



# HIV SURVEILLANCE ANNUAL REPORT, 2012

NEW YORK CITY DEPARTMENT OF HEALTH AND MENTAL HYGIENE

# CONTENTS

<b>EXECUTIVE SUMMARY</b>	1
<b>TABLES AND FIGURES</b>	
Figure 1.1 History of the HIV/AIDS epidemic, NYC 1981-2012	1
Table 2.1 Demographic and clinical characteristics of persons with HIV, NYC 2012	2
Table 3.1 Demographic and clinical characteristics of males with HIV, NYC 2012	3
Figure 3.1 HIV diagnosis rates among males, by race/ethnicity, NYC 2012	3
Table 4.1 Demographic and clinical characteristics of females with HIV, NYC 2012	4
Figure 4.1 HIV diagnosis rates among females, by race/ethnicity, NYC 2012	4
Figure 5.1 Map of poverty levels, by ZIP code, NYC 2007-2011	5
Figure 5.2 Map of HIV diagnosis rates, by ZIP code, NYC 2012	5
Figure 5.3 Map of HIV prevalence, by ZIP code, NYC 2012	5
Figure 5.4 Map of age-adjusted death rates, by ZIP code, NYC 2012	5
Table 6.1 Deaths, by HIV-related and non-HIV-related cause of death, NYC 2011	6
Figure 6.1 Non-HIV-related causes of death among persons with HIV and all persons, NYC 2011	6
Figure 7.1 Survival after HIV diagnosis, by area-based poverty level, NYC 2007-2011	7
Figure 7.2 Survival after HIV diagnosis, by race/ethnicity, NYC 2007-2011	7
Figure 7.3 Survival after HIV diagnosis in low-poverty areas, by race/ethnicity, NYC 2007-2011	7
Figure 7.4 Survival after HIV diagnosis in high-poverty areas, by race/ethnicity, NYC 2007-2011	7
Figure 8.1 Perinatally HIV-infected children, by year of birth and current vital status, NYC 1977-2012	8
Figure 8.2 HIV status of children born to HIV-infected women, by year of birth, NYC 1988-2012	8
Figure 9.1 All new HIV diagnoses and estimated incidence overall, NYC 2008-2012	9
Figure 9.2 HIV incidence in men who have sex with men (MSM), overall and by age, NYC 2008-2012	9
Figure 10.1 Acute HIV infection, by transmission risk category, NYC 2008-2012	9
Figure 10.2 Acute HIV infection among MSM, by race/ethnicity and age group, NYC 2012	9
Table 11.1 New HIV diagnoses with a genotype within 3 months of diagnosis, NYC 2008-2012	10
Figure 11.1 Proportion of new HIV diagnoses with transmitted drug resistance, NYC 2008-2012	10
Figure 12.1 Recent sexual activity among Medical Monitoring Project patients, by sex, NYC 2012	10
Figure 12.2 Unprotected intercourse among Medical Monitoring Project patients, NYC 2012	10
Figure 13.1 Proportion of new HIV diagnoses interviewed for partner services, NYC 2006-2012	11
Figure 13.2 HIV partner notification outcomes, NYC 2006-2012	11
<b>TECHNICAL NOTES</b>	12
<b>PROVIDER REPORTING</b>	13
<b>ADDITIONAL RESOURCES</b>	13

## EXECUTIVE SUMMARY

This report presents 2012 surveillance data on the HIV epidemic in New York City (NYC). It highlights a range of important aspects of HIV/AIDS in NYC, as well as the major activities of the HIV Surveillance Unit at the NYC DOHMH. This annual report has an expanded scope and new content that reflects the shift in HIV burden to a chronic manageable disease, with sections that describe longitudinal trends, survival, and receipt of services among persons with HIV.

NYC continues to have one of the largest HIV epidemics in the United States. Recent trends persist, with new HIV and AIDS diagnoses, incident HIV infections, perinatal infections, and deaths among persons with HIV declining, and the number of persons living with HIV growing. In 2012, 3,141 persons were newly diagnosed with HIV and 1,889 were diagnosed with AIDS in NYC. As of the end of 2012, 114,926 persons had been diagnosed with HIV/AIDS, reported in NYC, and were presumed to be living. During 2012, there were 1,578 deaths among persons with HIV.

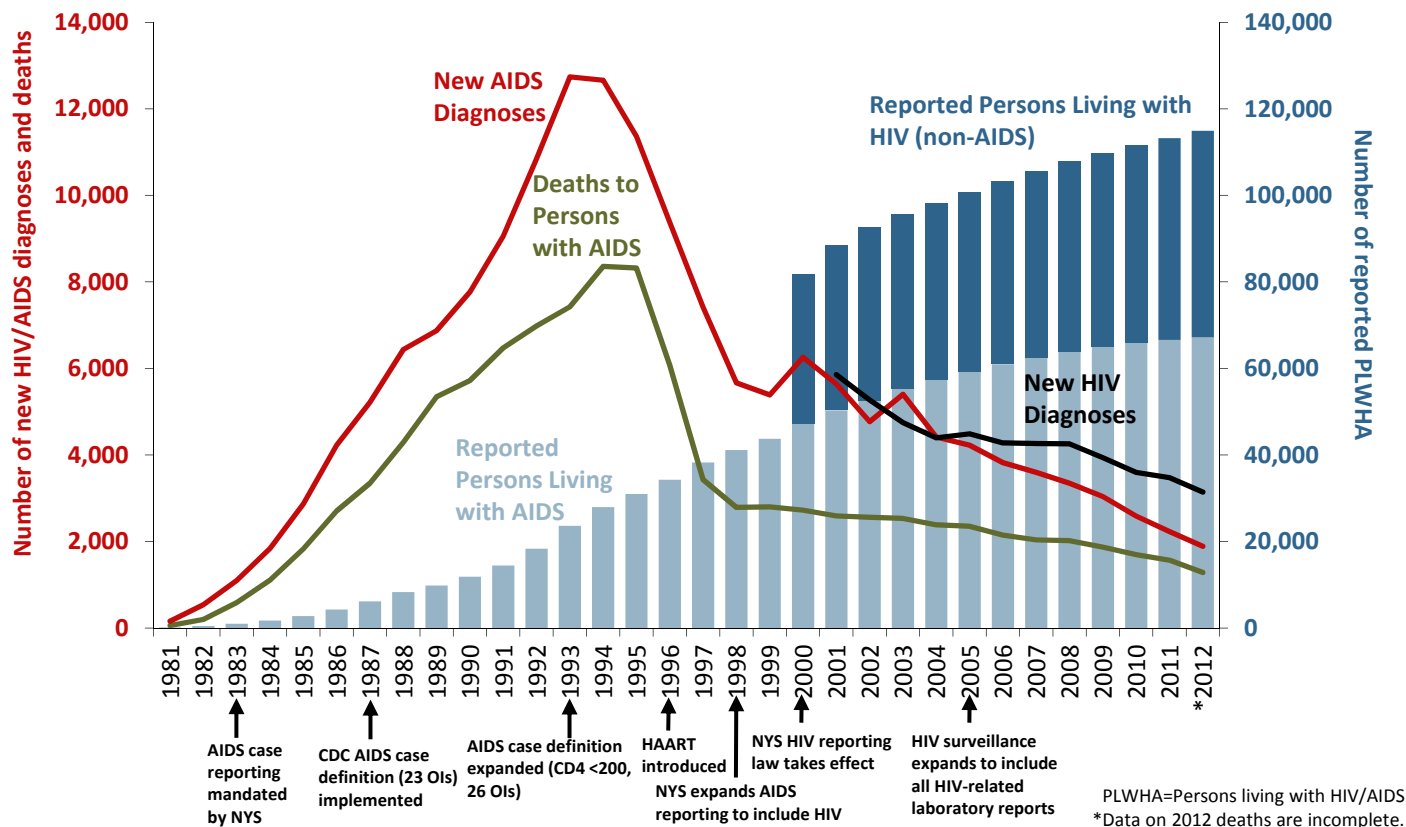
Important disparities in HIV—by sex, race/ethnicity, HIV transmission risk, geography within NYC, and poverty level, among other factors—persisted in NYC in 2012. Persons newly diagnosed with HIV were largely male, black or Hispanic, young, men reporting sex with men, or persons living in impoverished NYC ZIP codes. HIV diagnosis rates were strikingly high among black and Hispanic males and females relative to other racial/ethnic groups. HIV continued to be unevenly distributed across NYC, with most high-burden areas also having a high proportion of impoverished residents.

Disparities were also apparent in mortality and survival among persons with HIV. Persons living in high-poverty neighborhoods experienced more HIV-related deaths, and had poorer long-term survival, compared with persons living in areas with less poverty. Even in relatively low-poverty NYC neighborhoods, persons of color with HIV had poorer survival rates.

Men who report sex with men (MSM) continue to be an HIV subpopulation of growing concern in NYC. The majority of new HIV diagnoses in NYC are now among MSM. In supplemental data among persons in HIV primary care in NYC, more than one-fifth of sexually active HIV-infected males reported unprotected anal intercourse with a male partner in the past 12 months. MSM, and in particular older white and Hispanic MSM, were also over-represented among persons diagnosed with acute HIV infection.

