

# HIV Trends

## New diagnoses 2012-2021

Data as of July 2022



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.

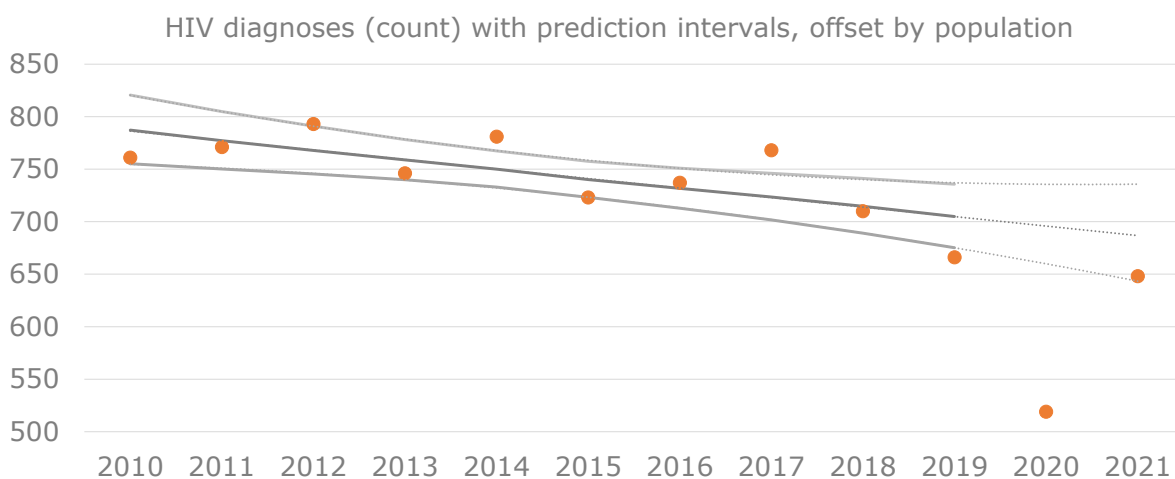
When available, census data are used to calculate rates of new diagnoses. For populations where census data are not available (for example, number of persons who inject drugs), the proportion of newly diagnosed persons who fall into a given category are assessed. Using rates and proportions (rather than 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 ( $p < 0.05$ ).

## Notes

- Trendlines and significance testing do not include 2020. Further information is on the next slide.
- Reminder that trends is a measure of new diagnoses, not new infections. Historically new diagnoses was 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)/contact tracing fatigue is having an impact. Transmission risk and testing history are frequently only obtained by PS. Since 2020, the public appears to be less inclined to speak with PS staff resulting in low risk and testing history ascertainment. For this reason, this slide deck does not include either of these topics.

## HIV diagnoses dropped significantly during 2020 due to lack of testing



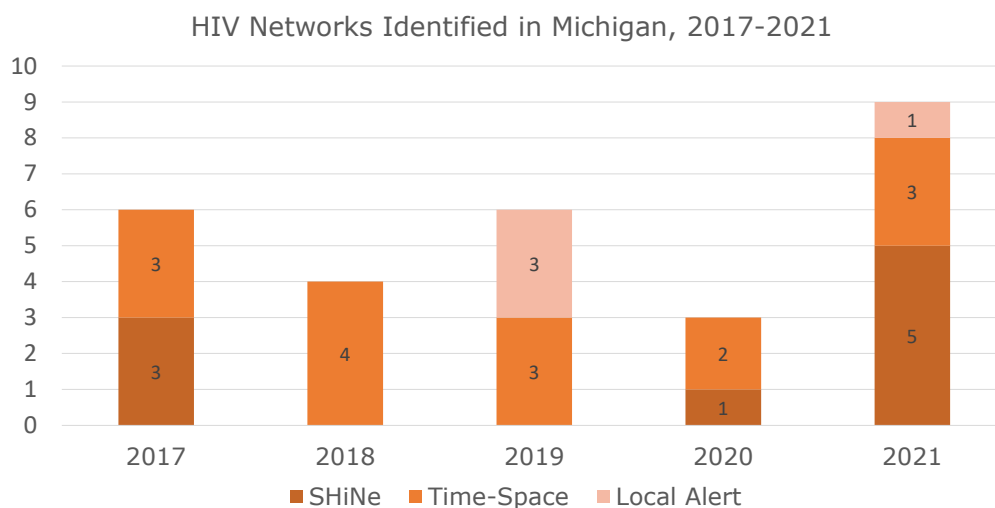
Given the 2010-2019 trend (grey line with prediction intervals), new diagnoses during 2020 were 25% lower than expected. The magnitude of this drop was most likely due to lack of testing, not a decrease in actual transmissions. STI's, specifically Syphilis diagnoses among men who have sex with men, did 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 appear to be on the low end of the normal range. This is unfortunate as individuals who would have been diagnosed during 2020 are likely still living undiagnosed. 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 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.

