



Michigan Department of Health & Human Services

RICK SNYDER, GOVERNOR
NICK LYON, DIRECTOR

ANNUAL REVIEW OF HIV TRENDS IN SOUTHEAST MICHIGAN (2009 - 2013)

Bureau of Disease Control, Prevention and Epidemiology
HIV/STD, Body Art, Tuberculosis, and Viral Hepatitis Section, April 2015

Overall trends in new HIV diagnoses in Southeast Michigan

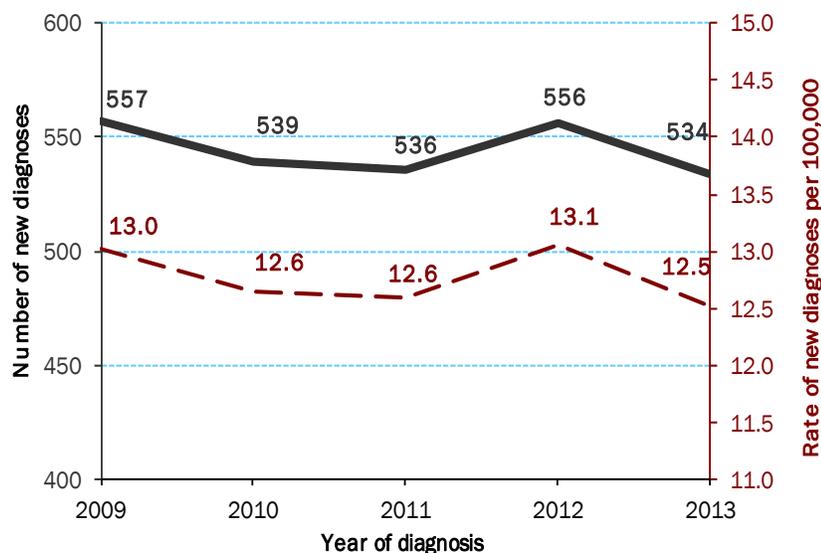
METHODS. To evaluate trends in new HIV diagnoses in Southeast Michigan (Lapeer, Macomb, Monroe, St. Clair, Oakland, and Wayne counties) over time, we estimated the number of persons newly diagnosed with HIV infection between 2009 and 2013 by adjusting the number of reported cases to account for those who may not have been reported to the health department by January 1, 2015. 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 intercensal annual population estimates released by the Census Bureau in 2013. Rates for age at diagnosis were calculated using the 2013 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. In 2005, the Michigan Department of Health and Human Services (MDHHS) began incidence surveillance, which estimates new *infections* rather than new *diagnoses* using the Serologic Testing Algorithm for Recent HIV Seroconversion (STARHS). In 2013, we released estimated rates of recent infections for 2006-2010. Updated data for more recent years should be released later this year. All STARHS Incidence reports are available on our website.

Figure 1. Number and rate of new HIV diagnoses in SE MI, 2009–2013



OVERVIEW OF TRENDS. Figure 1 shows the number and rate of new HIV diagnoses in Southeast Michigan (SE MI) from 2009 to 2013. The rate of new HIV diagnoses remained stable during this time period. There were an average of 544 new cases per year, with an average rate of 12.8 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 12,490 people were living with HIV infection in SE MI as of July 2014. 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

The rate of new diagnoses remained stable for all age groups for the first time since we began analyzing trends in SE MI in 2003 (table 1). The largest number and highest rates of new diagnoses remain among 20-24 year olds and 25-29 year olds. Though rates appear to be stabilizing among all age groups, the average rate among 20-24 year olds is now 46 cases per 100,000 population, almost twice the average rate among 30-34 year olds. That disparity gets larger as age increases.

Table 1.+ New HIV diagnoses by age at diagnosis, SE MI, 2009-2013

Age at diagnosis	Year of diagnosis														
	2009			2010			2011			2012			2013		
	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	57	10%	12.9	42	8%	9.8	49	9%	11.8	45	8%	11.1	47	9%	11.7
20 -24 yrs	109	20%	43.8	104	19%	40.6	128	24%	47.9	136	25%	49.6	129	24%	46.0
25 -29 yrs	87	16%	34.1	82	15%	32.7	76	14%	30.4	90	16%	35.3	86	16%	33.2
30 -34 yrs	47	8%	18.4	73	14%	28.8	53	10%	20.8	58	11%	22.7	64	12%	25.0
35 -39 yrs	59	11%	20.1	60	11%	21.5	47	9%	17.8	46	8%	18.1	36	7%	14.1
40 -44 yrs	63	11%	20.4	46	9%	15.2	45	8%	14.9	58	10%	19.1	35	7%	11.8
45 -49 yrs	43	8%	12.8	50	9%	15.2	51	10%	15.9	43	8%	13.8	47	9%	15.3
50 -54 yrs	53	10%	15.8	47	9%	14.0	39	7%	11.6	38	7%	11.5	41	8%	12.5
55 -59 yrs	26	5%	9.0	16	3%	5.4	20	4%	6.6	18	3%	5.9	24	4%	7.4
60 and over	12	2%	1.5	17	3%	2.1	26	5%	3.1	21	4%	2.5	25	5%	2.8
Total	557	100%	13.0	539	100%	12.6	536	100%	12.6	556	100%	13.1	534	100%	12.5

