



HIV Epidemiological Data for Prevention Planning in Maryland

Colin Flynn, Chief

Center for HIV Surveillance & Epidemiology

Infectious Disease & Environmental Health Admin.

Maryland Department of Health & Mental Hygiene

March 1, 2012



IDEHA Mission

- To improve the health of Marylanders by reducing the transmission of infectious diseases, helping impacted persons live longer, healthier lives, and protecting individuals and communities from environmental health hazards
- We work in partnership with local health departments, providers, community based organizations, and public and private sector agencies to provide public health leadership in the prevention, control, monitoring, and treatment of infectious diseases and environmental health hazards.



National HIV/AIDS Strategy



Goals:

- Reducing HIV incidence
- Increasing access to care and optimizing health outcomes
- Reducing HIV-related health disparities
- Achieving a more coordinated national response



NHAS Goal 1 – Reducing Incidence



- By 2015, lower the annual number of new HIV infections by 25%
 - Reduce the HIV transmission rate by 30%
 - Increase from 79% to 90% the percentage of people living with HIV who know their status



NHAS Goal 2 – Increasing Access



- By 2015:
 - Increase the proportion of newly diagnosed patients linked to clinical care within three months of their HIV diagnosis from 65 percent to 85 percent
 - Increase the proportion of Ryan White HIV/AIDS Program clients who are in continuous care (at least 2 visits for routine HIV medical care in 12 months at least 3 months apart) from 73 percent to 80 percent



NHAS Goal 3 – Reducing Disparities



- By 2015:
 - Increase the proportion of HIV diagnosed gay and bisexual men with undetectable viral load by 20 percent.
 - Increase the proportion of HIV diagnosed Blacks with undetectable viral load by 20 percent.
 - Increase the proportion of HIV diagnosed Latinos with undetectable viral load by 20 percent.



Reducing HIV Transmission



HIV Transmission



Bodily Fluids
Sex
Injections
Perinatal
Occupational



HIV Transmission



Exposure = Transmission Probability X
Frequency X Prevalence

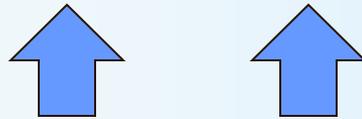
Probability per unprotected heterosexual
coital act = 0.0001 to 0.0014



Transmission Example

- Baltimore City = 531,524 population age 13+
- Transmission Probability = 0.0007 per coitus
- Frequency = 50 acts with 50 random people
- Prevalence = 3.0% estimated age 13+

$531,524 \times 0.0007 \times 50 \times 0.03 = 558$ infections



Behavioral Interventions



HIV Transmission



$$\text{Exposure} = \text{Transmission Probability} \times \text{Frequency} \times \text{Prevalence} \\ \times \text{Viral Load}$$

More undetectable viral load \Rightarrow Fewer infections



Enhanced Focus

- Identifying undiagnosed infected
- Increasing linkage to care
- Increasing retention in care
- Decreasing viral load
- Decreasing new infections



New Data Initiatives

- Providing new data on all these measures
- Drilling down from populations to programs to people
- Using surveillance data to promote public health action
- New CDC Guidelines on security and confidentiality
- New Prevention Category C funding



National Data



U.S. HIV/AIDS Prevalence



- At the end of 2009, an estimated 1.2 million Americans were infected with HIV
- It is also estimated that 20% of the infected were undiagnosed
 - CDC. HIV in the United States. Fact Sheet, Nov. 2011. Atlanta.



2009 Estimated AIDS Diagnoses, Ranked by Rates



<u>STATE/TERRITORY</u>	<u>Cases</u>	<u>Rate per 100,000</u>
1. District of Columbia	718	119.8
2. New York	4,799	24.6
3. Florida	4,392	23.7
4. Maryland	1,134	19.9
5. Louisiana	869	19.4
6. Puerto Rico	735	18.5
7. Delaware	159	18.0
8. New Jersey	1,475	16.9
9. South Carolina	713	15.6
10. Georgia	1,391	14.1
<hr/>		
<i>United States</i>	<i>34,993</i>	<i>11.2</i>



2009 Estimated AIDS Diagnoses, Ranked by Rates



<u>METROPOLITAN AREA</u>	<u>Cases</u>	<u>Rate per 100,000</u>
1 Miami, FL	2,061	37.2
2. Baton Rouge, LA	241	30.6
3. Jacksonville, FL	387	29.1
4. New York, NY-NJ-PA	5,153	27.0
5. Washington, DC-VA-MD-WV	1,455	26.6
6. Columbia, SC	175	23.5
7. Memphis, TN-MS-AR	305	23.3
8. Orlando, FL	485	23.3
9. New Orleans-Metairie-Kenner, LA	274	23.0
10. Baltimore-Towson, MD	614	22.8
<hr/>		
<i>United States</i>	34,981	11.2



