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.

**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.

**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

<table>
<thead>
<tr>
<th>Age at diagnosis</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Num</td>
<td>%</td>
<td>Rate</td>
<td>Num</td>
<td>%</td>
</tr>
<tr>
<td>0 - 12 yrs</td>
<td>2 &lt;1</td>
<td>0.3</td>
<td>1 &lt;1</td>
<td>0.1</td>
<td>1 &lt;1</td>
</tr>
<tr>
<td>13 -19 yrs</td>
<td>42  8%</td>
<td>9.8</td>
<td>46  9%</td>
<td>11.0</td>
<td>46  8%</td>
</tr>
<tr>
<td>20 -24 yrs</td>
<td>103 19%</td>
<td>40.2</td>
<td>128 24%</td>
<td>48.1</td>
<td>137 25%</td>
</tr>
<tr>
<td>25 -29 yrs</td>
<td>82 15%</td>
<td>32.7</td>
<td>76 14%</td>
<td>30.3</td>
<td>88 16%</td>
</tr>
<tr>
<td>30 -34 yrs</td>
<td>73 14%</td>
<td>28.8</td>
<td>52 10%</td>
<td>20.4</td>
<td>58 11%</td>
</tr>
<tr>
<td>35 -39 yrs</td>
<td>60 11%</td>
<td>21.5</td>
<td>48  9%</td>
<td>18.1</td>
<td>46  8%</td>
</tr>
<tr>
<td>40 -44 yrs</td>
<td>45  8%</td>
<td>14.8</td>
<td>45  8%</td>
<td>14.9</td>
<td>57 10%</td>
</tr>
<tr>
<td>45 -49 yrs</td>
<td>50  9%</td>
<td>15.2</td>
<td>50  9%</td>
<td>15.6</td>
<td>42  8%</td>
</tr>
<tr>
<td>50 -54 yrs</td>
<td>47  9%</td>
<td>13.9</td>
<td>39  7%</td>
<td>11.6</td>
<td>37  7%</td>
</tr>
<tr>
<td>55 -59 yrs</td>
<td>16  3%</td>
<td>5.4</td>
<td>20  4%</td>
<td>6.6</td>
<td>18  3%</td>
</tr>
<tr>
<td>60 and over</td>
<td>17  3%</td>
<td>2.1</td>
<td>26  5%</td>
<td>3.1</td>
<td>21  4%</td>
</tr>
<tr>
<td>Total</td>
<td>537 100%</td>
<td>12.6</td>
<td>532 100%</td>
<td>12.5</td>
<td>552 100%</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Race/Sex</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Num</td>
<td>%</td>
<td>Rate</td>
<td>Num</td>
<td>%</td>
</tr>
<tr>
<td>Male</td>
<td>428  80%</td>
<td>20.7</td>
<td>425  80%</td>
<td>20.6</td>
<td>440  80%</td>
</tr>
<tr>
<td>Black</td>
<td>284  53%</td>
<td>63.1</td>
<td>297  56%</td>
<td>66.1</td>
<td>294  53%</td>
</tr>
<tr>
<td>White</td>
<td>115  21%</td>
<td>8.1</td>
<td>104  20%</td>
<td>7.4</td>
<td>116  21%</td>
</tr>
<tr>
<td>Other</td>
<td>29  5%</td>
<td>14.6</td>
<td>24  5%</td>
<td>11.8</td>
<td>29  5%</td>
</tr>
<tr>
<td>Female</td>
<td>109  20%</td>
<td>5.0</td>
<td>107  20%</td>
<td>4.9</td>
<td>113  20%</td>
</tr>
<tr>
<td>Black</td>
<td>89  17%</td>
<td>16.9</td>
<td>81  15%</td>
<td>15.5</td>
<td>85  15%</td>
</tr>
<tr>
<td>White</td>
<td>11  2%</td>
<td>0.7</td>
<td>17  3%</td>
<td>1.2</td>
<td>18  3%</td>
</tr>
<tr>
<td>Other</td>
<td>9  2%</td>
<td>4.4</td>
<td>9  2%</td>
<td>4.3</td>
<td>9  2%</td>
</tr>
<tr>
<td>All</td>
<td>537 100%</td>
<td>12.6</td>
<td>532 100%</td>
<td>12.5</td>
<td>552 100%</td>
</tr>
</tbody>
</table>

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.

