups were combined into one (MI outside the Detroit LHD).

Compared to the rest of the state, a higher proportion of Detroit LHD jurisdiction residents continue to be diagnosed at ER's. Electronic Medical Record (EMR) testing alerts are instrumental in increasing ER diagnoses and should be implemented statewide wherever possible.

During 2022 the proportion of Detroit LHD jurisdiction residents diagnosed at an LHD dropped from the usual 10% to 5%. Diagnoses at LHDs have declined significantly statewide over the last 10 years, however the magnitude of this drop in Detroit was sudden and the reason for it remains unclear.



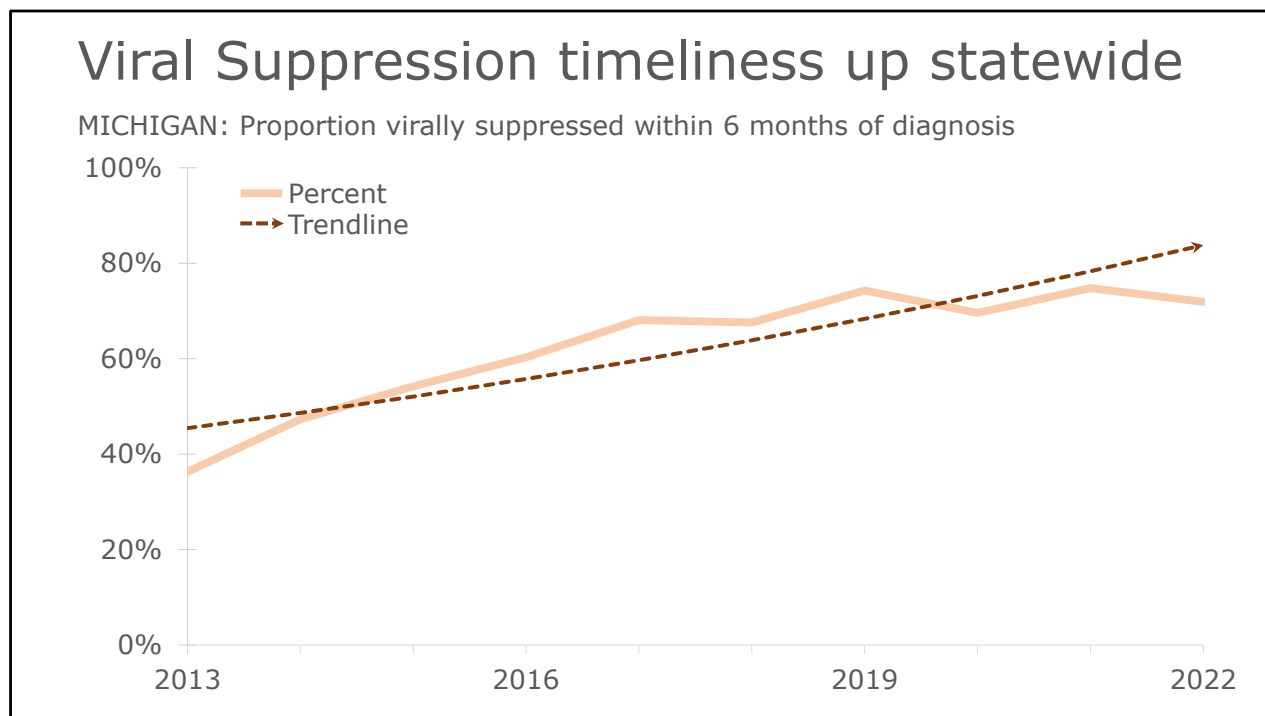
DMA is the Detroit Metro Area and includes Lapeer, Macomb, Monroe, Oakland, St. Clair, and Wayne (including Detroit) counties.

Outstate includes persons living in Michigan outside the DMA.

Late-stage diagnosis refers to persons diagnosed with HIV Stage 3 (aka AIDS) within 90 days of initial HIV diagnosis. Stage 3 is defined as CD4 count < 200.

Late-stage diagnoses are only significantly decreasing among residents outside the DMA (by 4.7% per year). Nationally, increases in late-stage diagnoses have been observed due to COVID-19, but this change was not observed anywhere in Michigan.

Brown trendlines indicate a significant change ($p < 0.05$) while an absence of a trendline indicates changes not significantly different from zero.



