MDHHS
Michigan Department of Health & Human Services
RICK SNYDER, GOVERNOR
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ANNUAL REVIEW OF HIV TRENDS IN SOUTHEAST MICHIGAN (2013 - 2017)

Bureau of Epidemiology and Population Health
HIV, STD Surveillance and Epidemiology Section, August 2018

Overall trends in new HIV diagnoses in Southeast Michigan

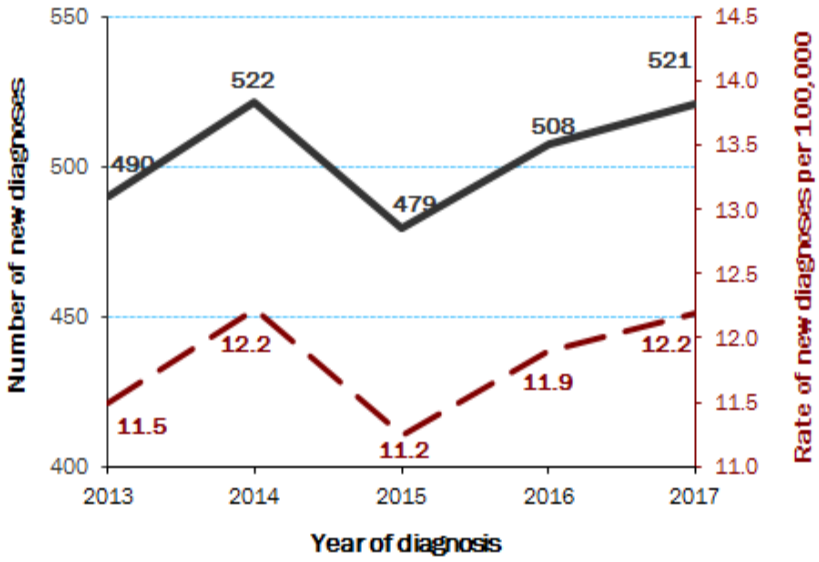
METHODS. To evaluate trends in new HIV diagnoses in Southeast Michigan (Lapeer, Macomb, Monroe, St. Clair, Oakland, and Wayne counties) over time, we estimated the number of persons newly diagnosed with HIV infection between 2013 and 2017 by adjusting the number of reported cases to account for those who may not have been reported to the health department by July 1, 2018. 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 mid-2018. Rates for age at diagnosis were calculated using the 2017 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, 2013–2017



OVERVIEW OF TRENDS. Figure 1 shows the number and rate of new HIV diagnoses in Southeast Michigan (SE MI) from 2013 to 2017. The rate of new HIV diagnoses remained stable during this time period. There were an average of 504 new cases per year, with an average rate of 11.8 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 11,950 people were living with HIV infection in SE MI as of July 2018. This number is almost two-thirds of all cases in Michigan, despite the fact that the population of SE MI is just 47% 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

Between 2013 and 2017 rates have remained stable among all age groups. The largest number and highest rates of new diagnoses remain among 20-24 year olds and 25-29 year olds. It appears that rates may be increasing among 25-29 year olds, however the increase is not statistically significant. The average rate among 20-24 and 25-29 year olds is 41.8 and 35.9 cases per 100,000 population, respectively. These data continue to highlight the burden of HIV among young individuals in the SEMI area.

