MDHHS

Michigan Department of Health & Human Services

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ANNUAL REVIEW OF HIV TRENDS IN SOUTHEAST MICHIGAN (2010 - 2014)

**Bureau of Disease Control, Prevention and Epidemiology
HIV, Body Art, STD, and Viral Hepatitis Section, April 2016**

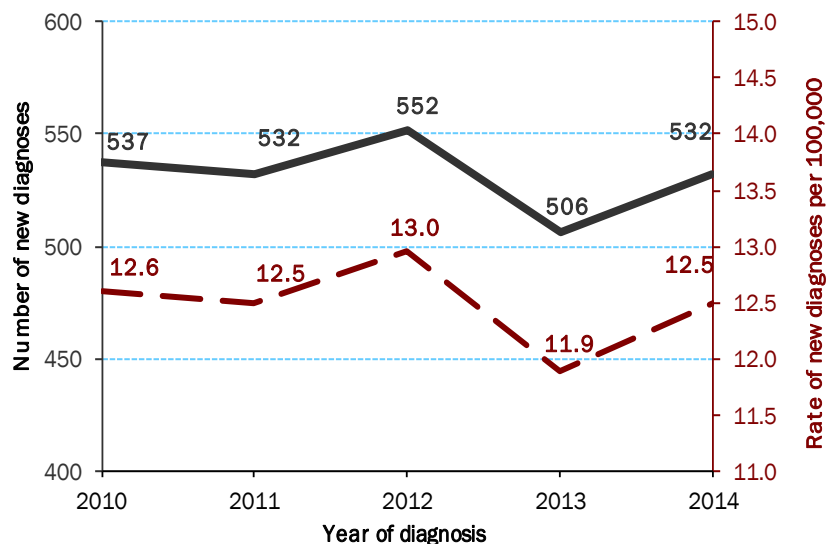## Overall trends in new HIV diagnoses in Southeast Michigan

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 2010 and 2014 by adjusting the number of reported cases to account for those who may not have been reported to the health department by January 1, 2016. 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 2015. Rates for age at diagnosis were calculated using the 2014 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). Early this year, we released estimated rates of recent infections for 2009-2013. 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, 2010—2014

OVERVIEW OF TRENDS. Figure 1 shows the number and rate of new HIV diagnoses in Southeast Michigan (SE MI) from 2010 to 2014. The rate of new HIV diagnoses remained stable during this time period. There were an average of 532 new cases per year, with an average rate of 12.5 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 12,240 people were living with HIV infection in SE MI as of July 2015. 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 second consecutive 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, 2010-2014

Age at	Year of diagnosis														
diagnosis	2010			2011			2012			2013			2014		
	Num	%	Rate	Num	%	Rate	Num	%	Rate	Num	%	Rate	Num	%	Rate
0 - 12 yrs	2	<1%	0.3	1	<1%	0.1	1	<1%	0.1	1	<1%	0.1	1	<1%	0.2
13 -19 yrs	42	8%	9.8	46	9%	11.0	46	8%	11.3	47	9%	11.8	27	5%	6.7
20 -24 yrs	103	19%	40.2	128	24%	48.1	137	25%	49.7	123	24%	43.9	137	26%	48.4
25 -29 yrs	82	15%	32.7	76	14%	30.3	88	16%	34.7	81	16%	31.2	114	21%	42.9
30 -34 yrs	73	14%	28.8	52	10%	20.4	58	11%	22.6	58	12%	22.7	61	12%	23.9
35 -39 yrs	60	11%	21.5	48	9%	18.1	46	8%	18.0	33	7%	13.1	45	8%	17.7
40 -44 yrs	45	8%	14.8	45	8%	14.9	57	10%	19.0	34	7%	11.6	36	7%	12.4
45 -49 yrs	50	9%	15.2	50	9%	15.6	42	8%	13.4	45	9%	14.8	43	8%	14.2
50 -54 yrs	47	9%	13.9	39	7%	11.6	37	7%	11.2	37	7%	11.4	31	6%	9.4
55 -59 yrs	16	3%	5.4	20	4%	6.6	18	3%	5.8	21	4%	6.7	28	5%	8.6
60 and over	17	3%	2.1	26	5%	3.1	21	4%	2.5	24	5%	2.8	11	2%	1.2
Total	537	100%	12.6	532	100%	12.5	552	100%	13.0	506	100%	11.9	532	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, 2010-2014