Viral suppression: having a viral load of <200 copies of virus per mL of blood (<200c/mL).

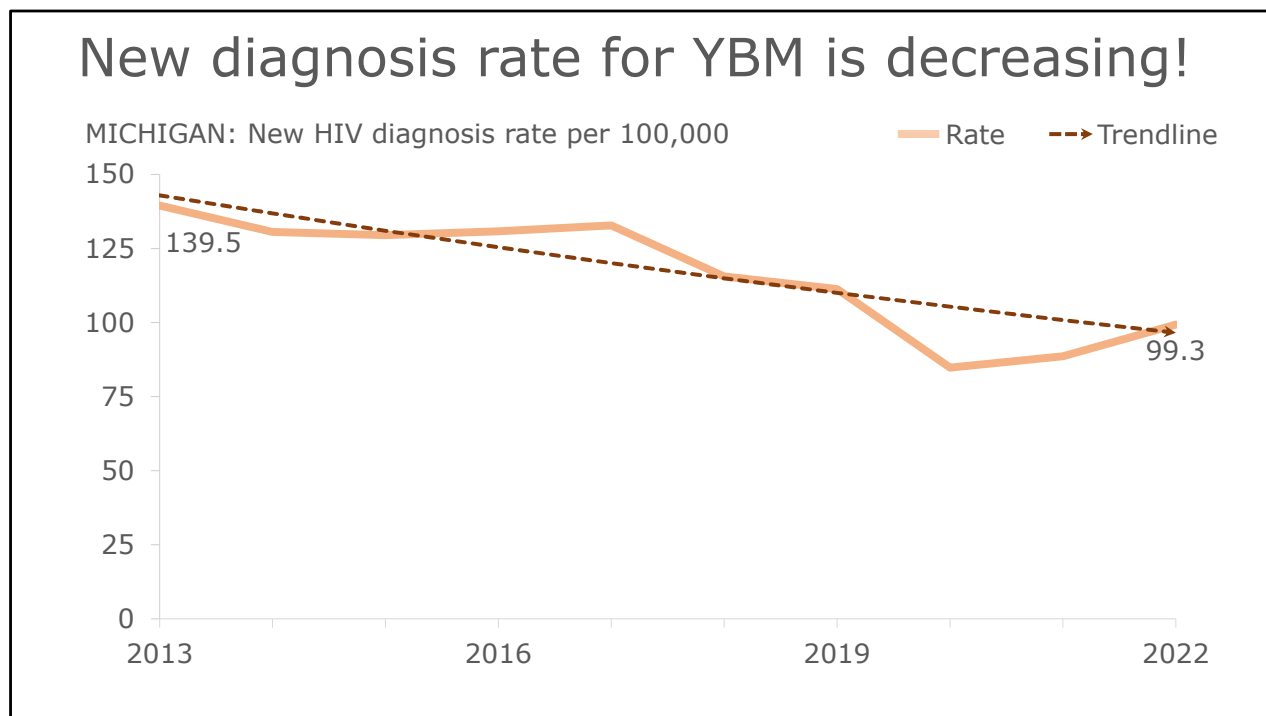
This slide displays the proportion of persons with a viral load test result of <200c/mL within six months of diagnosis. Not all persons remain virally suppressed. Only one suppressed result was required for inclusion. Those who did not achieve VS within 6 months of diagnosis are split between individuals who were not linked early (within 90 days of diagnosis), and those who were linked early, but did not reach viral suppression in 6 months. On average those who were linked, but did not reach VS within 6 months had 1-2 fewer medical care visits during those first 6 months compared to those who reached VS quickly.

Brown trendlines indicate a significant change ($p < 0.05$) while an absence of a trendline indicates changes not significantly different from zero.

Young (15-29) Black/AA Men (YBM)

Priority population phase out.

New priority population is 20-34 year old Black men.



YBM: young (15-29 year old) Black/AA men

YBMSM: young (15-29 year old) Black/AA men who have sex with men

New diagnoses began increasing among young (15-29 year old) Black/AA men (YBM) statewide by the year 2000 and peaked in 2013. The steady, statistically significant decline across Michigan since 2013 is a promising sign for YBM. Since Black men experience the same general age shifts (see slide 17), the priority population will shift from YBM to Black men 20-34.

Brown trendlines indicate a significant change ($p < 0.05$) while an absence of a trendline indicates changes not significantly different from zero.



For STI or HIV Data Requests or
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