## HIV network identification is increased in 2021, despite lower diagnoses

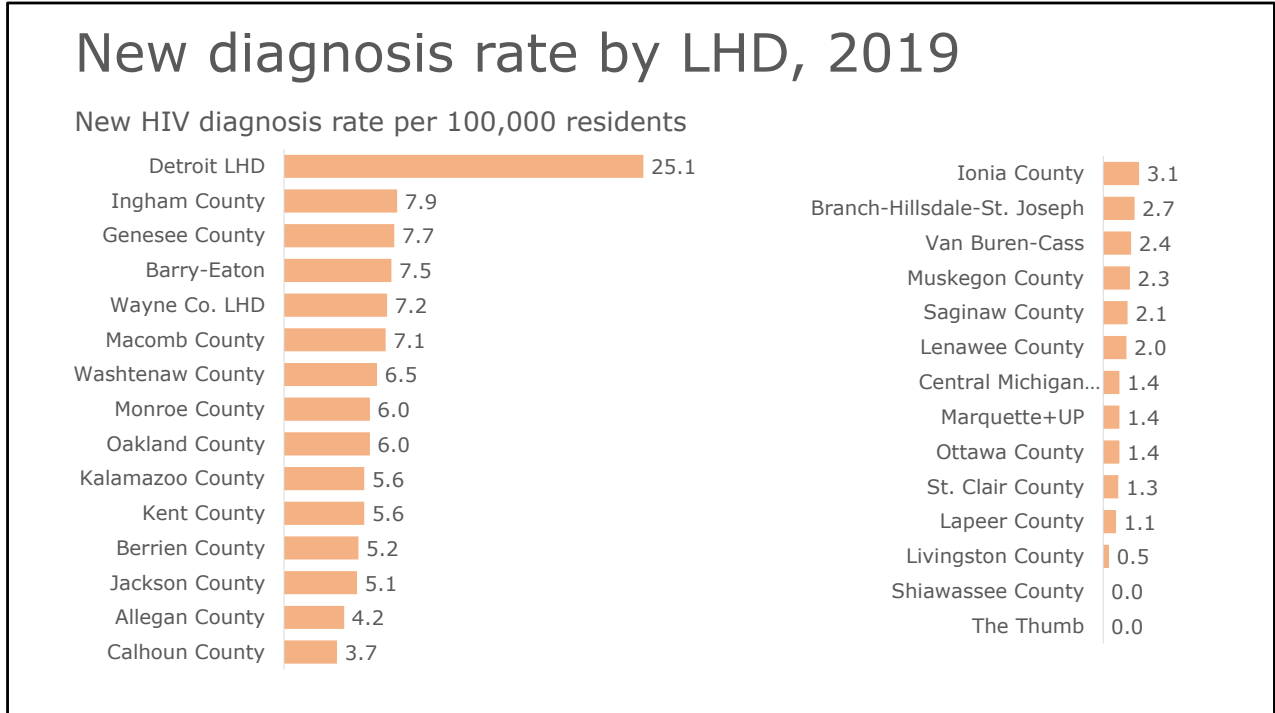


Aside from Syphilis diagnoses among men who have sex with men, low testing volume during 2020, and lower than expected diagnoses during 2021, the elevated frequency of HIV Network detection during 2021 indicate an increase in missing diagnoses.

The Michigan Department of Health and Human Resources (MDHHS) routinely monitors the emergence of Shared HIV Networks (SHiNe), increases in new diagnoses (Time-Space), and locally identified HIV transmission patterns (Local Alerts). 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 PLWH have access to support and resources as they move through the continuum of care to reach and maintain undetectable status.

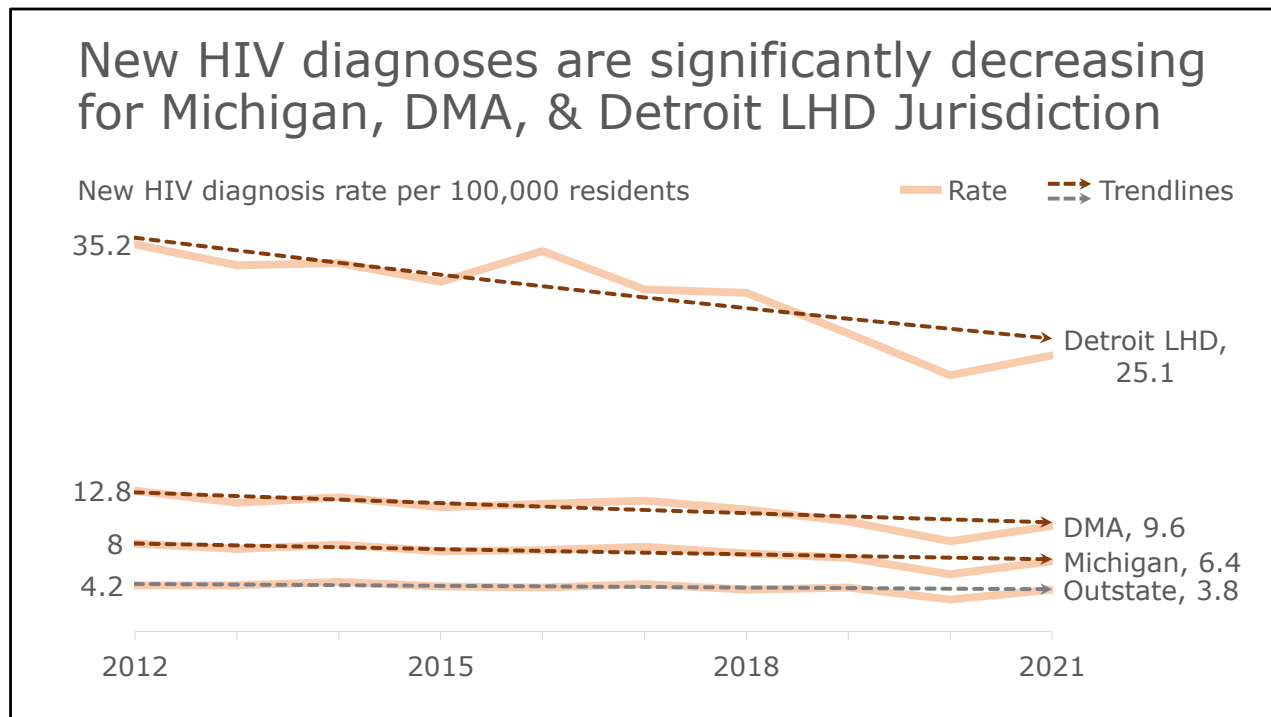
In the three years prior to 2020, MDHHS identified an average of 4.6 networks per year. In 2020 there were only three networks identified. However, in 2021 nine networks were identified despite the low number of diagnoses the same year. Of those nine new networks, five were identified via the SHiNe program. SHiNe networks are associated with recent and rapid dissemination of HIV within a network or communities. The elevated frequency of HIV Network detection, especially 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.

