

QUARTERLY HIV SURVEILLANCE REPORT, MICHIGAN April 2013

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General HIV

HIV (Human Immunodeficiency Virus)

Diagnosis with HIV requires both a positive HIV screening and positive supplemental antibody test or detectable quantity on a virologic test. A standard case definition for HIV infection is used by all states for surveillance. Specific information is required in order to count a case of HIV infection, including a method to uniquely identify an individual. Each case is classified in a HIV infection stage (see below). Once a case reaches stage 3 (AIDS), the case is always considered stage 3 for surveillance purposes, even if his/her health improves (MMWR; December 5, 2008 / Vol. 57 / No. RR--10 / Pg. 1 - 12).

HIV Infection Stages

Stage 1: A case does not have any of the conditions associated with severe HIV infection (called an AIDS-defining condition) and has ≥ 500 CD4 cells/ μ l.

Stage 2: A case has no AIDS-defining condition, but the level of CD4 cells has fallen to 200-499 cells/ μ l.

Stage 3: Diagnosis with any one of 26 AIDS-defining conditions which are indicative of a severe immune deficiency, or a laboratory test demonstrating severe immune deficiency: CD4 count <200 cells/ μ l or CD4 percent $<14\%$. **Previously referred to as AIDS.**

Stage unknown: A case of HIV without information available on CD4 levels or AIDS-defining conditions.

AIDS (Acquired Immune Deficiency Syndrome)

Now referred to as stage 3 HIV infection.

HAART

Highly Active Antiretroviral Therapy.

Pediatric Cases

Children < 13 years at the time of diagnosis.

Epidemiology Terms

Epidemiology

The study of the distribution, determinates, and frequency of disease in humans.

GIS (Geographic Information System)

The display and analysis of geographic data in map format.

Incidence

Number of persons who become infected with a disease in a certain period of time, usually a year.

New Diagnoses

Number of cases newly diagnosed over a given period of time, usually a year. In HIV surveillance, new diagnoses do not necessarily represent new infections, as newly diagnosed cases may have been infected for many years. Thus, only some newly diagnosed cases are also incident cases.

Prevalence

Total number of persons currently living with a disease at one point in time. See page iii for a description of estimated prevalence in Michigan.

Public Health Surveillance

The ongoing collection, analysis, interpretation, dissemination, and evaluation of population-based information about persons with a condition or risk factor of public health concern.

Rate

Count of infected cases divided by the number of persons in the population (infected and uninfected). This calculation is multiplied by a multiple of 10, usually 1,000 or 100,000. Allows one to measure the impact of a disease on populations of varying size.

Administrative Info

CDC

U.S. Centers for Disease Control and Prevention

eHARS (enhanced HIV/AIDS Reporting System)

A standardized database developed by CDC for national reporting of HIV infection.

HAPIS

HIV/AIDS Prevention and Intervention Section

MDCH

Michigan Department of Community Health

Michigan HIV Surveillance Activities

Core HIV Surveillance

Population-based surveillance system of diagnosed adult, adolescent, and pediatric HIV cases.

Nilsa Mack, (517) 335-8165 or Mary-Grace Brandt, (313) 876-4115

MMP (Medical Monitoring Project)

Project providing information on health-related and risk behaviors, access to and use of prevention and support services, and other data on HIV-positive persons in care in Michigan.

Meosia Lee-Turner, MI MMP Coordinator, (313) 876-0072

NHBS (National HIV Behavioral Surveillance)

Surveillance system to identify behaviors that place individuals at risk for contracting HIV as well as access to prevention services among groups of uninfected persons at highest risk for HIV infection: MSM, IDU, and Heterosexuals at risk for contracting HIV.

Emily Higgins, MI NHBS Coordinator, (313) 876-0176

STARHS (Serologic Testing Algorithm for Recent HIV Seroconversion)

HIV Incidence Surveillance that enables estimation of new HIV infections in Michigan.

Marianne O'Connor, MI STARHS Coordinator, (313) 876-0854

Risk Transmission and Exposure Categories - Overview

Risk Transmission Categories

Risk transmission categories are the hierarchical risk categories that have been used to display HIV transmission risk in the Michigan and national HIV infection statistics since the 1980s. When the transmission categories were created, the order from top to bottom was meant to represent the most likely route through which HIV was transmitted and thus implies that some modes of transmission are more efficient than others. The hierarchy was established based on what was known at the beginning of the epidemic about how HIV was transmitted, when almost all cases were among males and there was little documented heterosexual transmission. Since then, the hierarchy has not changed, even though our understanding of the most efficient HIV transmission routes has changed.

Background on Hierarchy

The hierarchy algorithm is calculated using data from individual patient history questions collected on the case report form (Section VIII). In this hierarchy, all cases are assigned a single mode of transmission with the exception of males who report both sex with other males and injection drug use (categorized as Men who Have Sex with Men/Injection Drug Users (MSM/IDU)). Over time, concerns have been raised that use of hierarchical categories masks the identification of multiple risks that a case may have. For example, a woman who has documented risk of both injection drug use and sex with a male partner who has injected drugs would be assigned a risk of injection drug use (IDU), rather than both IDU and heterosexual sex, because the IDU category is ranked higher in the transmission risk hierarchy. Therefore, this woman's risk of heterosexual sex would not be represented.

There is a national effort toward representing mode of HIV transmission more comprehensively. Beginning in January 2009, Michigan began presenting data on mode of transmission in two ways. First, the traditional risk categories continue to be used in the same tables in which they previously appeared. Second, Table 2 on page 2 displays exposure categories, which present mode of HIV exposure in a manner that allows more complete presentation of the reported risk factor information.

Exposure Categories

The exposure categories shown on page 2 convey all known modes of HIV exposure. Like the traditional risk transmission categories, the exposure categories are mutually exclusive, meaning that each case is only included in one category. Exposure categories, however, allow readers to see all the reported ways in which a case may have been exposed to HIV without stating definitively how the case was infected. Categories are displayed in order of decreasing HIV prevalence. In order to display the most accurate information possible, we request that persons who complete the Michigan Adult HIV/AIDS Confidential Case Report Form indicate a 'Yes', 'No', or 'Unknown' answer to each patient history questions in Section VIII. Patient History of the form.

Risk Transmission & Exposure Categories - Definitions

Blood Recipients

Hemophiliacs, blood transfusion recipients, and organ recipients who received blood products prior to 1985 & persons documented to have ever received an infected organ or unit of blood.

Heterosexual Contact (HC):

Heterosexual Contact w/ Female Risk (HCFR): Males whose female sexual partners are known to be HIV-positive or at high risk for HIV. These partners meet one of the following criteria: IDU, hemophiliac, HIV-positive transfusion recipient, or other HIV-positive person of unknown risk (**applies to risk transmission categories**).

Heterosexual Contact w/ Female (HCF): Males who have had sex with a female regardless of what is known about the female's HIV status or behaviors (**applies to exposure categories**).

Heterosexual Contact w/ Male (HCM): Females who have had sex with a male regardless of what is known about the male's HIV status or behaviors (**applies to both risk transmission and exposure categories**).

Injection Drug Users (IDU)

Persons who have a history of injection drug use.

Men who have sex with men (MSM)

Males who have a history of sexual contact with other males.

MSM/IDU

MSM who also have a history of injection drug use.

Behaviorally Bisexual Men

MSM who also have a history of sexual contact with females. Also referred to as "MSM & Sex with Female".

Perinatal

HIV transmission from mother to child during birth or through breastfeeding.

Undetermined

Males and females with no identified risk.

Males whose only documented risk is sex with a female, and their female partner's risk and HIV status is unknown (**note: these males meet the definition of heterosexual contact w/ female (HCF) in the exposure categories, but they remain "undetermined" risk in the transmission categories**).