## HISTORY OF THE EPIDEMIC

**FIGURE 1.1:** History of the HIV/AIDS epidemic, New York City 1981-2012



# DEMOGRAPHIC AND CLINICAL CHARACTERISTICS

**TABLE 2.1:** HIV/AIDS diagnoses and deaths occurring January 1, 2012 through December 31, 2012; and persons diagnosed with HIV/AIDS, reported in New York City, and presumed to be living as of December 31, 2012

	HIV diagnoses							AIDS diagnoses <sup>2</sup>		PLWHA as of 12/31/2012		Deaths <sup>3</sup>	
	Total		Without AIDS		Concurrent with AIDS diagnosis <sup>1</sup>			N	%	N	%	N	%
	N	%	N	%	N	%	Row %						
<b>Total</b>	3,141	100.0	2,529	100.0	612	100.0	19.5	1,889	100.0	114,926	100.0	1,578	100.0
<b>Sex</b>													
Male	2,494	79.4	2,018	79.8	476	77.8	19.1	1,392	73.7	82,426	71.7	1,085	68.8
Female	647	20.6	511	20.2	136	22.2	21.0	497	26.3	32,500	28.3	493	31.2
<b>Race/Ethnicity<sup>4</sup></b>													
Black	1,394	44.4	1,091	43.1	303	49.5	21.7	987	52.2	51,154	44.5	829	52.5
Hispanic	1,019	32.4	830	32.8	189	30.9	18.5	586	31.0	37,290	32.4	509	32.3
White	611	19.5	517	20.4	94	15.4	15.4	262	13.9	23,715	20.6	211	13.4
Asian/Pacific Islander	107	3.4	83	3.3	24	3.9	22.4	49	2.6	2,047	1.8	22	1.4
Native American	3	0.1	1	0.0	2	0.3	66.7	5	0.3	251	0.2	5	0.3
Multiracial	7	0.2	7	0.3	0	0.0	0.0	0	0.0	70	0.1	2	0.1
Unknown	0	0.0	0	0.0	0	0.0	0.0	0	0.0	399	0.3	0	0.0
<b>Age group (years)<sup>5</sup></b>													
0-12	6	0.2	6	0.2	0	0.0	0.0	1	0.1	192	0.2	2	0.1
13-19	141	4.5	135	5.3	6	1.0	4.3	32	1.7	1,081	0.9	1	0.1
20-29	1,073	34.2	959	37.9	114	18.6	10.6	360	19.1	8,907	7.8	45	2.9
30-39	762	24.3	630	24.9	132	21.6	17.3	424	22.4	16,515	14.4	109	6.9
40-49	643	20.5	455	18.0	188	30.7	29.2	536	28.4	35,004	30.5	369	23.4
50-59	360	11.5	249	9.8	111	18.1	30.8	378	20.0	35,540	30.9	596	37.8
60+	156	5.0	95	3.8	61	10.0	39.1	158	8.4	17,687	15.4	456	28.9
<b>Borough of residence<sup>6</sup></b>													
Bronx	584	18.6	465	18.4	119	19.4	20.4	452	23.9	26,613	23.2	477	30.2
Brooklyn	860	27.4	675	26.7	185	30.2	21.5	548	29.0	28,544	24.8	499	31.6
Manhattan	808	25.7	656	25.9	152	24.8	18.8	418	22.1	31,067	27.0	328	20.8
Queens	501	16.0	396	15.7	105	17.2	21.0	271	14.3	17,071	14.9	143	9.1
Staten Island	44	1.4	40	1.6	4	0.7	9.1	38	2.0	2,228	1.9	45	2.9
Outside NYC	324	10.3	277	11.0	47	7.7	14.5	132	7.0	9,196	8.0	62	3.9
Unknown	20	0.6	20	0.8	0	0.0	0.0	30	1.6	207	0.2	24	1.5
<b>Area-based poverty level<sup>7</sup></b>													
Low poverty (<10% below FPL)	259	8.2	211	8.3	48	7.8	18.5	132	7.0	12,237	10.6	101	6.4
Medium poverty (10 to <20% below FPL)	883	28.1	701	27.7	182	29.7	20.6	522	27.6	31,544	27.4	361	22.9
High poverty (20 to <30% below FPL)	862	27.4	688	27.2	174	28.4	20.2	509	26.9	29,292	25.5	441	27.9
Very high poverty (≥30% below FPL)	773	24.6	618	24.4	155	25.3	20.1	552	29.2	30,969	26.9	588	37.3
Area-based poverty level not available	364	11.6	311	12.3	53	8.7	14.6	174	9.2	10,884	9.5	87	5.5
<b>Transmission risk</b>													
Men who have sex with men	1,719	54.7	1,447	57.2	272	44.4	15.8	755	40.0	41,641	36.2	283	17.9
Injection drug use history	139	4.4	110	4.3	29	4.7	20.9	171	9.1	19,529	17.0	577	36.6
Heterosexual <sup>8</sup>	616	19.6	462	18.3	154	25.2	25.0	455	24.1	22,767	19.8	309	19.6
Perinatal	6	0.2	6	0.2	0	0.0	0.0	27	1.4	2,496	2.2	15	1.0
Other	0	0.0	0	0.0	0	0.0	0.0	1	0.1	226	0.2	0	0.0
Unknown	661	21.0	504	19.9	157	25.7	23.8	480	25.4	28,267	24.6	394	25.0
<b>Clinical status as of 12/31/2012</b>													
HIV (non-AIDS)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	47,746	41.5	297	18.8
AIDS	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	67,180	58.5	1,281	81.2

PLWHA=Persons living with HIV/AIDS; FPL=Federal poverty level; n/a=Not applicable. All percents are column percents unless otherwise indicated.

<sup>1</sup>HIV diagnosed concurrently with AIDS (within 31 days of HIV diagnosis). Row percent is percent of total HIV diagnoses that were concurrent with AIDS diagnoses. <sup>2</sup>AIDS was diagnosed in 2012 and includes concurrent HIV/AIDS diagnosis. <sup>3</sup>Includes deaths from any cause in persons with HIV/AIDS. <sup>4</sup>For technical notes on race/ethnicity: <http://www.nyc.gov/html/doh/html/data/hivtables.shtml#abbrev>. <sup>5</sup>For HIV and AIDS diagnoses, age at diagnosis; for PLWHA, age as of December 31, 2012; and for deaths, age at death. <sup>6</sup>For HIV and AIDS diagnoses, residence at diagnosis. For PLWHA and deaths, residence based on most recent record available (most recent record is >5 years old for 22% of persons with HIV/AIDS in 2012). <sup>7</sup>Poverty level based on NYC ZIP code of residence at diagnosis or most recent (see footnote 6). Not available for persons missing ZIP code information or living outside NYC. <sup>8</sup>Includes persons who had heterosexual sex with a person they know to be HIV-infected, an injection drug user, or a person who has received blood products. For females only, also includes history of prostitution, multiple sex partners, sexually transmitted disease, crack/cocaine use, sex with a bisexual male, probable heterosexual transmission as noted in medical chart, or sex with a male and negative history of injection drug use.

In 2012, there were 3,141 new HIV diagnoses and 1,889 new AIDS diagnoses in New York City. Among persons newly diagnosed with HIV, 612 (19.5%) were diagnosed concurrently with AIDS. As of the end of 2012, 114,926 persons had been diagnosed with HIV/AIDS and reported in New York City and were presumed to be living. In 2012, there were 1,578 deaths among persons with HIV.

# HIV AMONG MALES

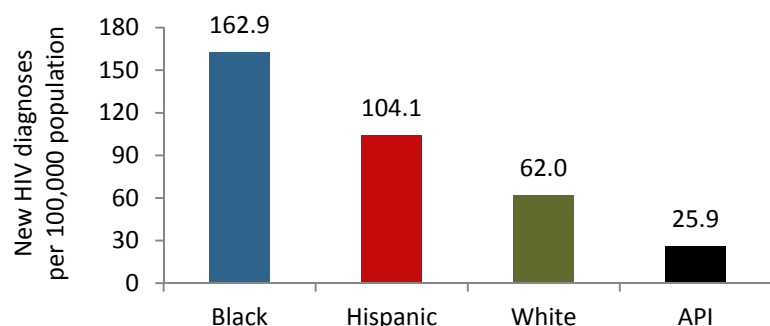
**TABLE 3.1:** HIV/AIDS diagnoses and deaths among males, January 1, 2012 through December 31, 2012; and males diagnosed with HIV/AIDS, reported in New York City, and presumed to be living as of December 31, 2012

	HIV diagnoses							AIDS diagnoses <sup>2</sup>		PLWHA as of 12/31/2012		Deaths <sup>3</sup>	
	Total		Without AIDS		Concurrent with AIDS diagnosis <sup>1</sup>			N	%	N	%	N	%
	N	%	N	%	N	%	Row %						
<b>Total</b>	2,494	100.0	2,018	100.0	476	100.0	19.1	1,392	100.0	82,426	100.0	1,085	100.0
<b>Race/Ethnicity<sup>4</sup></b>													
Black	978	39.2	773	38.3	205	43.1	21.0	663	47.6	32,154	39.0	536	49.4
Hispanic	846	33.9	687	34.0	159	33.4	18.8	447	32.1	26,777	32.5	348	32.1
White	566	22.7	478	23.7	88	18.5	15.5	237	17.0	21,268	25.8	177	16.3
Asian/Pacific Islander	96	3.8	74	3.7	22	4.6	22.9	42	3.0	1,689	2.0	19	1.8
Native American	3	0.1	1	0.0	2	0.4	66.7	3	0.2	180	0.2	3	0.3
Multiracial	5	0.2	5	0.2	0	0.0	0.0	0	0.0	52	0.1	2	0.2
Unknown	0	0.0	0	0.0	0	0.0	0.0	0	0.0	306	0.4	0	0.0
<b>Age group (years)<sup>5</sup></b>													
0-12	5	0.2	5	0.2	0	0.0	0.0	0	0.0	90	0.1	1	0.1
13-19	114	4.6	110	5.5	4	0.8	3.5	19	1.4	538	0.7	0	0.0
20-29	924	37.0	821	40.7	103	21.6	11.1	305	21.9	6,790	8.2	31	2.9
30-39	617	24.7	509	25.2	108	22.7	17.5	326	23.4	11,922	14.5	72	6.6
40-49	491	19.7	349	17.3	142	29.8	28.9	372	26.7	24,754	30.0	238	21.9
50-59	237	9.5	165	8.2	72	15.1	30.4	255	18.3	25,211	30.6	412	38.0
60+	106	4.3	59	2.9	47	9.9	44.3	115	8.3	13,121	15.9	331	30.5
<b>Borough of residence<sup>6</sup></b>													
Bronx	418	16.8	328	16.3	90	18.9	21.5	301	21.6	16,294	19.8	304	28.0
Brooklyn	636	25.5	503	24.9	133	27.9	20.9	392	28.2	18,724	22.7	336	31.0
Manhattan	707	28.3	577	28.6	130	27.3	18.4	351	25.2	25,964	31.5	251	23.1
Queens	403	16.2	321	15.9	82	17.2	20.3	202	14.5	12,390	15.0	99	9.1
Staten Island	28	1.1	25	1.2	3	0.6	10.7	25	1.8	1,442	1.7	26	2.4
Outside NYC	286	11.5	248	12.3	38	8.0	13.3	102	7.3	7,446	9.0	49	4.5
Unknown	16	0.6	16	0.8	0	0.0	0.0	19	1.4	166	0.2	20	1.8
<b>Area-based poverty level<sup>7</sup></b>													
Low poverty (<10% below FPL)	226	9.1	184	9.1	42	8.8	18.6	109	7.8	10,218	12.4	83	7.6
Medium poverty (10 to <20% below FPL)	712	28.5	566	28.0	146	30.7	20.5	394	28.3	23,738	28.8	255	23.5
High poverty (20 to <30% below FPL)	663	26.6	531	26.3	132	27.7	19.9	376	27.0	20,330	24.7	300	27.6
Very high poverty (≥30% below FPL)	574	23.0	459	22.7	115	24.2	20.0	384	27.6	19,339	23.5	377	34.7
Area-based poverty level not available	319	12.8	278	13.8	41	8.6	12.9	129	9.3	8,801	10.7	70	6.5
<b>Transmission risk</b>													
Men who have sex with men	1,719	68.9	1,447	71.7	272	57.1	15.8	755	54.2	41,641	50.5	283	26.1
Injection drug use history	115	4.6	88	4.4	27	5.7	23.5	127	9.1	13,882	16.8	409	37.7
Heterosexual <sup>8</sup>	136	5.5	91	4.5	45	9.5	33.1	123	8.8	5,897	7.2	94	8.7
Perinatal	5	0.2	5	0.2	0	0.0	0.0	12	0.9	1,222	1.5	5	0.5
Other	0	0.0	0	0.0	0	0.0	0.0	0	0.0	119	0.1	0	0.0
Unknown	519	20.8	387	19.2	132	27.7	25.4	375	26.9	19,665	23.9	294	27.1
<b>Clinical status as of 12/31/2012</b>													
HIV (non-AIDS)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	34,459	41.8	207	19.1
AIDS	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	47,967	58.2	878	80.9

