Michigan Department of Community Health

MDCH

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ANNUAL REVIEW OF HIV TRENDS IN MICHIGAN (2001 - 2005)

Bureau of Epidemiology, HIV/STD & Other Bloodborne Infections Section
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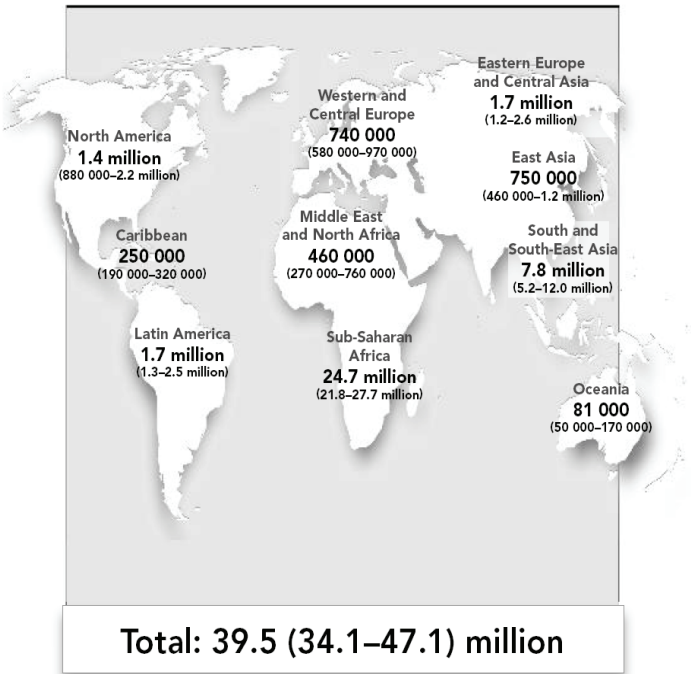
Global and National Overview

An estimated 4.3 million new HIV infections and 2.9 million AIDS deaths occurred during 2006 worldwide, bringing the total persons infected with HIV to 39.5 million (Figure 1). Nearly two-thirds of new HIV cases and almost three-quarters of AIDS deaths were in Sub-Saharan Africa, where transmission is predominately heterosexual and women constitute 59 percent of those living with HIV.[1]

Nationally, the number of new diagnoses of HIV/AIDS per year decreased each year from 2001 to 2004 and increased in 2005 in the 33 states of the U.S. with confidential, name-based HIV infection reporting. At the end of 2005, over 475,000 persons in the 33 states were living with HIV/AIDS. The number of AIDS deaths per year in the United States and its territories decreased 4% from 2001 through 2005, with approximately 17,000 occurring in 2005. Through December 2005, an estimated 985,000 adult/adolescents have been diagnosed with AIDS; of these, 550,000 (56%) have died[2].

Figure 1. Adults and Children Estimated to be Living with HIV in 2006[1]



KEY TRENDS

- **Adolescents and young adult** diagnoses have **increased** for the second consecutive year.
- Three-quarters of newly diagnosed adolescents and young adults are **black**.
- New diagnoses overall were level with approximately 900 persons being diagnosed with HIV each year.
- Most newly diagnosed persons continue to be **MSM**, **black**, **30-44 years old**, and residents of **Southeast Michigan**.

Overall Trends in New Michigan HIV Diagnoses

Methods—Trends Over Time: 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 2001 through 2005 to account for those who may not have been reported to the health department by January 1, 2007. These adjustments were calculated by weighting the data. We then analyzed these data to assess statistically significant changes between 2001 and 2005.

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. In the future, we

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Overall Trends in New HIV Diagnoses (cont.)

plan to supplement the data in this report with data from Serologic Testing Algorithm for Recent HIV Seroconversion (STARHS), which will allow us to estimate the proportion of newly reported diagnoses that are recent infections.

Methods—Risk calculations: This report differs from previous *Annual Review of Trends* reports with respect to risk calculations. Previously, cases reported with No Identified Risk (NIR) were redistributed to other risk categories based on past patterns of NIR reclassification. Risk factor redistribution was calculated based on two assumptions: 1) the distribution of risk factors initially reported without risk factors (NIRs) does not change over time and 2) reclassified NIR cases are representative of all NIR cases. These assumptions are no longer valid. The pattern of risk factors has changed since the beginning of the epidemic and reclassified cases usually represent cases on which risk factors are easiest to find. As a result, this year's report does not include NIR risk redistribution, but does maintain the weighting described above to account for reporting delay.

