

# QUARTERLY HIV SURVEILLANCE REPORT, MICHIGAN October 2012

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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  $\geq 500$  CD4 cells/ $\mu$ l.

*Stage 2:* A case has no AIDS-defining condition, but the level of CD4 cells has fallen to 200-499 cells/ $\mu$ 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/ $\mu$ 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*

### VARHS (Variant, Atypical, and Resistant HIV Surveillance)

Surveillance of drug-resistant and sub-type HIV strains using viral genotyping of remnant sera.

*Mary-Grace Brandt, MI VARHS Coordinator, (313) 876-4115*

## 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 11 anonymous positive HIV tests were conducted and reported in Michigan between July 1 and September 30, 2012.

## 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 19,300 cases.

HIV prevalence estimates for each subgroup are calculated by multiplying the proportion of total cases in that group by 19,300 (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 14,990 (77.69% X 19,300 rounded to the nearest 10; extra decimals included for accurate calculation). Since the estimates are rounded, totals may not equal 19,300. 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 (19,300 - 720 = 18,580). 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 2,300 (12.36% x 18,580). Since the estimates are rounded to the nearest 10, county totals may not equal 18,580. 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

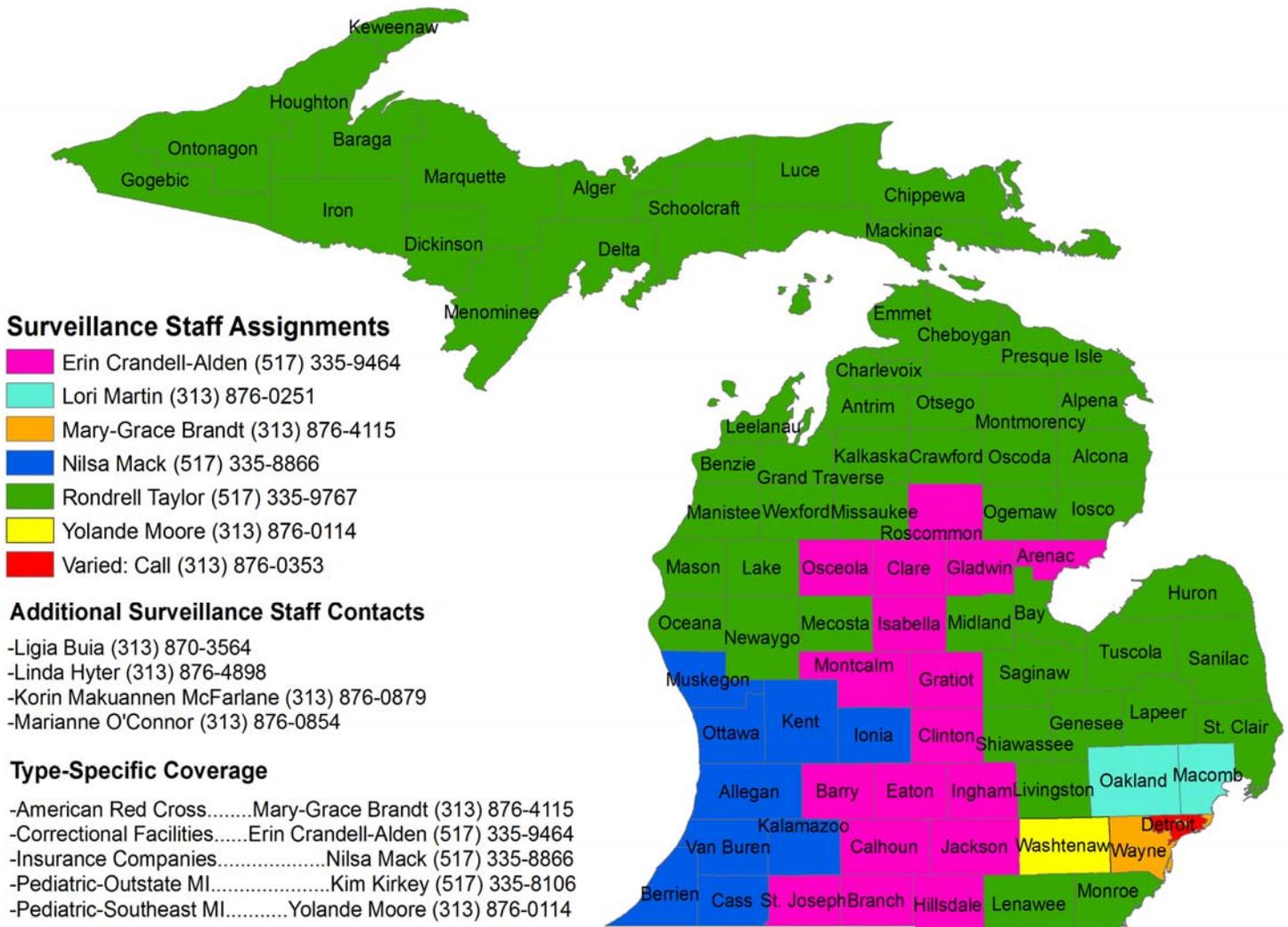


TABLE 1. Demographic Information on Prevalent HIV Infection Cases

## REPORTED HIV INFECTION PREVALENCE

	EST PREV*		HIV Infection Non-Stage 3		HIV Infection Stage 3 (AIDS)		Total		CENSUS 2010	
	Num		Num	Percent	Num	Percent	Num	Percent	Num	Percent
								Rate per 100,000 <sup>††</sup>		
<b>RACE/ETHNICITY<sup>§</sup></b>										
White	6,540		2,419	34%	2,666	34%	5,085	34%	67	7,569,939 77%
Black	11,250		4,183	59%	4,558	58%	8,741	58%	632	1,383,756 14%
Hispanic	840		286	4%	363	5%	649	4%	149	436,358 4%
Asian/NH/PI	120		46	1%	45	1%	91	1%	38	238,660 2%
Am Indian/AN	50		22	<1%	15	<1%	37	<1%	68	54,665 1%
Multi/Other/Unk	510		159	2%	234	3%	393	3%	N/A	200,262 2%
<b>SEX<sup>¶</sup> &amp; RACE</b>										
Male	14,990		5,440	76%	6,210	79%	11,650	78%	240	4,848,114 49%
White Male	5,720		2,062	29%	2,385	30%	4,447	30%	119	3,728,507 38%
Black Male	8,120		2,997	42%	3,311	42%	6,308	42%	960	657,181 7%
Hispanic Male	650		220	3%	286	4%	506	3%	228	221,913 2%
Other Male	500		161	2%	228	3%	389	3%	162	240,513 2%
Female	4,310		1,675	24%	1,671	21%	3,346	22%	66	5,035,526 51%
White Female	820		357	5%	281	4%	638	4%	17	3,841,432 39%
Black Female	3,130		1,186	17%	1,247	16%	2,433	16%	335	726,575 7%
Hispanic Female	180		66	1%	77	1%	143	1%	67	214,445 2%
Other Female	170		66	1%	66	1%	132	1%	52	253,074 3%
<b>RISK*</b>										
Male-Male Sex (MSM)	9,540		3,489	49%	3,921	50%	7,410	49%	--	-- --
Injection Drug Use (IDU)	1,670		516	7%	785	10%	1,301	9%	--	-- --
MSM/IDU	750		250	4%	331	4%	581	4%	--	-- --
Blood Products	100		27	<1%	54	1%	81	1%	--	-- --
Heterosexual Contact (HC)	3,430		1,260	18%	1,403	18%	2,663	18%	--	-- --
HCFR (Males)	660		216	3%	295	4%	511	3%	--	-- --
HCM (Females)	2,770		1,044	15%	1,108	14%	2,152	14%	--	-- --
Perinatal	230		106	1%	69	1%	175	1%	--	-- --
Undetermined	3,580		1,467	21%	1,318	17%	2,785	19%	--	-- --
<b>AGE AT HIV DIAGNOSIS</b>										