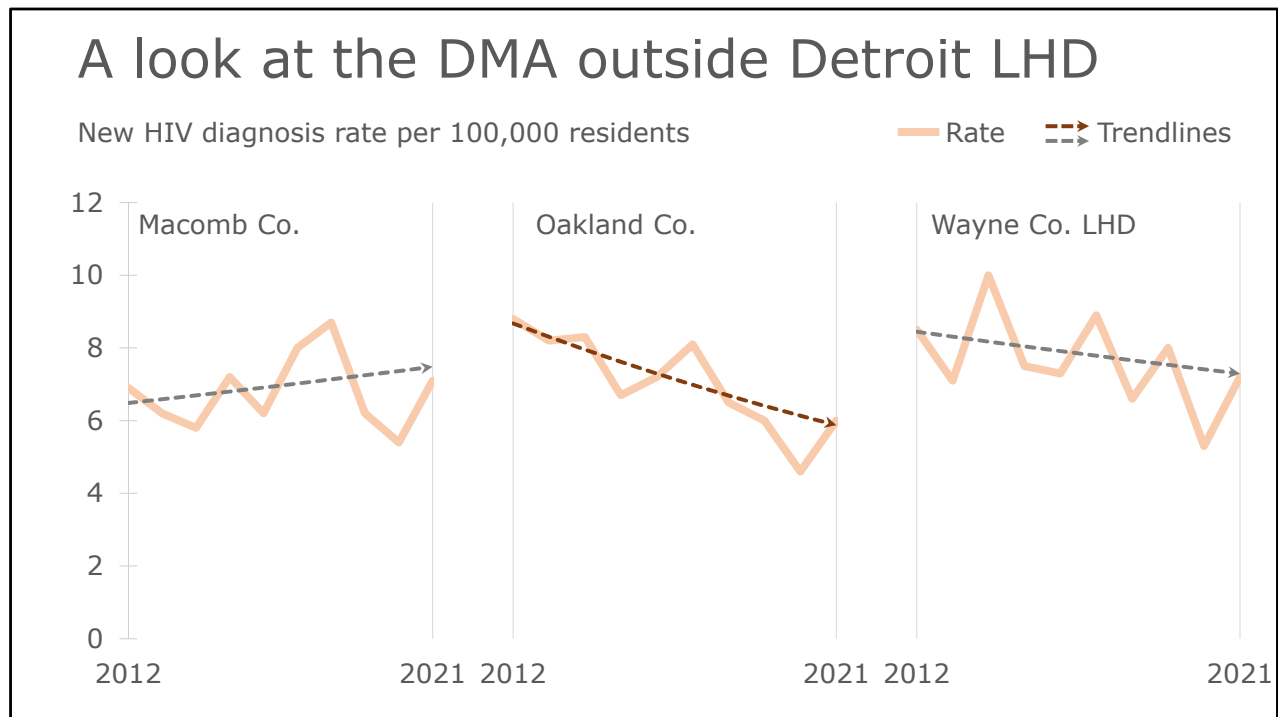
**The Thumb** includes Huron, Sanilac, and Tuscola Counties.



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 3.2% per year in the Detroit LHD and 2.7% 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. Because the majority of persons diagnosed with HIV in Michigan reside in the DMA, the decrease at the state level is primarily due to the decrease in the DMA.

Brown trendlines indicate a significant change while the grey trendlines indicate changes not significantly different from zero ( $p < 0.05$ ).



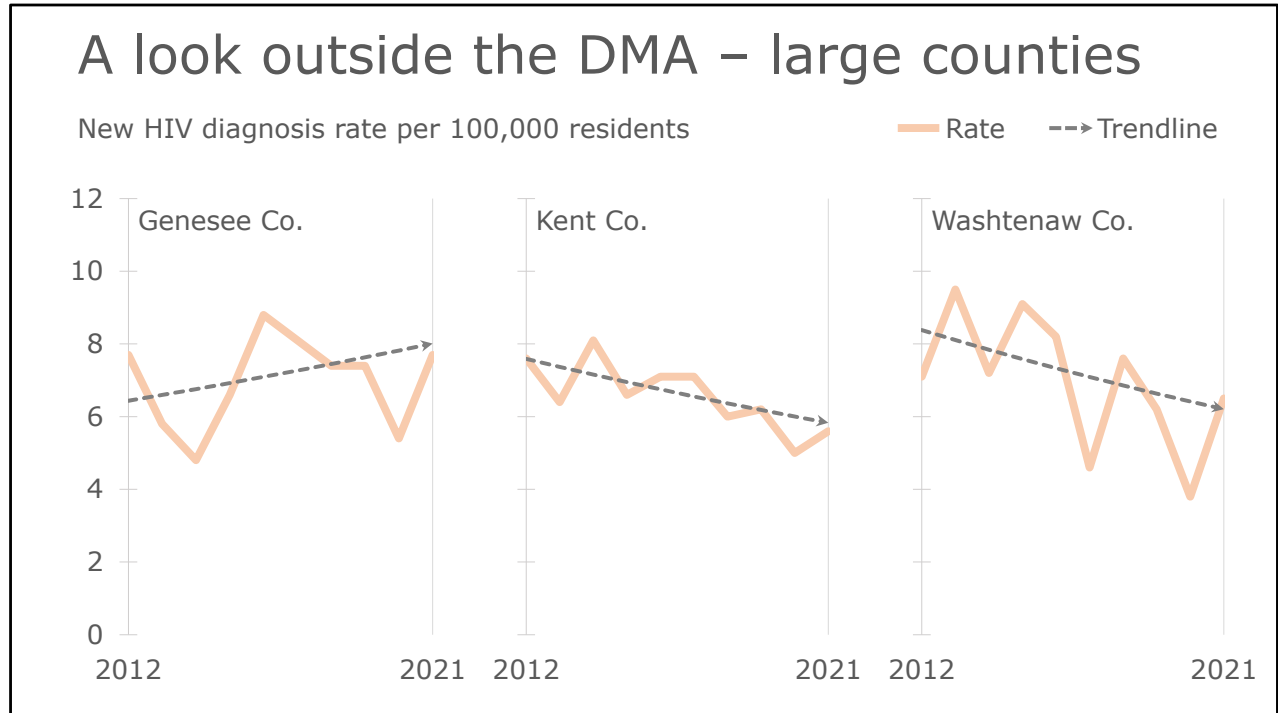
NOTE: The y-axis scale is the same for all graphs.

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 not at a significant level.
- Oakland County significantly decreased by 4.2% per year.
- No significant change was observed among residents of the Wayne County LHD jurisdiction (Wayne Co. outside the Detroit LHD jurisdiction).