Table 1. New HIV diagnoses by age at diagnosis, SE MI, 2013-2017

	Year of diagnosis														
Age at	2013			2014			2015			2016			2017		
diagnosis	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%	0.2
13 -19 yrs	43	9%	10.7	26	5%	6.6	25	5%	6.4	38	8%	9.9	28	5%	7.5
20 -24 yrs	114	23%	40.2	132	25%	46.0	131	27%	46.7	110	22%	40.3	95	18%	35.8
25 -29 yrs	79	16%	30.8	107	21%	40.4	88	18%	31.8	99	19%	33.7	130	25%	42.9
30 -34 yrs	56	11%	21.8	63	12%	24.6	49	10%	19.2	47	9%	18.3	56	11%	21.4
35 -39 yrs	34	7%	13.4	44	8%	17.4	39	8%	15.5	45	9%	17.7	53	10%	20.4
40 -44 yrs	37	8%	12.6	36	7%	12.6	40	8%	14.6	39	8%	15.0	38	7%	15.1
45 -49 yrs	45	9%	14.7	42	8%	14.1	37	8%	12.5	34	7%	11.6	44	8%	14.9
50 -54 yrs	37	8%	11.3	31	6%	9.6	39	8%	12.3	49	10%	15.8	26	5%	8.7
55 -59 yrs	21	4%	6.6	27	5%	8.5	15	3%	4.7	26	5%	8.2	31	6%	9.9
60 and over	23	5%	2.6	12	2%	1.3	14	3%	1.5	19	4%	2.0	18	3%	1.9
Total	**490**	**100%**	**11.5**	**522**	**100%**	**12.2**	**479**	**100%**	**11.2**	**508**	**100%**	**11.9**	**521**	**100%**	**12.2**

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, 2013-2017

	Year of diagnosis														
	2013			2014			2015			2016			2017		
Race/Sex	Num	%	Rate	Num	%	Rate	Num	%	Rate	Num	%	Rate	Num	%	Rate
Male	408	83%	19.8	421	81%	20.3	389	81%	18.8	429	85%	20.7	423	81%	20.4
Black	288	59%	64.7	292	56%	65.9	269	56%	60.8	275	54%	62.3	274	53%	62.1
White	96	20%	6.8	100	19%	7.1	86	18%	6.2	117	23%	8.3	115	22%	8.3
Other	24	5%	11.2	28	5%	12.7	34	7%	15.0	37	7%	15.9	33	6%	13.8
Female	82	17%	3.7	101	19%	4.6	90	19%	4.1	78	15%	3.6	98	19%	4.5
Black	62	13%	11.9	81	16%	15.6	67	14%	12.9	54	11%	10.5	73	14%	14.0
White	19	4%	1.3	14	3%	1.0	17	4%	1.2	22	4%	1.5	17	3%	1.2
Other	1	0%	0.5	6	1%	2.7	6	1%	2.6	2	0%	0.8	8	2%	3.3
All	490	100%	11.5	522	100%	12.2	479	100%	11.2	508	100%	11.9	521	100%	12.2
Black	350	71%	36.2	374	72%	38.7	336	70%	34.9	330	65%	34.3	347	67%	36.1
White	115	23%	4.0	114	22%	4.0	103	22%	3.6	139	27%	4.9	133	25%	4.7
Other	25	5%	5.8	34	7%	7.6	40	8%	8.8	39	8%	8.3	41	8%	8.5

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 (cont.)

The rate of new diagnoses among all race/sex groups remained stable in SE MI between 2013 and 2017. Despite the stability in rates among white persons and black persons overall, rates of new HIV diagnoses are consistently highest among black individuals. In 2017, the rate of new diagnoses among black persons was approximately 9 times higher than the rate among white persons. The rate of new diagnoses among black males was almost 8 times higher than white males. This disparity is lower than in the past but is still a notable difference. The rate among black females is almost 12 times that of white females, a disparity that has increased slightly since the last trend report. While the rates among persons of other races are lower than those among black persons, they remain almost 2 times higher than those of white persons in 2017. "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 the majority 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 2013 and 2017, the rate of new diagnoses within all risk groups was stable (Table 3). Between 2013 and 2017 the number of new diagnoses whose risk was MSM/PWID (Men who have sex with men and also who inject drugs) increased. However, the number of MSM/PWID is small and the rate of change was not significant. There is a targeted effort to reduce the number of new diagnoses with no identified risk (NIR). New diagnoses among persons with NIR remained stable between 2013 and 2017. Risk information is important information for prevention efforts; thus, it is crucial that risk questions be answered on the adult case report form (ACRF).