PLWHA=Persons living with HIV/AIDS; FPL=Federal poverty level; n/a=Not applicable. All percents are column percents unless otherwise indicated.

Footnotes appear at the bottom of Table 2.1.

**FIGURE 3.1:** HIV<sup>1</sup> diagnosis rates among 13-59 year old males by race/ethnicity<sup>2</sup>, NYC 2012



In 2012, the HIV diagnosis rate among black males was over 1.5 times higher than the rate among Hispanic males and over 2 times higher than the rate among white males.

API=Asian/Pacific Islander

<sup>1</sup>Includes diagnoses of HIV without AIDS and HIV concurrent with AIDS.

<sup>2</sup>Native American and multiracial groups not shown because of small numbers.

# HIV AMONG FEMALES

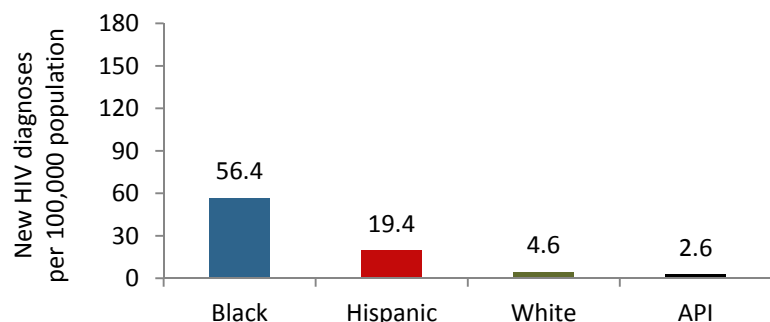
**TABLE 4.1:** HIV/AIDS diagnoses and deaths among females, January 1, 2012 through December 31, 2012; and females diagnosed with HIV/AIDS, reported in New York City, and presumed to be living as of December 31, 2012

	HIV diagnoses							AIDS diagnoses <sup>2</sup>		PLWHA as of 12/31/2012		Deaths <sup>3</sup>	
	Total		Without AIDS		Concurrent with AIDS diagnosis <sup>1</sup>			N	%	N	%	N	%
	N	%	N	%	N	%	Row %						
<b>Total</b>	647	100.0	511	100.0	136	100.0	21.0	497	100.0	32,500	100.0	493	100.0
<b>Race/Ethnicity<sup>4</sup></b>													
Black	416	64.3	318	62.2	98	72.1	23.6	324	65.2	19,000	58.5	293	59.4
Hispanic	173	26.7	143	28.0	30	22.1	17.3	139	28.0	10,513	32.3	161	32.7
White	45	7.0	39	7.6	6	4.4	13.3	25	5.0	2,447	7.5	34	6.9
Asian/Pacific Islander	11	1.7	9	1.8	2	1.5	18.2	7	1.4	358	1.1	3	0.6
Native American	0	0.0	0	0.0	0	0.0	0.0	2	0.4	71	0.2	2	0.4
Multiracial	2	0.3	2	0.4	0	0.0	0.0	0	0.0	18	0.1	0	0.0
Unknown	0	0.0	0	0.0	0	0.0	0.0	0	0.0	93	0.3	0	0.0
<b>Age group (years)<sup>5</sup></b>													
0-12	1	0.2	1	0.2	0	0.0	0.0	1	0.2	102	0.3	1	0.2
13-19	27	4.2	25	4.9	2	1.5	7.4	13	2.6	543	1.7	1	0.2
20-29	149	23.0	138	27.0	11	8.1	7.4	55	11.1	2,117	6.5	14	2.8
30-39	145	22.4	121	23.7	24	17.6	16.6	98	19.7	4,593	14.1	37	7.5
40-49	152	23.5	106	20.7	46	33.8	30.3	164	33.0	10,250	31.5	131	26.6
50-59	123	19.0	84	16.4	39	28.7	31.7	123	24.7	10,329	31.8	184	37.3
60+	50	7.7	36	7.0	14	10.3	28.0	43	8.7	4,566	14.0	125	25.4
<b>Borough of residence<sup>6</sup></b>													
Bronx	166	25.7	137	26.8	29	21.3	17.5	151	30.4	10,319	31.8	173	35.1
Brooklyn	224	34.6	172	33.7	52	38.2	23.2	156	31.4	9,820	30.2	163	33.1
Manhattan	101	15.6	79	15.5	22	16.2	21.8	67	13.5	5,103	15.7	77	15.6
Queens	98	15.1	75	14.7	23	16.9	23.5	69	13.9	4,681	14.4	44	8.9
Staten Island	16	2.5	15	2.9	1	0.7	6.3	13	2.6	786	2.4	19	3.9
Outside NYC	38	5.9	29	5.7	9	6.6	23.7	30	6.0	1,750	5.4	13	2.6
Unknown	4	0.6	4	0.8	0	0.0	0.0	11	2.2	41	0.1	4	0.8
<b>Area-based poverty level<sup>7</sup></b>													
Low poverty (<10% below FPL)	33	5.1	27	5.3	6	4.4	18.2	23	4.6	2,019	6.2	18	3.7
Medium poverty (10 to <20% below FPL)	171	26.4	135	26.4	36	26.5	21.1	128	25.8	7,806	24.0	106	21.5
High poverty (20 to <30% below FPL)	199	30.8	157	30.7	42	30.9	21.1	133	26.8	8,962	27.6	141	28.6
Very high poverty (≥30% below FPL)	199	30.8	159	31.1	40	29.4	20.1	168	33.8	11,630	35.8	211	42.8
Area-based poverty level not available	45	7.0	33	6.5	12	8.8	26.7	45	9.1	2,083	6.4	17	3.4
<b>Transmission risk</b>													
Injection drug use history	24	3.7	22	4.3	2	1.5	8.3	44	8.9	5,647	17.4	168	34.1
Heterosexual <sup>8</sup>	480	74.2	371	72.6	109	80.1	22.7	332	66.8	16,870	51.9	215	43.6
Perinatal	1	0.2	1	0.2	0	0.0	0.0	15	3.0	1,274	3.9	10	2.0
Other	0	0.0	0	0.0	0	0.0	0.0	1	0.2	107	0.3	0	0.0
Unknown	142	21.9	117	22.9	25	18.4	17.6	105	21.1	8,602	26.5	100	20.3
<b>Clinical status as of 12/31/2012</b>													
HIV (non-AIDS)	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	13,287	40.9	90	18.3
AIDS	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	n/a	19,213	59.1	403	81.7

PLWHA=Persons living with HIV/AIDS; FPL=Federal poverty level; n/a=Not applicable. All percents are column percents unless otherwise indicated.

Footnotes appear at the bottom of Table 2.1.

**FIGURE 4.1:** HIV<sup>1</sup> diagnosis rates among 13-59 year old females by race/ethnicity<sup>2</sup>, NYC 2012



In 2012, the HIV diagnosis rate among black females was over 3 times higher than the rate among Hispanic females and over 12 times higher than the rate among white females.

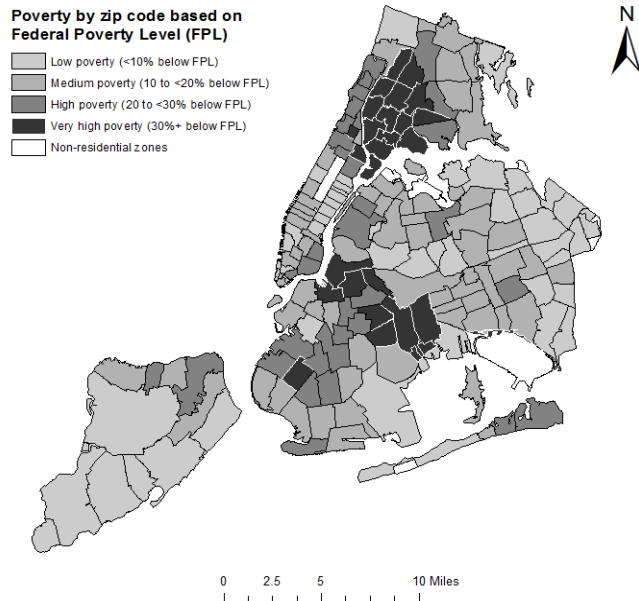
API=Asian/Pacific Islander

<sup>1</sup>Includes diagnoses of HIV without AIDS and HIV concurrent with AIDS.