2008 Estimated Adults Living with AIDS, Ranked by Rates



<u>STATE/TERRITORY</u>	<u>Cases</u>	<u>Rate per 100,000</u>
1. District of Columbia	9,475	1,865.1
2. New York	82,703	506.4
3. Maryland	17,063	363.3
4. Virgin Islands	321	356.4
5. Florida	50,833	327.8
6. Puerto Rico	10,453	319.4
7. New Jersey	19,076	264.8
8. Georgia	19,975	255.2
9. Delaware	1,841	252.8
10. Connecticut	6,999	238.6
<i>United States</i>	<i>489,977</i>	<i>192.5</i>



Epidemiological Description

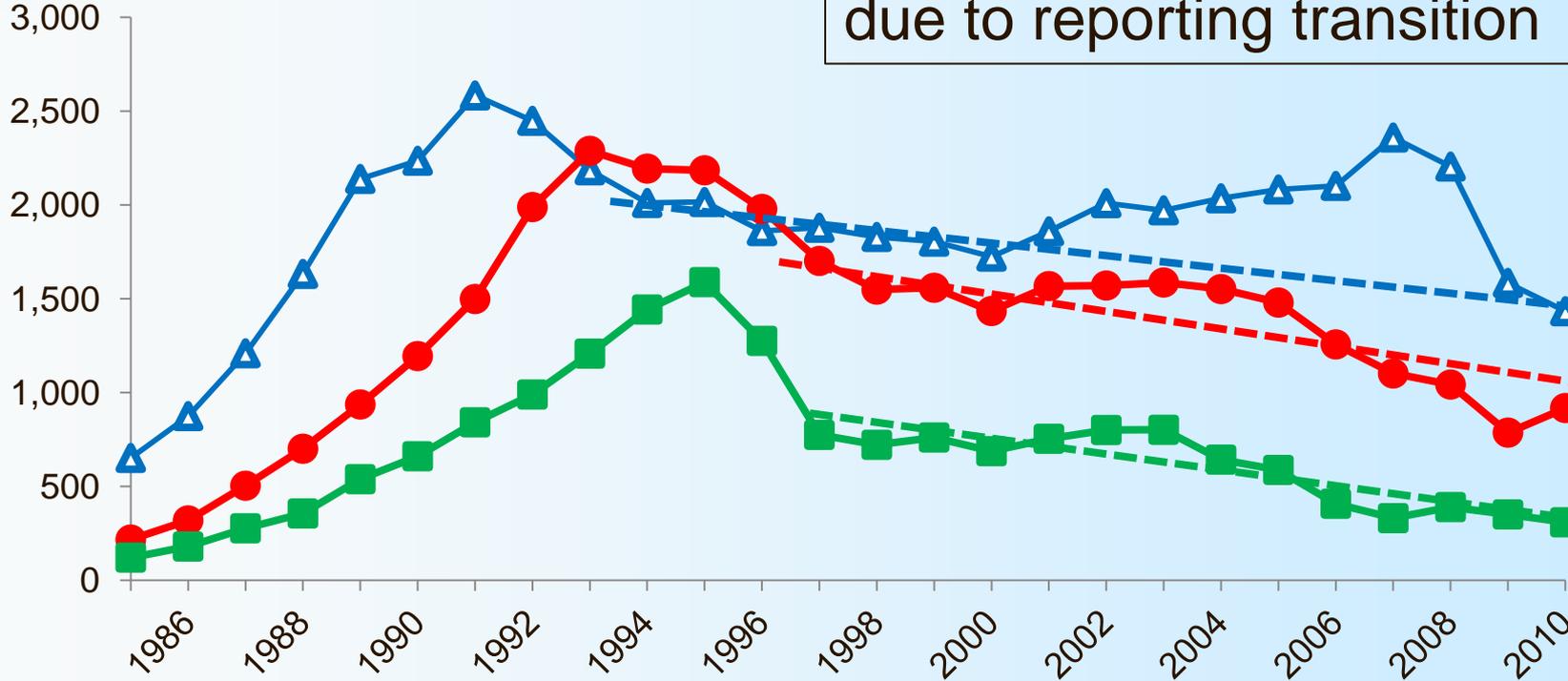


Maryland HIV/AIDS Trends



Number of Events

2001-2008 HIV high, due to reporting transition



Year of Diagnosis or Death

- ▲ Reported HIV Diagnoses
- Reported AIDS Diagnoses
- Reported AIDS Deaths

Using data as reported through 12/31/2011

Maryland Infectious Disease and Environmental Health Administration
March 1, 2012