HIV Surveillance in Michigan

Background

Reports of HIV infection are submitted to state and local health departments under Michigan law by providers making initial diagnoses or treating previously diagnosed persons. In addition, laboratories have been required to report HIV-related results since April 2005 (MCL 333.5114). Anonymous HIV tests (without name or other identifier) are excluded from this report because we cannot de-duplicate tests, update status, or obtain missing data. In April 2012, we changed the way we present anonymous numbers. Previously, we presented the cumulative number of anonymous case report forms in Michigan to date. We will now be presenting *the number of positive anonymous tests* (since we cannot know how many individuals these tests represent) *conducted each quarter* since the last Quarterly Analysis. A total of 14 anonymous positive HIV tests were conducted and reported in Michigan between January 1 and March 31, 2013.

HIV Surveillance in Michigan (Continued)

HIV Prevalence Estimates for Michigan

HIV prevalence estimates are updated annually in the January edition of this quarterly analysis. These estimates are based on reported cases diagnosed with HIV infection while residents of Michigan, regardless of current residence, which is the national standard established by the CDC. Estimates are calculated by adding the following three components and rounding up to the nearest 100: 1) the number of reported cases living with HIV infection, 2) the number of diagnosed HIV infection cases not yet reported, estimated at 10 percent of the reported cases living with HIV infection, and 3) the number of HIV infection cases that have not yet been tested, estimated at 21 percent of the total cases living with HIV infection (identical to the CDC estimate). The current prevalence estimate is 19,800 cases.

HIV prevalence estimates for each subgroup are calculated by multiplying the proportion of total cases in that group by 19,800 (the current total prevalence estimate). For example, 78 percent of HIV infection reports are among males. Therefore, the number of HIV-positive males in Michigan is estimated to be 15,410 (77.84% X 19,800 rounded to the nearest 10; extra decimals included for accurate calculation). Since the estimates are rounded, totals may not equal 19,800. The minimum estimate is 10.

Prison estimates of HIV infection are calculated differently than the aforementioned subgroup estimates. All prisoners are tested for HIV upon entry to prison; therefore, there is no need to account for unreported and untested cases. The prison prevalence estimate is calculated by rounding the reported number of persons living with HIV infection and diagnosed in prison to the nearest 10.

County estimates of HIV infection are calculated similarly to the subgroup estimates; however, for county calculations the proportion of cases in a particular county is multiplied by the statewide estimate minus the prison estimate (19,800 - 720 = 19,080). For example, 12 percent of HIV infection cases (not including cases in prison) were living in Oakland County at diagnosis. Therefore, the number of HIV-positive persons who were living in Oakland County at the time of diagnosis is estimated to be 2,370 (12.43% x 19,080). Since the estimates are rounded to the nearest 10, county totals may not equal 19,080. The method of calculating prevalence estimates for county of residence was revised as of April 2008; thus, county estimates presented prior to this date may differ from current and future estimates.

HIV Surveillance Staff Contacts

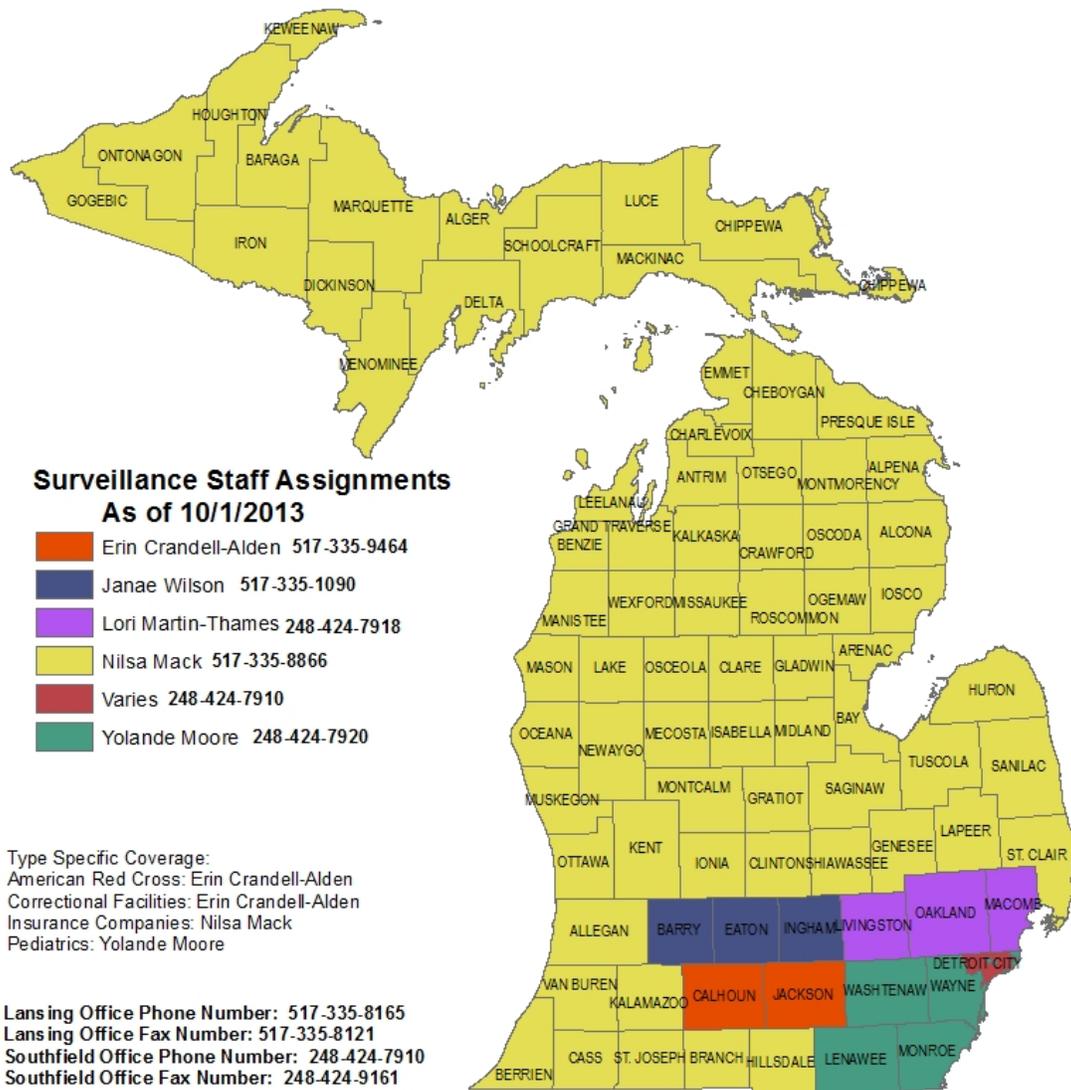


TABLE 1. Demographic Information on Prevalent HIV Infection Cases**REPORTED HIV INFECTION PREVALENCE**