0 - 12 years	250		120	2%	78	1%	198	1%	--	-- --
13 - 19 years	1,020		482	7%	310	4%	792	5%	--	-- --
20 - 24 years	2,800		1,266	18%	906	11%	2,172	14%	--	-- --
25 - 29 years	3,280		1,301	18%	1,249	16%	2,550	17%	--	-- --
30 - 39 years	6,470		2,148	30%	2,881	37%	5,029	34%	--	-- --
40 - 49 years	3,840		1,254	18%	1,731	22%	2,985	20%	--	-- --
50 - 59 years	1,330		447	6%	587	7%	1,034	7%	--	-- --
60 years and over	300		94	1%	139	2%	233	2%	--	-- --
Unspecified	10		3	<1%	0	0%	3	<1%	--	-- --
<b>AREA OF RESIDENCE AT DIAGNOSIS<sup>¶</sup></b>										
Detroit Metro	12,630		4,565	64%	5,143	65%	9,708	65%	227	4,267,304 43%
Out-State	5,950		2,211	31%	2,360	30%	4,571	30%	81	5,616,336 57%
Prison/Unknown	730		339	5%	378	5%	717	5%	N/A	N/A N/A
<b>TOTAL</b>	<b>19,300</b>		<b>7,115</b>	<b>100%</b>	<b>7,881</b>	<b>100%</b>	<b>14,996</b>	<b>100%</b>	<b>152</b>	<b>9,883,640 100%</b>

\*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).

<sup>†</sup> To calculate "1 out of x" statements for rate, divide the census number by the total reported prevalence. For example, for non-Hispanic whites: 7,569,939/5,085 = 1,489. Thus, 1 out of every 1,489 non-Hispanic white persons in Michigan are living with HIV.

<sup>‡</sup> Rates are not reported for risk categories and age at diagnosis because no reliable denominator data exist for these groups.

<sup>§</sup> 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.

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

<sup>¶¶</sup> As of October 2012, there were 60 prevalent transgender HIV cases (2 female to male, 58 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
<b>REPORTED HIV INFECTION PREVALENCE</b>						
<b>RISK TRANSMISSION CATEGORIES (CDC Hierarchy) *§</b>						
<b>(Mutually Exclusive: one case is represented in ONLY one category)</b>						
Male-Male Sex (MSM)	7,410	64%	N/A	--	7,410	49%
Injection Drug Use (IDU)	768	7%	533	16%	1,301	9%
MSM/IDU	581	5%	N/A	--	581	4%
Blood Products	69	1%	12	<1%	81	1%
Heterosexual Contact (HC)	511	4%	2,152	64%	2,663	18%
HCFR (Males)	511	4%	N/A	--	511	3%
HCM (Females)	N/A	--	2,152	64%	2,152	14%
Perinatal	98	1%	77	2%	175	1%
Undetermined	2,213	19%	572	17%	2,785	19%
<b>EXPOSURE CATEGORIES **†</b>						
<b>(Mutually Exclusive: one case is represented in ONLY one category)</b>						
Male-Male Sex Only	4,806	41%	N/A	--	4,806	32%
MSM & HC	2,558	22%	N/A	--	2,558	17%
MSM & IDU	254	2%	N/A	--	254	2%
MSM & Blood Products	23	<1%	N/A	--	23	<1%
MSM & HC & IDU	313	3%	N/A	--	313	2%
MSM & HC & Blood Products	23	<1%	N/A	--	23	<1%
MSM & IDU & Blood Products	2	<1%	N/A	--	2	<1%
MSM & HC & IDU & Blood Products	12	<1%	N/A	--	12	<1%
Heterosexual Contact Only	1,894	16%	2,458	73%	4,352	29%
HC & IDU	587	5%	470	14%	1,057	7%
HC & Blood Products	46	<1%	34	1%	80	1%
HC & IDU & Blood Products	16	<1%	11	<1%	27	<1%
Injection Drug Use Only	163	1%	52	2%	215	1%
IDU & Blood Products	2	<1%	0	0%	2	<1%
Perinatal Exposure	98	1%	77	2%	175	1%
Exposure to Blood Products Only	36	<1%	3	<1%	39	<1%
Undetermined	817	7%	241	7%	1,058	7%
<b>TOTAL</b>	<b>11,650</b>	<b>100%</b>	<b>3,346</b>	<b>100%</b>	<b>14,996</b>	<b>100%</b>
<b>SUMMARIZED EXPOSURE CATEGORIES*‡</b>						
<b>(NOT Mutually Exclusive: one case may be represented in multiple categories)</b>						
Any MSM	7,991	69%	N/A	--	7,991	53%
Behaviorally Bisexual Men	2,906	25%	N/A	--	2,906	19%
Any Heterosexual Contact	5,449	47%	2,973	89%	8,422	56%
Any IDU	1,349	12%	533	16%	1,882	13%