Brown trendlines indicate a significant change while the grey trendlines indicate changes not significantly different from zero ( $p < 0.05$ ).



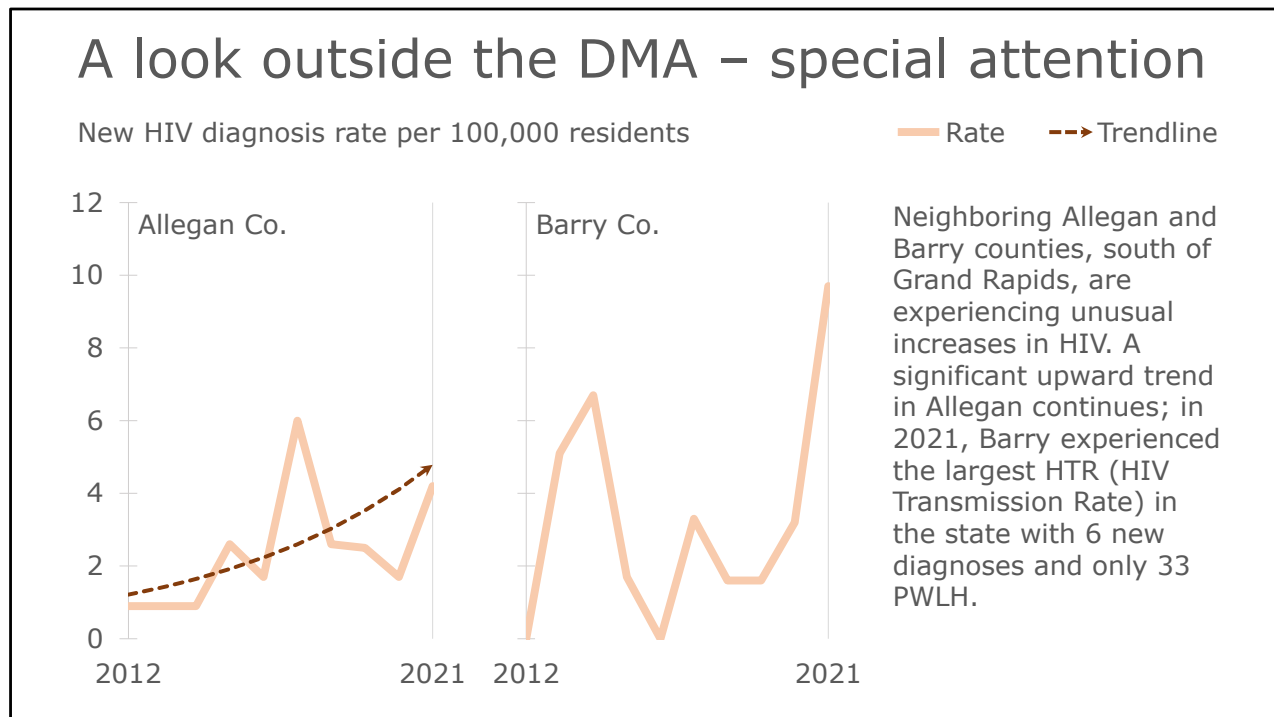


NOTE: The y-axis scale is the same for all graphs.

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

Between 2012 and 2021, Genesee, Kent and Washtenaw did not experience significant changes in the HIV diagnosis rate. However Kent and Washtenaw do appear to be heading in the right direction.

Brown trendlines indicate a significant change while the grey trendlines indicate changes not significantly different from zero ( $p < 0.05$ ).



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.

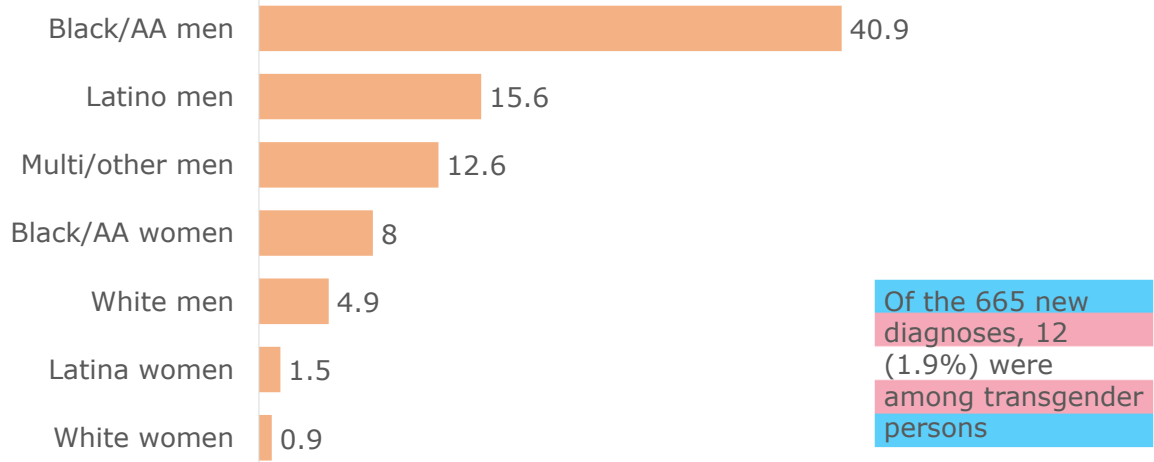
- New diagnoses are significantly increasing in Allegan County by 16.5% per year. The historically low new diagnosis rate means any increase is a proportionally large increase. From 2010-2014, one new diagnosis occurred each year (rate: 0.9/100,000 residents). In 2017 there were seven new diagnoses (rate: 6/100,000 residents), and in 2021, 5 persons were diagnosed (rate: 4.2/100,000 residents).
- No significant trend was observed in Barry County, but with 6 new diagnoses in 2021 and only 33 PLWH, Barry County experienced the highest HIV Transmission Rate (HTR) in the state during 2021. This figure does not include a trendline as the main focus is the spike in diagnoses during 2021.