	EST PREV*	HIV Infection Non-Stage 3		HIV Infection Stage 3 (AIDS)		Total		Rate per 100,000^{††}	CENSUS 2011 ESTIMATES	
	Num	Num	Percent	Num	Percent	Num	Percent		Num	Percent
RACE/ETHNICITY[§]										
White	6,650	2,457	34%	2,683	33%	5,140	34%	68	7,546,042	76%
Black	11,490	4,227	58%	4,647	58%	8,874	58%	639	1,388,219	14%
Hispanic	850	293	4%	366	5%	659	4%	147	447,917	5%
Asian/NH/PI	120	50	1%	46	1%	96	1%	38	250,023	3%
Am Indian/AN	50	21	<1%	16	<1%	37	<1%	67	55,072	1%
Multi/Other/Unk	630	207	3%	283	4%	490	3%	N/A	188,914	2%
SEX[¶] & RACE										
Male	15,410	5,566	77%	6,341	79%	11,907	78%	246	4,845,945	49%
White Male	5,820	2,093	29%	2,400	30%	4,493	29%	121	3,718,217	38%
Black Male	8,320	3,045	42%	3,380	42%	6,425	42%	975	659,263	7%
Hispanic Male	670	226	3%	291	4%	517	3%	227	227,589	2%
Other Male	610	202	3%	270	3%	472	3%	196	240,876	2%
Female	4,390	1,689	23%	1,700	21%	3,389	22%	67	5,030,242	51%
White Female	840	364	5%	283	4%	647	4%	17	3,827,825	39%
Black Female	3,170	1,182	16%	1,267	16%	2,449	16%	336	728,956	7%
Hispanic Female	180	67	1%	75	1%	142	1%	64	220,328	2%
Other Female	200	76	1%	75	1%	151	1%	60	253,133	3%
RISK*										
Male-Male Sex (MSM)	9,880	3,610	50%	4,022	50%	7,632	50%	--	--	--
Injection Drug Use (IDU)	1,690	505	7%	801	10%	1,306	9%	--	--	--
MSM/IDU	750	251	3%	327	4%	578	4%	--	--	--
Blood Products	100	26	<1%	55	1%	81	1%	--	--	--
Heterosexual Contact (HC)	3,500	1,275	18%	1,432	18%	2,707	18%	--	--	--
HCFR (Males)	670	212	3%	302	4%	514	3%	--	--	--
HCM (Females)	2,840	1,063	15%	1,130	14%	2,193	14%	--	--	--
Perinatal	230	106	1%	69	1%	175	1%	--	--	--
Undetermined	3,650	1,482	20%	1,335	17%	2,817	18%	--	--	--
AGE AT HIV DIAGNOSIS										
0 - 12 years	260	120	2%	79	1%	199	1%	--	--	--
13 - 19 years	1,050	496	7%	318	4%	814	5%	--	--	--
20 - 24 years	2,930	1,316	18%	948	12%	2,264	15%	--	--	--
25 - 29 years	3,360	1,334	18%	1,265	16%	2,599	17%	--	--	--
30 - 39 years	6,590	2,170	30%	2,918	36%	5,088	33%	--	--	--
40 - 49 years	3,910	1,262	17%	1,762	22%	3,024	20%	--	--	--
50 - 59 years	1,370	452	6%	608	8%	1,060	7%	--	--	--
60 years and over	320	102	1%	143	2%	245	2%	--	--	--
Unspecified	10	3	<1%	0	0%	3	<1%	--	--	--
AREA OF RESIDENCE AT DIAGNOSIS[‡]										
Detroit Metro	12,970	4,660	64%	5,256	65%	9,916	65%	233	4,255,670	43%
Out-State	6,110	2,264	31%	2,409	30%	4,673	31%	83	5,620,517	57%
Prison/Unknown	720	331	5%	376	5%	707	5%	N/A	N/A	N/A
TOTAL	19,800	7,255	100%	8,041	100%	15,296	100%	155	9,876,187	100%

*See pages ii and iii for descriptions of prevalence estimate calculations and risk category groupings. Risk categories used in Michigan are redefined as of January 2012. NOTE: Heterosexual contact for males includes only males whose sexual partners are known to be HIV infected or at high risk for HIV (HCFR). Heterosexual contact for females includes all females who have had sex with a male regardless of what is known about the male's HIV status or behaviors (HCM).

[†] To calculate "1 out of x" statements for rate, divide the census number by the total reported prevalence. For example, for non-Hispanic whites: 7,546,042 / 5,140 = 1,468. Thus, 1 out of every 1,468 non-Hispanic white persons in Michigan are living with HIV.

[‡] Rates are not reported for risk categories and age at diagnosis because no reliable denominator data exist for these groups.

[§] In this report, persons described as white, black, Asian/Native Hawaiian/Pacific Islander (Asian/NH/PI), or American Indian/Alaska Native (Am Indian/AN) are all non-Hispanic; persons described as Hispanic may be of any race.

[¶] Detroit Metro Area consists of Lapeer, Macomb, Monroe, Oakland, St. Clair, and Wayne Counties. The remaining counties comprise the Out-State area.

^{‡‡} As of April 2013, there were 66 prevalent transgender HIV cases (2 female to male, 64 male to female). Due to small numbers, these individuals will continue to be classified according to birth sex in all tables.

TABLE 2. Risk Transmission and Exposure Categories for HIV on Prevalent Cases, by Sex

	Male		Female		Overall	
	Num	Percent	Num	Percent	Num	Percent
REPORTED HIV INFECTION PREVALENCE						
RISK TRANSMISSION CATEGORIES (CDC Hierarchy)*§						
(Mutually Exclusive: one case is represented in ONLY one category)						
Male-Male Sex (MSM)	7,632	64%	N/A	--	7,632	50%
Injection Drug Use (IDU)	770	6%	536	16%	1,306	9%
MSM/IDU	578	5%	N/A	--	578	4%
Blood Products	69	1%	12	<1%	81	1%
Heterosexual Contact (HC)	514	4%	2,193	65%	2,707	18%
HCFR (Males)	514	4%	N/A	--	514	3%
HCM (Females)	N/A	--	2,193	65%	2,193	14%
Perinatal	97	1%	78	2%	175	1%
Undetermined	2,247	19%	570	17%	2,817	18%
EXPOSURE CATEGORIES*†						
(Mutually Exclusive: one case is represented in ONLY one category)						
Male-Male Sex Only	4,970	42%	N/A	--	4,970	32%
MSM & HC	2,616	22%	N/A	--	2,616	17%
MSM & IDU	256	2%	N/A	--	256	2%
MSM & Blood Products	22	<1%	N/A	--	22	<1%
MSM & HC & IDU	307	3%	N/A	--	307	2%
MSM & HC & Blood Products	24	<1%	N/A	--	24	<1%
MSM & IDU & Blood Products	3	<1%	N/A	--	3	<1%
MSM & HC & IDU & Blood Products	12	<1%	N/A	--	12	<1%
Heterosexual Contact Only	1,928	16%	2,503	74%	4,431	29%
HC & IDU	592	5%	473	14%	1,065	7%
HC & Blood Products	47	<1%	34	1%	81	1%
HC & IDU & Blood Products	16	<1%	11	<1%	27	<1%
Injection Drug Use Only	160	1%	52	2%	212	1%
IDU & Blood Products	2	<1%	0	0%	2	<1%
Perinatal Exposure	97	1%	78	2%	175	1%
Exposure to Blood Products Only	35	<1%	3	<1%	38	<1%
Undetermined	820	7%	235	7%	1,055	7%
TOTAL	11,907	100%	3,389	100%	15,296	100%
SUMMARIZED EXPOSURE CATEGORIES*‡						
(NOT Mutually Exclusive: one case may be represented in multiple categories)						
Any MSM	8,210	69%	N/A	--	8,210	54%
Behaviorally Bisexual Men	2,959	25%	N/A	--	2,959	19%
Any Heterosexual Contact	5,542	47%	3,021	89%	8,563	56%
Any IDU	1,348	11%	536	16%	1,884	12%

*See page ii for descriptions of risk transmission and exposure categories.

§ Risk transmission categories are grouped based on hierarchical categories determined by the CDC. Any one person with multiple risks is only represented in the highest category, with the exception of MSM/IDU (based on the hierarchical algorithm).

† Exposure categories are mutually exclusive and grouped to allow all possible combinations of exposures that any one person may have. NOTE: Heterosexual contact (HC) in exposure categories includes males and females who had heterosexual contact, regardless of what is known about their partners' risk or HIV status.