Race/Sex	Year of diagnosis														
	2010			2011			2012			2013			2014		
	Num	%	Rate	Num	%	Rate	Num	%	Rate	Num	%	Rate	Num	%	Rate
Male	428	80%	20.7	425	80%	20.6	440	80%	21.3	419	83%	20.3	429	81%	20.8
Black	284	53%	63.1	297	56%	66.1	294	53%	65.8	300	59%	67.4	299	56%	67.5
White	115	21%	8.1	104	20%	7.4	116	21%	8.3	96	19%	6.8	103	19%	7.3
Other	29	5%	14.6	24	5%	11.8	29	5%	13.9	23	5%	10.7	27	5%	12.4
Female	109	20%	5.0	107	20%	4.9	113	20%	5.1	88	17%	4.0	103	19%	4.7
Black	89	17%	16.9	81	15%	15.5	85	15%	16.3	68	13%	12.9	84	16%	16.1
White	11	2%	0.7	17	3%	1.2	18	3%	1.2	19	4%	1.3	14	3%	1.0
Other	9	2%	4.4	9	2%	4.3	9	2%	4.2	1	0%	0.5	5	1%	2.3 ↓27%
All	537	100%	12.6	532	100%	12.5	552	100%	13.0	506	100%	11.9	532	100%	12.5
Black	373	69%	38.2	378	71%	38.8	380	69%	39.1	367	73%	38.0	383	72%	39.7
White	126	23%	4.4	121	23%	4.2	134	24%	4.7	115	23%	4.0	117	22%	4.1
Other	38	7%	9.5	33	6%	8.0	38	7%	9.0	24	5%	5.5	33	6%	7.3

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 females of other race by an average of 27% per year (table 2), though, it is important to note that there are small numbers in this group. The rate among all other race/sex groups remained stable in SE MI between 2010 and 2014. Despite the stability in rates among white persons and black persons overall, rates of new HIV diagnoses are consistently highest among black individuals. In 2014, the rate of new diagnoses among black persons was almost 10 times higher than the rate among white persons. The rate of new diagnoses among black males was over 9 times higher than among white males, a trend that has not changed since 2003. Even with past decreases in rate among black females, their rate is still 16 times that of white females, a disparity that has increased 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 impacted by HIV.

New HIV diagnoses by risk

Between 2010 and 2014, the number of newly diagnosed persons who were injection drug users (IDU) decreased by an average 27% per year. Diagnoses remained stable in all other risk groups (Table 3). This is the third consecutive report in the last seven reports showing no decreases in new diagnoses among persons with Heterosexual risk.

Table 3. New HIV diagnoses by risk, SE MI, 2010-2014

Risk	Year of diagnosis									
	2010		*2011*		*2012*		*2013*		*2014*	
	Num	%	Num	%	Num	%	Num	%	Num	%
MSM	296	55%	307	58%	302	55%	279	55%	331	62%
IDU	28	5%	21	4%	22	4%	16	3%	6	1%
MSM/IDU	6	1%	10	2%	11	2%	7	1%	7	1%
Heterosexual	97	18%	86	16%	90	16%	88	17%	90	17%
Other known	2	<1%	1	<1%	1	<1%	1	<1%	2	<1%
No identified risk	108	20%	107	20%	126	23%	115	23%	96	18%
Total	537	100%	532	100%	552	100%	506	100%	532	100%

(IDU row: ▼27%)

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.

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 2010 and 2014. 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 except for St. Clair County, which decreased by an average of 34% per year (table 4). It is important to note that residents of St. Clair county make up just 1% of new cases in SE MI.