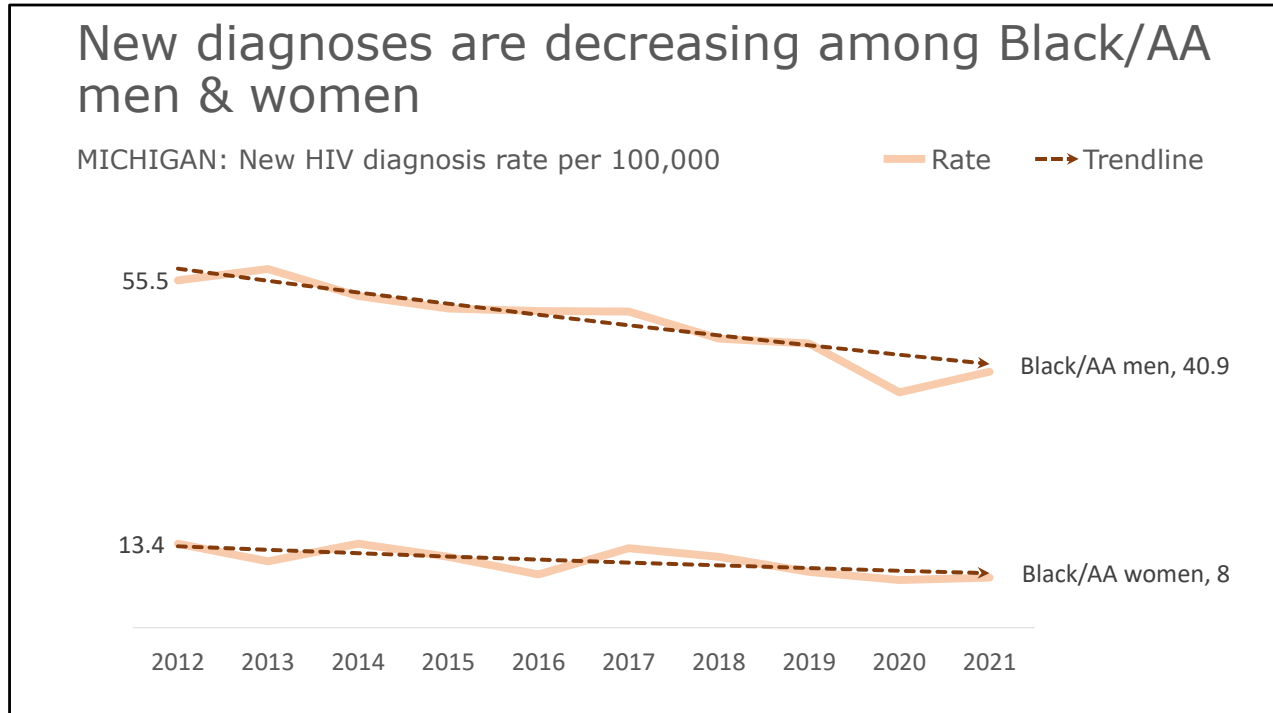
Brown trendlines indicate a significant change while the grey trendlines indicate changes not significantly different from zero ( $p < 0.05$ ).

