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.

**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 2006 and 2010 by adjusting the number of reported cases to account for those who may not have been reported to the health department by January 1, 2012. 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 2010 and based on the 2010 census, the most recent year for which 2006-2010 data were available. Rates for age at diagnosis were calculated using the 2010 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, MDCH began incidence surveillance, which estimates new infections rather than new diagnoses using the Serologic Testing Algorithm for Recent HIV Seroconversion (STARHS). MI STARHS data and a comparison to data on diagnoses presented in the statewide report will be released in the coming months and will be available on our website.

**OVERVIEW OF TRENDS.** Between 2006 and 2010, the rate of new HIV diagnoses in Southeast Michigan remained stable, with an average rate of 12.7 per 100,000 (Figure 1). The number of new diagnoses also remained stable at an average of 548 cases per year. This is the second consecutive trend report in which both the number and rate of new diagnoses in SE MI remained stable.

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 Michigan is increasing. MDCH estimates that 12,850 people were living with HIV infection in SE Michigan as of January 2011. This number is two-thirds of all new cases in Michigan, despite the fact that the population of SE Michigan is just 43% of the state population.

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*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 trend report in seven reports, the rate of new diagnoses did not increase among persons 13-19 years of age. The rate did increase, however, among 20-24 and 25-29 year olds (11% and 8% per year, respectively) for the second consecutive report (Table 1). The rate decreased significantly among persons aged 35-39 and 40-44 years. While the largest number and highest rates of new diagnoses remain among 20-44 year olds, increases in young adults continue to occur while rates in older age groups decrease or remain stable. In 2010, 20-24 year olds had a rate of 43.4 compared to 29.3 among 30-34 year olds, the age group with the next highest rate.

Table 1.‡ New HIV diagnoses by age at diagnosis, SE MI, 2006-2010

<table>
<thead>
<tr>
<th>Age at diagnosis</th>
<th>2006</th>
<th>%</th>
<th>Rate</th>
<th>2007</th>
<th>%</th>
<th>Rate</th>
<th>2008</th>
<th>%</th>
<th>Rate</th>
<th>2009</th>
<th>%</th>
<th>Rate</th>
<th>2010</th>
<th>%</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 12 yrs</td>
<td>3</td>
<td>1%</td>
<td>0.4</td>
<td>2</td>
<td>&lt;1%</td>
<td>0.3</td>
<td>3</td>
<td>1%</td>
<td>0.4</td>
<td>2</td>
<td>&lt;1%</td>
<td>0.3</td>
<td>1</td>
<td>&lt;1%</td>
<td>0.1</td>
</tr>
<tr>
<td>13 -19 yrs</td>
<td>37</td>
<td>7%</td>
<td>8.2</td>
<td>54</td>
<td>10%</td>
<td>12.1</td>
<td>60</td>
<td>11%</td>
<td>13.5</td>
<td>61</td>
<td>11%</td>
<td>13.9</td>
<td>44</td>
<td>8%</td>
<td>10.2</td>
</tr>
<tr>
<td>20 - 24 yrs</td>
<td>75</td>
<td>14%</td>
<td>29.6</td>
<td>75</td>
<td>14%</td>
<td>29.8</td>
<td>94</td>
<td>17%</td>
<td>37.4</td>
<td>107</td>
<td>19%</td>
<td>42.5</td>
<td>111</td>
<td>21%</td>
<td>43.4</td>
</tr>
<tr>
<td>25 - 29 yrs</td>
<td>69</td>
<td>13%</td>
<td>23.6</td>
<td>63</td>
<td>11%</td>
<td>21.6</td>
<td>72</td>
<td>13%</td>
<td>25.6</td>
<td>85</td>
<td>15%</td>
<td>31.2</td>
<td>73</td>
<td>14%</td>
<td>29.2</td>
</tr>
<tr>
<td>30 - 34 yrs</td>
<td>64</td>
<td>12%</td>
<td>22.1</td>
<td>54</td>
<td>10%</td>
<td>19.4</td>
<td>58</td>
<td>11%</td>
<td>21.1</td>
<td>47</td>
<td>8%</td>
<td>17.3</td>
<td>75</td>
<td>14%</td>
<td>29.3</td>
</tr>
<tr>
<td>35 - 39 yrs</td>
<td>87</td>
<td>16%</td>
<td>26.6</td>
<td>73</td>
<td>13%</td>
<td>22.4</td>
<td>69</td>
<td>13%</td>
<td>22.0</td>
<td>63</td>
<td>11%</td>
<td>20.7</td>
<td>63</td>
<td>12%</td>
<td>22.2</td>
</tr>
<tr>
<td>40 - 44 yrs</td>
<td>78</td>
<td>14%</td>
<td>22.5</td>
<td>80</td>
<td>15%</td>
<td>23.5</td>
<td>59</td>
<td>11%</td>
<td>17.9</td>
<td>65</td>
<td>11%</td>
<td>20.3</td>
<td>41</td>
<td>8%</td>
<td>13.3</td>
</tr>
<tr>
<td>45 - 49 yrs</td>
<td>62</td>
<td>11%</td>
<td>17.2</td>
<td>59</td>
<td>11%</td>
<td>16.6</td>
<td>54</td>
<td>10%</td>
<td>15.3</td>
<td>41</td>
<td>7%</td>
<td>11.8</td>
<td>49</td>
<td>9%</td>
<td>14.8</td>
</tr>
<tr>
<td>50 - 54 yrs</td>
<td>35</td>
<td>6%</td>
<td>10.8</td>
<td>42</td>
<td>8%</td>
<td>12.7</td>
<td>36</td>
<td>7%</td>
<td>10.5</td>
<td>55</td>
<td>10%</td>
<td>15.9</td>
<td>38</td>
<td>7%</td>
<td>11.2</td>
</tr>
<tr>
<td>55 - 59 yrs</td>
<td>22</td>
<td>4%</td>
<td>7.9</td>
<td>19</td>
<td>4%</td>
<td>6.6</td>
<td>19</td>
<td>4%</td>
<td>6.8</td>
<td>27</td>
<td>5%</td>
<td>9.2</td>
<td>17</td>
<td>3%</td>
<td>5.9</td>
</tr>
<tr>
<td>60 and over</td>
<td>15</td>
<td>3%</td>
<td>2.0</td>
<td>25</td>
<td>5%</td>
<td>3.3</td>
<td>22</td>
<td>4%</td>
<td>2.9</td>
<td>11</td>
<td>2%</td>
<td>1.4</td>
<td>21</td>
<td>4%</td>
<td>2.5</td>
</tr>
<tr>
<td>Total</td>
<td>550</td>
<td>100%</td>
<td>12.5</td>
<td>546</td>
<td>100%</td>
<td>12.4</td>
<td>546</td>
<td>100%</td>
<td>12.4</td>
<td>564</td>
<td>100%</td>
<td>12.4</td>
<td>532</td>
<td>100%</td>
<td>12.5</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, 2006-2010

