

ANNUAL REVIEW OF HIV TRENDS IN MICHIGAN (2002 - 2006)

Bureau of Epidemiology, HIV/STD/VH/TB Epidemiology Section
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Overall Trends in New Michigan HIV Diagnoses

Methods: To evaluate trends over time, we estimated the number of persons newly diagnosed with HIV infection each year by adjusting the number of reported cases diagnosed in 2002 through 2006 to account for those who may not have been reported to the health department by January 1, 2008. These adjustments were calculated by weighting the data.

After adjusting the data, we analyzed annual rates of new diagnoses overall and by race, sex, and age to assess statistically significant changes between 2002 and 2006. However, for risk groups, annual counts were analyzed rather than rates since there is no reliable denominator data available to allow rate calculation. This year we used a different technique to assess trends than was used in previous years and, as a result, the type of interpretations discussed in this report differ from previous years. Trends are described using average annual percent changes, and only statistically significant trends and the corresponding percent changes ($p < .05$) are shown. Rates of new diagnoses are all calculated using intercensal annual population estimates released by the Census Bureau in 2006, the most recent year for which demographic breakdowns are available. All rates in this report are rates per 100,000 population.

The date of new HIV *diagnosis* does not tell us when persons were first *infected*, because their HIV diagnosis may take place months or years after infection. However, this is the best current measure of how fast the epidemic is spreading among different populations. The Centers for Disease Control and Prevention (CDC) is finalizing the programming to produce population-based incidence estimates using data collected by the Serologic Testing Algorithm for Recent HIV Seroconversion (STARHS) project. Once finalized, we plan to supplement this report with those incidence data.

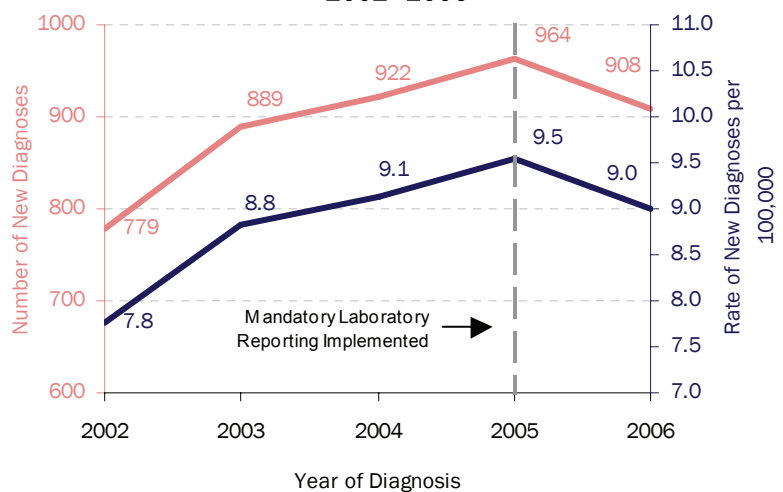
Overall: The rate of new HIV diagnoses increased by an average of 4% per year, from 7.8 per 100,000 in 2002 to 9.0 per 100,000 in 2006 (779 cases to 908 cases, average 890 cases), after peaking at 9.5 per 100,000 in 2005 (Fig 1). The increasing trend and peak in 2005 are most likely due to the implementation of mandatory laboratory reporting in 2005. Prior to this, the HIV Surveillance program in Michigan relied on a few laboratories who voluntarily reported positive HIV-related tests and health care providers, who are required by law to report positive cases. The addition of mandatory

(Continued on page 2)

KEY FINDINGS

- Adolescents and young adult diagnoses have increased for the third consecutive year.
- Three-quarters of newly diagnosed adolescents and young adults are black.
- An average of 890 persons were diagnosed with HIV each year.
- New diagnoses of HIV are highest among MSM, black men, 25-44 year olds, and residents of Southeast Michigan.

Figure 1. Number and Rate of New HIV Diagnoses in Michigan, 2002–2006



(Continued from page 1)

Overall Trends in New HIV Diagnoses (cont.)

laboratory reporting has increased the case reports received, and appear to be driving the upward trend described here.