†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, 2009-2013

Race/Sex	Year of diagnosis														
	2009			2010			2011			2012			2013		
	Num	%	Rate	Num	%	Rate	Num	%	Rate	Num	%	Rate	Num	%	Rate
Male	442	79%	21.3	430	80%	20.8	428	80%	20.7	443	80%	21.5	444	83%	21.5
Black	302	54%	66.9	285	53%	63.3	296	55%	66.0	297	53%	66.4	320	60%	71.9
White	115	21%	8.1	115	21%	8.1	105	20%	7.5	117	21%	8.3	100	19%	7.1
Other	25	4%	12.7	29	5%	14.6	26	5%	12.8	29	5%	13.9	23	4%	10.9
Female	115	21%	5.2	109	20%	5.0	108	20%	4.9	113	20%	5.2	90	17%	4.1
Black	97	17%	18.4	89	17%	16.9	82	15%	15.7	86	15%	16.4	68	13%	13.1
White	11	2%	0.7	12	2%	0.8	17	3%	1.2	18	3%	1.2	19	4%	1.3
Other	7	1%	3.5	8	1%	4.0	9	2%	4.4	9	2%	4.3	2	0%	0.9
All	557	100%	13.0	539	100%	12.6	536	100%	12.6	556	100%	13.1	534	100%	12.5
Black	399	72%	40.7	375	70%	38.3	379	71%	38.9	383	69%	39.4	389	73%	40.2
White	126	23%	4.3	127	24%	4.4	122	23%	4.3	135	24%	4.7	119	22%	4.2
Other	32	6%	8.1	37	7%	9.2	35	7%	8.6	38	7%	9.1	26	5%	5.9

†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 decreased in black females by an average of 7% per year (table 2). The rate among all other race/sex groups remained stable in SEMI between 2009 and 2013. Despite the stability in rates among white persons and black persons overall, rates of new HIV diagnoses are consistently highest among black individuals. In 2013, the rate of new diagnoses among black persons was over 9 times higher than the rate among white persons. The rate of new diagnoses among black males was over 10 times higher than among white males, a trend that has not changed since 2003. Even with the decrease in rate among black females, their rate is still almost 10 times that of white females. 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 Michigan. Statewide and nationwide, communities of color continue to be disproportionately impacted by HIV.

New HIV diagnoses by *risk*

Table 3. New HIV diagnoses by risk, SE MI, 2009-2013

Risk	Year of diagnosis									
	2009		2010		2011		2012		2013	
	Num	%	Num	%	Num	%	Num	%	Num	%
MSM	306	55%	299	55%	308	57%	302	54%	299	56%
IDU	24	4%	28	5%	21	4%	21	4%	17	3%
MSM/IDU	10	2%	5	1%	9	2%	11	2%	6	1%
Heterosexual	105	19%	97	18%	83	16%	92	17%	89	17%
Other known	1	<1%	1	<1%	1	<1%	1	<1%	1	<1%
No identified risk	111	20%	109	20%	113	21%	129	23%	122	23%
Total	557	100%	539	100%	536	100%	556	100%	534	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 an IDU, 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.

Between 2009 and 2013, the number of newly diagnosed persons remained stable among persons in every risk group (Table 3). This is the second consecutive report in the last 6 reports showing no decreases in new diagnoses among persons with Heterosexual risk and the second consecutive report in the last 9 reports showing no decreases among IDU. Though stable, 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 2009 and 2013. 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*

For the first time, the rate of new diagnoses remained stable in all counties of SE MI (table 4).

The rate of new diagnoses in Detroit remains the highest of any location, and it is now over 4 times as high as the rate in Oakland County, 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 based on the 2013 population estimates Detroit now represents just 19% of SE MI's and 7% of the state's population. Despite this, residents of Detroit represent 52% of SE Michigan's and 35% of the state's new HIV cases.