The rate of new diagnoses in Detroit remains the highest of any location, and it is now almost 4 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 4.7% between 2010 and 2014. Based on the 2014 population estimates, Detroit now represents just 19% 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 4. New HIV diagnoses by residence at diagnosis, SE MI, 2010-2014

Residence	Year of diagnosis														
	2010			2011			2012			2013			2014		
	Num	(%)	Rate	Num	(%)	Rate	Num	(%)	Rate	Num	(%)	Rate	Num	(%)	Rate
Detroit	276	51%	38.8	286	54%	40.7	271	49%	38.9	265	52%	38.6	254	48%	37.4
Oakland Co.	104	19%	8.7	106	20%	8.8	108	20%	8.9	101	20%	8.2	107	20%	8.6
Wayne Co. (excl Detroit)	90	17%	8.2	76	14%	6.9	99	18%	9.1	77	15%	7.0	112	21%	10.3
Macomb Co.	49	9%	5.8	52	10%	6.2	62	11%	7.3	54	11%	6.4	55	10%	6.4
St. Clair Co.	9	2%	5.5	5	1%	3.1	4	1%	2.5	5	1%	3.2	1	<1%	0.6 ⬇34%
Monroe Co.	5	1%	3.3	5	1%	3.3	6	1%	4.0	3	1%	2.0	3	1%	2.0
Lapeer Co.	4	1%	4.5	2	<1%	2.3	1	<1%	1.1	1	<1%	1.1	0	0%	0.0
Total	537	100%	12.6	532	100%	12.5	552	100%	13.0	506	100%	11.9	532	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 fourth 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 increases or decreases were noted in any race/sex groups either. Between 2010 and 2014, proportions of concurrent diagnoses in SE MI were highest among white males, females of other race, and white persons overall. Though not significant, it is also important to note that proportions of concurrent diagnoses increased for females overall and black females during this time.

Table 5. Concurrent HIV diagnoses by race/sex group, SE MI, 2010-2014

Race/Sex	Year of diagnosis											
	2010		2011		2012		2013		2014		Total	
	Num	%	Num	%	Num	%	Num	%	Num	%	Num	%
Male	91	21%	81	19%	87	20%	103	24%	82	19%	444	21%
Black	63	22%	48	16%	56	19%	67	22%	50	17%	284	19%
White	26	23%	31	30%	27	23%	28	29%	26	26%	139	26%
Other	2	7%	2	8%	4	14%	7	30%	6	22%	21	16%
Female	19	17%	25	23%	20	18%	20	23%	26	26%	110	21%
Black	14	16%	16	20%	16	19%	15	22%	23	28%	84	21%
White	3	27%	4	24%	1	6%	5	26%	3	21%	16	20%
Other	2	22%	5	56%	3	33%	0	0%	0	0%	10	30%
All	110	20%	106	20%	107	19%	123	24%	109	20%	554	21%
Black	77	21%	64	17%	72	19%	82	22%	73	19%	369	20%
White	77	61%	64	53%	72	54%	82	72%	73	63%	369	60%
Other	4	11%	7	21%	7	18%	7	29%	6	19%	31	19%

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 2010 to 2014, which do not take into account the fluctuations from year to year.

Summary

- Between 2010 and 2014, the rate of new diagnoses in SE MI remained stable with an average of 532 cases per year and an average rate of 12.5.
- 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:
  - Females of other race
  - Injection drug users (IDU)*
- 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 2014:
  - **Overall:** The rate for black persons was almost 10 times higher
  - **Males:** The rate for black males was over 9 times higher
  - **Females:** The rate for black females was 16 times higher
- For the fourth consecutive report, concurrent diagnoses remained stable overall.

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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 (2010 - 2014)

**Bureau of Disease Control, Prevention and Epidemiology
HIV, Body Art, STD, and Viral Hepatitis Section, April 2016**

Overview of new HIV diagnoses in DETROIT

- **1,353** new HIV diagnoses between 2010 and 2014

- Average of **271** new diagnoses (**38.9 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 **19%** of the SE MI population but has **51%** of new cases diagnosed in 2010-2014