Overall: The number of HIV diagnoses from 2001 to 2005 is stable at around 900 cases per year. These new diagnoses include persons 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 17,000 residents are living with HIV infection in Michigan (including those with AIDS).

New HIV Diagnoses by Age at Diagnosis

The proportion of persons diagnosed each year with HIV increased significantly among 13-19 year olds, from 2% in 2001 to 4% in 2005 (17 to 44 cases). There was also a significant increase among 20-24 year olds, from 10% to 12%, after reaching a high of 14% in 2004 (90 to 126 cases). This is the second consecutive year we have seen increases in 13-19 and 20-24 year olds. While the trends we are seeing may partially be attributed to heightened HIV testing efforts aimed at young persons, the 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 the number of diagnoses in these age groups; however, further investigation is necessary to ascertain the reason for the increases.

In addition to the increases that were observed, significant decreases were seen among those diagnosed at 0-12 years (1% to <1%), 30 to 34 years (17% to 14%), and 35 to 39 years (18% to 15%), (Figure 2, page 3). In all other age groups, the trends in new diagnoses are level. In 2005, the majority of persons were diagnosed at 30-44 years of age (Table 1).

Alarmingly, of all teens and young adults diagnosed in the last five years, 75% are black

Table 1. New HIV Diagnoses‡ by Age at Diagnosis

	2001 (n=889)		2002 (n=783)		2003 (n=894)		2004 (n=938)		2005 (n=1,009)	
0-12 yrs	11	1%	7	1%	9	1%	4	<1%	3	<1%
13-19 yrs	17	2%	26	3%	33	4%	39	4%	44	4%
20-24 yrs	90	10%	73	9%	98	11%	135	14%	126	12%
25-29yrs	104	12%	105	13%	108	12%	118	13%	116	11%
30-34 yrs	148	17%	142	18%	125	14%	140	15%	145	14%
35-39 yrs	161	18%	139	18%	170	19%	150	16%	147	15%
40-44 yrs	149	17%	118	15%	138	15%	136	15%	169	17%
45-49 yrs	101	11%	76	10%	93	10%	90	10%	113	11%
50-54 yrs	55	6%	53	7%	62	7%	61	7%	79	8%
55-59 yrs	27	3%	27	3%	37	4%	35	4%	38	4%
60+ yrs	24	3%	16	2%	20	2%	28	3%	29	3%
Total	889	100%	783	100%	894	100%	938	100%	1,009	100%

‡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 .

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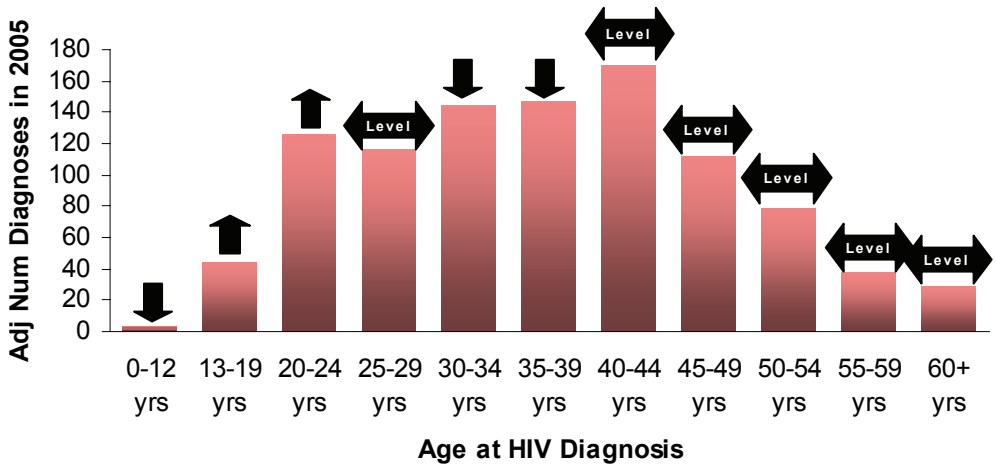
whereas 59% of persons diagnosed at other ages are black. This underscores a need for prevention campaigns tailored to this group, as the race differences we are now seeing in this young group will likely widen the already large racial gap among persons living with HIV in the future.