The new HIV diagnoses described in this report include persons diagnosed with HIV, non-AIDS as well as those who learned of their HIV infection status after developing symptoms of AIDS. Each year, there are more new diagnoses of HIV infection than deaths. Therefore, the reported number of persons living with HIV/AIDS in Michigan is increasing. MDCH estimates that 18,000 residents are living with HIV infection in Michigan (including those with AIDS).

New HIV Diagnoses by Age at Diagnosis

Between 2002 and 2006, the rate of new diagnoses increased among young adults 13-24 years of age and among persons 40-49 years (Table 1). Rates in all other ages groups were stable.

This is the third consecutive year we have seen increases in 13-24 year olds. While the trends we are seeing may partially be attributed to heightened HIV testing efforts aimed at young persons, public testing data suggest that additional testing is not the sole explanation for the increases seen among teens and young adults. In fact, there appears to be a true increase in this group.

Alarming, of all teens and young adults diagnosed in the last five years, 76% are black compared to 59% of persons diagnosed at older ages (Fig 2, page 3). Furthermore, young adults are much more likely to be black MSM compared to adults 25 years and older (48% vs. 19%). This continues to underscore a need for prevention campaigns tailored to these groups, as the differences we are now seeing in this young group will likely widen the already large racial gap among persons living with HIV.

This is the first time that increases have been seen among 40-49 year olds. Like overall rates of new HIV diagnoses, this trend appears to be related to the implementation of mandatory laboratory reporting.

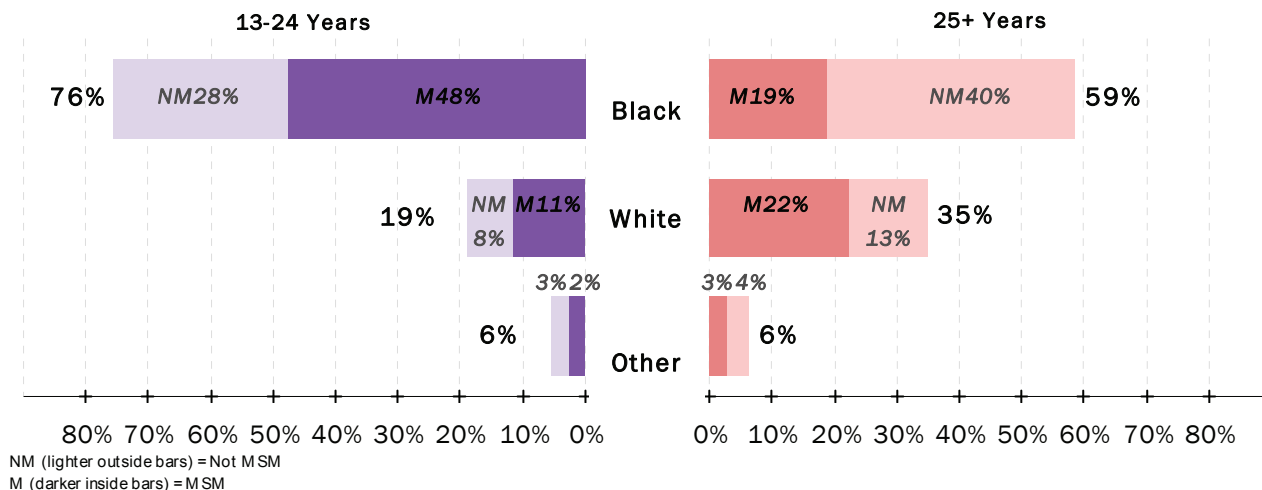
Table 1.+ New HIV Diagnoses by Age at Diagnosis