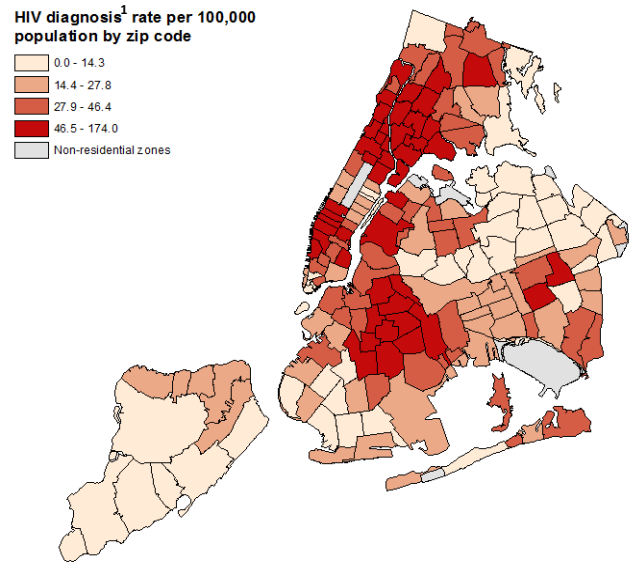
<sup>2</sup>Native American and multiracial groups not shown because of small numbers.

# GEOGRAPHIC DISTRIBUTION OF HIV

**FIGURE 5.1: Poverty levels, NYC 2007-2011**

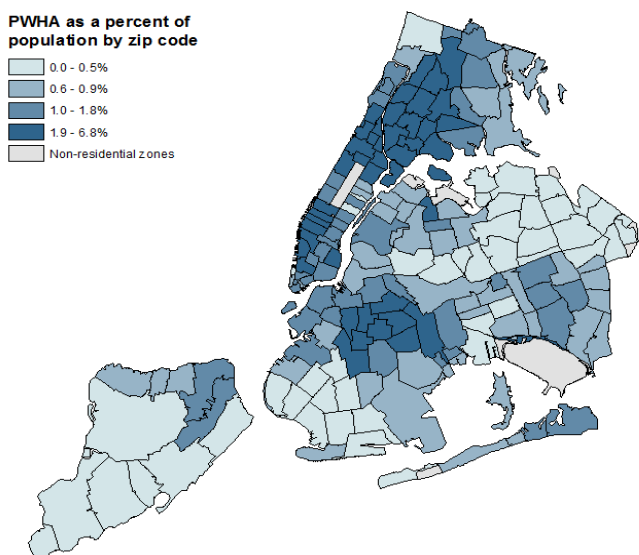


**FIGURE 5.2: HIV diagnosis rates, NYC 2012**

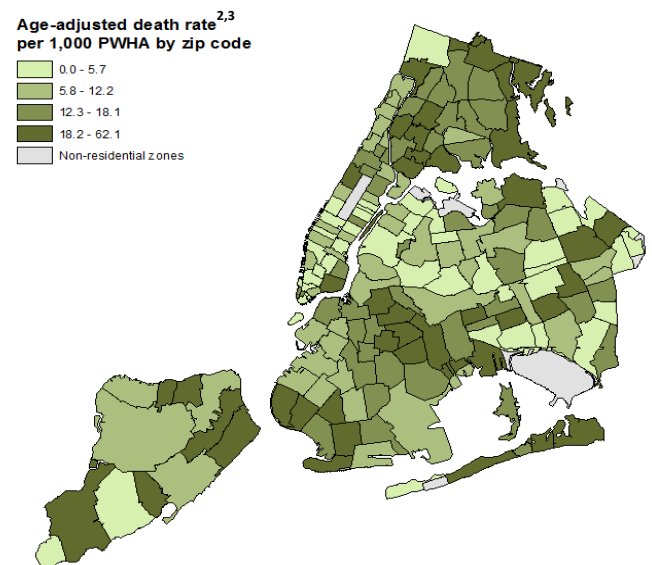


ZIP codes in the Chelsea-Clinton, Central Harlem-Morningside Heights and Washington Heights-Inwood neighborhoods had the highest HIV diagnosis rates in 2012 (Figure 5.2). In 2012, ZIP codes in Chelsea-Clinton, West Queens and East Harlem had the highest HIV prevalence (Figure 5.3), and ZIP codes in Bayside-Little Neck, Port Richmond and Canarsie-Flatlands had the highest mortality among persons with HIV (Figure 5.4). Many ZIP codes with high HIV diagnosis rates also had among the highest poverty rates (Figure 5.1), including High Bridge-Morrisania, Hunts Point-Mott Haven and Crotona-Tremont. The Chelsea-Clinton neighborhood was the exception, with the highest HIV diagnosis rates in NYC but relatively low poverty and mortality rates.

**FIGURE 5.3: HIV prevalence, NYC 2012**



**FIGURE 5.4: Age-adjusted death rates, NYC 2012**



PWHA=Persons with HIV/AIDS

<sup>1</sup>Includes diagnoses of HIV without AIDS and HIV concurrent with AIDS.

<sup>2</sup>Age-adjusted to the citywide population of PWHA in 2012.

<sup>3</sup>2012 death data are incomplete.

# MORTALITY AMONG PERSONS WITH HIV

**TABLE 6.1:** Deaths among persons with HIV, by HIV-related and non-HIV-related causes of death, NYC 2011

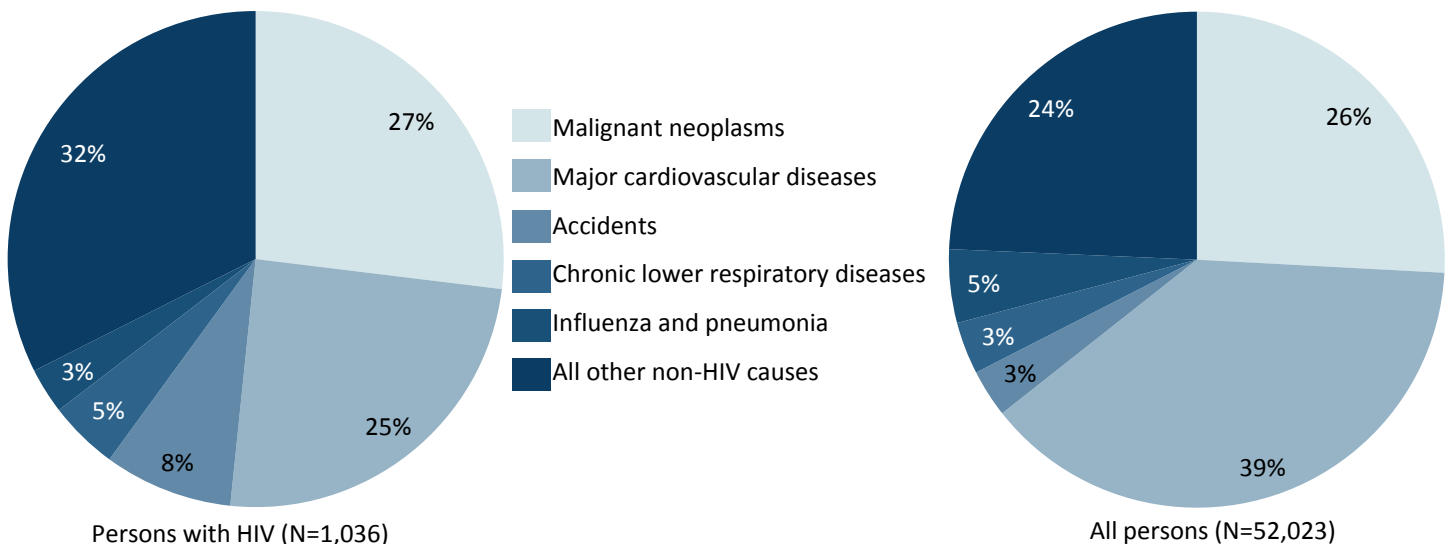
	All <sup>1</sup>		HIV-related			Non-HIV-related		
	N	%	N	%	Row %	N	%	Row %
<b>Total</b>	1,924	100.0	832	100.0	43.2	1,036	100.0	53.8
<b>Sex</b>								
Male	1,344	69.9	575	69.1	42.8	728	70.3	54.2
Female	580	30.1	257	30.9	44.3	308	29.7	53.1
<b>Race/Ethnicity</b>								
Black	956	49.7	436	52.4	45.6	492	47.5	51.5
Hispanic	649	33.7	291	35.0	44.8	347	33.5	53.5
White	293	15.2	96	11.5	32.8	181	17.5	61.8
Asian/Pacific Islander	18	0.9	5	0.6	27.8	12	1.2	66.7
Native American	6	0.3	3	0.4	50.0	3	0.3	50.0
Multiracial	1	0.1	1	0.1	100.0	0	0.0	0.0
Unknown	1	0.1	0	0.0	0.0	1	0.1	100.0
<b>Age at death (years)</b>								
0-12	0	0.0	0	0.0	0.0	0	0.0	0.0
13-19	2	0.1	2	0.2	100.0	0	0.0	0.0
20-29	60	3.1	31	3.7	51.7	27	2.6	45.0
30-39	133	6.9	71	8.5	53.4	58	5.6	43.6
40-49	507	26.4	257	30.9	50.7	239	23.1	47.1
50-59	689	35.8	292	35.1	42.4	380	36.7	55.2
60+	533	27.7	179	21.5	33.6	332	32.0	62.3
<b>Area-based poverty level</b>								
Low poverty (<10% below FPL)	118	6.1	40	4.8	33.9	73	7.0	61.9
Medium poverty (10 to <20% below FPL)	409	21.3	164	19.7	40.1	236	22.8	57.7
High poverty (20 to <30% below FPL)	498	25.9	226	27.2	45.4	268	25.9	53.8
Very high poverty (≥30% below FPL)	614	31.9	294	35.3	47.9	317	30.6	51.6
Area-based poverty level not available	285	14.9	108	13.0	37.9	142	13.7	49.8

FPL=Federal Poverty Level

<sup>1</sup>Includes persons with unknown cause of death (3% of all deaths).