# Demographic Trends

## Black/AA men are most affected by HIV

MICHIGAN: New HIV diagnosis rate per 100,000 by race and sex at birth, 2021



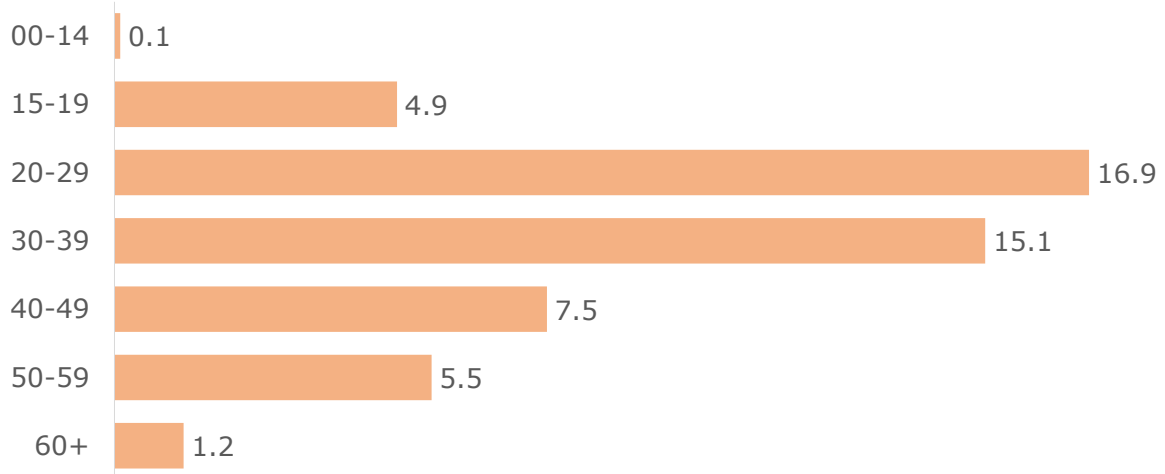


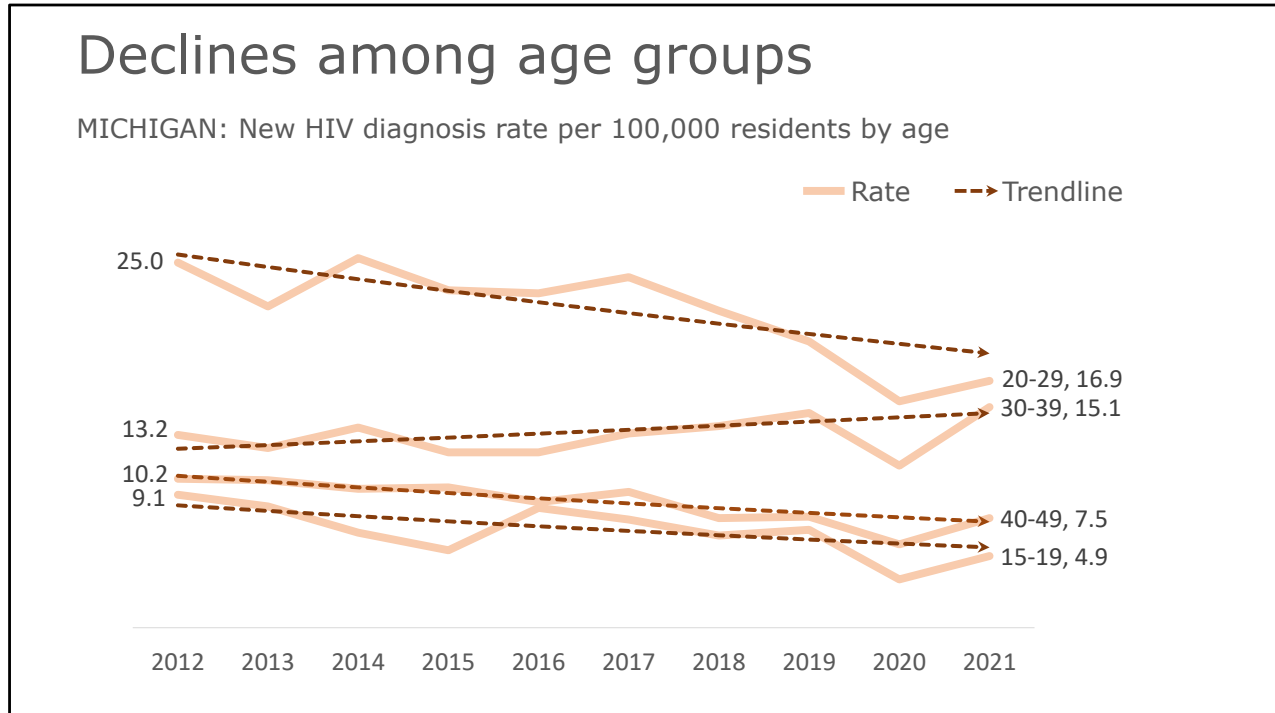
- The new diagnosis rate among Black/AA men significantly decreased by 3.7% per year.
- The new diagnosis rate among Black/AA women significantly decreased by 4.7% per year.
- No significant trends were observed among white or Latinx persons.

Brown trendlines indicate a significant change while the grey trendlines indicate changes not significantly different from zero ( $p < 0.05$ ).

## High diagnosis rates among 20-39 yr olds

MICHIGAN: New HIV diagnosis rate per 100,000 by age, 2021





- New diagnoses among 15-19, 20-29 and 40-49 year olds significantly declined by 4.6%, 3.7%, and 3.9% per year.
- Diagnoses *increased* significantly among 30-39 year olds by 2.0% per year.
- No significant changes were observed among other age groups.

Brown trendlines indicate a significant change while the grey trendlines indicate changes not significantly different from zero ( $p < 0.05$ ).

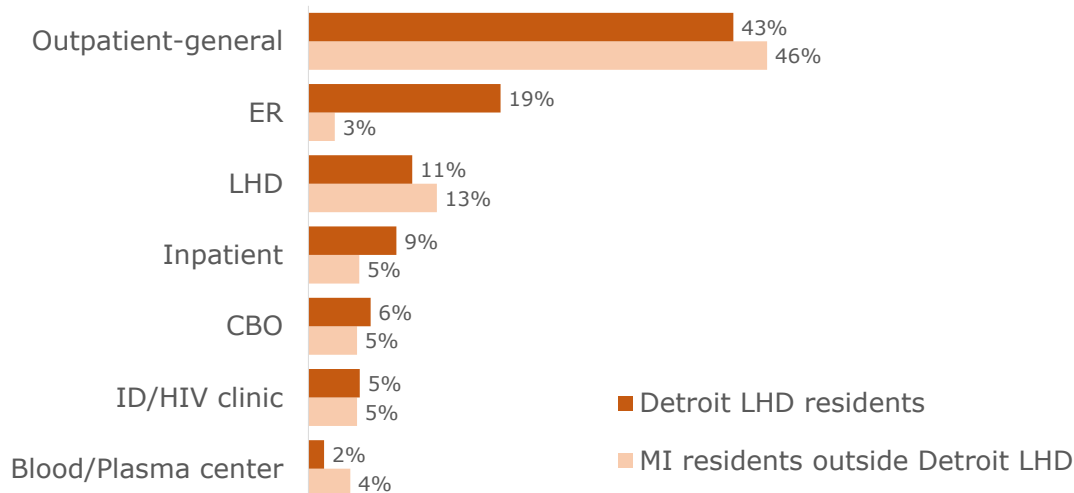
# Testing & Linkage Trends

Future reports aim to include state-funded testing and Partner Service data.



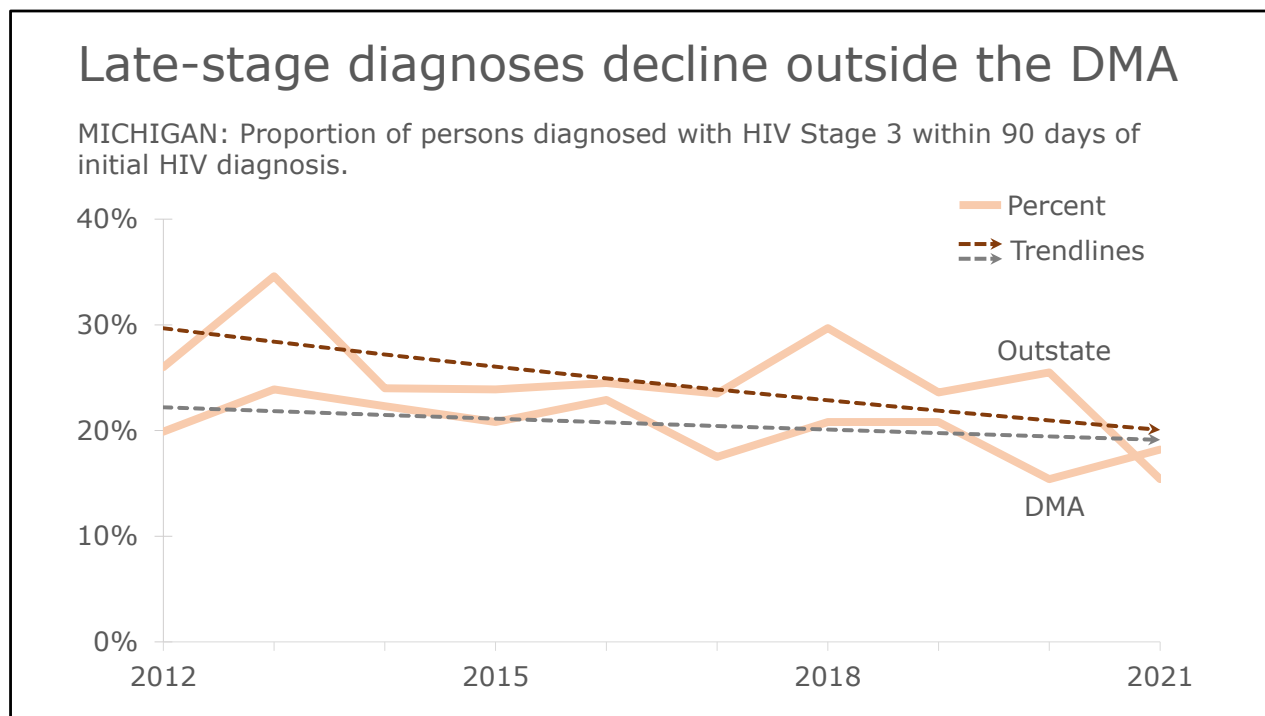
## Detroit residents are more likely to get diagnosed at an ER *due to opt-out testing*