	2002		2003		2004		2005		2006		
	Num (Pct)	Rate	Num (Pct)	Rate	Num (Pct)	Rate	Num (Pct)	Rate	Num (Pct)	Rate	
0-12 yrs	7 (1%)	0.4	9 (1%)	0.5	4 (<1%)	0.2	3 (<1%)	0.2	5 (1%)	0.3	
13-19 yrs	26 (3%)	2.6	33 (4%)	3.2	39 (4%)	3.8	43 (4%)	4.1	55 (6%)	5.3	↑19%
20-24 yrs	72 (9%)	10.5	98 (11%)	13.9	133 (14%)	19.0	119 (12%)	16.9	113 (12%)	16.3	↑11%
25-29 yrs	104 (13%)	17.0	107 (12%)	17.4	115 (12%)	18.4	110 (11%)	17.4	112 (12%)	17.2	
30-34 yrs	141 (18%)	20.0	124 (14%)	17.8	138 (15%)	20.3	138 (14%)	21.1	105 (12%)	16.8	
35-39 yrs	139 (18%)	18.6	169 (19%)	23.2	149 (16%)	21.0	138 (14%)	19.7	152 (17%)	21.7	
40-44 yrs	118 (15%)	14.6	137 (15%)	17.1	135 (15%)	17.0	164 (17%)	21.0	150 (17%)	19.8	↑8%
45-49 yrs	74 (10%)	9.6	94 (11%)	11.9	86 (9%)	10.8	108 (11%)	13.5	101 (11%)	12.6	↑6%
50-54 yrs	53 (7%)	7.9	61 (7%)	9.0	60 (6%)	8.5	75 (8%)	10.5	56 (6%)	7.6	
55-59 yrs	27 (3%)	5.0	37 (4%)	6.7	34 (4%)	5.9	37 (4%)	6.0	35 (4%)	5.5	
60+ yrs	16 (2%)	1.0	20 (2%)	1.2	27 (3%)	1.6	29 (3%)	1.7	23 (3%)	1.3	
Total	779 (100%)	7.8	889 (100%)	8.8	922 (100%)	9.1	964 (100%)	9.5	908 (100%)	9.0	

†TABLE FOOTNOTES:

- The number of new diagnoses shown are not reported case counts. Rather, 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.
- Bold/colored text indicates that significant trends occurred in that group.
- Rates are per 100,000 population.

Figure 2. Race/Ethnicity by Age at HIV Diagnosis, 2002–2006



New HIV Diagnoses by Race/Sex

The rate of new diagnoses increased among all males (average 4% per year), among all black persons (average 3% per year), and among black males (average 4% per year) between 2002 and 2006 (Table 2). The rates among black males and females are troubling, given that they are several times higher than other race/sex groups. Figure 3 on page 4 shows the age and risk breakdown of these recently diagnosed black males.