In 2011, 43% of persons with HIV who died had a primary cause of death that was HIV-related and 54% had a non-HIV-related cause (Table 6.1). Whites, Asian/Pacific Islanders, older persons, and persons residing in low- or medium-poverty areas experienced substantially more non-HIV-related deaths than HIV-related deaths. The top non-HIV-related cause of death for persons with HIV was malignant neoplasms or cancer (27% of non-HIV-related deaths), while the top cause for all persons in NYC was major cardiovascular disease (39%) (Figure 6.1). Additional leading causes of death not shown below include viral hepatitis and mental and behavioral disorders due to drug use for persons with HIV, and diabetes for all persons in NYC.

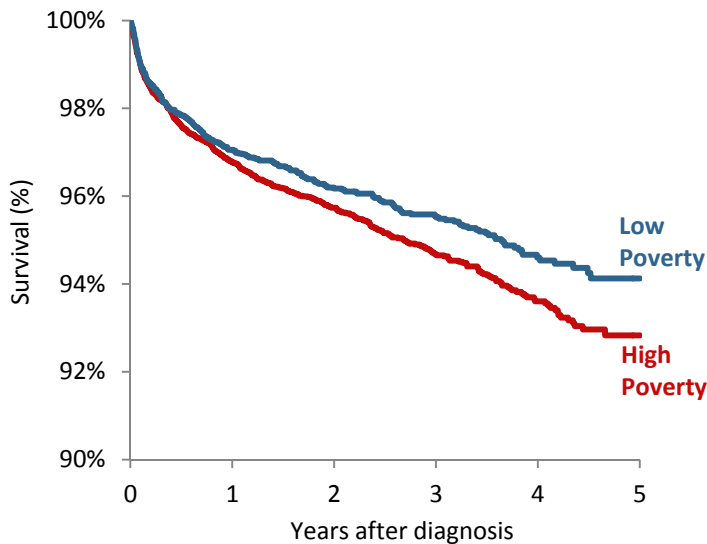
**FIGURE 6.1:** Leading non-HIV-related causes of death among persons with HIV and all persons, NYC 2011



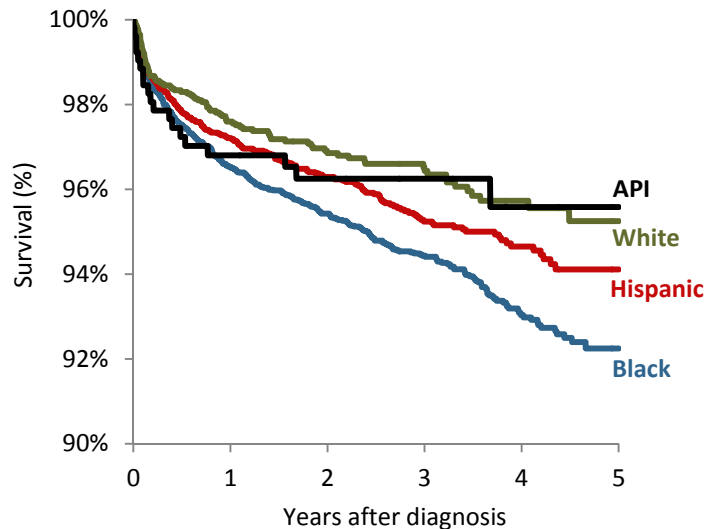


# SURVIVAL AMONG PERSONS WITH HIV

**FIGURE 7.1:** Survival among persons newly diagnosed with HIV, by area-based poverty level<sup>1</sup>, NYC 2007-2011

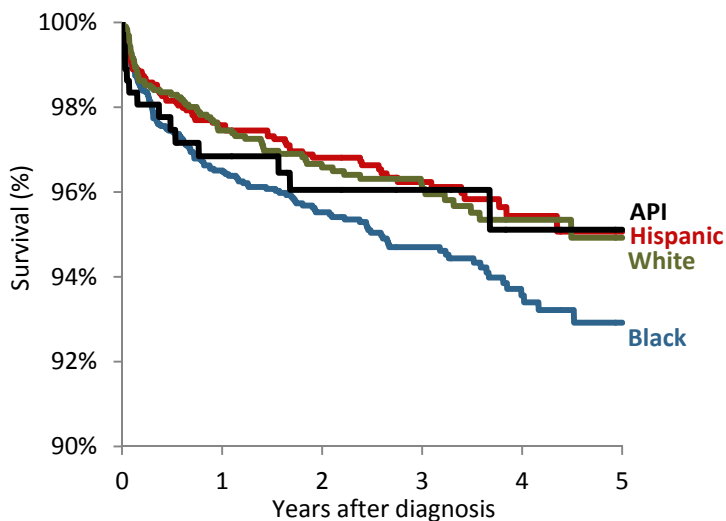


**FIGURE 7.2:** Survival among persons newly diagnosed with HIV, by race/ethnicity<sup>2</sup>, NYC 2007-2011

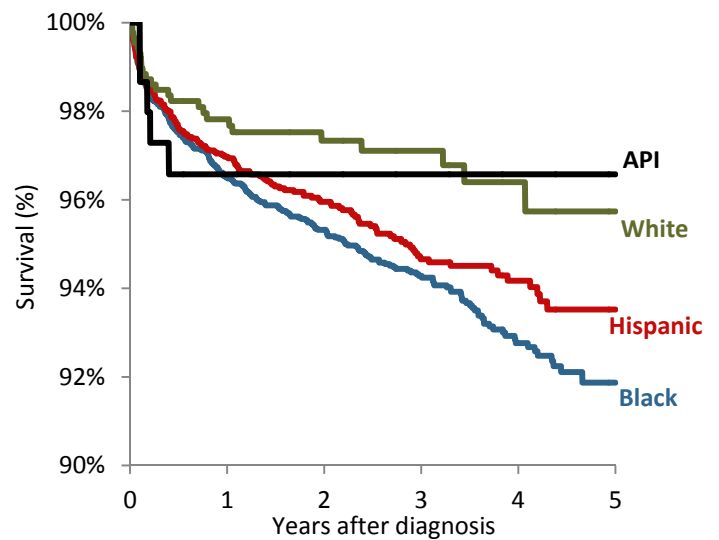


Persons living in high-poverty areas in NYC at the time of HIV diagnosis have poorer survival than persons living in low-poverty areas at diagnosis (Figure 7.1). There are also disparities in survival by race/ethnicity, with blacks having the poorest long-term survival after HIV diagnosis (Figure 7.2). Racial/ethnic disparities persist when examining survival by area-based poverty level, and are most pronounced among those living in high-poverty areas at HIV diagnosis (Figures 7.3 and 7.4). Within each figure, differences between groups were statistically significant ( $p < 0.05$ ).

**FIGURE 7.3:** Survival among persons newly diagnosed with HIV and residing in low-poverty areas<sup>1</sup>, by race/ethnicity<sup>2</sup>, NYC 2007-2011



**FIGURE 7.4:** Survival among persons newly diagnosed with HIV and residing in high-poverty areas<sup>1</sup>, by race/ethnicity<sup>2</sup>, NYC 2007-2011



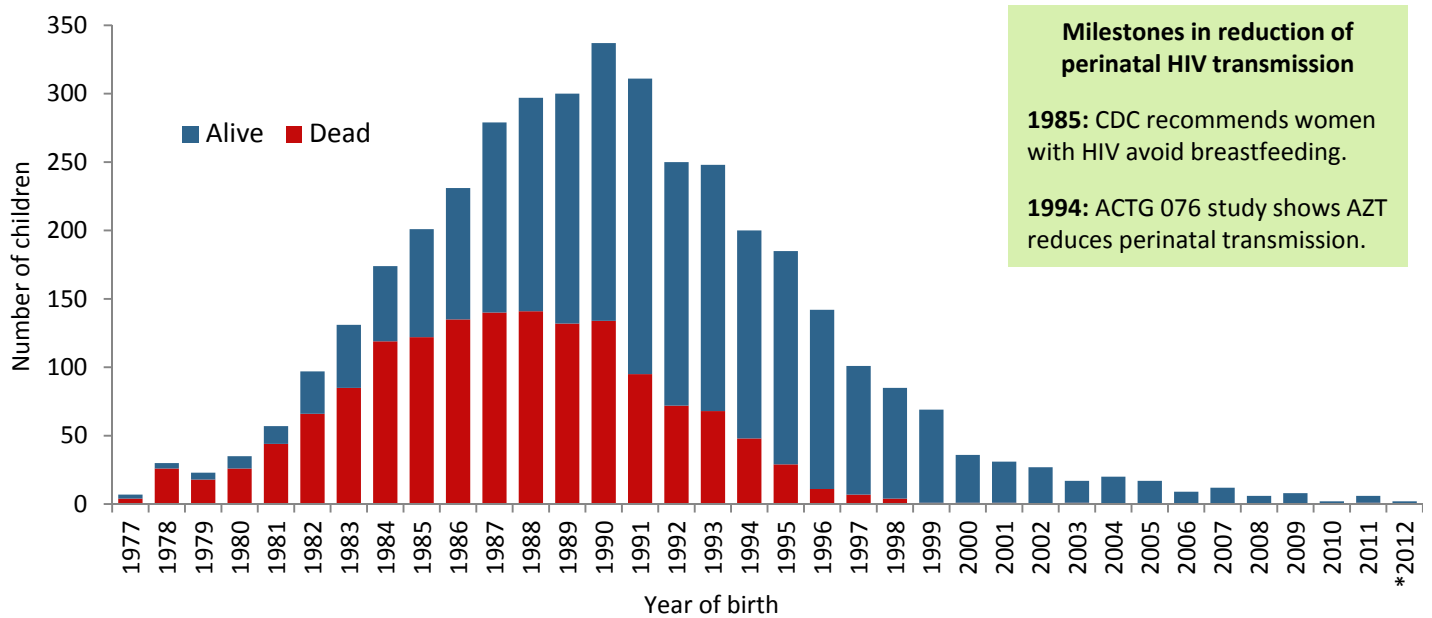
API=Asian/Pacific Islander

<sup>1</sup>Poverty level based on NYC ZIP code of residence at diagnosis (if available). Curves include persons diagnosed with HIV from 2007 through 2011 and followed through December 31, 2011; persons not known to have died were censored on December 31, 2011. Low-poverty area defined as <20% of population below federal poverty level; high-poverty area defined as ≥20% of population below federal poverty level.