Table 4.† New HIV Diagnoses‡ by residence at diagnosis, SE MI, 2009-2013

Residence	Year of diagnosis									
	2009		2010		2011		2012		2013	
	Num (%)	Rate	Num (%)	Rate	Num (%)	Rate	Num (%)	Rate	Num (%)	Rate
Detroit	291 52%	39.8	278 51%	39.0	289 54%	41.1	273 49%	39.0	278 52%	40.4
Oakland Co.	125 22%	10.4	105 20%	8.7	107 20%	8.9	109 20%	8.9	107 20%	8.7
Wayne Co. (excl Detroit)	83 15%	7.5	89 17%	8.1	76 14%	6.9	102 18%	9.3	84 16%	7.7
Macomb Co.	51 9%	6.1	49 9%	5.8	51 10%	6.1	62 11%	7.3	54 10%	6.3
St. Clair Co.	3 1%	1.8	9 2%	5.5	5 1%	3.1	4 1%	2.5	5 1%	3.2
Monroe Co.	3 1%	2.0	5 1%	3.3	5 1%	3.3	6 1%	4.0	3 1%	2.0
Lapeer Co.	1 <1%	1.1	4 1%	4.5	2 <1%	2.3	1 <1%	1.1	2 <1%	2.3
Total	557 100%	13.0	539 100%	12.6	536 100%	12.6	556 100%	13.1	534 100%	12.5

†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 HIV and AIDS diagnoses

For the third consecutive report, the proportion of persons diagnosed with stage 3 HIV infection within 30 days of diagnosis (“concurrent”) remained stable overall (table 5). Although not significant, it is important to note that there was a 5% increase overall and this may be driving the significant increases seen statewide. No increases or decreases were noted in any race/sex groups either. Proportions of concurrent diagnoses in SE MI remain highest among white males, females of other race, and white persons overall.

Table 5.† Concurrent HIV diagnoses by race/sex group, SE MI, 2009-2013

Race/Sex	Year of diagnosis										Total	
	2009		2010		2011		2012		2013			
	Num	%	Num	%	Num	%	Num	%	Num	%	Num	%
Male	90	20%	91	21%	82	19%	87	20%	111	25%	462	21%
Black	58	19%	63	22%	48	16%	56	19%	74	23%	300	20%
White	26	23%	26	23%	32	30%	27	23%	30	29%	141	25%
Other	6	24%	2	7%	2	8%	4	14%	7	30%	21	16%
Female	21	18%	19	17%	25	23%	20	18%	20	23%	106	20%
Black	19	20%	14	16%	16	19%	16	19%	15	22%	80	19%
White	2	18%	3	25%	4	23%	1	5%	5	26%	15	19%
Other	0	0%	2	25%	5	55%	3	33%	0	0%	10	28%
All	111	20%	110	20%	107	20%	108	19%	131	25%	567	21%
Black	77	19%	77	21%	64	17%	72	19%	90	23%	380	20%
White	28	22%	29	23%	36	29%	28	21%	35	29%	156	25%
Other	6	19%	4	11%	7	20%	7	18%	7	27%	31	18%

†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 2009 to 2013, which do not take into account the fluctuations from year to year.

Summary

- Between 2009 and 2013, the rate of new diagnoses in SE MI remained stable with an average of 544 cases per year and an average rate of 12.8.
- The highest rates of new HIV diagnoses occurred among:
 - 20 - 24 year olds
 - Males
 - Black males and females and black persons overall
 - Men who have sex with men (MSM)*
 - Detroit residents
- No INCREASES in rates occurred.
- DECREASES in rates occurred among:
 - Black females
- 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 2013:
 - **Overall:** The rate for black persons was over 9 times higher
 - **Males:** The rate for black males was over 10 times higher
 - **Females:** The rate for black females was almost 10 times higher
- For the third consecutive report, concurrent diagnoses 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) → Statistics and 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

<http://www.aidspartnership.org/index.php/testing-and-locations/>

Michigan AIDS Hotline
1-800-872-2437

Centers for Disease Control & Prevention

<http://www.cdc.gov/hiv>
CDC HIV/AIDS Resources

AIDSInfo

<http://www.aidsinfo.nih.gov/>
HIV/AIDS Treatment and Clinical Trial Resources

CDC National Statistics & Surveillance

<http://www.cdc.gov/hiv/statistics/>
CDC HIV/AIDS Statistics and Reports

World Health Organization

http://www.who.int/topics/hiv_infections/en/
HIV/AIDS Global Resources



FOCUS ON DETROIT:

SUPPLEMENTAL FACT SHEET TO THE ANNUAL REVIEW OF HIV TRENDS IN SOUTHEAST MICHIGAN (2009 - 2013)