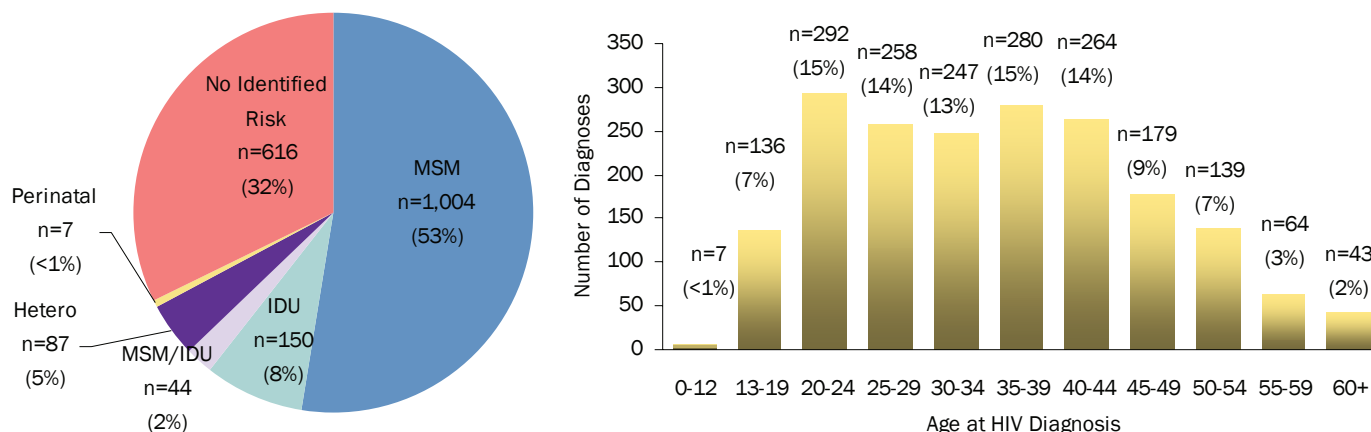
Table 2.+ New HIV Diagnoses by Race/Sex

	2002		2003		2004		2005		2006		
	Num (Pct)	Rate	Num (Pct)	Rate	Num (Pct)	Rate	Num (Pct)	Rate	Num (Pct)	Rate	
Males											
Black	338 (43%)	50.0	384 (43%)	56.8	373 (40%)	55.2	404 (42%)	59.9	410 (45%)	60.8	↑ 4%
White	196 (25%)	5.1	268 (30%)	6.9	262 (28%)	6.7	281 (29%)	7.2	245 (27%)	6.3	
Other	45 (6%)	11.9	33 (4%)	8.5	48 (5%)	12.0	49 (5%)	11.9	43 (5%)	10.3	
All Males	579 (74%)	11.7	685 (77%)	13.8	683 (74%)	13.8	734 (76%)	14.8	698 (77%)	14.1	↑ 4%
Females											
Black	150 (19%)	20.1	159 (18%)	21.2	197 (21%)	26.2	167 (17%)	22.2	156 (17%)	20.8	
White	41 (5%)	1.0	30 (3%)	0.8	29 (3%)	0.7	50 (5%)	1.3	40 (4%)	1.0	
Other	8 (1%)	2.2	15 (2%)	4.0	12 (1%)	3.2	12 (1%)	3.1	14 (2%)	3.4	
All Females	199 (26%)	3.9	204 (23%)	4.0	239 (26%)	4.7	230 (24%)	4.5	210 (23%)	4.1	
All											
Black	488 (63%)	34.3	543 (61%)	38.1	570 (62%)	39.9	571 (59%)	40.1	566 (62%)	39.8	↑ 3%
White	238 (31%)	3.0	298 (34%)	3.8	291 (32%)	3.7	331 (34%)	4.2	285 (31%)	3.6	
Other	53 (7%)	7.2	48 (5%)	6.3	61 (7%)	7.7	62 (6%)	7.6	57 (6%)	6.9	
Total	779 (100%)	7.8	889 (100%)	8.8	922 (100%)	9.1	964 (100%)	9.5	908 (100%)	9.0	

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Figure 3. Risk and Age Among Black Males Diagnosed 2002–2006



New HIV Diagnoses by Risk

Between 2002 and 2006, the number of new diagnoses among MSM increased by an average of 4% per year, whereas the number of new diagnoses among IDU decreased by an average of 7% per year (Table 3). Decreases among IDU have been noted for three consecutive years, evidence of the success of programs like needle exchange. The increase among MSM, on the other hand, correspond to other data presented in this report that show increases in new HIV diagnosis rates in black men and young adults (Fig 4).

Table 3.+ New HIV Diagnoses by Risk

	2002 Num (Pct)	2003 Num (Pct)	2004 Num (Pct)	2005 Num (Pct)	2006 Num (Pct)	
MSM	340 (44%)	405 (46%)	406 (44%)	420 (44%)	405 (45%)	↑ 4%
IDU	71 (9%)	77 (9%)	64 (7%)	73 (8%)	50 (6%)	↓ -7%
MSM/IDU	20 (3%)	18 (2%)	25 (3%)	26 (3%)	16 (2%)	
Hetero	156 (20%)	143 (16%)	161 (17%)	164 (17%)	135 (15%)	↓ -21%
Other Known	7 (1%)	10 (1%)	4 (<1%)	4 (<1%)	3 (<1%)	↓ -21%
No Identified Risk	184 (24%)	237 (27%)	262 (28%)	278 (29%)	299 (33%)	↑ 11%
Total	779 (100%)	889 (100%)	922 (100%)	964 (100%)	908 (100%)	