<table>
<thead>
<tr>
<th>Race/Sex</th>
<th>Num</th>
<th>%</th>
<th>Rate</th>
<th>Num</th>
<th>%</th>
<th>Rate</th>
<th>Num</th>
<th>%</th>
<th>Rate</th>
<th>Num</th>
<th>%</th>
<th>Rate</th>
<th>Num</th>
<th>%</th>
<th>Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>410</td>
<td>75%</td>
<td>19.3</td>
<td>414</td>
<td>76%</td>
<td>19.6</td>
<td>416</td>
<td>76%</td>
<td>19.9</td>
<td>447</td>
<td>79%</td>
<td>21.5</td>
<td>430</td>
<td>81%</td>
<td>20.8</td>
</tr>
<tr>
<td>Black</td>
<td>263</td>
<td>48%</td>
<td>56.7</td>
<td>286</td>
<td>52%</td>
<td>62.2</td>
<td>298</td>
<td>55%</td>
<td>65.4</td>
<td>311</td>
<td>55%</td>
<td>68.9</td>
<td>292</td>
<td>55%</td>
<td>64.7</td>
</tr>
<tr>
<td>White</td>
<td>122</td>
<td>22%</td>
<td>8.2</td>
<td>96</td>
<td>18%</td>
<td>6.6</td>
<td>83</td>
<td>15%</td>
<td>5.8</td>
<td>113</td>
<td>20%</td>
<td>7.9</td>
<td>110</td>
<td>21%</td>
<td>7.8</td>
</tr>
<tr>
<td>Other</td>
<td>25</td>
<td>5%</td>
<td>13.3</td>
<td>32</td>
<td>6%</td>
<td>16.8</td>
<td>35</td>
<td>6%</td>
<td>17.7</td>
<td>23</td>
<td>4%</td>
<td>11.5</td>
<td>28</td>
<td>5%</td>
<td>13.9</td>
</tr>
<tr>
<td>Female</td>
<td>140</td>
<td>25%</td>
<td>6.2</td>
<td>132</td>
<td>24%</td>
<td>5.9</td>
<td>130</td>
<td>24%</td>
<td>5.9</td>
<td>117</td>
<td>21%</td>
<td>5.3</td>
<td>103</td>
<td>19%</td>
<td>4.7</td>
</tr>
<tr>
<td>Black</td>
<td>115</td>
<td>21%</td>
<td>21.2</td>
<td>112</td>
<td>20%</td>
<td>20.8</td>
<td>101</td>
<td>18%</td>
<td>18.9</td>
<td>101</td>
<td>18%</td>
<td>19.1</td>
<td>87</td>
<td>16%</td>
<td>16.5</td>
</tr>
<tr>
<td>White</td>
<td>14</td>
<td>3%</td>
<td>0.9</td>
<td>14</td>
<td>3%</td>
<td>0.9</td>
<td>19</td>
<td>4%</td>
<td>1.3</td>
<td>9</td>
<td>2%</td>
<td>0.6</td>
<td>11</td>
<td>2%</td>
<td>0.7</td>
</tr>
<tr>
<td>Other</td>
<td>11</td>
<td>2%</td>
<td>5.9</td>
<td>6</td>
<td>1%</td>
<td>3.2</td>
<td>10</td>
<td>2%</td>
<td>5.2</td>
<td>7</td>
<td>1%</td>
<td>3.6</td>
<td>5</td>
<td>1%</td>
<td>2.2</td>
</tr>
<tr>
<td>All</td>
<td>550</td>
<td>100%</td>
<td>13.5</td>
<td>546</td>
<td>100%</td>
<td>12.4</td>
<td>546</td>
<td>100%</td>
<td>12.4</td>
<td>564</td>
<td>100%</td>
<td>12.4</td>
<td>532</td>
<td>100%</td>
<td>13.2</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.
The rate of new diagnoses increased among black males and males overall (an average 4% per year and 2% per year, respectively) (Table 2). The rate among all females decreased significantly for the second consecutive trend report by an average 6% per year. Rates of new HIV diagnoses are consistently highest among black individuals. In 2010, the rate of new diagnoses among blacks was over 9 times higher than the rate among whites. The rate of new diagnoses among black males was over 8 times higher than among white males, a trend that has not changed since we began releasing the SE MI trend report in 2003. This disparity is even more pronounced among females, with the rate among blacks over 22 times that of whites. While the rates among persons of other race are lower than those among blacks, they are almost twice as high as those of whites. “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 55% 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 race/sex (cont.)