<sup>2</sup>Native American and multiracial groups not shown because of small numbers.

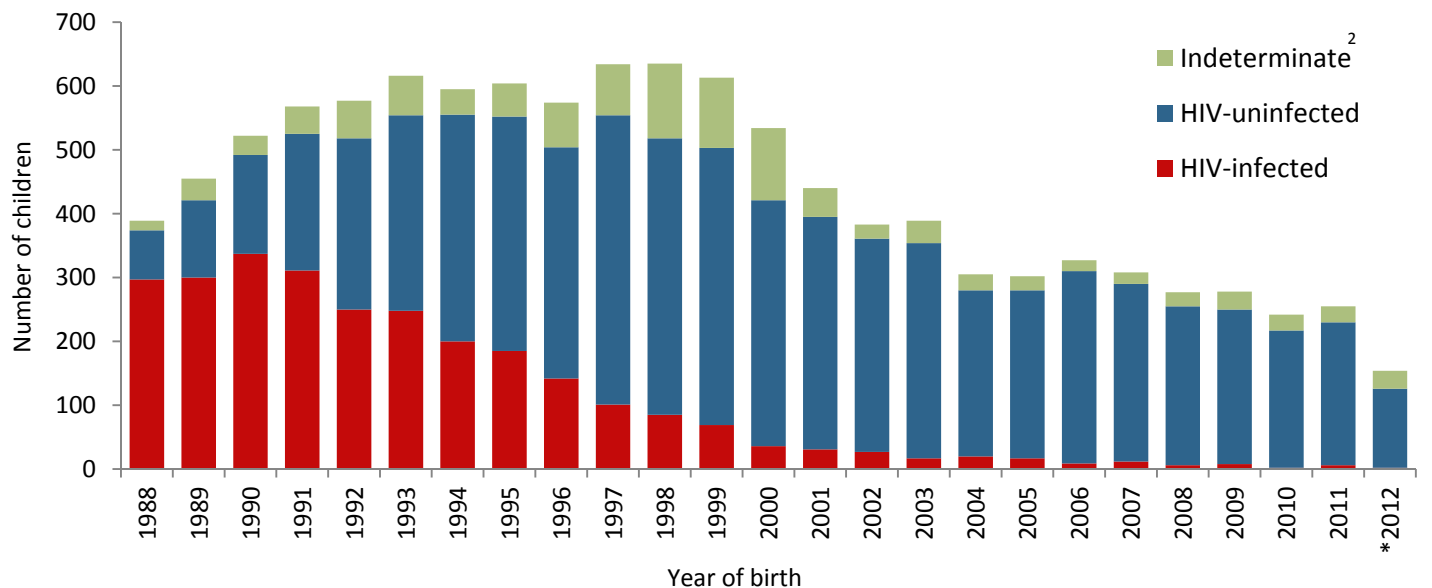
# HIV AMONG CHILDREN

**FIGURE 8.1:** Perinatally HIV-infected children (N=3,983), by year of birth and current vital status, NYC 1977-2012



In NYC, the number of perinatally HIV-infected infants peaked in 1990 (N=337), and was followed by a steep decline in the annual number of new infections (Figure 8.1). During 2007-2011, there were 34 perinatally-infected infants born in NYC. The decrease since the early 1990s is attributed to a decrease in the number of HIV-infected women delivering, the introduction of antiretroviral therapies to prevent mother-to-child transmission, recommendations for universal counseling and voluntary HIV testing of pregnant women, and routine rapid testing at labor and delivery for women whose HIV status is unknown. The number of children born to HIV-infected mothers has remained relatively steady since 2004, ranging from 250-305 births per year (Figure 8.2). Since 2002, nearly 90% of infants born to HIV-infected mothers each year have remained HIV-uninfected.

**FIGURE 8.2:** Current HIV status of children born to HIV-infected women at select NYC medical facilities<sup>1</sup>, by year of birth, NYC 1988-2012



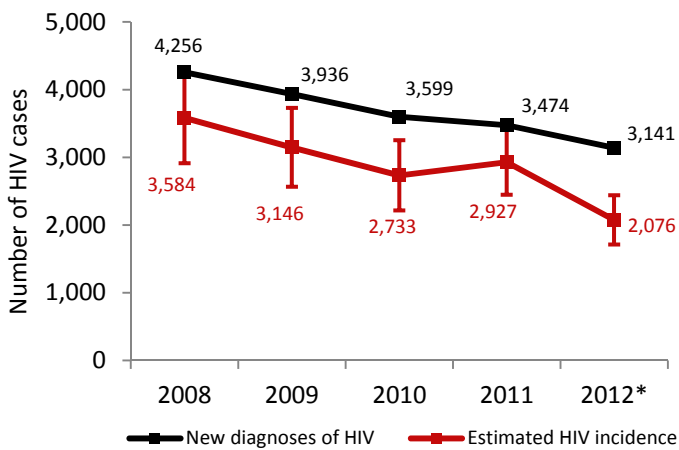
\*Data for 2012 are incomplete due to reporting lag. Data reported as of August 2013.

<sup>1</sup>Includes data collected at high-volume NYC medical facilities that care for the majority of HIV-exposed and infected children.

<sup>2</sup>Children born to HIV-infected mothers are followed for 2 years after birth to determine HIV status. HIV status is indeterminate if mother and/or child are lost to follow-up.

## HIV INCIDENCE

**FIGURE 9.1:** All new HIV diagnoses and estimated HIV incidence<sup>1</sup>, NYC 2008-2012

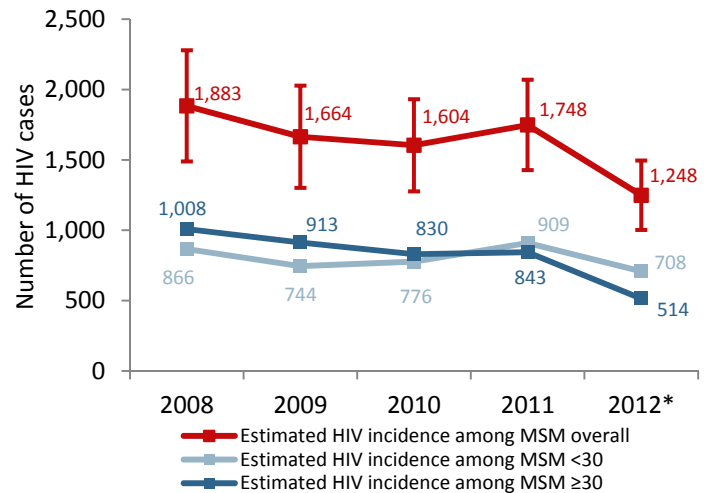


\*2012 incidence data are preliminary.

<sup>1</sup>Estimates generated September 2013, by the CDC Stratified Extrapolation Approach (SEA). SEA combines results from the Serologic Testing Algorithm for Recent Seroconversion (STARHS) with data on demographic characteristics, risk factor, initial diagnosis date, testing and treatment history from the HIV surveillance registry. Unknown risk factor was imputed using the Multiple Imputation procedure in SAS v9.2.

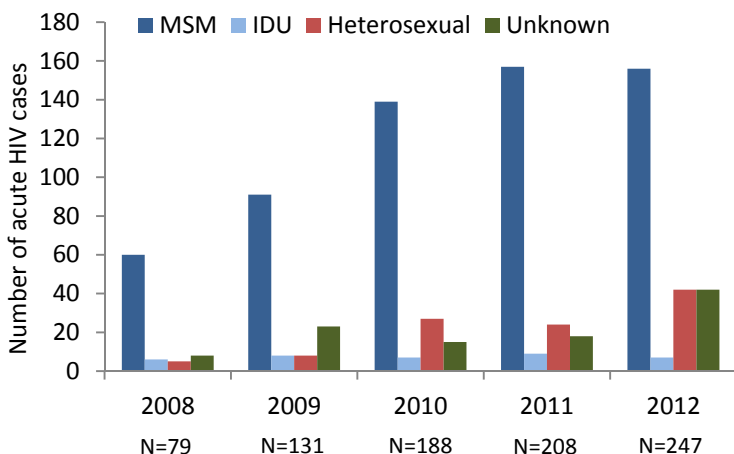
The number of new HIV diagnoses is stable or declining in all demographic and major HIV transmission risk groups, including MSM overall. Citywide, estimated HIV incidence declined significantly between 2008 and 2012 (Figure 9.1). Incidence in MSM also declined, although it did not reach statistical significance. Among young MSM, the decline in 2012 follows periods of alternating increase and decrease (Figure 9.2).

**FIGURE 9.2:** Estimated HIV incidence<sup>1</sup> among men who have sex with men (MSM), overall and by age group, NYC 2008-2012



## ACUTE HIV INFECTION

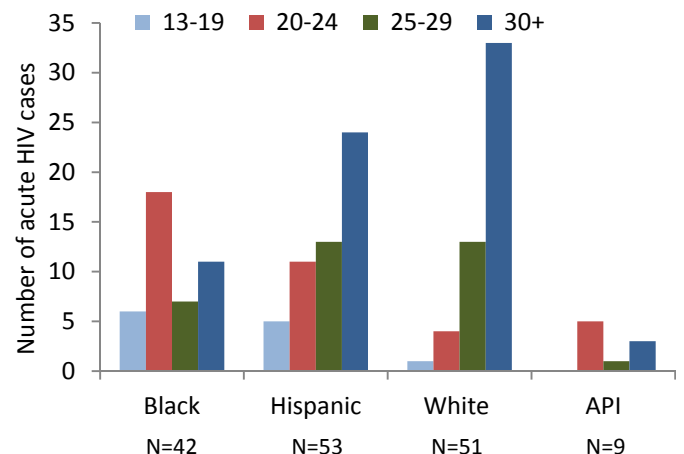
**FIGURE 10.1:** Acute HIV infection, by transmission risk category, NYC 2008-2012



MSM=men who have sex with men; IDU=injection drug use; API= Asian/Pacific Islander.

<sup>1</sup>Native American and multiracial groups not shown because of small numbers.