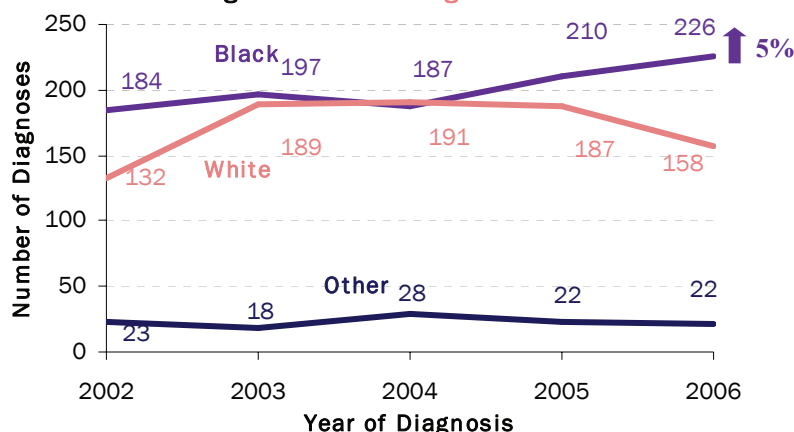
+TABLE FOOTNOTES:

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- 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.

The “Other Known Risk” category includes perinatal and blood product transmission. The number of diagnoses in this category decreased by 21%. The magnitude of this decrease is so large because the number of diagnoses in this category are relatively small each year, but the fact that the decrease is significant also speaks to Michigan’s programmatic successes in preventing of perinatal transmission.

The numbers of new diagnoses with no identified risk is, on average, 11% higher each year than the year before. This is to be expected because there has been less time to investigate cases diagnosed more recently for risk information.

Figure 4. Race Among MSM



Concurrent HIV and AIDS Diagnoses

Between 2002 and 2006, the rate of persons diagnosed with HIV and AIDS concurrently (within the same month) remained stable (Table 5). However, over a quarter of new HIV diagnoses in any given year were concurrent diagnoses (average 228 (26%)).

Overall between 2002 and 2006, 27% of males were diagnosed concurrently compared to 21% of females. This difference between males and females is significant. In addition, persons of other race/ethnicity (30%) and whites (27%) both had significantly higher proportions of concurrent diagnoses than blacks (24%). There were no statistically significant increases or decreases in the rates of concurrent diagnoses by race/sex between 2002 and 2006.

Table 5.+ Concurrent HIV Diagnoses in Each Race/Sex Group

	2002		2003		2004		2005		2006	
	Num (Pct)	Rate	Num (Pct)	Rate	Num (Pct)	Rate	Num (Pct)	Rate	Num (Pct)	Rate
Males										
Black	90 (27%)	13.4	99 (26%)	14.7	96 (26%)	14.2	103 (25%)	15.2	97 (24%)	14.4
White	52 (27%)	1.3	80 (30%)	2.1	73 (28%)	1.9	84 (30%)	2.2	65 (27%)	1.7
Other	13 (29%)	3.4	9 (27%)	2.3	17 (35%)	4.3	16 (33%)	4.0	15 (35%)	3.6
All Males	155 (27%)	3.1	189 (28%)	3.8	186 (27%)	3.7	204 (28%)	4.1	177 (25%)	3.6
Females										
Black	29 (19%)	3.9	41 (26%)	5.5	33 (17%)	4.4	40 (24%)	5.3	30 (19%)	4.0
White	13 (32%)	0.3	6 (20%)	0.2	4 (14%)	0.1	13 (27%)	0.3	3 (8%)	0.1
Other	3 (38%)	0.8	2 (13%)	0.5	12 (8%)	0.3	5 (42%)	1.3	3 (24%)	0.8
All Females	45 (23%)	0.9	49 (24%)	1.0	38 (16%)	0.7	59 (26%)	1.1	36 (17%)	0.7
Total	200 (26%)	2.0	238 (27%)	2.4	224 (24%)	2.2	262 (27%)	2.6	214 (24%)	2.1

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Every concurrent diagnosis represents a failure to diagnose HIV early in the course of the person's infection as well as to start treatment early. Persons who are unaware of their HIV infection cannot benefit from antiretroviral therapy and have a poorer prognosis than those diagnosed early in the disease course. They are also not accessible for secondary prevention (preventing transmission to uninfected individuals). Expanding routine testing for HIV can improve outcomes for those who are infected.

