



Michigan Department of Health & Human Services

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ANNUAL REVIEW OF HIV TRENDS IN SOUTHEAST MICHIGAN (2011 - 2015)

Bureau of Epidemiology and Population Health
HIV, STD, and Body Art Section, April 2017

Overall trends in new HIV diagnoses in Southeast Michigan

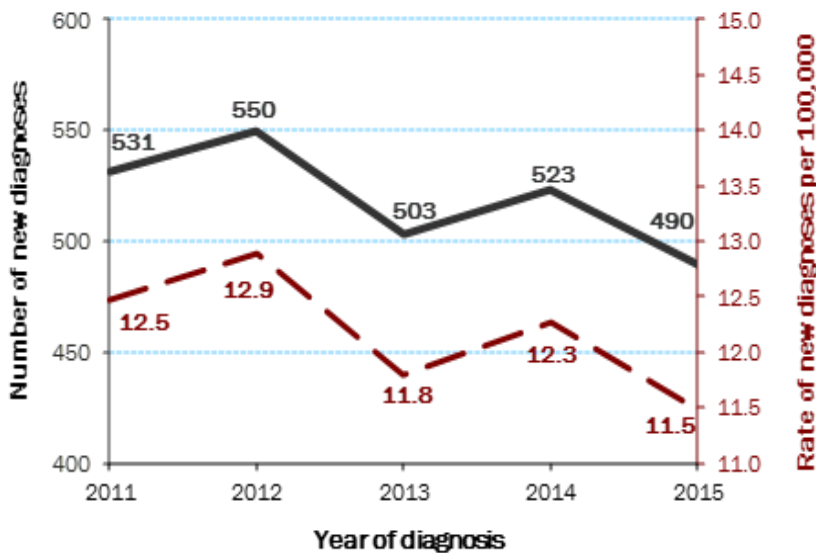
METHODS. To evaluate trends in new HIV diagnoses in Southeast Michigan (Lapeer, Macomb, Monroe, St. Clair, Oakland, and Wayne counties) over time, we estimated the number of persons newly diagnosed with HIV infection between 2011 and 2015 by adjusting the number of reported cases to account for those who may not have been reported to the health department by January 1, 2017. These adjustments were made by weighting the data.

Unless otherwise noted, numbers cited include persons living with all stages of HIV infection*. We used regression modeling on the adjusted data to assess significant changes in annual rates of new diagnoses overall and by race, sex, and age. Rates for race and sex subgroups were calculated using annual population estimates released by the Census Bureau in 2016. Rates for age at diagnosis were calculated using the 2015 Bridged-Race Population Estimates produced by the Population Estimates Program of the U.S. Census Bureau in collaboration with the National Center for Health Statistics. For risk groups, we analyzed annual counts since there are no reliable denominator data available for rate calculation. Trends overall and in subgroups are described using *average annual percent changes* in rates (or counts) of new diagnoses. Only significant trends and their corresponding percent changes are shown. "Significant" indicates statistical significance assessed at $p < 0.05$.

For concurrent diagnoses, defined as progression to stage 3 HIV infection within 30 days of HIV diagnosis, we used the Chi Square Mantel-Haenszel test for trend to assess changes over time. This test allows us to assess increases and decreases in the *proportion* of new diagnoses that are concurrent for a particular race/sex combination.

The date of new HIV *diagnosis* does not tell us when persons were first *infected*, because HIV diagnosis may take place months or years after infection. From 2005 to 2016, the Michigan Department of Health and Human Services (MDHHS) conducted incidence surveillance, which estimates new infections rather than new diagnoses using the Serologic Testing Algorithm for Recent HIV Seroconversion (STARHS). All STARHS Incidence reports are available on our website, including the most recent report encompassing new HIV infections from 2010 - 2014.