‡ Summarized exposure categories are NOT mutually exclusive, i.e. a case may be represented in multiple categories. These summarized categories are meant to give a broader picture of exposure and will NOT add up to the total number of persons living with HIV infection.

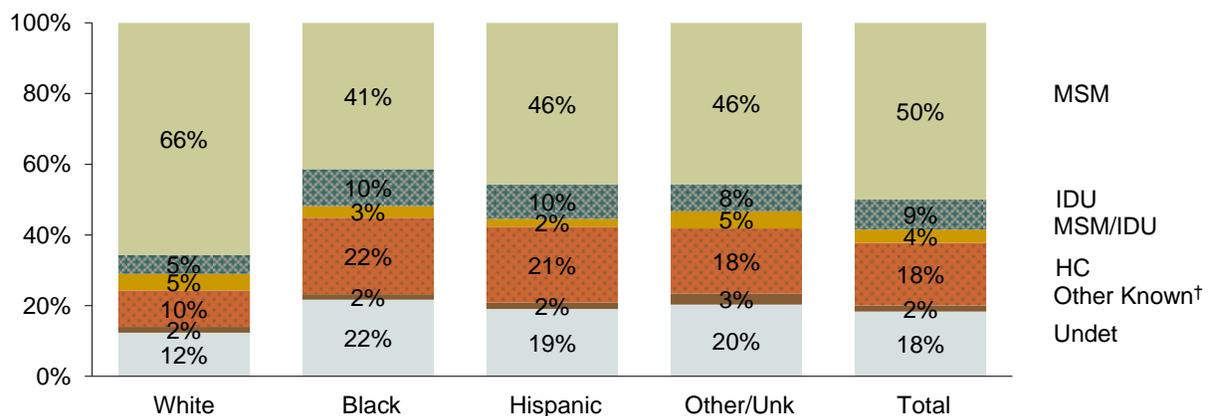
TABLE 3. Sex, Race, and Risk Among Prevalent HIV Infection Cases

MALE	White		Black		Hispanic		Other or Unknown		All Male	
	Num	Percent	Num	Percent	Num	Percent	Num	Percent	Num	Percent
Male-Male sex	3,376	75%	3,671	57%	301	58%	284	60%	7,632	64%
Injection Drug Use	158	4%	540	8%	45	9%	27	6%	770	6%
MSM/IDU	243	5%	290	5%	15	3%	30	6%	578	5%
Blood Products	53	1%	12	<1%	1	<1%	3	1%	69	1%
Heterosexual Contact (HCFR)	94	2%	372	6%	34	7%	14	3%	514	4%
Perinatal	13	<1%	71	1%	4	1%	9	2%	97	1%
Undetermined	556	12%	1,469	23%	117	23%	105	22%	2,247	19%
Male Subtotal	4,493	38%	6,425	54%	517	4%	472	4%	11,907	100%

FEMALE	White		Black		Hispanic		Other or Unknown		All Female	
	Num	Percent	Num	Percent	Num	Percent	Num	Percent	Num	Percent
Injection Drug Use	112	17%	384	16%	19	13%	21	14%	536	16%
Blood Products	7	1%	3	<1%	1	1%	1	1%	12	<1%
Heterosexual Contact (HCM)	437	68%	1,548	63%	107	75%	101	67%	2,193	65%
Perinatal	11	2%	55	2%	6	4%	6	4%	78	2%
Undetermined	80	12%	459	19%	9	6%	22	15%	570	17%
Female Subtotal	647	19%	2,449	72%	142	4%	151	4%	3,389	100%

ALL	White		Black		Hispanic		Other or Unknown		Risk All	
	Num	Percent	Num	Percent	Num	Percent	Num	Percent	Num	Percent
Male-Male sex	3,376	66%	3,671	41%	301	46%	284	46%	7,632	50%
Injection Drug Use	270	5%	924	10%	64	10%	48	8%	1,306	9%
MSM/IDU	243	5%	290	3%	15	2%	30	5%	578	4%
Blood Products	60	1%	15	<1%	2	<1%	4	1%	81	1%
Heterosexual Contact (HC)	531	10%	1,920	22%	141	21%	115	18%	2,707	18%
<i>HCFR (Males)</i>	94	2%	372	4%	34	5%	14	2%	514	3%
<i>HCM (Females)</i>	437	9%	1,548	17%	107	16%	101	16%	2,193	14%
Perinatal	24	<1%	126	1%	10	2%	15	2%	175	1%
Undetermined	636	12%	1,928	22%	126	19%	127	20%	2,817	18%
RACE ALL	5,140	34%	8,874	58%	659	4%	623	4%	15,296	100%

FIGURE 1. Mode of HIV Transmission Among Prevalent Cases, by Race



†The 'Other Known' mode of transmission in Figure 1 is a combination of 'Blood Products' and 'Perinatal' from Table 3.

TABLE 4. Sex, Race, and Age at HIV Diagnosis Among Prevalent Cases

MALE	White		Black		Hispanic		Other or Unknown		All Male	
	Num	Percent	Num	Percent	Num	Percent	Num	Percent	Num	Percent
0 - 12 years	24	1%	76	1%	4	1%	10	2%	114	1%
13 - 19 years	79	2%	506	8%	16	3%	23	5%	624	5%
20 - 24 years	431	10%	1,211	19%	66	13%	74	16%	1,782	15%
25 - 29 years	749	17%	1,076	17%	106	21%	88	19%	2,019	17%
30 - 39 years	1,711	38%	1,923	30%	197	38%	163	35%	3,994	34%
40 - 49 years	1,051	23%	1,148	18%	83	16%	86	18%	2,368	20%
50 - 59 years	357	8%	406	6%	32	6%	24	5%	819	7%
60 years and over	91	2%	77	1%	13	3%	4	1%	185	2%
Male Subtotal*	4,493	38%	6,423	54%	517	4%	472	4%	11,905	100%

FEMALE	White		Black		Hispanic		Other or Unknown		All Female	
	Num	Percent	Num	Percent	Num	Percent	Num	Percent	Num	Percent
0 - 12 years	12	2%	61	2%	6	4%	6	4%	85	3%
13 - 19 years	44	7%	129	5%	11	8%	6	4%	190	6%
20 - 24 years	111	17%	329	13%	22	15%	20	13%	482	14%
25 - 29 years	124	19%	405	17%	19	13%	32	21%	580	17%
30 - 39 years	201	31%	788	32%	56	39%	49	32%	1,094	32%
40 - 49 years	99	15%	514	21%	19	13%	24	16%	656	19%
50 - 59 years	48	7%	174	7%	8	6%	11	7%	241	7%
60 years and over	7	1%	49	2%	1	1%	3	2%	60	2%
Female Subtotal*	646	19%	2,449	72%	142	4%	151	4%	3,388	100%

ALL	White		Black		Hispanic		Other or Unknown		Overall	
	Num	Percent	Num	Percent	Num	Percent	Num	Percent	Num	Percent
0 - 12 years	36	1%	137	2%	10	2%	16	3%	199	1%
13 - 19 years	123	2%	635	7%	27	4%	29	5%	814	5%
20 - 24 years	542	11%	1,540	17%	88	13%	94	15%	2,264	15%
25 - 29 years	873	17%	1,481	17%	125	19%	120	19%	2,599	17%
30 - 39 years	1,912	37%	2,711	31%	253	38%	212	34%	5,088	33%
40 - 49 years	1,150	22%	1,662	19%	102	15%	110	18%	3,024	20%
50 - 59 years	405	8%	580	7%	40	6%	35	6%	1,060	7%
60 years and over	98	2%	126	1%	14	2%	7	1%	245	2%
RACE OVERALL*	5,139	34%	8,872	58%	659	4%	623	4%	15,293	100%

*Not included in this table are two black male cases and one white female case of unknown age at diagnosis.