\*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**

<b>MALE</b>	<b>White</b>		<b>Black</b>		<b>Hispanic</b>		<b>Other or Unknown</b>		<b>All Male</b>	
	<b>Num</b>	<b>Percent</b>	<b>Num</b>	<b>Percent</b>	<b>Num</b>	<b>Percent</b>	<b>Num</b>	<b>Percent</b>	<b>Num</b>	<b>Percent</b>
Male-Male sex	3,338	75%	3,556	56%	292	58%	224	58%	7,410	64%
Injection Drug Use	154	3%	546	9%	44	9%	24	6%	768	7%
MSM/IDU	244	5%	297	5%	14	3%	26	7%	581	5%
Blood Products	54	1%	12	<1%	1	<1%	2	1%	69	1%
Heterosexual Contact (HCFR)	96	2%	368	6%	34	7%	13	3%	511	4%
Perinatal	14	<1%	72	1%	4	1%	8	2%	98	1%
Undetermined	547	12%	1,457	23%	117	23%	92	24%	2,213	19%
<b>Male Subtotal</b>	<b>4,447</b>	<b>38%</b>	<b>6,308</b>	<b>54%</b>	<b>506</b>	<b>4%</b>	<b>389</b>	<b>3%</b>	<b>11,650</b>	<b>100%</b>

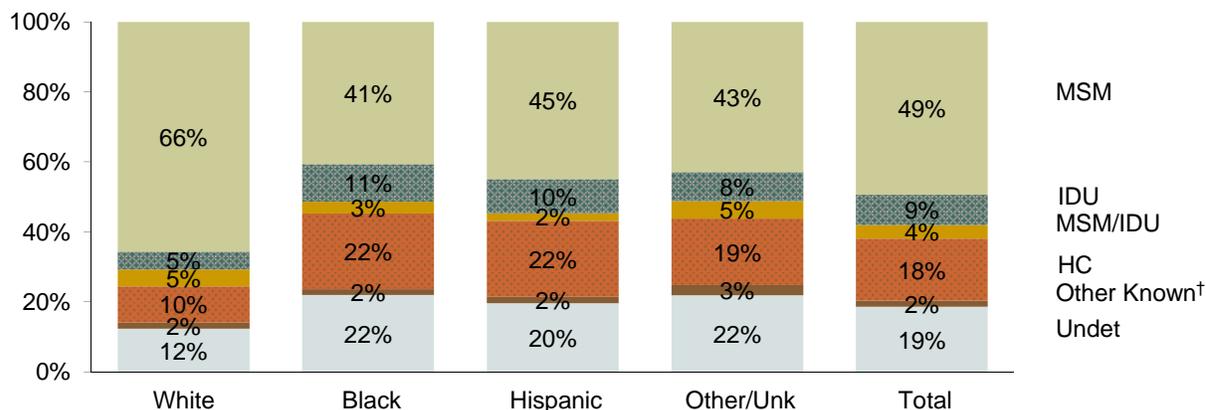
  

<b>FEMALE</b>	<b>White</b>		<b>Black</b>		<b>Hispanic</b>		<b>Other or Unknown</b>		<b>All Female</b>	
	<b>Num</b>	<b>Percent</b>	<b>Num</b>	<b>Percent</b>	<b>Num</b>	<b>Percent</b>	<b>Num</b>	<b>Percent</b>	<b>Num</b>	<b>Percent</b>
Injection Drug Use	107	17%	388	16%	19	13%	19	14%	533	16%
Blood Products	7	1%	4	<1%	1	1%	0	0%	12	<1%
Heterosexual Contact (HCM)	432	68%	1,527	63%	107	75%	86	65%	2,152	64%
Perinatal	12	2%	54	2%	6	4%	5	4%	77	2%
Undetermined	80	13%	460	19%	10	7%	22	17%	572	17%
<b>Female Subtotal</b>	<b>638</b>	<b>19%</b>	<b>2,433</b>	<b>73%</b>	<b>143</b>	<b>4%</b>	<b>132</b>	<b>4%</b>	<b>3,346</b>	<b>100%</b>

<b>ALL</b>	<b>White</b>		<b>Black</b>		<b>Hispanic</b>		<b>Other or Unknown</b>		<b>Risk All</b>	
	<b>Num</b>	<b>Percent</b>	<b>Num</b>	<b>Percent</b>	<b>Num</b>	<b>Percent</b>	<b>Num</b>	<b>Percent</b>	<b>Num</b>	<b>Percent</b>
Male-Male sex	3,338	66%	3,556	41%	292	45%	224	43%	7,410	49%
Injection Drug Use	261	5%	934	11%	63	10%	43	8%	1,301	9%
MSM/IDU	244	5%	297	3%	14	2%	26	5%	581	4%
Blood Products	61	1%	16	<1%	2	<1%	2	<1%	81	1%
Heterosexual Contact (HC)	528	10%	1,895	22%	141	22%	99	19%	2,663	18%
<i>HCFR (Males)</i>	96	2%	368	4%	34	5%	13	2%	511	3%
<i>HCM (Females)</i>	432	8%	1,527	17%	107	16%	86	17%	2,152	14%
Perinatal	26	1%	126	1%	10	2%	13	2%	175	1%
Undetermined	627	12%	1,917	22%	127	20%	114	22%	2,785	19%
<b>RACE ALL</b>	<b>5,085</b>	<b>34%</b>	<b>8,741</b>	<b>58%</b>	<b>649</b>	<b>4%</b>	<b>521</b>	<b>3%</b>	<b>14,996</b>	<b>100%</b>