Figure 1. Number and rate of new HIV diagnoses in SE MI, 2011–2015



OVERVIEW OF TRENDS. Figure 1 shows the number and rate of new HIV diagnoses in Southeast Michigan (SE MI) from 2011 to 2015. The rate of new HIV diagnoses remained stable during this time period. There were an average of 519 new cases per year, with an average rate of 12.2 cases per 100,000.

Each year, there are more new diagnoses of HIV infection than deaths. As a result, the reported number of persons living with HIV in SE MI is also increasing. MDHHS estimates that 11,610 people were living with HIV infection in SE MI as of July 2016. This number is almost two-thirds of all cases in Michigan, despite the fact that the population of SE MI is just 43% of the state population.

*Michigan discontinued use of the term 'AIDS' in January 2012 in accordance with the language in the 2008 HIV Case Definition released by the CDC. HIV infection is now classified by stage of disease, with stage 3 representing AIDS.

New HIV diagnoses by age at diagnosis

For the first time since we began analyzing trends in SE MI in 2003, the rate of new HIV diagnoses decreased among 13-19 year olds by 14% per year, on average (table 1). Rates also decreased for those 60 years or older. The largest number and highest rates of new diagnoses remain among 20-24 year olds and 25-29 year olds. Though rates seem to be stabilizing among these age groups, the average rate among 20-24 year olds is now 48 cases per 100,000 population, more than twice the average rate among 30-34 year olds. This disparity gets larger as age increases.

Table 1. New HIV diagnoses by age at diagnosis, SE MI, 2011-2015

Age at diagnosis	Year of diagnosis														
	2011			2012			2013			2014			2015		
	Num	%	Rate	Num	%	Rate	Num	%	Rate	Num	%	Rate	Num	%	Rate
0 - 12 yrs	1	<1%	0.1	1	<1%	0.1	1	<1%	0.1	1	<1%	0.1	1	<1%	0.1
13 - 19 yrs	46	9%	11.0	47	9%	11.5	46	9%	11.5	25	5%	6.4	26	5%	6.8
20 - 24 yrs	126	24%	47.3	133	24%	48.4	121	24%	43.2	134	26%	47.3	133	27%	48.1
25 - 29 yrs	78	15%	31.1	88	16%	34.6	80	16%	31.0	110	21%	41.1	89	18%	31.9
30 - 34 yrs	53	10%	20.7	57	10%	22.2	58	12%	22.6	62	12%	24.3	52	11%	20.1
35 - 39 yrs	48	9%	18.1	45	8%	17.5	34	7%	13.4	44	8%	17.5	40	8%	15.6
40 - 44 yrs	44	8%	14.5	58	11%	19.3	35	7%	11.9	36	7%	12.6	40	8%	14.6
45 - 49 yrs	50	9%	15.5	43	8%	13.7	45	9%	14.7	42	8%	14.1	39	8%	13.0
50 - 54 yrs	39	7%	11.6	37	7%	11.1	37	7%	11.3	30	6%	9.3	40	8%	12.4
55 - 59 yrs	20	4%	6.6	19	3%	6.1	21	4%	6.6	26	5%	8.2	15	3%	4.7
60 and over	26	5%	3.1	21	4%	2.5	24	5%	2.8	12	2%	1.3	15	3%	1.7
Total	531	100%	12.5	550	100%	12.9	503	100%	11.8	523	100%	12.3	490	100%	11.5

TABLE FOOTNOTES:

- The number of new diagnoses are estimates based on the number of reported cases adjusted to account for reporting delay. As a result, summed counts will not always match the column total due to rounding error.
- **Bold/Colored text** indicates statistically significant trends for that group. The arrow indicates the direction of change in rates over the 5-year period, while the percentage is the *average change per year* in the rates, as calculated using regression modeling.
- Rates are per 100,000 population.