FIGURE 2. Age at HIV Diagnosis Among Prevalent Cases, by Race

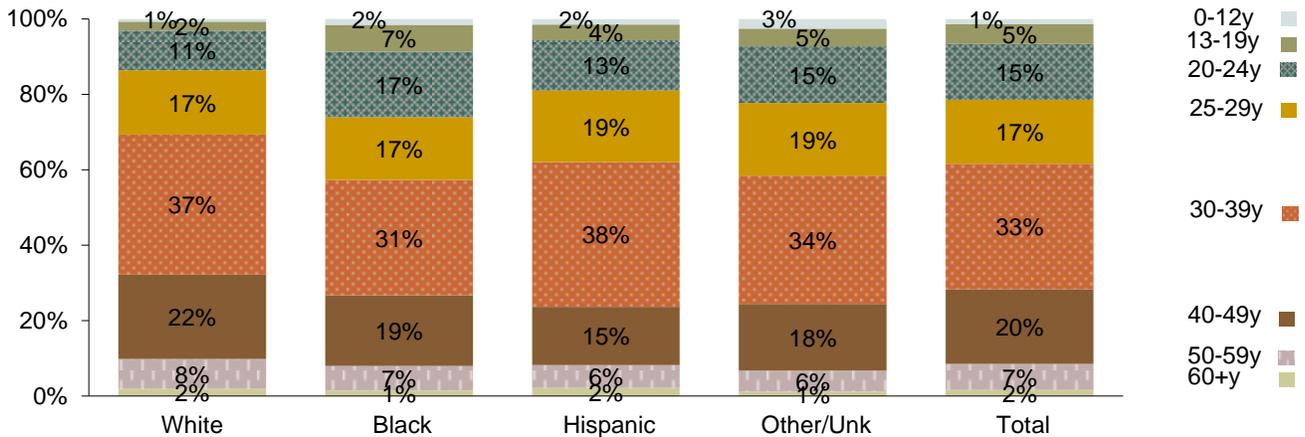


TABLE 5. New Diagnoses, Deaths, and Prevalence of HIV Infection, by Year

Year	<i>HIV Infection (all stages)</i>			<i>HIV Infection Stage 3 (AIDS)</i>		
	New HIV Diagnoses	Deaths	Prevalence	New Stage 3 Diagnoses	Deaths	Prevalence
1981	4	2	2	3	2	1
1982	3	0	5	2	0	3
1983	30	5	30	22	5	20
1984	71	17	84	50	17	53
1985	383	63	404	98	63	88
1986	491	103	792	168	100	156
1987	720	182	1,330	318	174	300
1988	905	266	1,969	493	257	536
1989	1,300	383	2,886	689	373	852
1990	1,442	454	3,874	795	434	1,213
1991	1,442	537	4,779	962	516	1,659
1992	1,492	666	5,605	1,232	634	2,257
1993	1,300	827	6,078	1,127	781	2,603
1994	1,211	907	6,382	1,013	848	2,768
1995	1,192	921	6,653	1,065	852	2,981
1996	1,115	637	7,131	858	587	3,252
1997	1,043	470	7,704	738	419	3,571
1998	897	410	8,191	648	356	3,863
1999	747	374	8,564	575	325	4,113
2000	923	391	9,096	652	338	4,427
2001	875	397	9,574	572	327	4,672
2002	767	378	9,963	577	321	4,928
2003	871	374	10,460	602	303	5,227
2004	886	351	10,995	563	280	5,510
2005	896	364	11,527	738	298	5,950
2006	804	350	11,981	613	282	6,281
2007	802	333	12,450	589	281	6,589
2008	795	347	12,898	549	283	6,855
2009	825	287	13,436	480	233	7,102
2010	783	286	13,933	517	234	7,385
2011	799	259	14,473	469	209	7,645
2012	816	121	15,168	429	107	7,967
2013	133	5	15,296	79	5	8,041
TOTAL	26,763	11,467		18,285	10,244	

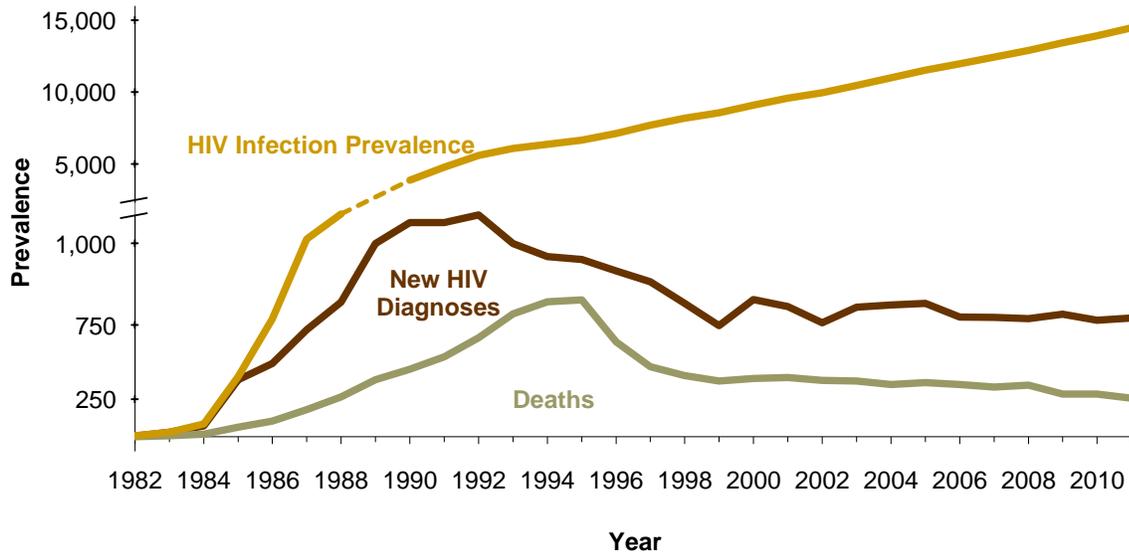
The prevalence of HIV in Michigan has steadily increased, since persons with HIV are living longer. This is largely due to improved anti-retroviral therapy.

The increase in HIV prevalence is also reflected in Figure 3 on page 6, which shows that the number of persons diagnosed, while stable for the last several years, is greater than the number of deaths each year. This directly contributes to the increase in prevalence. The current reported prevalence of HIV infection in Michigan is 15,296. The prevalence of Stage 3 infection, which is a subset of the overall HIV infection prevalence, is 8,041.

As implied, the HIV infection section displays data on all persons with HIV, including those with Stage 3 infection as well as those who have not progressed to Stage 3. Thus, persons represented in the Stage 3 section are also represented in the HIV infection section. The number of reported deaths includes deaths directly attributable to presence of HIV infection as well as deaths due to other causes.

NOTE: Reporting for recent years may not be complete. Data are not adjusted to account for reporting delays.