**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**

	White		Black		Hispanic		Other or Unknown		All Male	
	Num	Percent	Num	Percent	Num	Percent	Num	Percent	Num	Percent
0 - 12 years	24	1%	77	1%	4	1%	9	2%	114	1%
13 - 19 years	79	2%	491	8%	15	3%	22	6%	607	5%
20 - 24 years	427	10%	1,152	18%	64	13%	57	15%	1,700	15%
25 - 29 years	736	17%	1,052	17%	105	21%	77	20%	1,970	17%
30 - 39 years	1,698	38%	1,922	30%	195	39%	134	34%	3,949	34%
40 - 49 years	1,049	24%	1,139	18%	80	16%	69	18%	2,337	20%
50 - 59 years	347	8%	401	6%	30	6%	18	5%	796	7%
60 years and over	87	2%	72	1%	13	3%	3	1%	175	2%
<b>Male Subtotal*</b>	<b>4,447</b>	<b>38%</b>	<b>6,306</b>	<b>54%</b>	<b>506</b>	<b>4%</b>	<b>389</b>	<b>3%</b>	<b>11,648</b>	<b>100%</b>

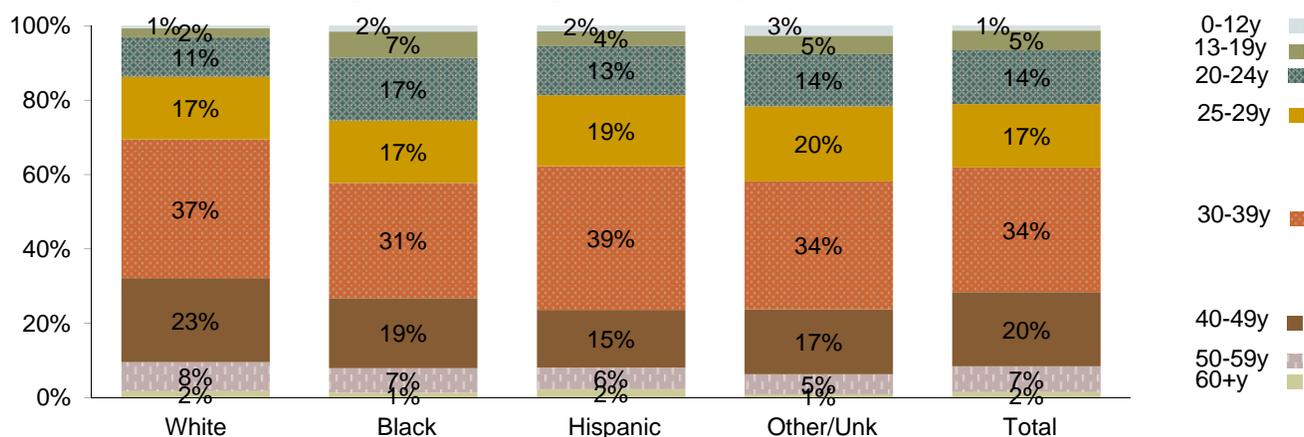
	White		Black		Hispanic		Other or Unknown		All Female	
	Num	Percent	Num	Percent	Num	Percent	Num	Percent	Num	Percent
0 - 12 years	13	2%	60	2%	6	4%	5	4%	84	3%
13 - 19 years	42	7%	128	5%	11	8%	4	3%	185	6%
20 - 24 years	112	18%	323	13%	21	15%	16	12%	472	14%
25 - 29 years	123	19%	410	17%	19	13%	28	21%	580	17%
30 - 39 years	197	31%	782	32%	56	39%	45	34%	1,080	32%
40 - 49 years	97	15%	509	21%	20	14%	22	17%	648	19%
50 - 59 years	46	7%	174	7%	8	6%	10	8%	238	7%
60 years and over	7	1%	47	2%	2	1%	2	2%	58	2%
<b>Female Subtotal*</b>	<b>637</b>	<b>19%</b>	<b>2,433</b>	<b>73%</b>	<b>143</b>	<b>4%</b>	<b>132</b>	<b>4%</b>	<b>3,345</b>	<b>100%</b>

	White		Black		Hispanic		Other or Unknown		Overall	
	Num	Percent	Num	Percent	Num	Percent	Num	Percent	Num	Percent
0 - 12 years	37	1%	137	2%	10	2%	14	3%	198	1%
13 - 19 years	121	2%	619	7%	26	4%	26	5%	792	5%
20 - 24 years	539	11%	1,475	17%	85	13%	73	14%	2,172	14%
25 - 29 years	859	17%	1,462	17%	124	19%	105	20%	2,550	17%
30 - 39 years	1,895	37%	2,704	31%	251	39%	179	34%	5,029	34%
40 - 49 years	1,146	23%	1,648	19%	100	15%	91	17%	2,985	20%
50 - 59 years	393	8%	575	7%	38	6%	28	5%	1,034	7%
60 years and over	94	2%	119	1%	15	2%	5	1%	233	2%

**RACE OVERALL \* 5,084 34% 8,739 58% 649 4% 521 3% 14,993 100%**

\*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>		
	<b>New HIV Diagnoses</b>	<b>Deaths</b>	<b>Prevalence</b>	<b>New Stage 3 Diagnoses</b>	<b>Deaths</b>	<b>Prevalence</b>
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	1,299	383	2,885	689	373	852
1990	1,442	454	3,873	795	434	1,213
1991	1,442	537	4,778	962	516	1,659
1992	1,491	666	5,603	1,232	634	2,257
1993	1,300	827	6,076	1,127	781	2,603
1994	1,211	906	6,381	1,013	847	2,769
1995	1,190	922	6,649	1,065	853	2,981
1996	1,118	636	7,131	858	587	3,252
1997	1,040	470	7,701	736	419	3,569
1998	900	409	8,192	649	356	3,862
1999	747	374	8,565	574	325	4,111
2000	925	391	9,099	651	338	4,424
2001	879	397	9,581	574	327	4,671
2002	765	378	9,968	577	321	4,927
2003	871	372	10,467	601	302	5,226
2004	889	350	11,006	564	280	5,510
2005	897	362	11,541	737	297	5,950
2006	805	350	11,996	614	281	6,283
2007	801	333	12,464	589	281	6,591
2008	792	347	12,909	546	283	6,854
2009	821	260	13,470	479	213	7,120
2010	782	257	13,995	515	214	7,421
2011	800	258	14,537	466	209	7,678
2012	538	79	<b>14,996</b>	270	67	<b>7,881</b>
<b>TOTAL</b>	<b>26,352</b>	<b>11,356</b>		<b>18,037</b>	<b>10,156</b>	