New HIV diagnoses by race/sex

Table 2. New HIV diagnoses by race/sex, SE MI, 2011-2015

Race/Sex	Year of diagnosis														
	2011			2012			2013			2014			2015		
	Num	%	Rate	Num	%	Rate	Num	%	Rate	Num	%	Rate	Num	%	Rate
Male	422	79%	20.5	438	80%	21.2	415	82%	20.1	423	81%	20.4	398	81%	19.2
Black	294	55%	65.6	293	53%	65.6	297	59%	66.8	295	56%	66.6	275	56%	62.2
White	104	20%	7.4	115	21%	8.2	94	19%	6.7	99	19%	7.1	91	19%	6.5
Other	24	5%	11.8	29	5%	13.8	24	5%	11.1	28	5%	12.7	32	7%	14.2
Female	109	21%	5.0	112	20%	5.1	88	18%	4.0	101	19%	4.6	91	19%	4.2
Black	83	16%	15.8	85	15%	16.2	68	14%	13.1	81	16%	15.6	68	14%	13.1
White	17	3%	1.2	18	3%	1.2	19	4%	1.3	14	3%	1.0	17	4%	1.2
Other	9	2%	4.3	9	2%	4.2	1	0%	0.5	5	1%	2.2	6	1%	2.6
All	531	100%	12.5	550	100%	12.9	503	100%	11.8	523	100%	12.3	490	100%	11.5
Black	377	71%	38.7	378	69%	39.0	365	73%	37.8	376	72%	39.1	343	70%	35.7
White	121	23%	4.2	133	24%	4.6	113	23%	4.0	114	22%	4.0	108	22%	3.8
Other	33	6%	8.0	38	7%	9.0	25	5%	5.7	33	6%	7.4	39	8%	8.4

TABLE FOOTNOTES:

- The number of new diagnoses are estimates based on the number of reported cases adjusted to account for reporting delay. As a result, summed counts will not always match the column total due to rounding error.
- **Bold/Colored text** indicates statistically significant trends for that group. The arrow indicates the direction of change in rates over the 5-year period, while the percentage is the *average change per year* in the rates, as calculated using regression modeling.
- Rates are per 100,000 population.

New HIV diagnoses by *race/sex* (cont.)

The rate of new diagnoses among all race/sex groups remained stable in SE MI between 2011 and 2015. Despite the stability in rates among white persons and black persons overall, rates of new HIV diagnoses are consistently highest among black individuals. In 2015, the rate of new diagnoses among black persons was more than 9 times higher than the rate among white persons. The rate of new diagnoses among black males was almost 10 times higher than among white males, a trend that has not changed since 2003. Even with past decreases in rates among black females, their rate is still 11 times that of white females, although this disparity has decreased since the last trend report. While the rates among persons of other race are lower than those among black persons, they remain higher than those of white persons. "Other" race is composed of Hispanics, Asian Hawaiian/Pacific Islander, American Indian/Alaska Native, multiracial persons, and individuals of unknown or other race. Hispanics make up 61% of this group. These racial disparities are not unique to SE MI. Statewide and nationwide, communities of color continue to be disproportionately diagnosed with HIV.

New HIV diagnoses by *risk*

Between 2011 and 2015, the number of newly diagnosed persons who inject drugs (PWID) decreased for the second consecutive report by an average 16% per year. Diagnoses remained stable in all other risk groups (Table 3). This is the fourth consecutive report in the last eight reports showing no decreases in new diagnoses among persons with Heterosexual risk.

There is a targeted effort to reduce the number of new diagnoses with NIR. New diagnoses among persons with no identified risk (NIR) remained stable between 2011 and 2015. Risk information is important information for prevention efforts; thus, it is crucial that risk questions be answered on the adult case report form (ACRF).

New HIV diagnoses by *residence at diagnosis*

The rate of new diagnoses remained stable in all counties of SE MI for the second time since we began analyzing trends in SE MI in 2003 (table 4).