Michigan Department of Health & Human Services

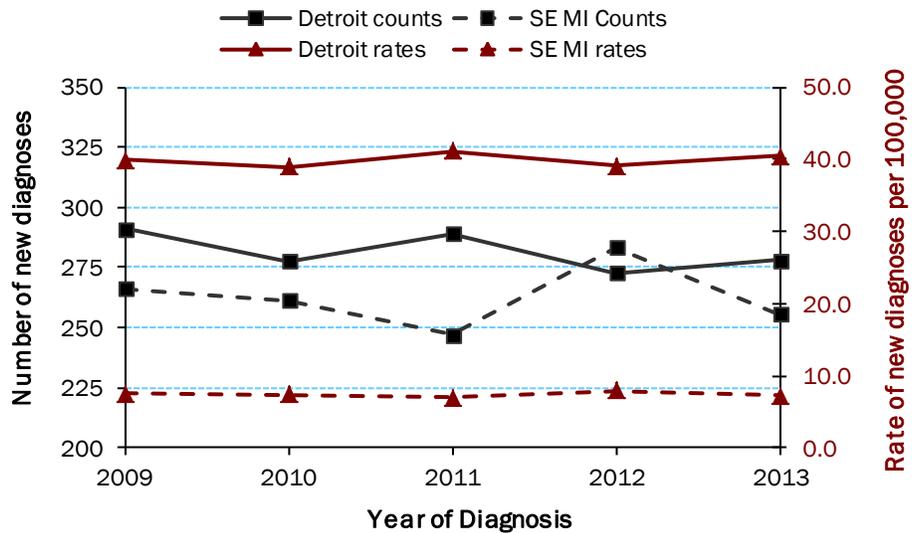
RICK SNYDER, GOVERNOR
NICK LYON, DIRECTOR

Bureau of Disease Control, Prevention and Epidemiology
HIV/STD, Body Art, Tuberculosis, and Viral Hepatitis Section, April 2015

Overview of new HIV diagnoses in DETROIT

- **1,409** new HIV diagnoses between 2009 and 2013
- Average of **282** new diagnoses (**39.9 per 100,000 people**) per year
- Rate of new diagnoses in Detroit is more than **4 times** higher than the rate in the rest of SE MI
- Detroit makes up **20%** of the SE MI population but has **52%** of new cases diagnosed in 2009-2013

Figure 1.† A comparison of the number and rate of new HIV diagnoses in Detroit vs. the rest of Southeast Michigan (SE MI)*, 2009-2013

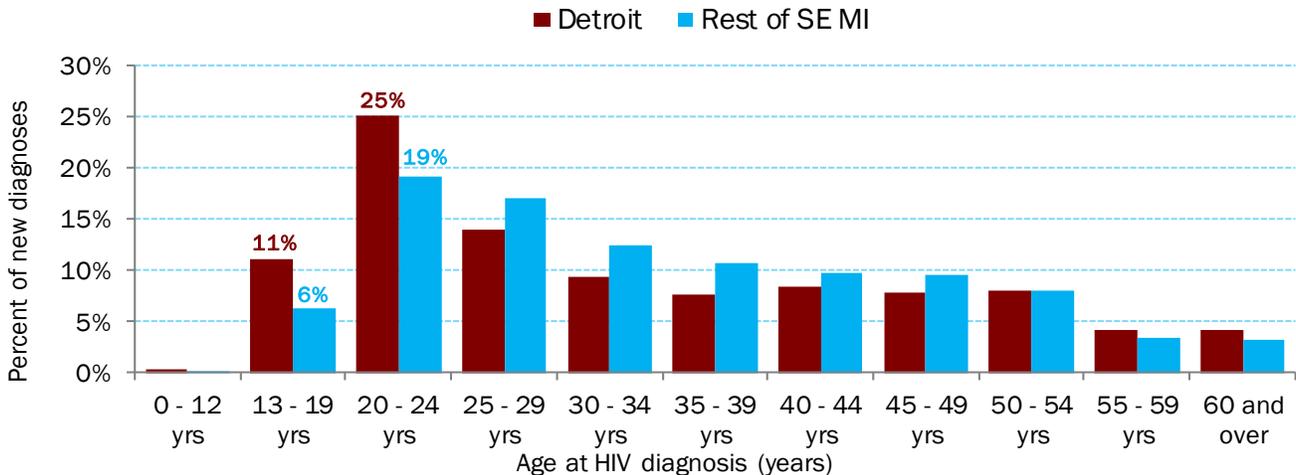


*In this graph, the city of Detroit is excluded from SE MI and shown separately. SE MI includes Lapeer, Macomb, Monroe, Oakland, St. Clair, and Wayne counties.