Facility of diagnosis, 2021



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. This difference is primarily due to opt-out testing at multiple Detroit ER locations. Opt-out testing should be implemented wherever possible. Over the past 10 years the proportion of persons newly diagnosed at blood/plasma centers was stable. Diagnoses at ER's, and outpatient care facilities significantly increased while the proportion diagnosed at Community Based Organizations (CBO's), ID/HIV clinics, inpatient facilities, and LHD's significantly decreased.



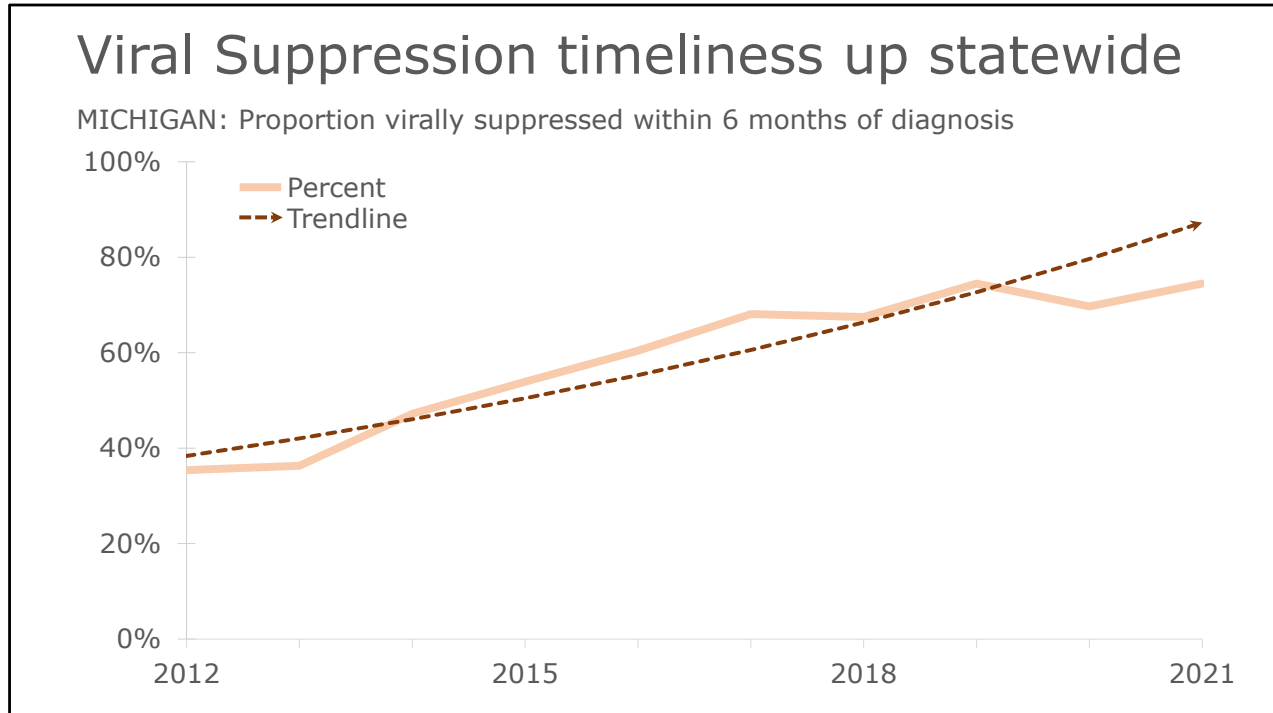
**DMA** is the Detroit Metro Area and includes Lapeer, Macomb, Monroe, Oakland, St. Clair, and Wayne (including Detroit) counties.

**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 4.3% 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 while the grey trendlines indicate changes not significantly different from zero ( $p < 0.05$ ).