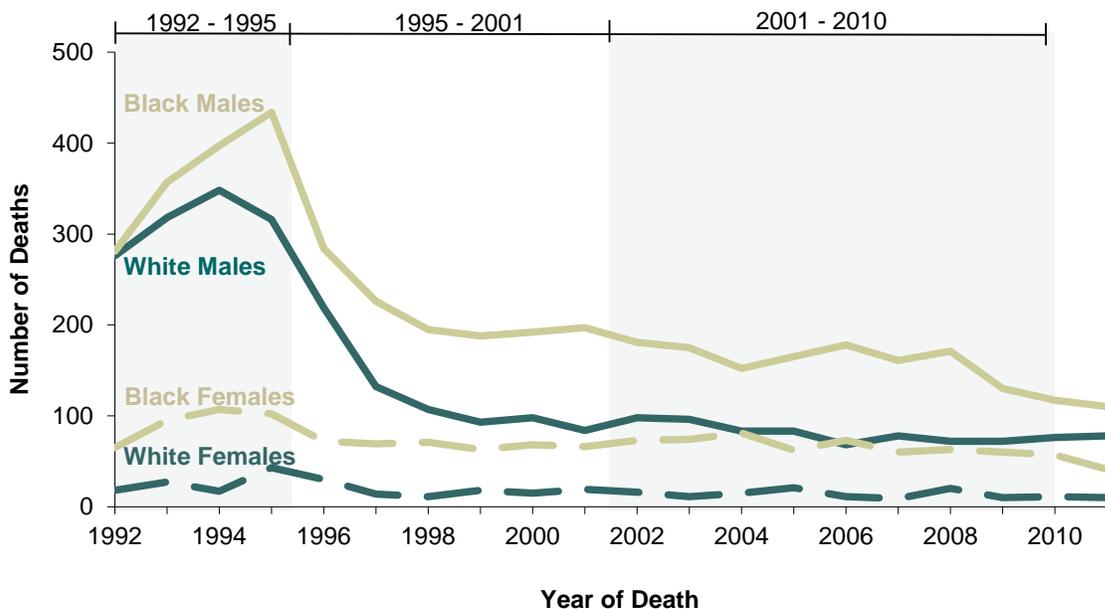
FIGURE 3. New Diagnoses, Deaths,[†] and Prevalence of HIV Infection, by Year



[†] Reporting for 2011 deaths is incomplete at this time.

Figure 4 (below) shows the number of HIV positive Michigan residents who are reported as deceased by a local health department, the Department of Vital Records via a data match or death certificate, a match with the National Death Index, or an alternate source. The number of deaths increased in all race/sex groups from the beginning of the epidemic through approximately 1994-1995. The number of deaths decreased markedly between 1995 and 1998 and then were relatively stable until 2001. It should be noted that the percent decrease in deaths among white males (73%) between 1995 and 2001 was more pronounced than the percent decrease among black males (55%), and the percent decrease among white females (56%) was larger than the percent decrease among black females (35%). Encouragingly, the number of deaths in black males has fallen substantially from 2001 to 2010 (41%), as have the number of deaths in white males (10%), black females (14%), and white females (42%).

FIGURE 4. HIV Infection Deaths,[†] by Race/Sex



[†] Reporting for 2011 deaths is incomplete at this time.

TABLE 6. Demographic Information on Persons Newly and Ever Diagnosed* with HIV

	2013 [†]						CUMULATIVE (through January 2013) [‡]					
	Male		Female		All		Male		Female		All	
	Num	Percent	Num	Percent	Num	Percent	Num	Percent	Num	Percent	Num	Percent
RACE/ETHNICITY												
White	36	33%	7	28%	43	32%	8,252	39%	1,035	19%	9,287	35%
Black	64	59%	16	64%	80	60%	11,583	55%	4,075	74%	15,658	59%
Hispanic	2	2%	1	4%	3	2%	805	4%	203	4%	1,008	4%
Asian/NH/PI	2	2%	0	0%	2	2%	80	<1%	32	1%	112	<1%
Am Indian/AN	0	0%	0	0%	0	0%	44	<1%	16	<1%	60	<1%
Multi/Other/Unk	4	4%	1	4%	5	4%	485	2%	153	3%	638	2%
RISK[§]												
Male-Male Sex	64	59%	N/A	--	64	48%	12,660	60%	N/A	--	12,660	47%
Injection Drug Use	3	3%	4	16%	7	5%	2,734	13%	1,608	29%	4,342	16%
MSM/IDU	3	3%	N/A	--	3	2%	1,386	7%	N/A	--	1,386	5%
Blood Products	0	0%	0	0%	0	0%	307	1%	38	1%	345	1%
Heterosexual Contact (HC)	4	4%	12	48%	16	12%	819	4%	3,000	54%	3,819	14%
HCFR (Males)	4	4%	N/A	--	4	3%	819	4%	N/A	--	819	3%
HCM (Females)	N/A	--	12	48%	12	9%	N/A	--	3,000	54%	3,000	11%
Perinatal	0	0%	0	0%	0	0%	140	1%	110	2%	250	1%
Undetermined	34	31%	9	36%	43	32%	3,203	15%	758	14%	3,961	15%
AGE AT HIV DIAGNOSIS												
0 - 12 years	0	0%	0	0%	0	0%	185	1%	116	2%	301	1%
13 - 19 years	7	6%	0	0%	7	5%	723	3%	234	4%	957	4%
20 - 24 years	20	19%	3	12%	23	17%	2,302	11%	610	11%	2,912	11%
25 - 29 years	26	24%	2	8%	28	21%	3,400	16%	845	15%	4,245	16%
30 - 39 years	19	18%	8	32%	27	20%	7,604	36%	1,881	34%	9,485	35%
40 - 49 years	15	14%	7	28%	22	17%	4,819	23%	1,241	23%	6,060	23%
50 - 59 years	13	12%	3	12%	16	12%	1,716	8%	445	8%	2,161	8%
60 years and over	8	7%	2	8%	10	8%	498	2%	141	3%	639	2%
Unspecified	0	0%	0	0%	0	0%	2	<1%	1	<1%	3	<1%
Infection STATUS[¶]												
HIV Infection Non-Stage 3	79	73%	21	84%	100	75%	6,467	30%	2,011	36%	8,478	32%
HIV Infection Stage 3 (AIDS)	29	27%	4	16%	33	25%	14,782	70%	3,503	64%	18,285	68%
AIDS - Same time	27	25%	4	16%	31	23%	7,828	37%	1,532	28%	9,360	35%
AIDS - Short lag	2	2%	0	0%	2	2%	1,654	8%	459	8%	2,113	8%
AIDS - Long lag	0	0%	0	0%	0	0%	5,300	25%	1,512	27%	6,812	25%
AREA OF RESIDENCE AT DIAGNOSIS[£]												
Detroit Metro	67	62%	14	56%	81	61%	14,034	66%	3,987	72%	18,021	67%
Out-State	41	38%	11	44%	52	39%	6,104	29%	1,421	26%	7,525	28%
Prison/Unknown	0	0%	0	0%	0	0%	1,111	5%	106	2%	1,217	5%
TOTAL	108	81%	25	19%	133	100%	21,249	79%	5,514	21%	26,763	100%

*Includes deceased cases.

†Data for cases diagnosed in 2013 are incomplete at this time.

§ See page ii for description of risk category groupings. Risk categories used in Michigan are redefined as of January 2012.

¶ The definitions of infection status are as follows (see page i for complete description of HIV infection stages):

HIV Infection Non-Stage 3: Has not progressed to Stage 3 Infection (AIDS) or no information is available on CD4 levels or AIDS-defining conditions

HIV Infection Stage 3 (AIDS):

AIDS - Same time = Diagnosed as Stage 3 Infection within 30 days of initial HIV diagnosis

AIDS - Short lag = Progressed to Stage 3 between 1 and 12 months after initial HIV diagnosis

AIDS - Long lag = Progressed to Stage 3 more than 12 months after initial HIV diagnosis

£ Detroit Metro Area consists of Lapeer, Macomb, Monroe, Oakland, St. Clair, and Wayne Counties. The remaining counties comprise the Out-State area.

¶ As of January 2013, there were 88 cumulative transgender HIV cases (2 female to male, 86 male to female). Due to small numbers, these individuals will continue to be classified according to birth sex in all tables.