The rate of new diagnoses in Detroit remains the highest of any location, and it is now more than 5 times as high as the rate in Wayne County (excluding Detroit), the location with the second highest rate in SE MI. The population of the city of Detroit decreased by over 200,000 people between the 2000 and 2010 censuses, and by an additional 5.1% between 2010 and 2015. Based on the 2015 population estimates, Detroit now represents just 16% of SE MI's and 7% of the state's population. Despite this, residents of Detroit represent 51% of SE Michigan's and 34% of the state's new HIV cases.

Table 3. New HIV diagnoses by risk, SE MI, 2011-2015

Risk	Year of diagnosis									
	2011		2012		2013		2014		2015	
	Num	%	Num	%	Num	%	Num	%	Num	%
MSM	307	58%	302	55%	278	55%	326	62%	277	57%
PWID	21	4%	22	4%	17	3%	7	1%	15	3%
MSM/PWID	10	2%	11	2%	6	1%	8	2%	6	1%
Heterosexual	86	16%	90	16%	88	18%	89	17%	73	15%
Other known	1	<1%	1	<1%	1	<1%	2	<1%	1	<1%
No identified risk	106	20%	123	22%	113	23%	91	17%	117	24%
Total	531	100%	550	100%	503	100%	523	100%	490	100%

TABLE FOOTNOTES:

- The number of new diagnoses are estimates based on the number of reported cases adjusted to account for reporting delay. As a result, summed counts will not always match the column total due to rounding error.
- **Bold/Colored text** indicates that statistically significant trends occurred in that group. The arrow indicates the direction of change in number of new diagnoses over the 5-year period, while the percentage is the *average change per year* in the the number of new diagnoses, as calculated using regression modeling.
- The heterosexual category includes males and females categorized as "high-risk" heterosexuals (persons who knew they had one or more partners that were a PWID, bisexual for females, a recipient of HIV infected blood, or a person infected with HIV) as well as females who reported sex with males of unknown risk/HIV status as their only risk. The NIR category includes males who reported sex with females of unknown risk/HIV status as their only risk and males and females for whom no risk has yet been reported.

↓ 16%

Table 4. New HIV diagnoses by residence at diagnosis, SE MI, 2011-2015

Residence	Year of diagnosis									
	2011		2012		2013		2014		2015	
	Num (%)	Rate	Num (%)	Rate	Num (%)	Rate	Num (%)	Rate	Num (%)	Rate
Detroit	286 54%	40.6	272 50%	39.0	263 52%	38.1	253 48%	37.1	239 49%	35.4
Oakland Co.	107 20%	8.8	105 19%	8.6	100 20%	8.1	102 20%	8.3	85 17%	6.8
Wayne Co. (excl Detroit)	75 14%	6.8	100 18%	9.2	76 15%	7.0	111 21%	10.2	90 18%	8.3
Macomb Co.	51 10%	6.1	61 11%	7.2	55 11%	6.4	53 10%	6.2	63 13%	7.3
St. Clair Co.	5 1%	3.1	4 1%	2.5	5 1%	3.1	1 <1%	0.6	5 1%	3.2
Monroe Co.	5 1%	3.3	6 1%	4.0	3 1%	2.0	3 1%	2.0	6 1%	4.0
Lapeer Co.	2 <1%	2.3	1 <1%	1.1	1 <1%	1.1	0 0%	0.0	1 <1%	1.1
Total	531 100%	12.5	550 100%	12.9	503 100%	11.8	523 100%	12.3	490 100%	11.5

TABLE FOOTNOTES:

- The number of new diagnoses are estimates based on the number of reported cases adjusted to account for reporting delay. As a result, summed counts will not always match the column total shown due to rounding error.
- **Bold/Colored text** indicates that statistically significant trends occurred in that group. The arrow indicates the direction of change in number of new diagnoses over the 5-year period, while the percentage is the *average change per year* in the the number of new diagnoses, as calculated using regression modeling.
- Rates are per 100,000 population.