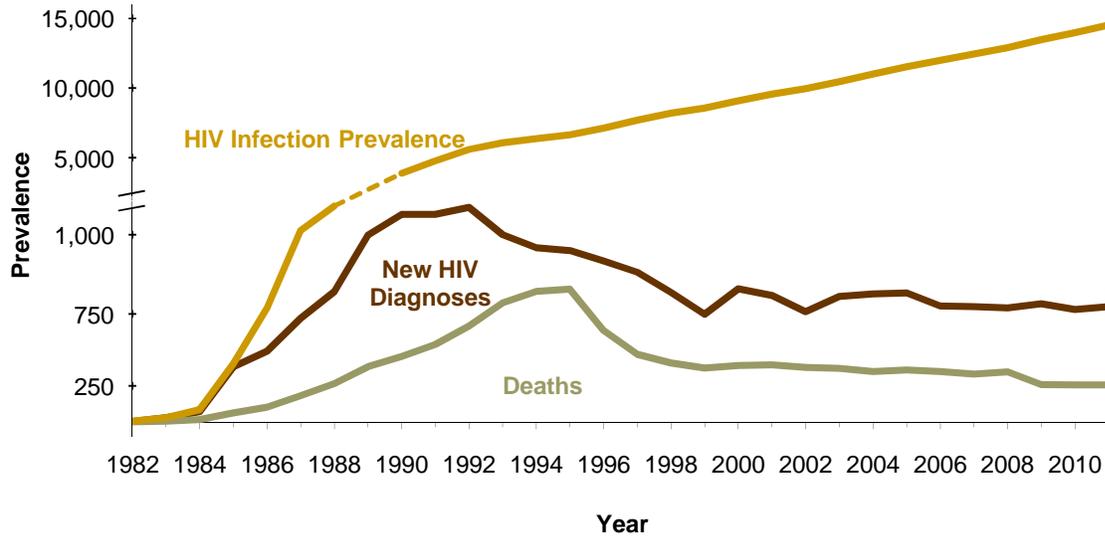
The prevalence of HIV in Michigan has steadily increased, since persons with HIV are living longer. This is largely due to improved anti-retroviral therapy.

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 14,996. The prevalence of Stage 3 infection, which is a subset of the overall HIV infection prevalence, is 7,881.

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.

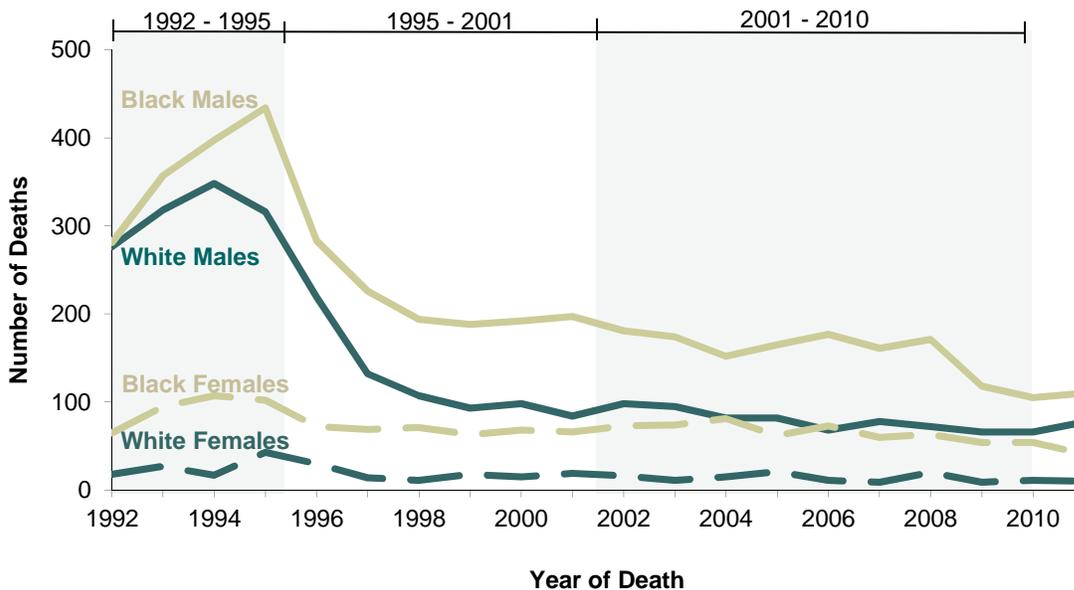
**FIGURE 3. New Diagnoses<sup>†</sup>, Deaths, and Prevalence of HIV Infection, by Year**



<sup>†</sup> Reporting for 2011 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 (47%), as have the number of deaths in white males (21%), black females (18%), and white females (42%).

**FIGURE 4. HIV Infection Deaths<sup>†</sup>, by Race/Sex**



<sup>†</sup> Reporting for 2011 is incomplete at this time.