The number of newly diagnosed persons who were men who have sex with men (MSM) increased by an average 1% per year. New cases among injecting drug users (IDU) decreased by an average 10% per year. The number of new infections also decreased among persons who were infected through heterosexual sex by an average of 8% per year (Table 3).

This is the seventh consecutive report showing significant decreases in injecting drug use as a risk behavior. Data from Michigan’s HIV Behavioral Surveillance, which focused on IDUs living in Detroit (collected in 2009), suggest the trend may be partly attributed to the success of harm reduction programs like needle exchange. This is also the third consecutive report showing decreases among people infected through heterosexual sex. This may be a result of significant decreases among females, as they represent 89% of heterosexual infections in Southeast Michigan.

### New HIV diagnoses by residence at diagnosis

The rate of new diagnoses remained stable in all counties of SE MI except for Wayne county excluding the city of Detroit, which increased by an average 7% per year (Table 4).

The rate of new diagnoses in Detroit remains the highest of any location, and it is over four and a half times as high as the rest of Wayne county, the location with the second highest rate in Michigan. The population of the city of Detroit decreased by over 200,000 people between the 2000 and 2010 censuses, and Detroit now represents just 17% of SE MI’s and 7% of the state’s population. Despite this, residents of Detroit represent 56% of SE Michigan’s and 38% of the state’s new HIV cases.