Figure 2. Trends in New HIV Diagnoses by Age at Diagnosis, 2001-2005



New HIV Diagnoses by Race/Sex

The proportion of persons diagnosed each year with HIV infection between 2001 and 2005 was stable across race/sex groups (Figure 3). In 2005, 42% of new HIV diagnoses were among black men, 29% among white men, 5% among men of other race/ethnicity, 18% among black women, 5% among white women, and 1% among women of other race/ethnicity (Table 2). Although the trends in new HIV diagnoses among black males and females are level, they are still impacted disproportionate to their numbers in the population. Black persons make up 14 percent of the general population of Michigan, but account for 60 percent of new HIV diagnoses in 2005 and 59 percent of persons living with HIV/AIDS.

Figure 3. Trends in New HIV Diagnoses by Race/Sex, 2001-2005

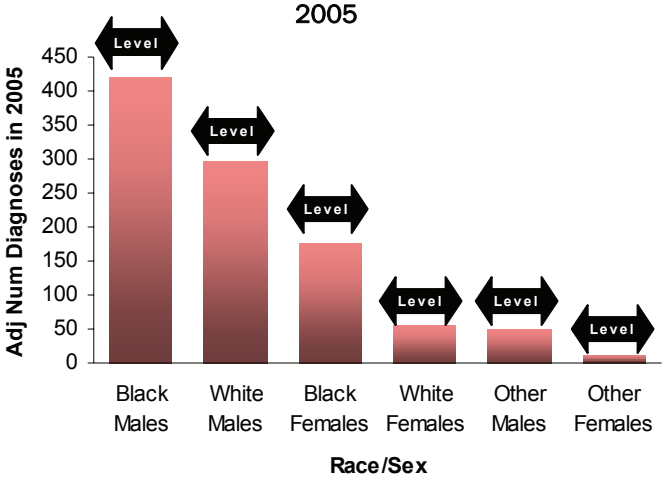


Table 2. New HIV Diagnoses‡ by Race/Sex

	2001		2002		2003		2004		2005	
Males										
Black	392	44%	338	43%	386	43%	380	40%	419	42%
White	238	27%	202	26%	269	30%	265	28%	296	29%
Other	36	4%	44	6%	35	4%	51	5%	50	5%
Females										
Black	169	19%	150	19%	160	18%	199	21%	178	18%
White	33	4%	41	5%	30	3%	32	3%	55	5%
Other	21	2%	8	1%	14	2%	11	1%	12	1%
Total	889	100%	783	100%	894	100%	938	100%	1,009	100%

‡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 .

New HIV Diagnoses by Mode of Transmission

Between 2001 and 2005, there was a significant increase in the proportion of new diagnoses with no identified risk, from 19% to 26%. However, this is expected because there has been less time to investigate cases diagnosed more recently for risk information. There were significant decreases in IDU, from 11% to 8%, and in other known risk, from 1% to <1%. The "Other Known Risk" category includes perinatal and blood product transmission. Trends among MSM, heterosexual, MSM/IDU modes of transmission were level. (Figure 4). Of the 1,009 new HIV diagnoses in 2005, Male-Male Sex (MSM) accounted for 43%, NIR accounted for 26%, Heterosexual accounted for 21%, Injection Drug Use (IDU) accounted for 8%, MSM/IDU accounted for 2%, other known modes of transmission accounted for <1% (Table 3).