Table 3. New HIV diagnoses by risk, SE MI, 2013-2017

	Year of diagnosis									
	2013		*2014*		*2015*		*2016*		*2017*	
Risk	Num	%	Num	%	Num	%	Num	%	Num	%
MSM	276	56%	329	63%	275	57%	320	63%	297	57%
PWID	17	3%	7	1%	17	4%	14	3%	19	4%
MSM/PWID	6	1%	8	2%	6	1%	15	3%	11	2%
Heterosexual	83	17%	90	17%	74	15%	73	14%	89	17%
Other known	1	<1%	2	<1%	1	<1%	2	<1%	1	<1%
No identified risk	107	22%	86	17%	106	22%	83	16%	103	20%
Total	**490**	**100%**	**522**	**100%**	**479**	**100%**	**508**	**100%**	**521**	**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

New HIV diagnoses by residence at diagnosis

The rate of new diagnoses remained stable in all counties of SE MI for the third 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 for the second consecutive trends report new diagnoses in Detroit are 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 Detroit has been consistently decreasing since the early 2000's. The current population is approximately 1/3 less than what it was in 2000. Detroit now represents approximately 15% of SE MI's population and 7% of the state's population. Despite this, residents of Detroit represent 45% SE Michigan's new cases and 31% of the state's new cases.

Table 4. New HIV diagnoses by residence at diagnosis, SE MI, 2013-2017

	Year of diagnosis											
	2013			2014			2015			2016			2017		
Residence	Num	(%)	Rate	Num	(%)	Rate	Num	(%)	Rate	Num	(%)	Rate	Num	(%)	Rate
Detroit	252	51%	40.6	250	48%	39.0	236	49%	38.1	250	49%	37.1	234	45%	35.4
Oakland Co.	99	20%	8.8	102	20%	8.6	82	17%	8.1	96	19%	8.3	109	21%	6.8
Wayne Co. (excl Detroit)	76	16%	6.8	111	21%	9.2	86	18%	7.0	88	17%	10.2	95	18%	8.3
Macomb Co.	54	11%	6.1	53	10%	7.2	63	13%	6.4	57	11%	6.2	72	14%	7.3
St. Clair Co.	5	1%	3.1	1	<1%	2.5	5	1%	3.1	9	2%	0.6	4	1%	3.2
Monroe Co.	3	1%	3.3	4	1%	4.0	6	1%	2.0	3	1%	2.0	4	1%	4.0
Lapeer Co.	1	<1%	2.3	0	0%	1.1	1	<1%	1.1	3	1%	0.0	3	1%	1.1
Total	**490**	**100%**	**11.5**	**522**	**100%**	**12.2**	**479**	**100%**	**11.2**	**508**	**100%**	**11.9**	**521**	**100%**	**12.2**

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.

Concurrent diagnoses

Between 2013 and 2017, the proportion of stage 3 HIV infection within 30 days of diagnosis (concurrent) significantly decreased overall (9%). Specifically black males accounted for the large decrease in concurrent diagnoses (8%) (table 5). Additionally, there was a 26% decrease in the proportion of other race males. However, only one individual in that group was diagnosed concurrently in 2017. In addition, the proportion of black females diagnosed concurrently decreased by 13% between 2013 and 2017. The decrease of concurrent cases may indicate that more testing is occurring and individuals are learning about their HIV diagnose early enough to prevent progression to stage 3.