Concurrent diagnoses

For the fifth consecutive report, the proportion of persons diagnosed with stage 3 HIV infection within 30 days of diagnosis (“concurrent”) remained stable overall (table 5). No significant changes were noted in concurrent diagnoses among any race/sex groups. Between 2011 and 2015, proportions of concurrent diagnoses in SE MI were highest among white males, white females, and white persons overall. Though not significant, it is also important to note that proportions of concurrent diagnoses decreased for females of other race and increased for black females and white females.

Table 5. Concurrent HIV diagnoses by race/sex group, SE MI, 2011-2015

Race/Sex	Year of diagnosis										Total	
	2011		2012		2013		2014		2015			
	Num	%	Num	%	Num	%	Num	%	Num	%	Num	%
Male	81	19%	87	20%	103	25%	79	19%	70	18%	420	20%
Black	48	16%	56	19%	68	23%	47	16%	39	14%	259	18%
White	31	30%	27	23%	28	30%	25	25%	23	26%	134	27%
Other	2	8%	4	14%	7	29%	7	25%	7	22%	27	20%
Female	25	23%	20	18%	20	23%	25	25%	22	24%	112	22%
Black	16	19%	16	19%	15	22%	22	27%	16	24%	85	22%
White	4	24%	1	6%	5	26%	3	21%	5	29%	18	21%
Other	5	56%	3	33%	0	0%	0	0%	1	17%	9	30%
All	106	20%	107	19%	123	24%	104	20%	92	19%	532	21%
Black	64	17%	72	19%	83	23%	69	18%	56	16%	344	19%
White	35	29%	28	21%	33	29%	28	25%	28	26%	152	26%
Other	7	21%	7	18%	7	28%	7	21%	8	21%	36	22%

TABLE FOOTNOTES:

- The number of new diagnoses are estimates based on the number of reported cases adjusted to account for reporting delay. As a result, summed counts will not always match the column total due to rounding error.
- Percentages reflect the number of concurrent diagnoses for a race/sex/year combination divided by the total diagnoses for that race/sex/year combination.
- **Bold/Colored text** indicates that statistically significant trends occurred in that group. Significance was assessed using the Mantel-Haenszel chi-square test. The arrow indicates the direction of change while the accompanying percentage is the *change in proportion of concurrent diagnoses* from 2011 to 2015, which do not take into account the fluctuations from year to year.

Summary

- Between 2011 and 2015, the rate of new diagnoses in SE MI remained stable with an average of 519 cases per year and an average rate of 12.2 cases per 100,000 population.
- The highest rates (or counts) of new HIV diagnoses occurred among:
 - 20-24 year olds and 25-29 year olds
 - Males
 - Black males and females
 - Men who have sex with men (MSM)*
 - Detroit residents
- There were no INCREASES in rates among any of the subgroups analyzed.
- DECREASES in rates occurred among:
 - 13-19 year olds
 - Persons who were 60 years or older at diagnosis
 - PWID (persons who inject drugs)*
- Very few significant changes were found among the various subgroups analyzed, suggesting that new diagnoses in SE MI are becoming increasingly stable each year.
- Race and sex disparities in rates of new HIV diagnoses remain. Comparing the diagnosis rates of black persons and white persons in 2015:
 - **Overall:** The rate for black persons was almost 10 times higher
 - **Males:** The rate for black males was more than 9 times higher
 - **Females:** The rate for black females was 11 times higher (this disparity improved from 16 times higher in 2014)
- For the fifth consecutive report, concurrent diagnoses in SE MI remained stable overall.

*Annual counts were analyzed for risk groups since there is no reliable denominator data available to allow rate calculation.