Figure 1. A comparison of the number and rate of new HIV diagnoses in Detroit vs. the rest of Southeast Michigan (SE MI)*, 2010-2014
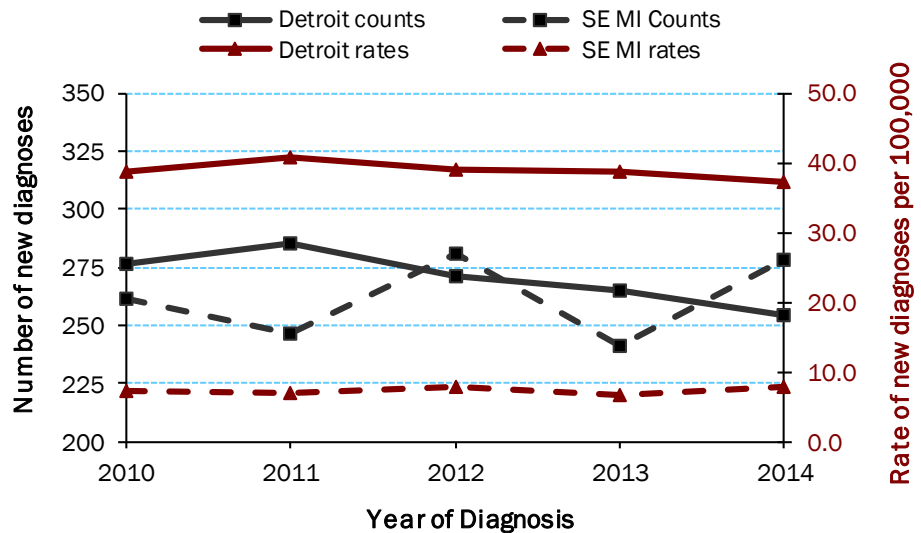
*In this graph, the city of Detroit is excluded from SE MI and shown separately. SE MI includes Lapeer, Macomb, Monroe, Oakland, St. Clair, and Wayne counties.

New HIV diagnoses by age at diagnosis

- 10% of new diagnoses in **Detroit** were among **13-19 year olds,** compared to **6%** in **the rest of SE MI.**

- **64%** 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, 2010-2014
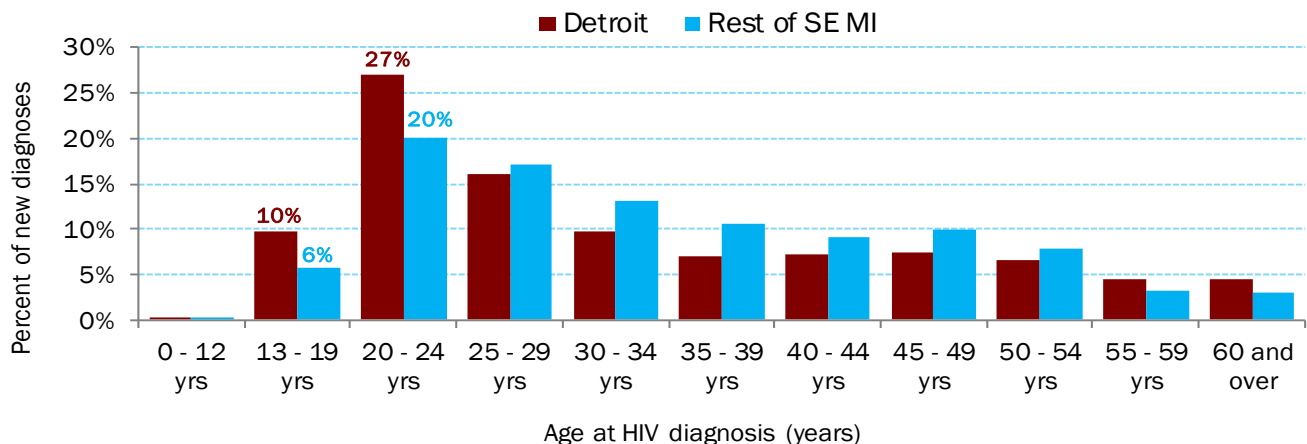
FOOTNOTES:

- 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 **71%** in the **rest of SE MI**, despite the fact that just 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 (86% vs. 72%, respectively).