New HIV Diagnoses by Residence at Diagnosis

The rate of new HIV diagnoses increased by 4% in southeast Michigan (Wayne, Oakland, Macomb, Monroe, Lapeer and St. Clair counties) and by 3% in the rest of the state (Table 6). Because the patterns of increase mirror the pattern in overall diagnoses, the regional increases are likely due to the implementation of laboratory reporting, as discussed in the introduction. Overall, about two-thirds of new diagnoses are among residents of southeast Michigan and about one-third are diagnosed among residents of the rest of the state.

Table 6. New HIV Diagnoses* by Region

	2002		2003		2004		2005		2006	
	Num (Pct)	Rate	Num (Pct)	Rate	Num (Pct)	Rate	Num (Pct)	Rate	Num (Pct)	Rate
SE Mich	515 (66%)	11.6	598 (67%)	13.4	608 (66%)	13.6	644 (67%)	14.5	610 (67%)	13.7
Outstate	264 (34%)	4.7	291 (33%)	5.2	314 (34%)	5.6	320 (33%)	5.7	299 (33%)	5.3
Total	779 (100%)	7.8	889 (100%)	8.8	922 (100%)	9.1	964 (100%)	9.5	908 (100%)	9.0

†TABLE FOOTNOTES:

- The number of new diagnoses shown are not reported case counts. Rather, 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.
- Bold/colored text indicates that significant trends occurred in that group.
- Rates are per 100,000 population.

Summary

- Between 2002–2006, an average of 890 new HIV diagnoses (8.9 per 100,000) occurred each year.
- The rate of new HIV diagnoses increased by an average of 4% per year. This increase appears to be related to the implementation of mandatory HIV laboratory reporting in Michigan in 2005.
- The highest rates of new HIV diagnoses occurred among:
 - 25 - 44 year olds
 - Black men
 - Males who have sex with males (MSM)*
 - Southeast Michigan residents
- INCREASES in rates occurred among:
 - 13 - 24 year olds
 - 40 - 49 year olds
 - Black men
 - Males who have sex with males (MSM)*
 - Southeast Michigan and Outstate residents
- DECREASES in rates occurred among:
 - Injection Drug Users
- This is the third consecutive year that we have seen increases among 13 - 24 year olds. This appears to be a true increase in the number of teens and young adults becoming infected with HIV in Michigan not attributable solely to enhanced testing efforts among young persons.
- 76% of new 13 - 24 year old cases are black whereas only 59% of those of other ages are black. This finding suggests that black teens and young adults, in particular, should be the focus of aggressive prevention messages.
- 26% of persons newly diagnosed with HIV infection were also diagnosed with AIDS at the same time, indicating a detrimental delay in providing timely diagnosis and valuable medical treatment.

*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 Community Health HIV/AIDS Surveillance Program

(313) 876-0353
(517) 335-8165

(www.michigan.gov/hivstd → HIV/AIDS → Statistics and Reports)
State of Michigan HIV/AIDS Statistics and Reports

MI Counseling, Testing, & Referral Sites

http://www.michigan.gov/documents/resourceguide_6921_7.pdf

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

Michigan Department of Community Health HIV/AIDS Prevention and Intervention Services

(517) 241-5900

(www.michigan.gov/hivstd → HIV/AIDS → Prevention and Care)
State of Michigan HIV/AIDS Programmatic Information

Michigan AIDS Hotline

1-800-872-2437

CDC National Statistics & Surveillance

<http://www.cdc.gov/hiv/topics/surveillance/index.htm>
CDC HIV/AIDS Statistics and Reports

World Health Organization

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