New HIV diagnoses by age at diagnosis

- **11%** of new diagnoses in **Detroit** were among **13-19 year olds**, compared to **6%** in the rest of SE MI.
- **65%** 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 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, 2009-2013



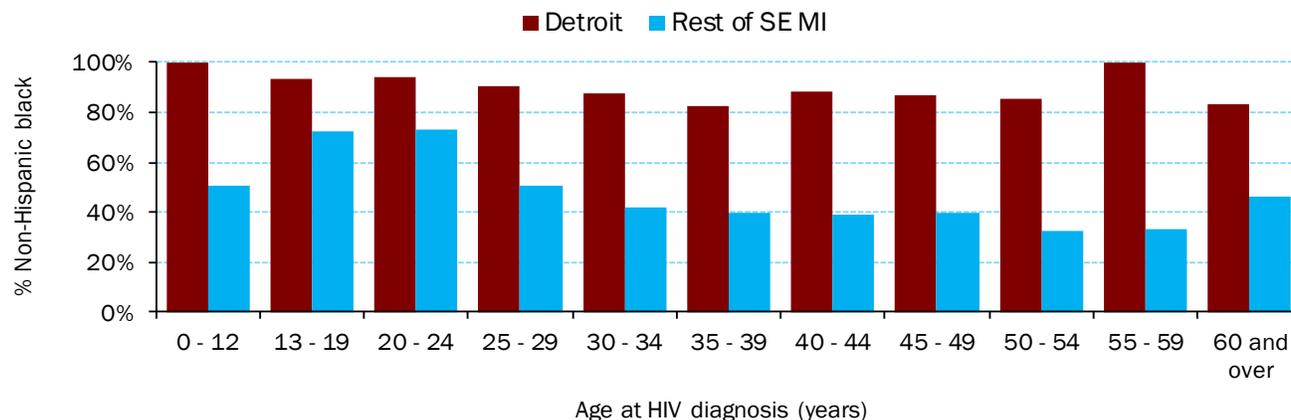
†FOOTNOTES:

- 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.
- 94%** of newly diagnosed **13-24 year olds** in **Detroit** are black compared to **73%** in the **rest of SE MI**, despite the fact that just 82% 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

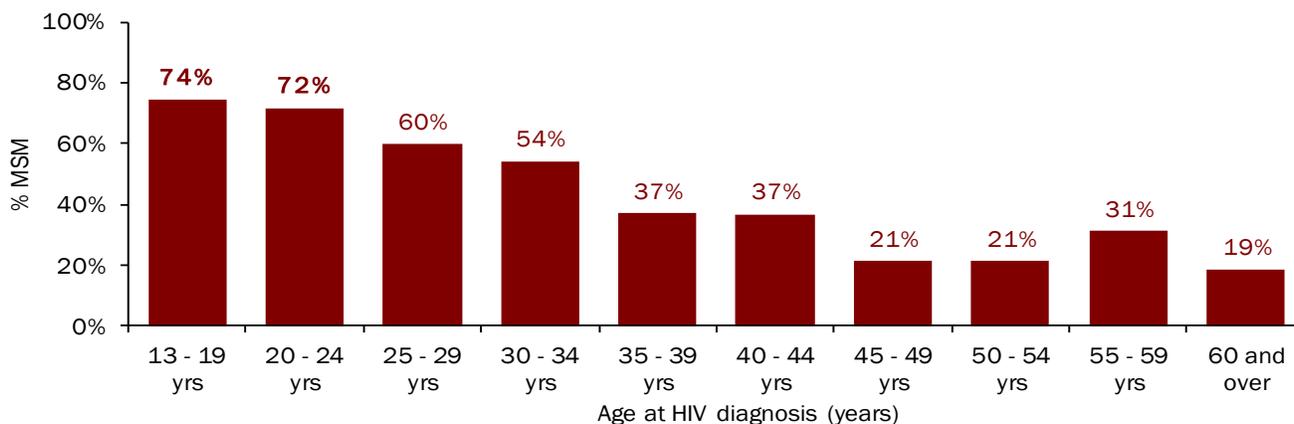
Figure 3.+ Percent black race by age at HIV diagnosis among persons newly diagnosed in SE MI, 2009-2013



Race and risk among Detroit teens and young adults

- 74%** of newly diagnosed **teens (13-19 year olds)** in **Detroit** reported being MSM (males who have sex with males), compared to **48%** of those who were **20 or older** at diagnosis.
- Among **teens** newly diagnosed in **Detroit**, **69%** are black MSM compared to **43%** 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, 2009-2013



#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