TABLE 7. Prevalent HIV Infection Cases, by County of Residence at Diagnosis

COUNTY	EST PREV Number	REPORTED PREVALENCE				CENSUS 2011 ESTIMATES	COUNTY	EST PREV Number	REPORTED PREVALENCE				CENSUS 2011 ESTIMATES
		HIV Infection Non-Stage 3	HIV Infection Stage 3	Total	Rate*				HIV Infection Non-Stage 3	HIV Infection Stage 3	Total	Rate*	
		Alcona	10	0	0				0	0	10,800	Livingston	
Alger	10	0	1	1	11	9,513	Luce	10	0	0	0	0	6,584
Allegan	90	25	46	71	64	111,234	Mackinac	10	2	2	4	36	11,037
Alpena	10	2	2	4	14	29,386	Macomb	950	371	354	725	86	842,145
Antrim	10	3	6	9	39	23,316	Manistee	20	5	7	12	49	24,709
Arenac	10	1	1	2	13	15,649	Marquette	30	8	12	20	30	67,694
Baraga	10	1	2	3	34	8,808	Mason	10	4	7	11	38	28,678
Barry	30	9	14	23	39	58,820	Mecosta	20	11	6	17	39	43,300
Bay	80	35	27	62	58	107,110	Menominee	10	3	1	4	17	23,930
Benzie	10	2	3	5	29	17,443	Midland	30	13	13	26	31	84,063
Berrien	310	100	139	239	152	156,941	Missaukee	10	4	5	9	60	14,911
Branch	20	13	3	16	35	45,197	Monroe	100	37	39	76	50	151,560
Calhoun	180	69	72	141	104	135,490	Montcalm	30	9	13	22	35	63,185
Cass	40	16	15	31	60	51,988	Montmorency	10	0	3	3	31	9,653
Charlevoix	20	3	9	12	46	25,998	Muskegon	160	66	55	121	71	171,302
Cheboygan	10	4	5	9	35	25,918	Newaygo	20	5	10	15	31	48,352
Chippewa	10	6	4	10	26	38,797	Oakland	2,370	910	904	1,814	150	1,210,145
Clare	20	3	11	14	45	31,033	Oceana	10	5	5	10	38	26,523
Clinton	40	17	13	30	40	75,469	Ogemaw	10	1	3	4	19	21,570
Crawford	10	1	4	5	36	14,014	Ontonagon	10	1	1	2	30	6,598
Delta	20	5	9	14	38	37,105	Osceola	10	1	2	3	13	23,510
Dickinson	10	0	0	0	0	26,185	Oscoda	10	1	0	1	12	8,608
Eaton	70	23	32	55	51	108,056	Otsego	10	4	7	11	46	24,078
Emmet	10	2	5	7	21	32,848	Ottawa	150	44	69	113	42	266,300
Genesee	680	264	259	523	124	422,080	Presque Isle	10	0	2	2	15	13,155
Gladwin	10	3	5	8	31	25,851	Roscommon	20	3	10	13	53	24,414
Goebic	10	1	1	2	12	16,281	Saginaw	290	116	105	221	111	199,088
Grand Traverse	90	34	31	65	74	88,349	Sanilac	20	7	7	14	33	42,605
Gratiot	10	6	3	9	21	42,145	Schoolcraft	10	0	0	0	0	8,490
Hillsdale	10	4	5	9	19	46,514	Shiawassee	30	8	12	20	29	69,841
Houghton	10	4	3	7	19	36,638	St. Clair	120	51	41	92	57	161,642
Huron	10	3	4	7	21	32,675	St. Joseph	40	14	18	32	52	61,136
Ingham	620	256	217	473	168	281,613	Tuscola	10	6	5	11	20	55,422
Ionia	30	9	12	21	33	63,979	Van Buren	60	23	24	47	62	76,131
Iosco	10	3	3	6	23	25,541	Washtenaw	670	262	247	509	146	347,962
Iron	10	0	1	1	8	11,796	Wayne Total	9,390	3,275	3,899	7,174	398	1,802,096
Isabella	50	18	21	39	55	70,622	Wayne, excl. Detroit	1,980	673	844	1,517	138	1,095,456
Jackson	200	80	73	153	96	159,748	Detroit†	7,400	2,602	3,055	5,657	801	706,640
Kalamazoo	420	171	151	322	128	252,074	Wexford	10	3	4	7	21	32,718
Kalkaska	10	4	0	4	23	17,160							
Kent	1,110	383	465	848	139	608,453	Detroit Metro[§]	12,970	4,660	5,256	9,916	233	4,255,670
Keweenaw	10	0	0	0	0	2,173	Out-State[§]	6,110	2,264	2,409	4,673	83	5,620,517
Lake	10	4	7	11	95	11,539							
Lapeer	50	16	19	35	40	88,082	Prisons[¶]	710	329	375	704	N/A	N/A
Leelanau	10	0	7	7	33	21,459	Unknown	10	2	1	3	N/A	N/A
Lenawee	70	25	28	53	53	99,440	TOTAL	19,800	7,255	8,041	15,296	155	9,876,187

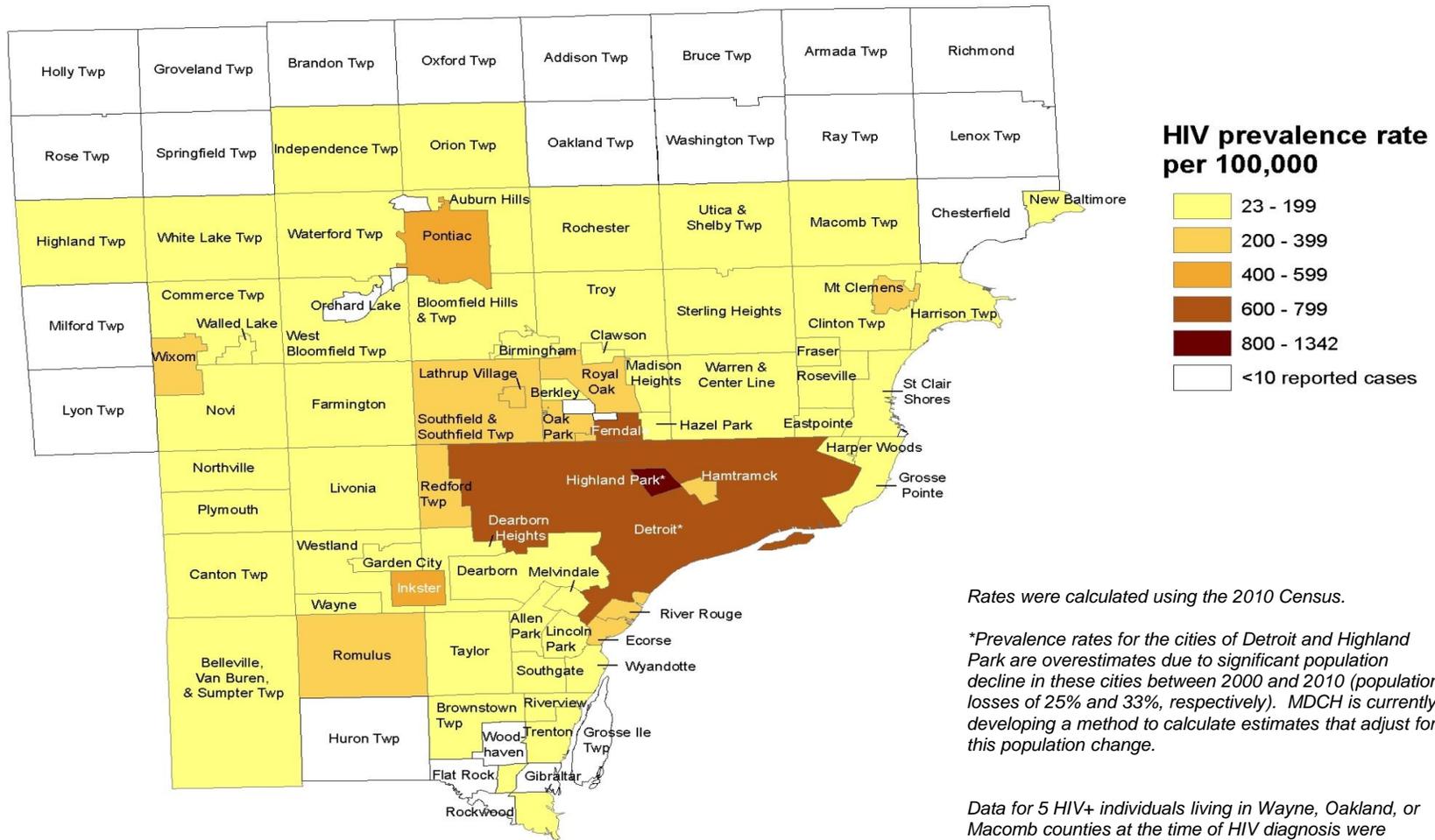
*Rate is reported prevalence per 100,000 and is not an estimate.