For more information:

Michigan Department of Health and Human Services
HIV Surveillance Program

(248) 424-7910
(517) 335-8165

(www.michigan.gov/hivstd) → HIV Case Reporting and Data → HIV
Statistics and Data Reports
State of Michigan HIV/AIDS Statistics and Reports

Michigan Department of Health and Human Services
HIV Prevention and Care Section

(517) 241-5900

(www.michigan.gov/hivstd)
State of Michigan HIV/AIDS Programmatic Information

MI Counseling, Testing, & Referral Sites
www.miunified.org/Get-Help/Services

Michigan AIDS Hotline
1-800-872-2437

Centers for Disease Control & Prevention

www.cdc.gov/hiv
CDC HIV/AIDS Resources

AIDSInfo

www.aidsinfo.nih.gov
HIV/AIDS Treatment and Clinical Trial Resources

CDC National Statistics & Surveillance

www.cdc.gov/hiv/statistics
CDC HIV/AIDS Statistics and Reports

World Health Organization

www.who.int/topics/hiv_aids/en
HIV/AIDS Global Resources



FOCUS ON DETROIT:

SUPPLEMENTAL FACT SHEET TO THE ANNUAL REVIEW OF HIV TRENDS IN SOUTHEAST MICHIGAN (2011 - 2015)

Michigan Department of Health & Human Services

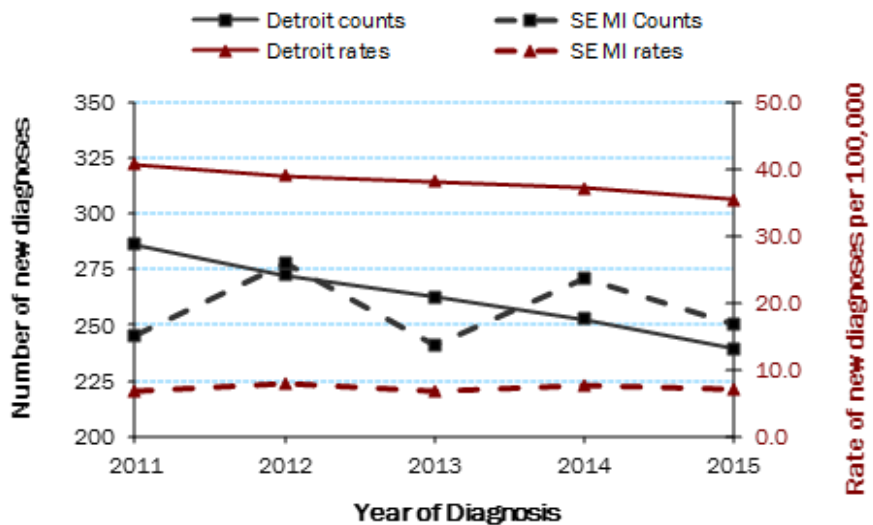
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Bureau of Epidemiology and Population Health
HIV, STD, and Body Art Section, April 2017

Overview of new HIV diagnoses in DETROIT

- **1,313** new HIV diagnoses between 2011 and 2015
- Average of **263** new diagnoses (**38.1 per 100,000 people**) per year
- Rate of new diagnoses in Detroit is **5 times** higher than the rate in the rest of SE MI
- Detroit makes up **16%** of the SE MI population but has **51%** of new cases diagnosed in 2011-2015

Figure 1. A comparison of the number and rate of new HIV diagnoses in Detroit vs. the rest of Southeast Michigan (SE MI)*, 2011-2015