Figure 4. Trends in New HIV Diagnoses by Mode of Transmission, 2001-2005

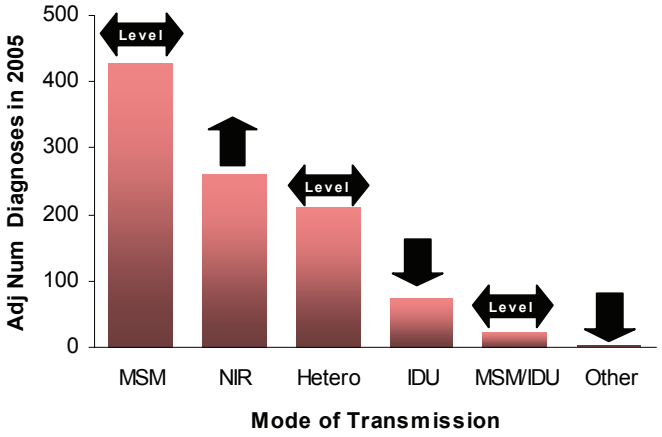


Table 3. New HIV Diagnoses‡ by Mode of Transmission

	2001		2002		2003		2004		2005	
MSM	377	42%	340	43%	406	45%	413	44%	429	43%
NIR	168	19%	160	20%	209	23%	227	24%	263	26%
Heterosexual	209	24%	183	23%	177	20%	206	22%	211	21%
IDU	94	11%	74	9%	74	8%	62	7%	76	8%
MSM/IDU	27	3%	19	2%	18	2%	25	3%	25	2%
Other Known Risk	13	1%	7	1%	10	1%	4	<1%	4	<1%
Total	889	100%	783	100%	894	100%	938	100%	1,009	100%

‡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 .

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.

Of note, while many readers may perceive male-male sex to occur mostly among white males, 49% of new MSM diagnoses between 2001 and 2005 were among black males whereas 45% were among white males and 5% were among males of other race/ethnicity.

New HIV Diagnoses by Residence at Diagnosis

The proportion of new HIV diagnoses is unchanged across different geographic areas of Michigan. About two-thirds of new diagnoses each year are among residents of southeast Michigan (Wayne, Oakland, Macomb, Monroe, Lapeer and St. Clair counties). One third are diagnosed among residents of the rest of the state (Table 4).

Table 4. New HIV Diagnoses‡ by Region

	2001		2002		2003		2004		2005	
Southeast MI	598	67%	517	66%	601	67%	615	66%	673	67%
Outstate MI	291	33%	266	34%	294	33%	322	34%	336	33%
Total	889	100%	783	100%	894	100%	938	100%	1,009	100%

‡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 .

Concurrent HIV and AIDS Diagnoses

Among persons who were diagnosed with HIV between 2001 and 2005, the percentage diagnosed concurrently (within the same month) with AIDS remained stable at 25% (average 227 cases per year) overall. Trends among each of the race/sex groups are level, largely due to small numbers of concurrent diagnoses in each category and to consequent unstable fluctuations in percentages from year to year.

Twenty-five percent (251 cases) of the new diagnoses in 2005 were concurrent. The following are proportions of concurrent diagnoses in 2005 within each race/sex group: 24% of black male diagnoses (100 of 419), 26% of white male diagnoses (77 of 296), 33% of male diagnoses of other race/ethnicity (17 of 50), 24% of black female diagnoses (42 of 178), 20% of white female diagnoses (11 of 55), and 38% of female diagnoses of other race/ethnicity (4 of 12)—see Table 5.

Overall between 2001 and 2005, 26 percent of males were diagnosed concurrently compared to 21 percent of females. This difference between males and females is significant. Aggregate five-year differences between race/ethnic groups, however, are not significant.

Table 5. Percent of New HIV Diagnoses‡ in Each Race/Sex Group that are Concurrent with an AIDS Diagnosis

Males	2001	2002	2003	2004	2005
Black	26%	26%	26%	26%	24%
White	32%	24%	29%	24%	26%
Other	33%	30%	27%	31%	33%
All Males	29%	25%	27%	26%	25%
Females	**2001**	**2002**	**2003**	**2004**	**2005**
Black	22%	20%	25%	16%	24%
White	12%	32%	20%	13%	20%
Other	24%	25%	14%	9%	38%
All Females	21%	22%	23%	15%	24%

‡The percentages shown are not based on reported case counts. Rather, these are percentages calculated based on estimates. These estimates are calculated using the number of reported cases that are adjusted to account for reporting delay .

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 screening for HIV can improve outcomes for those who are infected[3].