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

	2012 <sup>†</sup>						CUMULATIVE (through October 2012) <sup>¶</sup>					
	Male		Female		All		Male		Female		All	
	Num	Percent	Num	Percent	Num	Percent	Num	Percent	Num	Percent	Num	Percent
<b>RACE/ETHNICITY</b>												
White	140	32%	20	19%	160	30%	8,178	39%	1,023	19%	9,201	35%
Black	257	59%	73	70%	330	61%	11,415	55%	4,039	74%	15,454	59%
Hispanic	13	3%	6	6%	19	4%	789	4%	203	4%	992	4%
Asian/NH/PI	6	1%	1	1%	7	1%	77	<1%	30	1%	107	<1%
Am Indian/AN	2	<1%	1	1%	3	1%	44	<1%	16	<1%	60	<1%
Multi/Other/Unk	15	3%	4	4%	19	4%	403	2%	135	2%	538	2%
<b>RISK<sup>§</sup></b>												
Male-Male Sex	257	59%	N/A	--	257	48%	12,399	59%	N/A	--	12,399	47%
Injection Drug Use	8	2%	5	5%	13	2%	2,719	13%	1,598	29%	4,317	16%
MSM/IDU	7	2%	N/A	--	7	1%	1,377	7%	N/A	--	1,377	5%
Blood Products	0	0%	0	0%	0	0%	307	1%	38	1%	345	1%
Heterosexual Contact (HC)	8	2%	51	49%	59	11%	813	4%	2,944	54%	3,757	14%
HCFR (Males)	8	2%	N/A	--	8	1%	813	4%	N/A	--	813	3%
HCM (Females)	N/A	--	51	49%	51	9%	N/A	--	2,944	54%	2,944	11%
Perinatal	1	<1%	1	1%	2	<1%	141	1%	109	2%	250	1%
Undetermined	152	35%	48	46%	200	37%	3,150	15%	757	14%	3,907	15%
<b>AGE AT HIV DIAGNOSIS</b>												
0 - 12 years	1	<1%	1	1%	2	<1%	185	1%	115	2%	300	1%
13 - 19 years	38	9%	5	5%	43	8%	704	3%	229	4%	933	4%
20 - 24 years	108	25%	10	10%	118	22%	2,217	11%	598	11%	2,815	11%
25 - 29 years	78	18%	23	22%	101	19%	3,339	16%	842	15%	4,181	16%
30 - 39 years	86	20%	17	16%	103	19%	7,531	36%	1,860	34%	9,391	36%
40 - 49 years	71	16%	32	30%	103	19%	4,765	23%	1,225	22%	5,990	23%
50 - 59 years	43	10%	10	10%	53	10%	1,677	8%	439	8%	2,116	8%
60 years and over	8	2%	7	7%	15	3%	486	2%	137	3%	623	2%
Unspecified	0	0%	0	0%	0	0%	2	<1%	1	<1%	3	<1%
<b>Infection STATUS<sup>¶</sup></b>												
HIV Infection Non-Stage 3	335	77%	79	75%	414	77%	6,323	30%	1,992	37%	8,315	32%
HIV Infection Stage 3 (AIDS)	98	23%	26	25%	124	23%	14,583	70%	3,454	63%	18,037	68%
AIDS - Same time	80	18%	19	18%	99	18%	7,739	37%	1,523	28%	9,262	35%
AIDS - Short Lag	18	4%	7	7%	25	5%	1,621	8%	453	8%	2,074	8%
AIDS - Long lag	0	0%	0	0%	0	0%	5,223	25%	1,478	27%	6,701	25%
<b>AREA OF RESIDENCE AT DIAGNOSIS<sup>£</sup></b>												
Detroit Metro	278	64%	84	80%	362	67%	13,787	66%	3,948	72%	17,735	67%
Out-State	152	35%	21	20%	173	32%	6,007	29%	1,393	26%	7,400	28%
Prison/Unknown	3	1%	0	0%	3	1%	1,112	5%	105	2%	1,217	5%
<b>TOTAL</b>	<b>433</b>	<b>80%</b>	<b>105</b>	<b>20%</b>	<b>538</b>	<b>100%</b>	<b>20,906</b>	<b>79%</b>	<b>5,446</b>	<b>21%</b>	<b>26,352</b>	<b>100%</b>

\*Includes deceased cases.