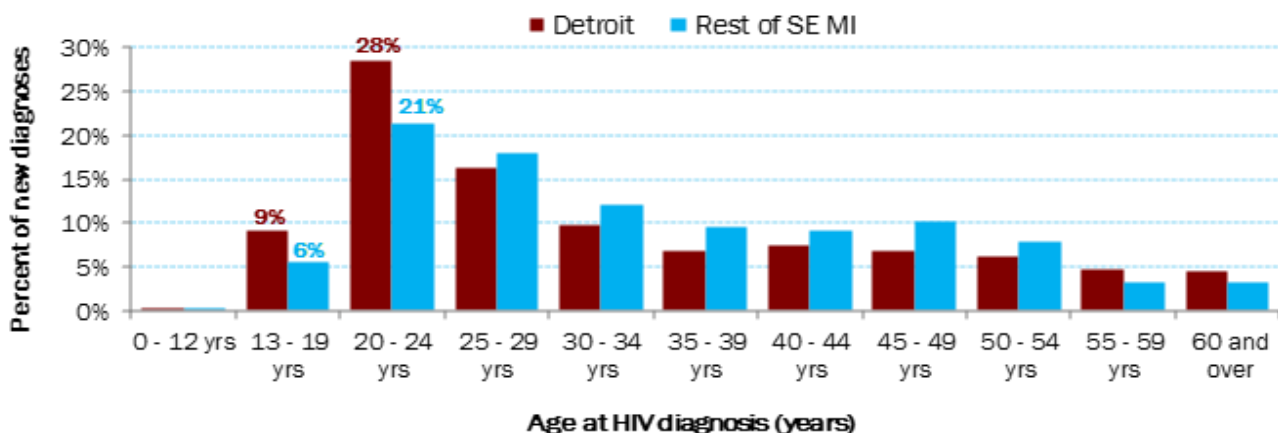


*In this graph, the city of Detroit is excluded from SE MI and shown separately. SE MI includes Lapeer, Macomb, Monroe, Oakland, St. Clair, and Wayne (excluding Detroit) counties.

New HIV diagnoses by age at diagnosis

- **9%** of new diagnoses in Detroit were among **13-19** year olds, compared to **6%** in the rest of SE MI.
- **63%** of newly diagnosed teens (**13-19** year olds) in SE MI lived in Detroit at the time of diagnosis.
- Newly diagnosed persons who were **13-24** years old were significantly more likely to live in Detroit than in the rest of SE MI.
- The age group with the highest number of new cases is **20-24** year olds in Detroit and in the rest of SE MI.

Figure 2. Age at HIV diagnosis among newly diagnosed cases in SE MI, 2011-2015



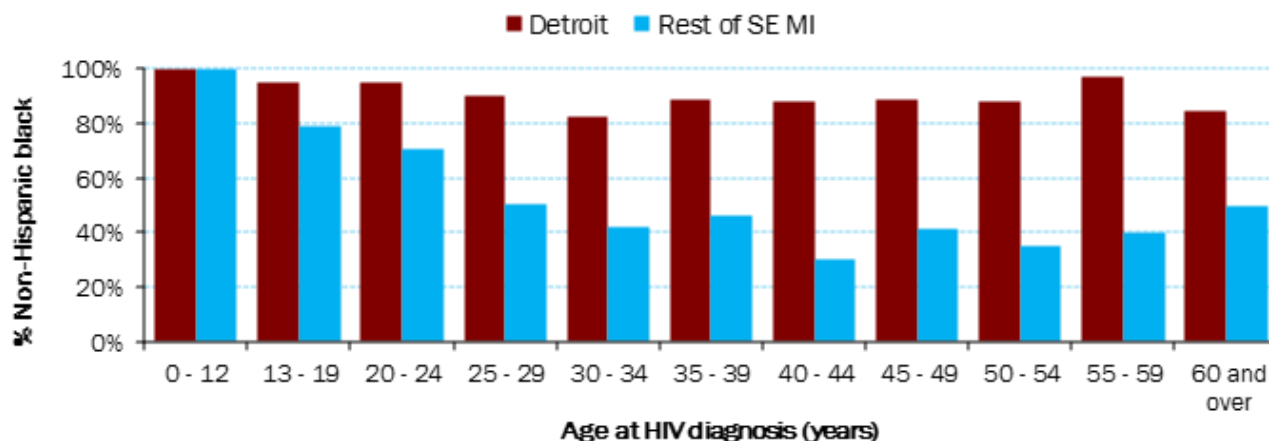
FOOTNOTES:

- The number of new diagnoses are estimates based on the number of reported cases adjusted to account for reporting delay.
- We cannot assess the significance of trends by demographic subgroups in the City of Detroit, because the methodology used in trend analysis cannot be used for geographic regions smaller than SE MI.