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

<table>
<thead>
<tr>
<th>Risk</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>MSM</td>
<td>296</td>
<td>307</td>
<td>302</td>
<td>279</td>
<td>331</td>
</tr>
<tr>
<td>IDU</td>
<td>28</td>
<td>21</td>
<td>22</td>
<td>16</td>
<td>6</td>
</tr>
<tr>
<td>MSM/IDU</td>
<td>6</td>
<td>10</td>
<td>11</td>
<td>7</td>
<td>7</td>
</tr>
<tr>
<td>Heterosexual</td>
<td>97</td>
<td>86</td>
<td>90</td>
<td>88</td>
<td>90</td>
</tr>
<tr>
<td>Other known</td>
<td>2</td>
<td>1</td>
<td>1</td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>No identified</td>
<td>108</td>
<td>107</td>
<td>126</td>
<td>115</td>
<td>96</td>
</tr>
<tr>
<td>Total</td>
<td>537</td>
<td>532</td>
<td>552</td>
<td>506</td>
<td>532</td>
</tr>
</tbody>
</table>

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 FOOTNOTES:

- **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.

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 4. New HIV diagnoses by residence at diagnosis, SE MI, 2010-2014

<table>
<thead>
<tr>
<th>Residence</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Num (%)</td>
<td>Rate</td>
<td>Num (%)</td>
<td>Rate</td>
<td>Num (%)</td>
<td>Rate</td>
</tr>
<tr>
<td>Detroit</td>
<td>276 51%</td>
<td>38.8</td>
<td>286 54%</td>
<td>40.7</td>
<td>271 49%</td>
<td>38.9</td>
</tr>
<tr>
<td>Oakland Co.</td>
<td>104 19%</td>
<td>8.7</td>
<td>106 20%</td>
<td>8.8</td>
<td>108 20%</td>
<td>8.9</td>
</tr>
<tr>
<td>Wayne Co. (excl Detroit)</td>
<td>90 17%</td>
<td>8.2</td>
<td>76 14%</td>
<td>6.9</td>
<td>99 18%</td>
<td>9.1</td>
</tr>
<tr>
<td>Macomb Co.</td>
<td>49 9%</td>
<td>5.8</td>
<td>52 10%</td>
<td>6.2</td>
<td>62 11%</td>
<td>7.3</td>
</tr>
<tr>
<td>St. Clair Co.</td>
<td>9 2%</td>
<td>5.5</td>
<td>5 1%</td>
<td>3.1</td>
<td>4 1%</td>
<td>2.5</td>
</tr>
<tr>
<td>Monroe Co.</td>
<td>5 1%</td>
<td>3.3</td>
<td>6 1%</td>
<td>4.0</td>
<td>3 1%</td>
<td>2.0</td>
</tr>
<tr>
<td>Lapeer Co.</td>
<td>4 1%</td>
<td>4.5</td>
<td>2 &lt;1%</td>
<td>2.3</td>
<td>1 &lt;1%</td>
<td>1.1</td>
</tr>
<tr>
<td>Total</td>
<td>537 100%</td>
<td>12.6</td>
<td>532 100%</td>
<td>12.5</td>
<td>552 100%</td>
<td>13.0</td>
</tr>
</tbody>
</table>

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 number of new diagnoses, as calculated using regression modeling.
- Rates are per 100,000 population.

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

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

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.

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

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.

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**

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**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](http://www.michigan.gov/hivstd)