**FIGURE 10.2:** Acute HIV infection among MSM, by race/ethnicity<sup>1</sup> and age group, NYC 2012



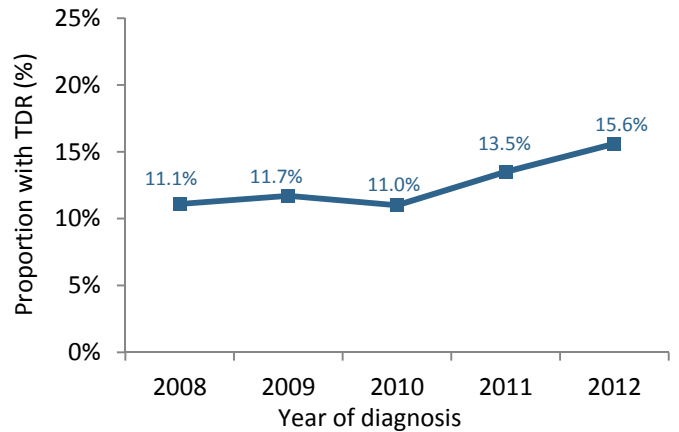
Acute HIV infection (AHI) is the early, highly-infectious phase of HIV infection. Persons diagnosed during the acute phase represent the leading edge of the HIV epidemic. From 2008-2012, the number of AHI cases ascertained by the NYC DOHMH increased substantially (Figure 10.1). Each year, the majority of AHI cases were MSM, who are targeted for AHI screening at DOHMH STD clinics. Among MSM with AHI, a greater proportion of black and API MSM were young compared with Hispanic and white MSM with AHI (Figure 10.2).

# TRANSMITTED DRUG RESISTANCE

**TABLE 11.1:** Number of new HIV diagnoses with a genotype within 3 months of diagnosis, NYC 2008-2012

Year of diagnosis	Total Diagnoses	Tested within 3 months		Not tested within 3 months	
	N	N	Row %	N	Row %
2008	4,256	1,470	34.5	2,786	65.5
2009	3,936	1,485	37.7	2,451	62.3
2010	3,599	1,509	41.9	2,090	58.1
2011	3,474	1,569	45.2	1,905	54.8
2012	3,141	1,565	49.8	1,576	50.2

**FIGURE 11.1:** Proportion of new HIV diagnoses with transmitted drug resistance (TDR)<sup>1</sup>, NYC 2008-2012

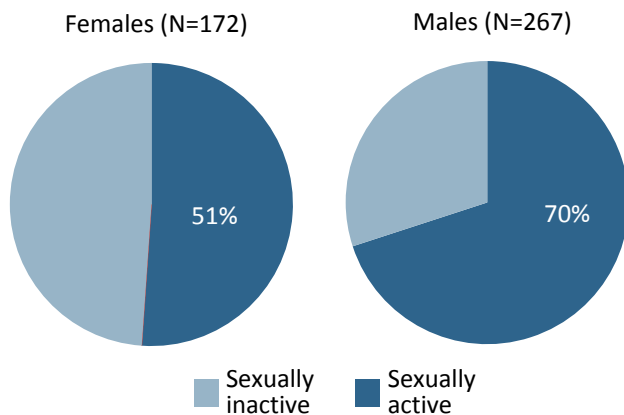


<sup>1</sup>Evidence of resistance to any antiretroviral (ARV) drug in a newly diagnosed, ARV-naïve individual.

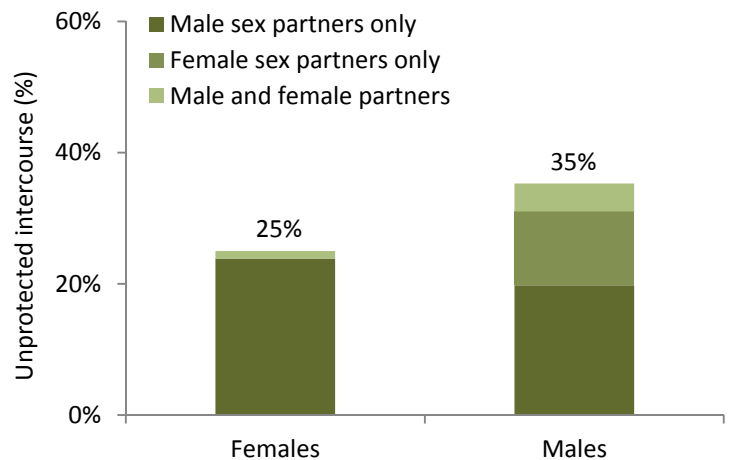
Despite federal guidelines recommending baseline genotyping, only about half of newly diagnosed persons in NYC receive a genotype within 3 months of HIV diagnosis (Table 11.1). The proportion of cases with transmitted drug resistance was stable between 2008 and 2010, but increased to 13.5% in 2011 and 15.6% in 2012 (Figure 11.1).

# SEXUAL RISK AMONG PERSONS WITH HIV

**FIGURE 12.1:** Sexual activity in past 12 months among MMP patients, by sex<sup>1</sup>, NYC 2012



**FIGURE 12.2:** Sexually active MMP patients reporting unprotected intercourse in past 12 months, by sex<sup>1</sup> and partner type, NYC 2012

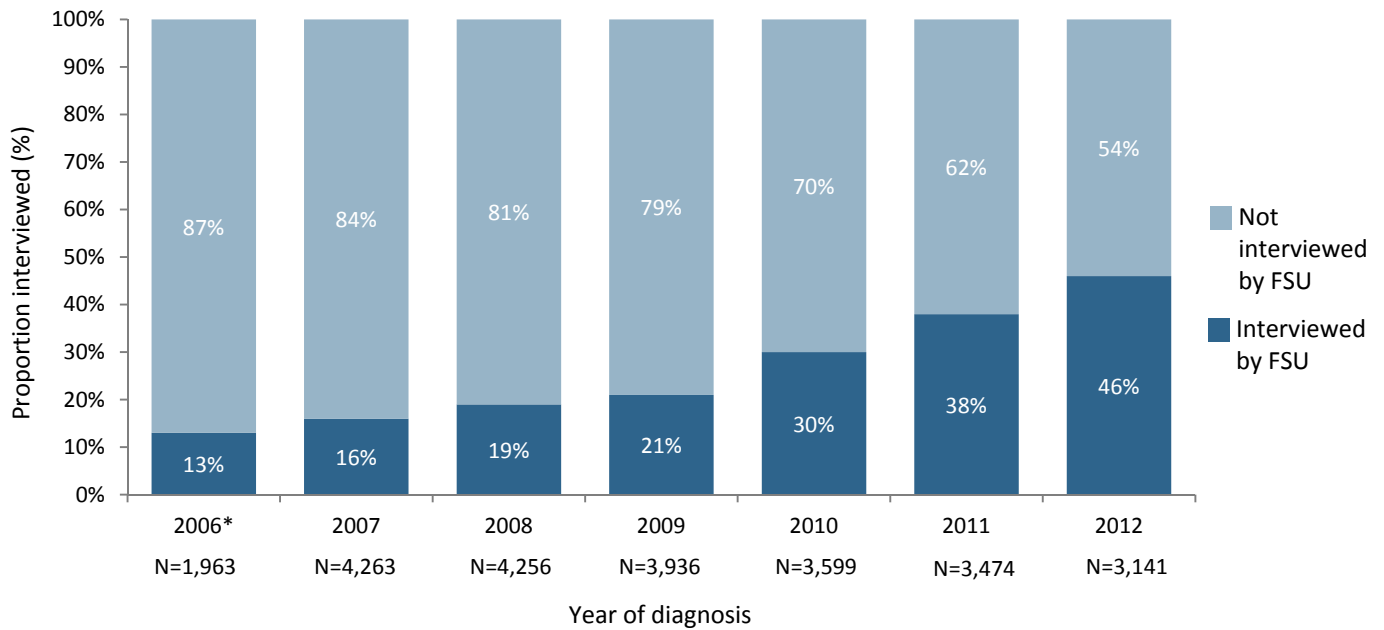


<sup>1</sup>Data for transgender persons included in the 2012 NYC MMP sample are not shown due to small numbers (N=6).

The Medical Monitoring Project (MMP) is a national, ongoing supplemental surveillance study of persons with HIV who are receiving outpatient HIV medical care. MMP participants are interviewed for collection of demographic and behavioral risk data. In 2012, there were 445 patients included in the New York City MMP sample who reported sexual risk data. Overall, 62% of NYC MMP patients reported sexual activity in the past 12 months (Figure 12.1). Among all sexually active patients, 32% reported having unprotected anal or vaginal intercourse (UI) at any time in the past 12 months. Twenty-five percent of sexually active females engaged in UI, while 35% of sexually active males engaged in UI (Figure 12.2). Additionally, in the past 12 months 23% of sexually active males had unprotected anal intercourse with a male partner.

# HIV PARTNER SERVICES

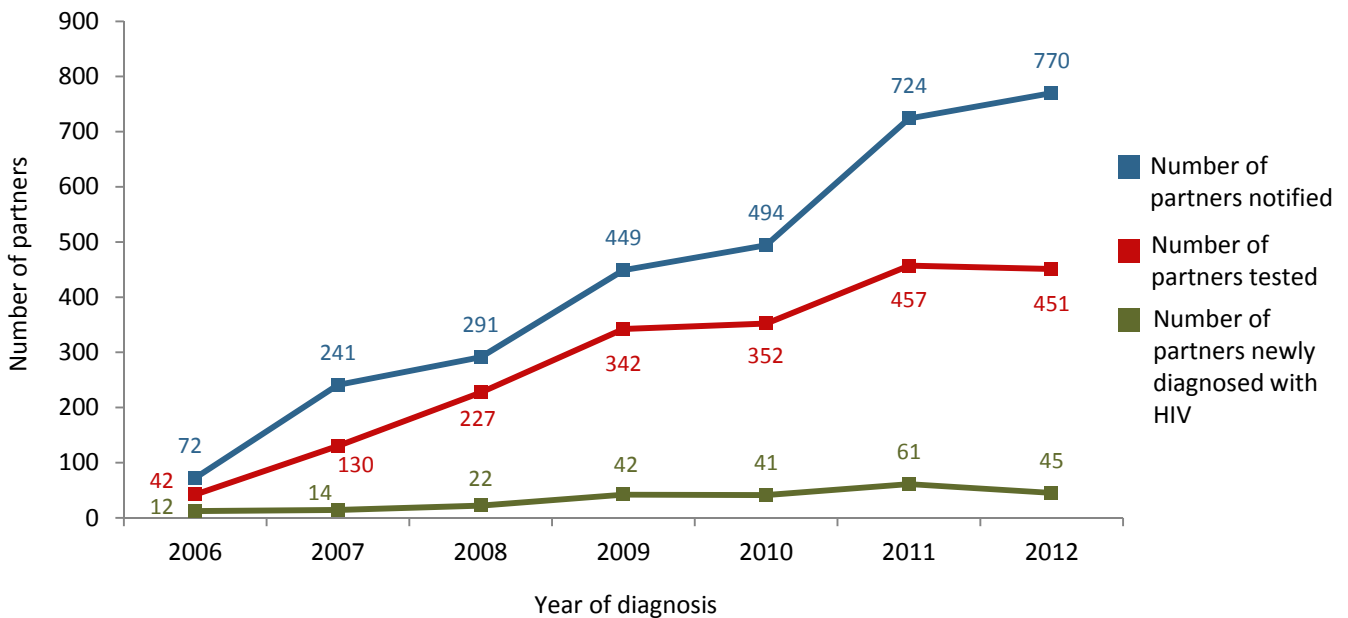
**FIGURE 13.1:** Proportion of new HIV diagnoses interviewed by the NYC DOHMH Field Services Unit, NYC 2006-2012



\*FSU created in June 2006; data for 2006 are for 6 months only.