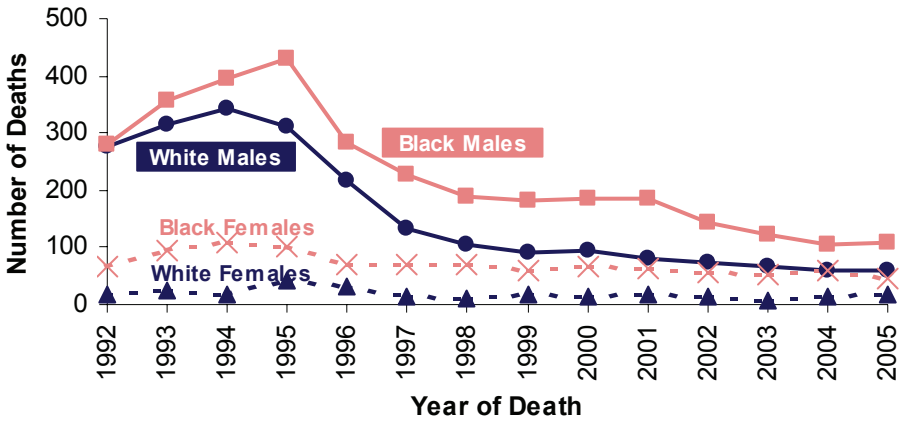
New AIDS Diagnoses

New AIDS cases were statistically level at about 620 persons annually between 2001 and 2005. In order to decrease the number of new AIDS cases, we need to continue efforts to get infected persons tested and into early and adequate care. In addition, treatments will need to become more effective and work for longer periods of time.

Michigan HIV-Related Deaths Continue to Decline

HIV-related deaths declined sharply among all groups between 1995 and 1997, and less sharply between 1998 and 2005. Figure 5 shows deaths among white males, black males, black females, and white females. There were too few deaths to show other groups.

Figure 5. HIV-Related Deaths in Michigan, 1992 - 2005



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Between 1995 and 2001 deaths among white males fell by 74% whereas deaths among black males fell by only 57%, causing the gap in deaths between the two groups to widen during that time. There has been an additional 41% decline in deaths among black males since 2001, which has narrowed the gap somewhat.

Table 6 shows that in most of the race/sex groups (white, black, and other females and black males), the percentage of deaths is similar ("proportional") to the percentage of persons currently living with HIV/AIDS in each race/sex group. Males of other race/ethnicity, however, have disproportionately more deaths (7% of deaths versus 4% of living HIV/AIDS cases) whereas white males have disproportionately fewer deaths (24% of deaths versus 31% of living HIV/AIDS cases). However, caution must be used when examining the discrepancy among males of other race/ethnicity due to the low number of deaths in this group.

Table 6. Race/Ethnicity of Deaths in 2005 Compared to Persons Living with HIV/AIDS as of Jan 1, 2007

Race/Sex	Deaths		Persons Living with HIV/AIDS	
	Number	Percent	Number	Percent
Black Males	110	42%	5,231	42%
White Males	61	24%	3,928	31%
Black Females	46	18%	2,154	17%
White Females	17	7%	594	5%
Other Males	19	7%	526	4%
Other Females	6	2%	170	1%
Total	259	100%	12,603	100%

Conclusions

Over the last five years, HIV mortality declined but the number of new HIV diagnoses remained stable. There continue to be more new HIV diagnoses each year than deaths among HIV-infected persons, so the total number of persons living with HIV infection is increasing. MDCH estimates that there are currently 17,000 persons in Michigan living with HIV/AIDS, up from 16,200 in previous years. More information on how these estimates are made can be found in the Technical Notes of the current Quarterly HIV/AIDS Analysis (http://www.michigan.gov/mdch/0,1607,7-132-2944_5320_5331-35962--,00.html).

New HIV infections in Michigan predominantly occur among residents of Southeast Michigan, males who have sex with males (MSM), persons who are black, and persons who are age 30 through 44 years at the time of HIV diagnosis. Between 2001 and 2005, there was a significant increase in the proportion of HIV infections reported with No Identified Risk (NIR); however, this is expected because there has been less time to investigate cases diagnosed more recently for risk information. Conversely, there were significant decreases in the proportion of new cases reported with Injection Drug Use (IDU) and Other Known (e.g. perinatal and blood product) modes of transmission. There were no changes in proportion of new diagnoses according to race/sex group.

This report does indicate changes in new diagnoses according to age at HIV diagnosis, namely that there were significant increases in the proportion of new diagnoses among 13-24 year olds accompanied by decreases among those in their thirties and among 0-12 year olds. This is the second consecutive year that we have seen increases in the adolescent and young adult age groups, suggesting a need to more aggressively target prevention efforts to this group. While the trends in teens and young adults may partially be explained by enhanced testing efforts among young persons, additional testing is unlikely to be the main explanation for what appears to be a true increase in the number of teens and young adults becoming infected with HIV in Michigan.