†Data for cases diagnosed in 2012 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 October 2012, there were 82 cumulative transgender HIV cases (2 female to male, 80 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 2010	COUNTY	EST PREV Number	REPORTED PREVALENCE				CENSUS 2010
		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	10,942	Livingston	
Alger	10	0	1	1	10	9,601	Luce	10	0	0	0	0	6,631
Allegan	90	25	47	72	65	111,408	Mackinac	10	2	2	4	36	11,113
Alpena	10	2	2	4	14	29,598	Macomb	890	350	337	687	82	840,978
Antrim	10	3	6	9	38	23,580	Manistee	20	5	7	12	49	24,733
Arenac	10	1	1	2	13	15,899	Marquette	30	8	12	20	30	67,077
Baraga	10	1	2	3	34	8,860	Mason	10	4	6	10	35	28,705
Barry	30	8	14	22	37	59,173	Mecosta	20	12	5	17	40	42,798
Bay	80	34	28	62	58	107,771	Menominee	10	3	1	4	17	24,029
Benzie	10	2	3	5	29	17,525	Midland	30	12	13	25	30	83,629
Berrien	300	96	136	232	148	156,813	Missaukee	10	4	5	9	61	14,849
Branch	20	13	3	16	35	45,248	Monroe	90	34	37	71	47	152,021
Calhoun	180	69	68	137	101	136,146	Montcalm	30	9	13	22	35	63,342
Cass	40	15	14	29	55	52,293	Montmorency	10	0	3	3	31	9,765
Charlevoix	20	3	9	12	46	25,949	Muskegon	160	66	54	120	70	172,188
Cheboygan	10	3	5	8	31	26,152	Newaygo	20	6	10	16	33	48,460
Chippewa	10	6	3	9	23	38,520	Oakland	2,300	884	882	1,766	147	1,202,362
Clare	20	3	10	13	42	30,926	Oceana	10	6	4	10	38	26,570
Clinton	40	17	12	29	38	75,382	Ogemaw	10	1	2	3	14	21,699
Crawford	10	1	3	4	28	14,074	Ontonagon	10	1	1	2	29	6,780
Delta	20	5	8	13	35	37,069	Osceola	10	1	2	3	13	23,528
Dickinson	10	0	0	0	0	26,168	Oscoda	10	1	0	1	12	8,640
Eaton	70	22	31	53	49	107,759	Otsego	10	4	7	11	46	24,164
Emmet	10	2	5	7	21	32,694	Ottawa	150	44	69	113	43	263,801
Genesee	670	257	257	514	121	425,790	Presque Isle	10	0	2	2	15	13,376
Gladwin	10	3	4	7	27	25,692	Roscommon	20	3	10	13	53	24,449
Gogebic	10	1	1	2	12	16,427	Saginaw	280	113	103	216	108	200,169
Grand Traverse	80	34	31	65	75	86,986	Sanilac	20	7	7	14	32	43,114
Gratiot	10	6	3	9	21	42,476	Schoolcraft	10	0	0	0	0	8,485
Hillsdale	10	3	5	8	17	46,688	Shiawassee	30	8	12	20	28	70,648
Houghton	10	4	3	7	19	36,628	St. Clair	120	51	40	91	56	163,040
Huron	10	2	4	6	18	33,118	St. Joseph	40	14	19	33	54	61,295
Ingham	600	250	211	461	164	280,895	Tuscola	10	5	5	10	18	55,729
Ionia	30	9	11	20	31	63,905	Van Buren	60	21	24	45	59	76,258
Iosco	10	3	3	6	23	25,887	Washtenaw	650	262	234	496	144	344,791
Iron	10	0	1	1	8	11,817	Wayne Total	9,180	3,231	3,827	7,058	388	1,820,584
Isabella	50	18	20	38	54	70,311	Wayne, excl. Detroit	1,920	652	827	1,479	134	1,106,807
Jackson	190	78	69	147	92	160,248	Detroit†	7,260	2,579	3,000	5,579	782	713,777
Kalamazoo	410	163	151	314	125	250,331	Wexford	10	3	5	8	24	32,735
Kalkaska	10	4	0	4	23	17,153							
Kent	1,080	372	462	834	138	602,622	Detroit Metro <sup>E</sup>	12,630	4,565	5,143	9,708	227	4,267,304
Keweenaw	10	0	0	0	0	2,156	Out-State <sup>E</sup>	5,950	2,211	2,360	4,571	81	5,616,336
Lake	10	4	7	11	95	11,539							
Lapeer	50	15	20	35	40	88,319	Prisons <sup>¶</sup>	720	337	376	713	N/A	N/A
Leelanau	10	0	7	7	32	21,708	Unknown	10	2	2	4	N/A	N/A
Lenawee	70	24	27	51	51	99,892	TOTAL	19,300	7,115	7,881	14,996	152	9,883,640

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

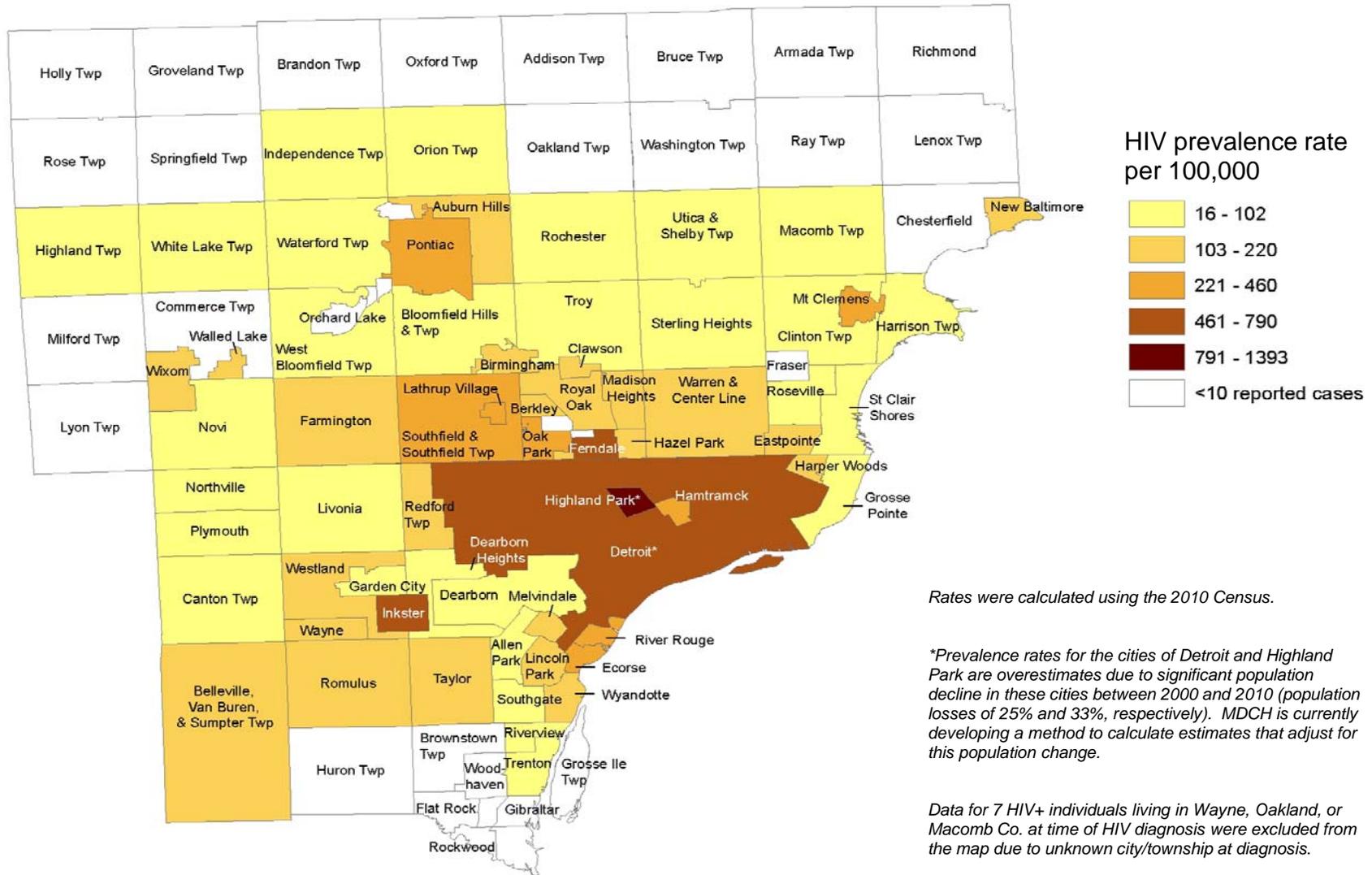
† The prevalence rate for the City of Detroit is an overestimate due to significant population decline in the city between 2000 and 2010 (population loss of 25%). MDCH is currently developing a method to calculate estimates that adjust for this population change.