New HIV diagnoses by race and sex

- Newly diagnosed persons in **Detroit** are significantly more likely to be black than persons newly diagnosed in the rest of SE MI.
- 95%** of newly diagnosed **13-24 year olds** in **Detroit** are black compared to **72%** in the **rest of SE MI**, despite the fact that just 80% of Detroit's population is black.
- 13-24 year olds** newly diagnosed in **Detroit** are significantly more likely to be male than adults 25 years and older (87% vs. 73%, respectively).

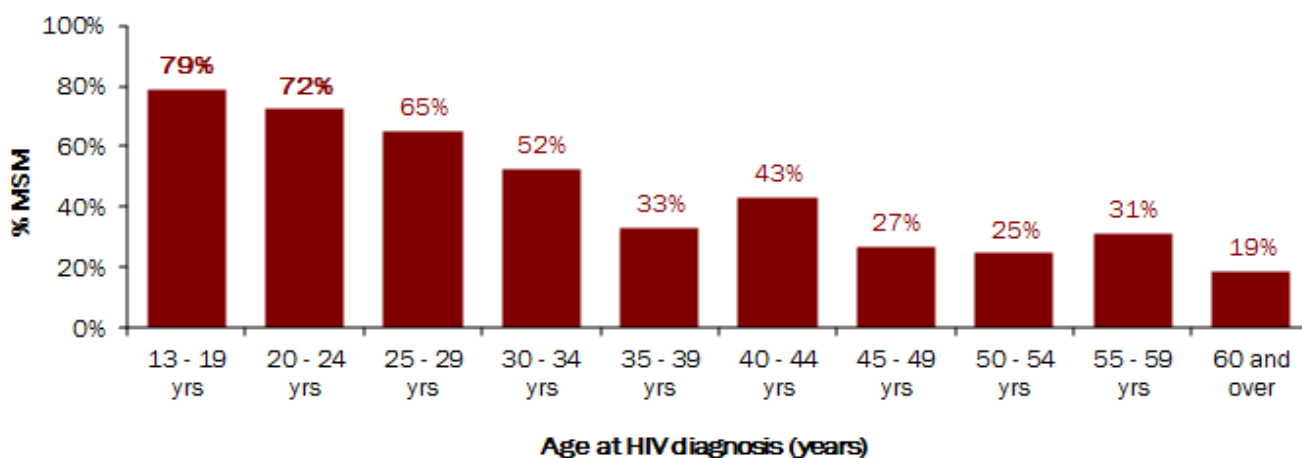
Figure 3. Percent black race by age at HIV diagnosis among persons newly diagnosed in SE MI, 2011-2015



Race and risk among Detroit teens and young adults

- 79%** of newly diagnosed **teens (13-19 year olds)** in **Detroit** reported being MSM (males who have sex with males), compared to **52%** of those who were **20 or older** at diagnosis.
- Among **teens** newly diagnosed in **Detroit**, **75%** are black MSM compared to **47%** of persons **20 or older**.
- Both teens and young adults (20-24 year olds)** are more likely to be black MSM than persons diagnosed at **25 years or older**, and they are more likely to live in Detroit than the rest of SE MI.

Figure 4. Percent MSM by age at HIV diagnosis among persons of all races newly diagnosed in Detroit, 2011-2015



FOOTNOTES:

- 0-12 year olds are excluded from this graph, because no cases were MSM.
- The number of new diagnoses are estimates based on the number of reported cases adjusted to account for reporting delay.
- We cannot assess the significance of trends by demographic subgroups in the City of Detroit, because the methodology used in trend analysis cannot be used for geographic regions smaller than SE MI.

Want more data? Visit us on the web at www.michigan.gov/hivstd