† The prevalence rate for the City of Detroit is an overestimate due to significant population decline in the city between 2000 and 2010 (population loss of 25%). MDCH is currently developing a method to calculate estimates that adjust for this population change.

‡ Detroit Metro Area consists of Lapeer, Macomb, Monroe, Oakland, St. Clair, and Wayne Counties. The remaining counties constitute the Out-State area.

¶ The prevalence estimate for prisons is calculated differently from the remainder of the state. Please see the Front Matter (p. iii) for further explanation.

FIGURE 6. Reported HIV Prevalence Rates, by City of Residence at Diagnosis in Wayne, Oakland, and Macomb Counties as of January 1, 2013 (N=9,576)



Rates were calculated using the 2010 Census.

*Prevalence rates for the cities of Detroit and Highland Park are overestimates due to significant population decline in these cities between 2000 and 2010 (population losses of 25% and 33%, respectively). MDCH is currently developing a method to calculate estimates that adjust for this population change.

Data for 5 HIV+ individuals living in Wayne, Oakland, or Macomb counties at the time of HIV diagnosis were excluded from the map due to unknown city/township at diagnosis.

Table 8: Number of Deliveries and Births with Perinatal HIV Exposure, 2008 - 2012*

	Mothers	Infants
2008	39	41
2009	36	42
2010	42	42
2011	57	57
2012*	49	50

FIGURE 7. Perinatal HIV Exposures, by Residence at Birth

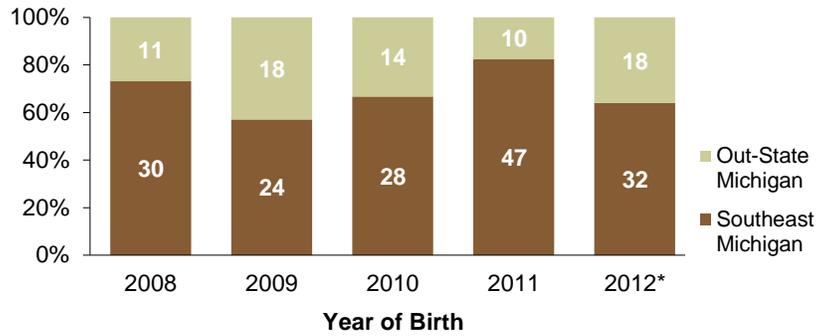


FIGURE 8. Perinatal HIV Exposures, by Infant Race

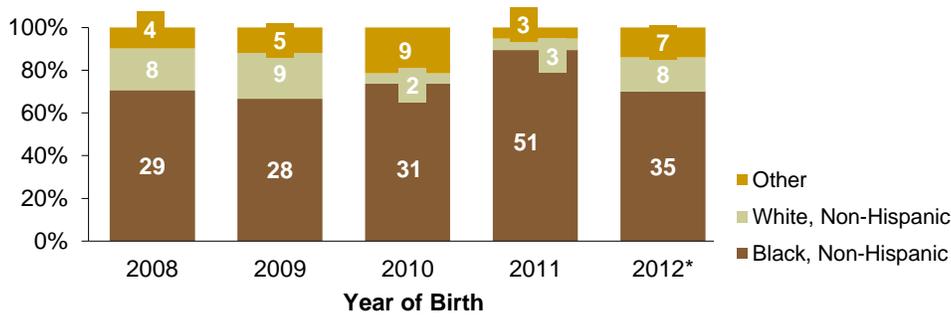


FIGURE 9. Perinatal HIV Exposures, by Maternal Risk†

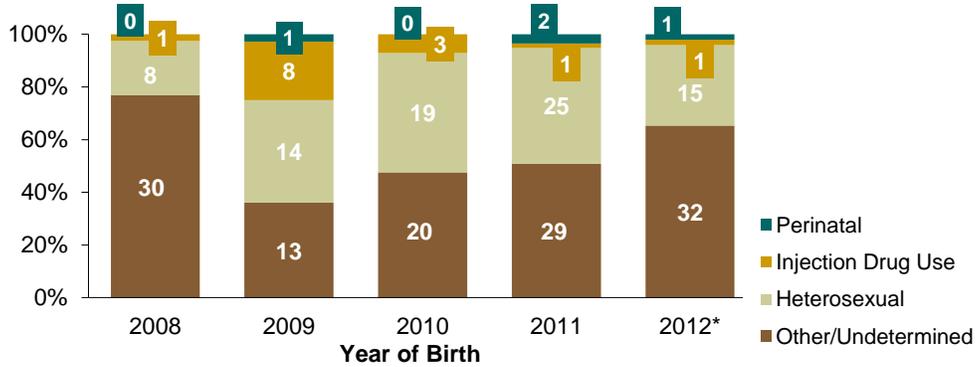


FIGURE 10. Infection Status of Perinatal HIV Exposures

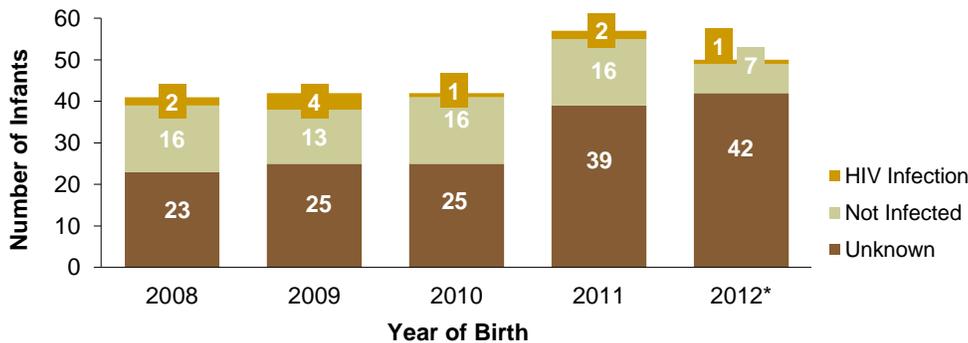


Figure 10 indicates the current infection status of infants born in Michigan to HIV-positive women: the top portion of the bars shows number of infants confirmed to be infected with HIV; the middle portion shows those not infected with HIV, based on laboratory testing or physician exam; and the bottom portion shows the number of infants whose HIV infection status is unknown due to loss to follow-up or infection status reporting delay.

* Reporting for 2012 may be incomplete at this time.

† 'Perinatal' indicates the mother was herself perinatally exposed to HIV. One mother with a birth in 2010 had exposure to HIV-infected blood products; this case was included in Other/Undetermined.