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

<sup>¶</sup> The Prevalence Estimate for prisons is calculated differently from the remainder of the state. Please see the Front Matter (p. iii) for further explanation.



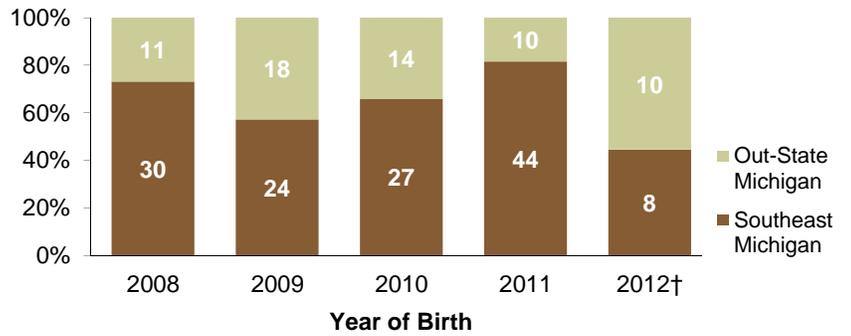
**FIGURE 6. Reported HIV Prevalence Rates, by City of Residence at Diagnosis in Wayne, Oakland, and Macomb Counties as of January 1, 2012 (N=9,310)**



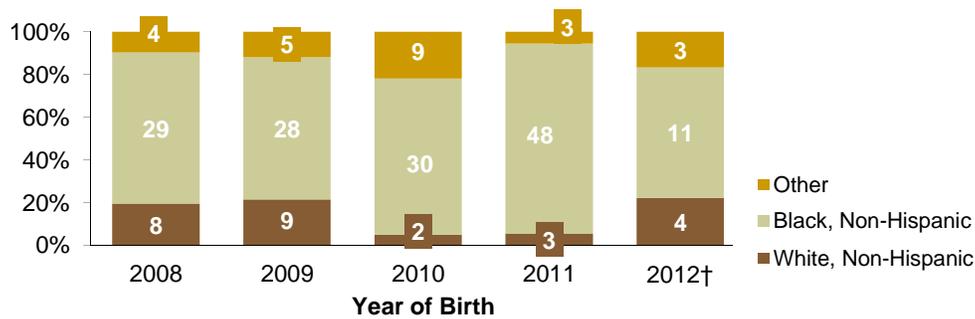
**Table 8: Number of Deliveries and Births with Perinatal HIV Exposure, 2008 - 2012†**

	Mothers	Infants
2008	39	41
2009	36	42
2010	41	41
2011	54	54
2012†	18	18

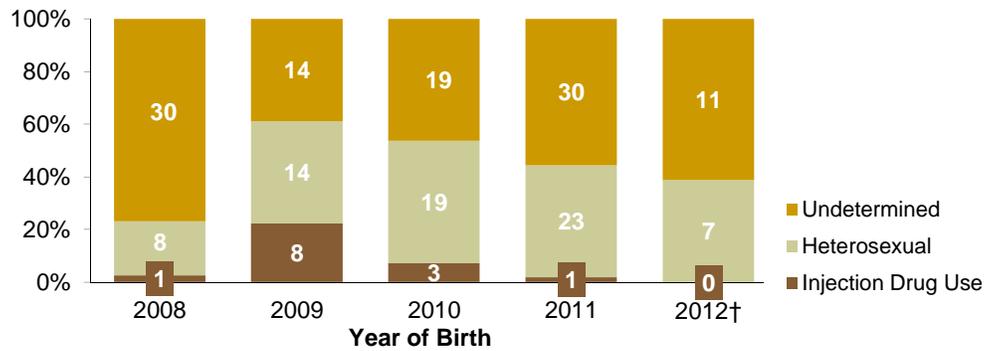
**FIGURE 7. Perinatal HIV Exposures, by Residence at Birth**



**FIGURE 8. Perinatal HIV Exposures, by Infant Race**



**FIGURE 9. Perinatal HIV Exposures, by Maternal Risk**



**FIGURE 10. Infection Status of Perinatal HIV Exposures**

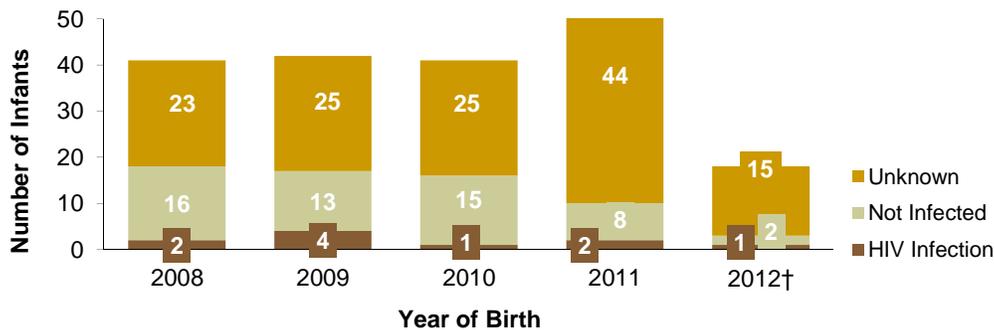


Figure 10 indicates the current infection status of infants born in Michigan to HIV positive women: the bottom portion of the bars shows number of infants confirmed to be infected with HIV; the middle portion shows those not infected with HIV, based on laboratory testing or physician exam; and the top 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 is incomplete at this time.