The Field Services Unit (FSU) of the NYC DOHMH was established in June 2006 to assist HIV medical providers and patients diagnosed with HIV infection with partner services and linkage to medical care. By the end of 2012, FSU staff members were offering HIV partner services to patients newly diagnosed with HIV citywide. In 2012, FSU interviewed 46% of persons newly diagnosed with HIV in NYC, an increase of 21% since 2011 (Figure 13.1). As a result of FSU partner services conducted in 2012, 770 partners were notified, 451 were tested for HIV infection, and 45 were newly diagnosed with HIV (Figure 13.2). Since 2006, 237 partners have been newly diagnosed with HIV as a result of partner services provided by FSU.

**FIGURE 13.2:** HIV partner notification outcomes for partners of negative or unknown serostatus, NYC 2006-2012



## TECHNICAL NOTES

**ABOUT THIS REPORT:** This report provides an overview of the HIV epidemic in New York City using HIV surveillance data, and presents highlights for the reporting period based on core surveillance activities. All data are based on information received by the NYC DOHMH as of June 30, 2013, and are for calendar year 2012 unless otherwise noted.

**HIV SURVEILLANCE:** The NYC HIV Epidemiology and Field Services Program (HEFSP) manages the HIV surveillance registry, a population-based registry of all persons diagnosed with AIDS (since 1981) or HIV infection (since 2000) and reported to the NYC DOHMH according to standard Centers for Disease Control and Prevention case definitions.<sup>1</sup> The Registry contains demographic, HIV transmission risk and clinical information on HIV-diagnosed persons, as well as all Western blot tests, viral load tests, CD4 counts, and HIV genotypes reportable under New York State law.<sup>2</sup> For a list of surveillance definitions and technical notes see: <http://www.nyc.gov/html/doh/html/data/hivtables.shtml#abbrev>.

**PERINATAL AND PEDIATRIC HIV SURVEILLANCE:** HEFSP collects data on HIV-exposed and -infected infants and children diagnosed with HIV before 13 years of age. Data are used to monitor the prevention of mother-to-child HIV transmission, to measure perinatal HIV transmission rates, and describe morbidity and mortality among HIV-infected children. In addition to routine HIV and AIDS case surveillance, perinatal and pediatric surveillance data are informed by a range of other activities and data sources, including longitudinal case follow-up, the New York State Department of Health's Comprehensive Newborn Screening Program, and CDC-funded special projects related to pediatric HIV.

**ACUTE HIV INFECTION SURVEILLANCE:** Since 2008, HEFSP has conducted routine surveillance and field investigation of individuals diagnosed in the acute stage of HIV infection (AHI) in New York City. For NYC's AHI case definition see: <http://www.nyc.gov/html/doh/downloads/pdf/ah/ahi-case-definition-current.pdf>.

**DEATH DATA:** Data on deaths occurring in NYC are from matches with the NYC Vital Statistics Registry, medical chart reviews, and provider reports via the Provider Report Form, including HIV-positive autopsies by the Office of the Chief Medical Examiner. Data on deaths occurring outside NYC are from matches with the Social Security Death Master File and National Death Index. Cause of death used for analyses in this report is persons' underlying cause of death. HIV-related ICD-10 codes include B20-B24. Death data for 2012 are incomplete; 2011 is the most recent year for complete death data. For technical notes on cause of death by the NYC DOHMH's Office of Vital Statistics see: <http://www.nyc.gov/html/doh/downloads/pdf/vs/vs-appendix-b-2011.pdf>.

**AREA-BASED POVERTY:** Area-based poverty is based on NYC ZIP code of residence and is defined as the percent of the population in a given ZIP code whose household income is below the Federal Poverty Level. Income data used for analyses in this report are from the 2007-2011 American Community Survey. Cut-points for categories of area-based poverty in NYC were defined by a NYC DOHMH workgroup.<sup>3</sup>

**MEDICAL MONITORING PROJECT:** The Medical Monitoring Project (MMP) is a national, ongoing supplemental surveillance study of persons with HIV who are receiving outpatient HIV medical care. MMP is sponsored by the Centers for Disease Control and Prevention and is conducted by 23 local health departments, universities and other collaborators in the US, including the NYC DOHMH. A three-stage sampling design is used to obtain a probability sample of HIV-infected adults receiving HIV care at randomly selected HIV medical care facilities in the first four months of a study year. The project is cross-sectional and is conducted yearly. Face-to-face structured interviews are used to collect information on demographics, health status, behavioral risk factors, and adherence to HIV medication regimens, and information on prescription of antiretroviral therapy, comorbidities, and health service utilization is abstracted from patients' medical records. For more information on The Medical Monitoring Project see: <http://www.cdc.gov/hiv/prevention/ongoing/mmp/index.html>.

<sup>1</sup>Centers for Disease Control and Prevention. Revised surveillance case definitions for HIV infection among adults, adolescents, and children aged <18 months and for HIV infection and AIDS among children aged 18 months to <13 years—United States. *MMWR* 2008; 57:4-5.

<sup>2</sup>State of New York Laws. HIV Testing and Counseling. Amendment to New York State Public Health Law Article 21, Amendment of Part 63 of Title 10, Codes, Rules and Regulations of the State of New York (HIV/AIDS Testing, Reporting and Confidentiality of HIV-Related Information). Chapter 308. Albany, NY: State of New York; 2010.

<sup>3</sup>Toprani A, Hadler JL. Selecting and applying a standard area-based socioeconomic status measure for public health data: analysis for New York City. *New York City Department of Health and Mental Hygiene: Epi Res Report*. May 2013; 1-12.

## HIV PROVIDER REPORTING

All diagnostic and clinical providers (doctors, nurses, physician assistants, and all others diagnosing HIV or providing care to HIV-infected persons) and laboratories are required by law to report specific HIV-related events.

**REPORT HIV/AIDS CASES:** Providers are required by law to report cases of HIV/AIDS to the NYC DOHMH. The Medical Provider Report Form (PRF) must be completed for the following events: 1) acute HIV infection; 2) initial/new HIV diagnosis, defined as first report of an HIV antibody-positive test result; 3) previously diagnosed HIV infection in a patient who has not yet met clinical criteria for AIDS; 4) initial/new diagnosis of AIDS, based on CD4 cell count <200 cells/ $\mu$ l, CD4% <14, or diagnosis of an opportunistic infection; or 5) previously diagnosed AIDS in a patient being seen by the provider for the first time. Providers are required to report such events to the DOHMH within 14 days of a positive test result or diagnosis.

Provider Report Forms are not permitted to be mailed or faxed to the DOHMH. DOHMH staff are available to pick up PRF from medical facilities at agreed-upon intervals. To arrange PRF pick-up, call the HIV Surveillance Provider line at (212) 442-3388.

**DISCUSS PARTNER SERVICES (PS) AND REPORT PARTNERS:** Providers are also required by law to ask for and report all named partners of persons with HIV. Providers should introduce and discuss PS with all newly HIV-diagnosed patients and annually with previously diagnosed patients. Providers should inform newly diagnosed patients that they may be contacted by the DOHMH to further discuss PS.

Information on partners (first name, last name, date of birth, gender at minimum), including spouses, should be reported on the PRF. Providers can request assistance with notifying partners by calling the DOHMH's Contact Notification Assistance Program (CNAP) at (212) 693-1419.

For more information on HIV provider reporting, including how to obtain copies of the PRF, see:

<http://www.nyc.gov/html/doh/html/data/hcreporting.shtml>

## ADDITIONAL RESOURCES

**NYC DEPARTMENT OF HEALTH AND MENTAL HYGIENE:** [www.nyc.gov/health](http://www.nyc.gov/health)

### ADDITIONAL NYC DOHMH RESOURCES ON HIV IN NYC:

NYC HIV Epidemiology and Field Services Program, including additional data on HIV by NYC neighborhood, HIV among subpopulations, and other HIV statistics: <http://www.nyc.gov/html/doh/html/data/hivepi.shtml>

Other information on HIV/AIDS, including HIV testing sites in NYC, condom distribution, and DOHMH STD clinics: <http://www.nyc.gov/html/doh/html/living/std-hiv.shtml>

### ADDITIONAL NYC DOHMH DATA RESOURCES:

Data & statistics: <http://www.nyc.gov/html/doh/html/data/data.shtml>

Epiquery, NYC Interactive Health Data System: <http://www.nyc.gov/health/epiquery>

Maps of ZIP codes by NYC borough: <http://www.nyc.gov/html/doh/html/data/map-gallery.shtml>

### CENTERS FOR DISEASE CONTROL AND PREVENTION:

National HIV surveillance, including CDC's case definitions for HIV surveillance:

<http://www.cdc.gov/hiv/statistics/>

HIV EPIDEMIOLOGY AND FIELD SERVICES PROGRAM  
New York City Department of Health and Mental Hygiene