Table 5. Concurrent HIV diagnoses by race/sex group, SE MI, 2013-2017

	Year of diagnosis												
	2013		2014		2015		2016		2017		Total		
Race/Sex	Num	%	Num	%	Num	%	Num	%	Num	%	Num	%	
Male	101	25%	82	19%	68	18%	90	21%	68	16%	409	20%	↓ 9%
Black	66	23%	49	17%	38	14%	50	18%	40	15%	244	17%	↓ 8%
White	28	29%	26	26%	22	26%	29	25%	26	23%	131	26%	
Other	7	29%	7	25%	8	24%	11	30%	1	3%	34	22%	↓ 26%
Female	20	18%	25	22%	22	25%	16	16%	13	14%	96	19%	
Black	15	24%	22	27%	16	24%	10	18%	8	11%	71	21%	↓ 13%
White	5	26%	3	21%	5	29%	6	27%	3	18%	22	25%	
Other	0	0%	0	0%	1	17%	0	0%	2	25%	3	13%	
All	121	25%	107	21%	90	19%	106	21%	81	16%	505	20%	↓ 9%
Black	81	23%	71	19%	54	16%	60	18%	49	14%	315	18%	↓ 8%
White	33	29%	29	25%	27	26%	35	25%	29	22%	153	25%	
Other	7	28%	7	21%	9	22%	11	28%	3	7%	37	21%	

TABLE FOOTNOTES:

- The number of new diagnoses shown are not reported case counts. These are estimates based on the number of reported cases that are adjusted to account for reporting delay. As a result, summed counts will not always match the column total shown 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 2013 and 2017, the rate of new diagnoses in SE MI remained stable with an average of 504 cases per year and an average rate of 11.8 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
- 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 2017:
    - **Overall:** The rate for black persons was almost 8 times higher
    - **Males:** The rate for black males was more than 7 times higher
    - **Females:** The rate for black females was almost 12 times higher
- Concurrent diagnoses are decreasing over all. This is a new trend and could indicate increased testing efforts have been able to identify people living with HIV earlier in the diseases progression. This allows newly diagnosed individuals to get into care to then prevent progression to stage 3 HIV.
- The following groups have seen significant decreases in concurrent diagnoses:
    - Black males and females
    - Males of other races

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*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

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FOCUS ON DETROIT:

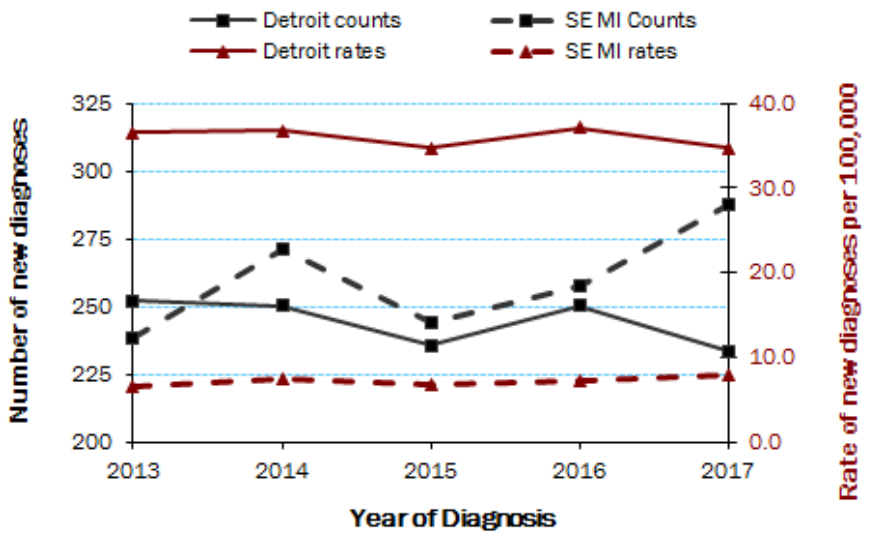
SUPPLEMENTAL FACT SHEET TO THE ANNUAL REVIEW OF HIV TRENDS IN SOUTHEAST MICHIGAN (2013 - 2017)

Bureau of Bureau of Population Health and Epidemiology
HIV, STD Surveillance and Epidemiology Section, August 2018