### TABLE 3. New HIV diagnoses by risk, SE MI, 2006-2010

<table>
<thead>
<tr>
<th>Year of diagnosis</th>
<th>2006</th>
<th>2007</th>
<th>2008</th>
<th>2009</th>
<th>2010</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk</td>
<td>Num</td>
<td>%</td>
<td>Num</td>
<td>%</td>
<td>Num</td>
</tr>
<tr>
<td>MSM</td>
<td>261</td>
<td>48%</td>
<td>254</td>
<td>46%</td>
<td>264</td>
</tr>
<tr>
<td>IDU</td>
<td>35</td>
<td>6%</td>
<td>39</td>
<td>7%</td>
<td>20</td>
</tr>
<tr>
<td>MSM/IDU</td>
<td>12</td>
<td>2%</td>
<td>6</td>
<td>1%</td>
<td>12</td>
</tr>
<tr>
<td>Heterosexual</td>
<td>98</td>
<td>18%</td>
<td>112</td>
<td>20%</td>
<td>88</td>
</tr>
<tr>
<td>Other known</td>
<td>3</td>
<td>1%</td>
<td>2</td>
<td>&lt;1%</td>
<td>3</td>
</tr>
<tr>
<td>No identified risk</td>
<td>140</td>
<td>25%</td>
<td>133</td>
<td>24%</td>
<td>157</td>
</tr>
<tr>
<td>Total</td>
<td>550</td>
<td>100%</td>
<td>546</td>
<td>100%</td>
<td>546</td>
</tr>
</tbody>
</table>

**TABLE FOOTNOTES:**

- The number of new diagnoses is 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.
Concurrent HIV and AIDS Diagnoses

The proportion of persons diagnosed with stage 3 HIV infection within 30 days of diagnosis (“concurrent”) decreased significantly from 30% in 2006 to 21% in 2010 (Table 5). Similarly, there were significant decreases in the proportion of concurrent diagnoses among all males (10% decrease), driven by significant decreases among black males (10%) and white males (8%). This is the fourth report showing significant decreases among all males and black males. There were also significant decreases in concurrent diagnoses among all blacks and persons of other race (8% and 29%, respectively) for the second consecutive report.

These widespread decreases in proportion of diagnoses that are concurrent among several race/sex subgroups, as well as overall, suggest earlier and more frequent testing. The proportion of cases that are concurrent has decreased significantly for four consecutive trend reports.
Summary

• Between 2006 and 2010, the number and rate of new diagnoses in Southeast Michigan remained stable at an average of 548 cases per year and an average rate of 12.7.

• The highest rates of new HIV diagnoses occurred among:
  • 20 - 24 year olds
  • Males
  • Black males and females and blacks overall
  • Men who have sex with men (MSM)*
  • Detroit residents

• INCREASES in rates occurred among:
  • 20 - 24 year olds and 25 - 29 year olds for the 2nd consecutive trend report
  • Black males and males overall
  • MSM*

• DECREASES in rates occurred among:
  • 35 - 39 year olds (2nd consecutive report) and 40-44 year olds
  • Females overall
  • Injecting drug users (7th consecutive report) and heterosexuals (3rd consecutive report)*

• Race and sex disparities in rates of new HIV diagnoses remain. Comparing the diagnosis rates of blacks and whites in 2010:
  • Overall: The rate for blacks was over 9 times higher
  • Males: The rate for blacks was over 8 times higher
  • Females: The rate for blacks was over 22 times higher

• The proportion of all concurrent diagnoses decreased significantly from 30% in 2006 to 21% in 2010.

• Concurrent diagnoses also decreased among black males, white males, all males, and persons of black and other race. This is the 4th consecutive report showing decreases across several subgroups.

*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

- 1,530 new HIV diagnoses between 2006 and 2010
- Average of 306 new diagnoses (42.4 per 100,000) per year
- Rate of new diagnoses in Detroit is over 6 times higher than rate in the rest of SE MI
- Detroit makes up 17% of the SE MI population but has 56% of new cases for 2006-2010

New HIV diagnoses by age at diagnosis

- 11% of new diagnoses in Detroit were among 13-19 year olds, compared to 7% in the rest of SE MI.
- 66% of newly diagnosed teens in SE MI lived in Detroit at the time of diagnosis.
- Newly diagnosed persons who were under 25 years old were more likely to live in Detroit than in the rest of SE MI.
- The age group with the highest number of cases is 20-24 year olds in Detroit and 25-29 year olds 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 Michigan.
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 58% 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 less likely to be female than adults 25 years and older (16% vs. 30%, respectively).

Figure 3.‡ Percent black race by age at HIV diagnosis among persons newly diagnosed in SE MI, 2006-2010

Race and risk among Detroit teens and young adults

- 64% of newly diagnosed 13-19 year olds in Detroit reported being MSM (males who have sex with males), compared to 43% of those who were 20 or older at diagnosis.

- Among teens newly diagnosed in Detroit, 61% are black MSM compared to 38% of persons 20 or older.

- 20-24 year olds are also more likely to be black MSM than persons diagnosed at 25 years or older, and they are more likely to live in Detroit compared to the rest of SE MI.

Figure 4.‡ Percent MSM by age at HIV diagnosis among persons of all races newly diagnosed in Detroit, 2006-2010

‡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 Michigan.