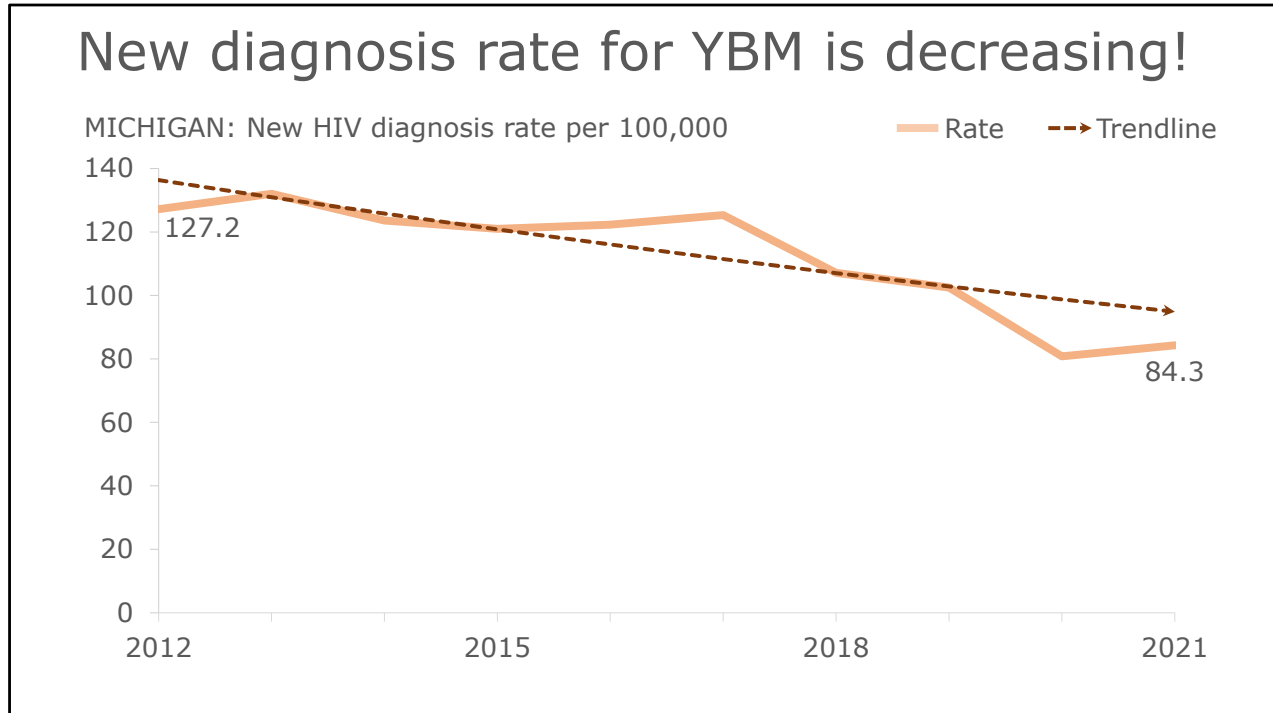


**Viral suppression:** having a viral load of <200 copies of virus per mL of blood (<200c/mL).

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.

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

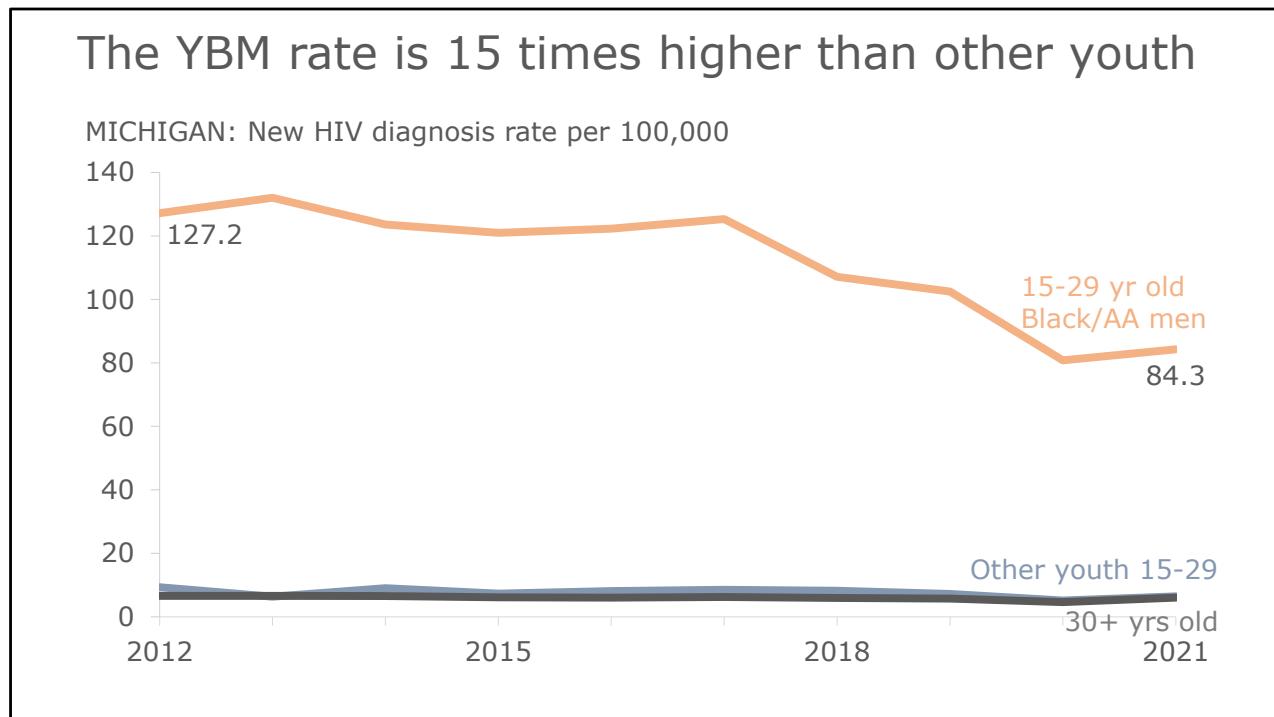
Priority population



**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. It is important to keep in mind that in 2019 the estimated new diagnosis rate among YBMSM was 1,211.6/100,000, 14 times higher than the 84.3/100,000 among YBM in general.



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

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

Trends aside, the diagnosis rate among YBM continues to be the highest rate of any geographic or demographic group in the state. YBM currently have a diagnosis rate 13-14 times higher than other 15-29 year olds and those over 30. Care and prevention efforts should remain focused on this group as they continue to shoulder a disproportionate burden. While YBM are linked to care and achieving viral suppression more quickly than ever before, they are less likely to remain in care and virally suppressed compared to other youth and persons over 30 years old.

## 2012-2021 Overview

- Testing interruptions during the Stay Home Stay Safe Order are lingering at some testing sites (CBO's and LHD's).
- Diagnoses are falling into a normal range because of opt-out testing at Detroit ER's. Opt-out testing needs to be expanded.
- There are likely a surplus of PLWH unaware of their status due to the 2020 diagnosis dip.
- Lack of risk data creates challenges around curbing rapid transmission networks – especially among persons who inject drugs.
- Linkage to and engagement in care significantly improved over the past decade.
- New diagnoses among young (15-29 year old) Black/AA men significantly declined. Programs should continue to focus on this group as they still endure a disproportional burden.