Overview of new HIV diagnoses in DETROIT

- **1,222** new HIV diagnoses between 2013 and 2017
- Average of **244** new diagnoses (**36 per 100,000 people**) per year
- Rate of new diagnoses in Detroit is **4 times** higher than the rate in the rest of SE MI
- Detroit makes up **15%** of the SE MI population but has **45%** of new cases diagnosed in 2013-2017

Figure 1. A comparison of the number and rate of new HIV diagnoses in Detroit vs. the rest of Southeast Michigan (SE MI)*, 2013-2017

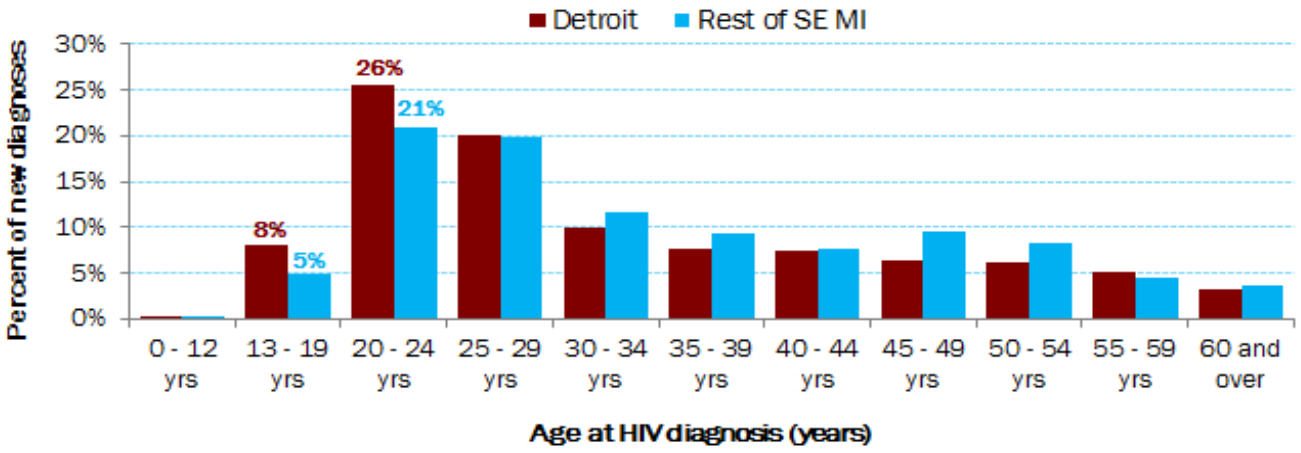


*In this graph, the city of Detroit is excluded from SE MI and shown separately. SE MI includes Lapeer, Ma-

New HIV diagnoses by age at diagnosis

- **8%** of new diagnoses in **Detroit** were among **13-19 year olds,** compared to **5%** in **the rest of SE MI.**
- **61%** of newly diagnosed **teens (13-19 year olds)** in SE MI lived in **Detroit** at the time of diagnosis.
- **26%** of new diagnoses in **Detroit** were among **20-24 year olds**, compared to **21%** in the **rest of SE MI**
- Newly diagnosed persons who were **13-24 years old** were significantly more likely to live in **Detroit** than in the rest of SE MI.