Figure 3. Percent black race by age at HIV diagnosis among persons newly diagnosed in SE MI, 2010-2014
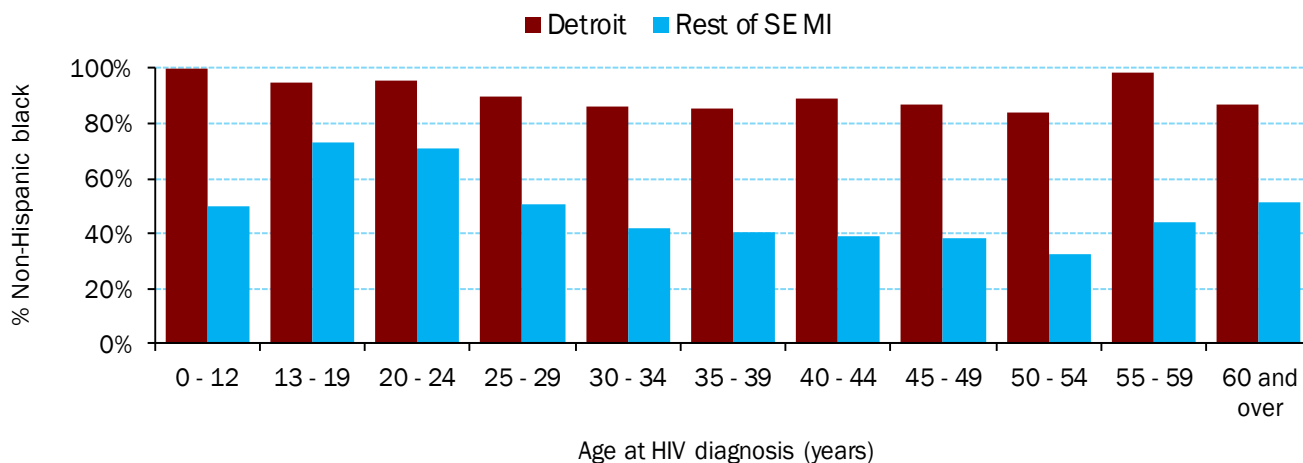
Race and risk among Detroit teens and young adults

- **77%** of newly diagnosed **teens (13-19 year olds)** in **Detroit** reported being MSM (males who have sex with males), compared to **50%** of those who were **20 or older** at diagnosis.

- Among **teens** newly diagnosed in **Detroit, 73%** are black MSM compared to **45%** 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, 2010-2014
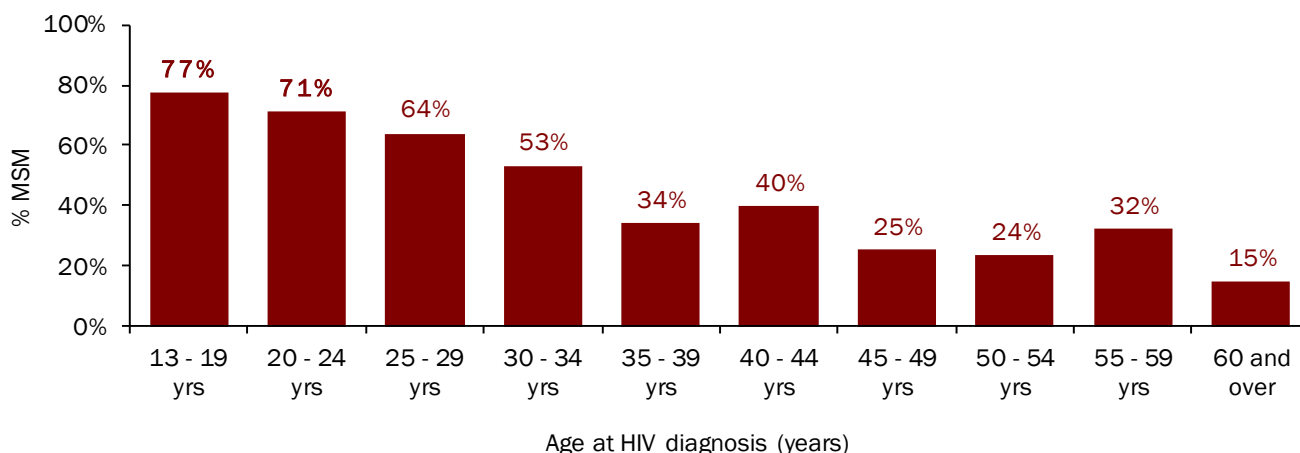
FOOTNOTES:

- 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