Although adolescent and young adults only comprise 17% of diagnoses in 2005, diagnosis at younger ages expands the lifetime probability of transmitting the virus to others. In addition, while persons with HIV are fortunately living longer, diagnosis at younger ages equates to greater societal costs related to longer lifetime medical care, much of it publicly funded. Another important finding is that 75% of adolescent and young adult diagnoses 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.

From 2001-2005, approximately 25 percent of persons newly diagnosed with HIV infection were also diagnosed with AIDS at the same time, representing a failure of the medical and public health system to provide timely diagnosis and accompanying medical treatment.

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1. Joint United Nations Programme on HIV/AIDS. ***AIDS epidemic update: December 2005.*** Available at: http://www.unaids.org/epi/2005/doc/report_pdf.asp
2. Centers for Disease Control and Prevention, ***HIV/AIDS Surveillance Report 2004*** (Vol. 16). Atlanta: US Department of Health and Human Services, Centers for Disease Control and Prevention; 2005. Available at: http://www.cdc.gov/hiv/topics/surveillance/resources/reports/2004report/default.htm
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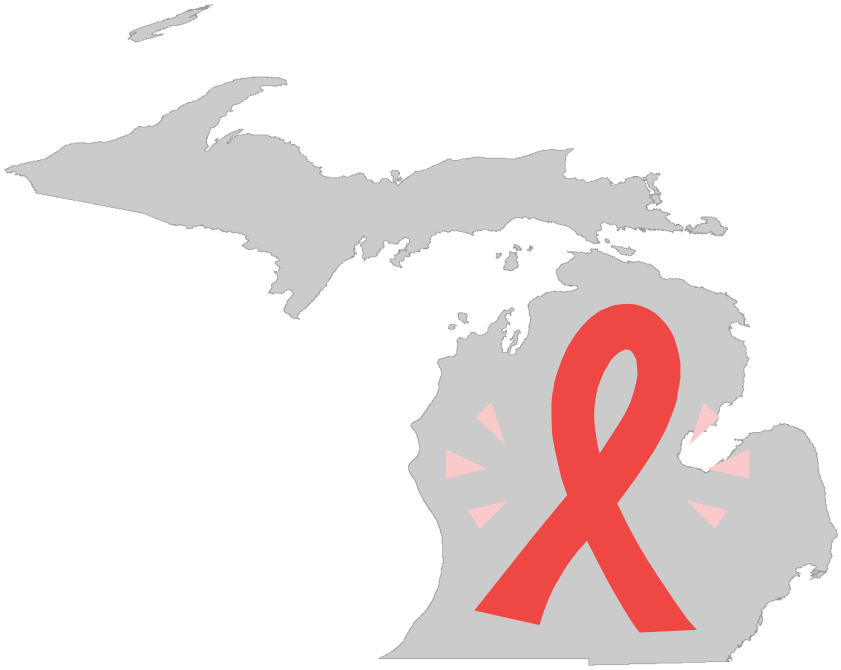

For More Information:

Michigan Department of Community Health
HIV/AIDS Surveillance Program
(313) 876-0353
(517) 335-8165
(www.michigan.gov/hiv-aids-std —> HIV/AIDS —> Statistics and Reports)
State of Michigan HIV/AIDS Statistics and Reports

Michigan Department of Community Health
HIV/AIDS Prevention and Intervention Services
(517) 241-5900
(www.michigan.gov/hiv-aids-std —> HIV/AIDS —> Prevention and Care)
State of Michigan HIV/AIDS Programmatic Information

MI Counseling, Testing, & Referral Sites
http://www.michigan.gov/documents/resourceguide_6921_7.pdf

Michigan AIDS Hotline
1-800-872-2437

Centers for Disease Control & Prevention
http://www.cdc.gov/hiv
CDC HIV/AIDS Resources

CDC National Statistics & Surveillance
http://www.cdc.gov/hiv/topics/surveillance/index.htm
CDC HIV/AIDS Statistics and Reports

AIDSInfo
http://www.aidsinfo.nih.gov/
HIV/AIDS Treatment and Clinical Trial Resources

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