Figure 2. Age at HIV diagnosis among newly diagnosed cases in SE MI, 2013-2017



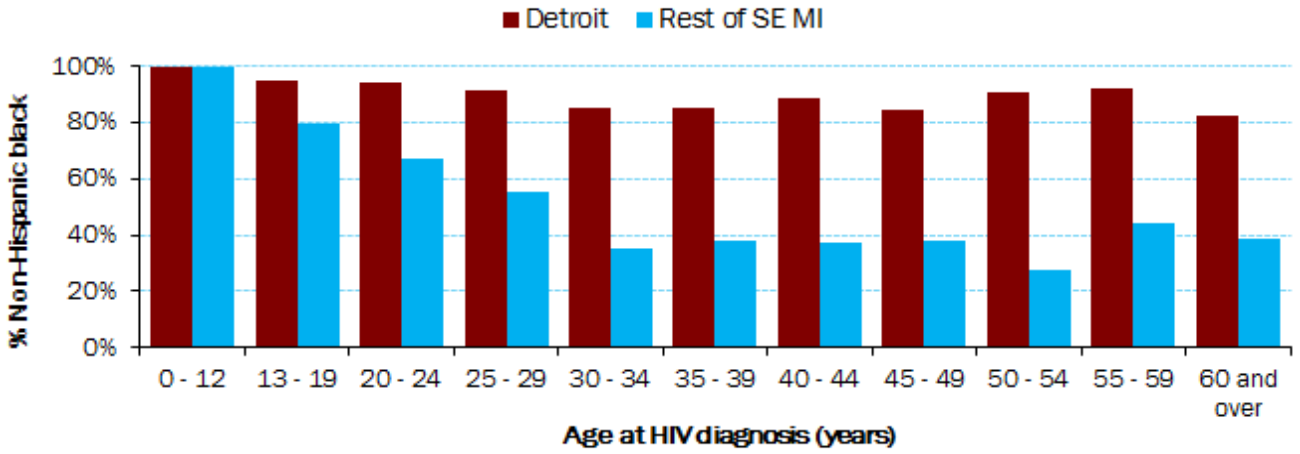
FOOTNOTES:

- 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 **73%** in the **rest of SE MI**, despite the fact that 83% 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 (91% vs. 75%, respectively).

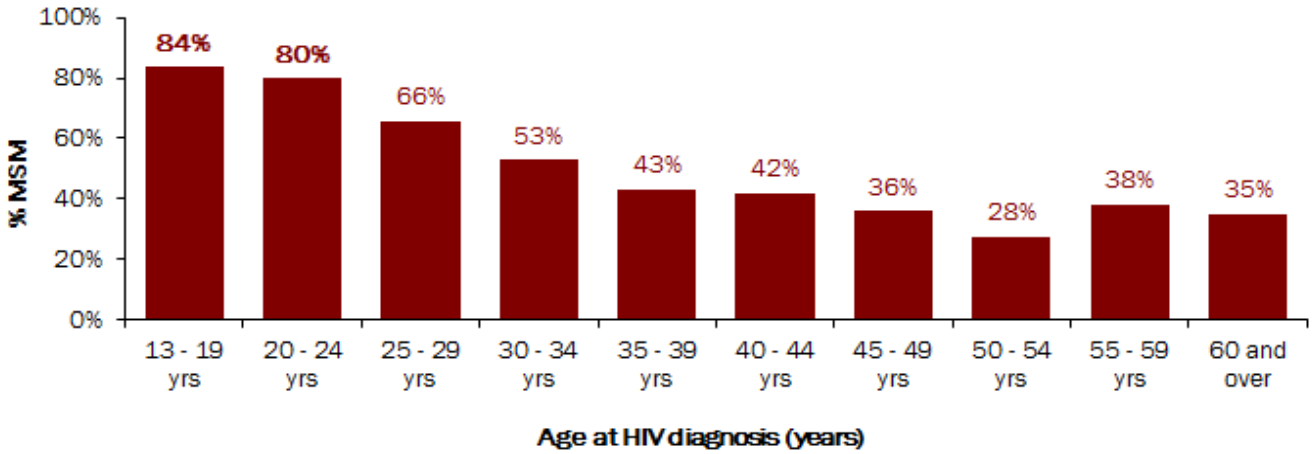
Figure 3. Percent black race by age at HIV diagnosis among persons newly diagnosed in SE MI, 2013-2017



Race and risk among Detroit teens and young adults

- **84%** of newly diagnosed **teens (13-19 year olds)** in **Detroit** reported being MSM (males who have sex with males), compared to **47%** of those who were **20 or older** at diagnosis.
- Among **teens** newly diagnosed in **Detroit, 79%** are black MSM compared to **51%** 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 <u>all races</u> newly diagnosed in Detroit, 2013-2017



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.