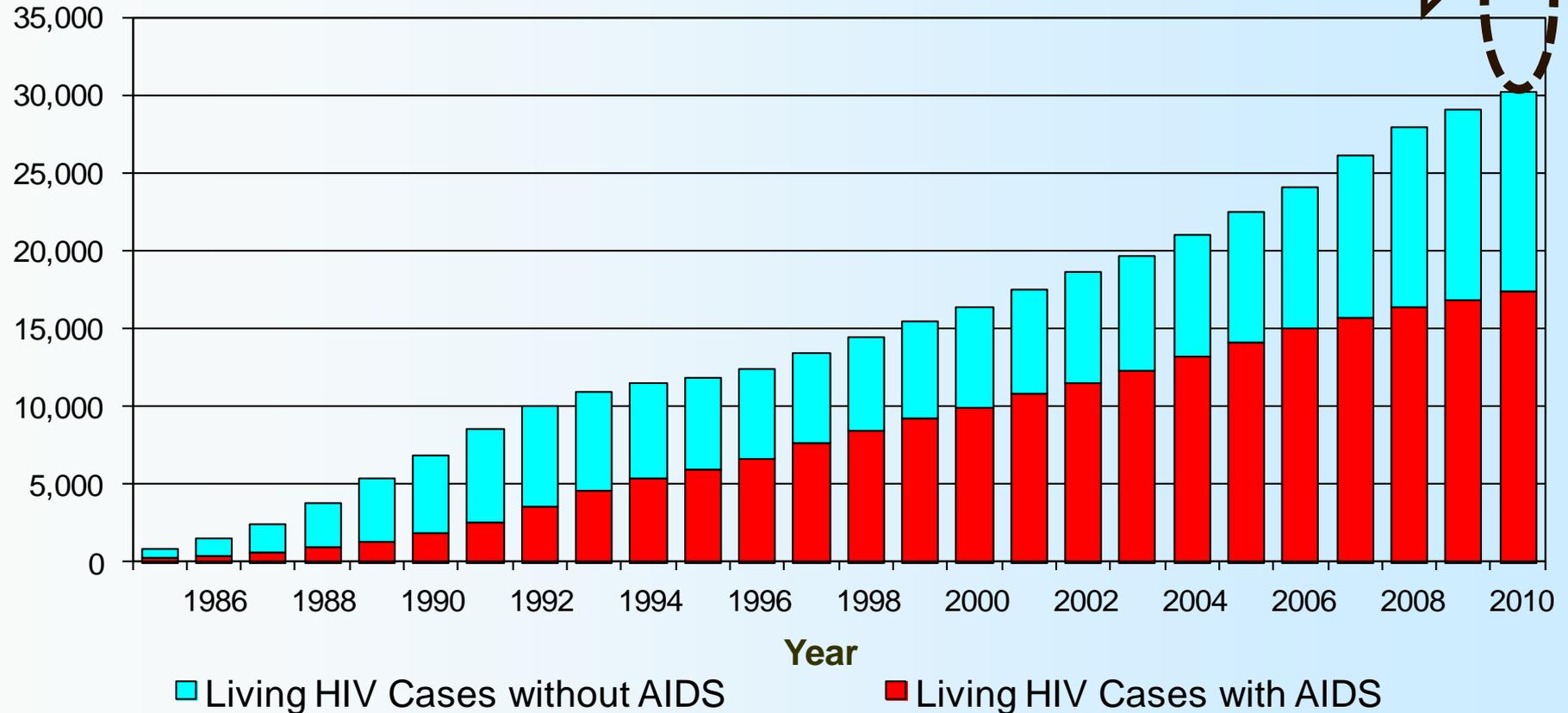


Maryland Living HIV Cases



Number of Cases

+20% Undiagnosed? →



Using data as reported through 12/31/2011

Maryland Infectious Disease and
Environmental Health Administration
March 1, 2012



Maryland Adult/Adolescent HIV/AIDS Statistics



Reported Diagnoses (during 2010)	No.	per 100,000	
HIV	1,430	29.7	
AIDS	909	18.9	
Living Cases (on 12/31/10)	No.	per 100,000	1 in X
HIV without AIDS	12,465	258.8	
HIV with AIDS	17,177	356.6	
Total HIV	29,642	615.5	162

Using data as reported through 12/31/2011



Maryland Living HIV Cases

Reported HIV cases with or without an AIDS diagnosis and not reported to have died as of 12/31/10 as reported by name through 12/31/11



Living Adult/Adolescent HIV Diagnoses on 12/31/10 (N=29,642)

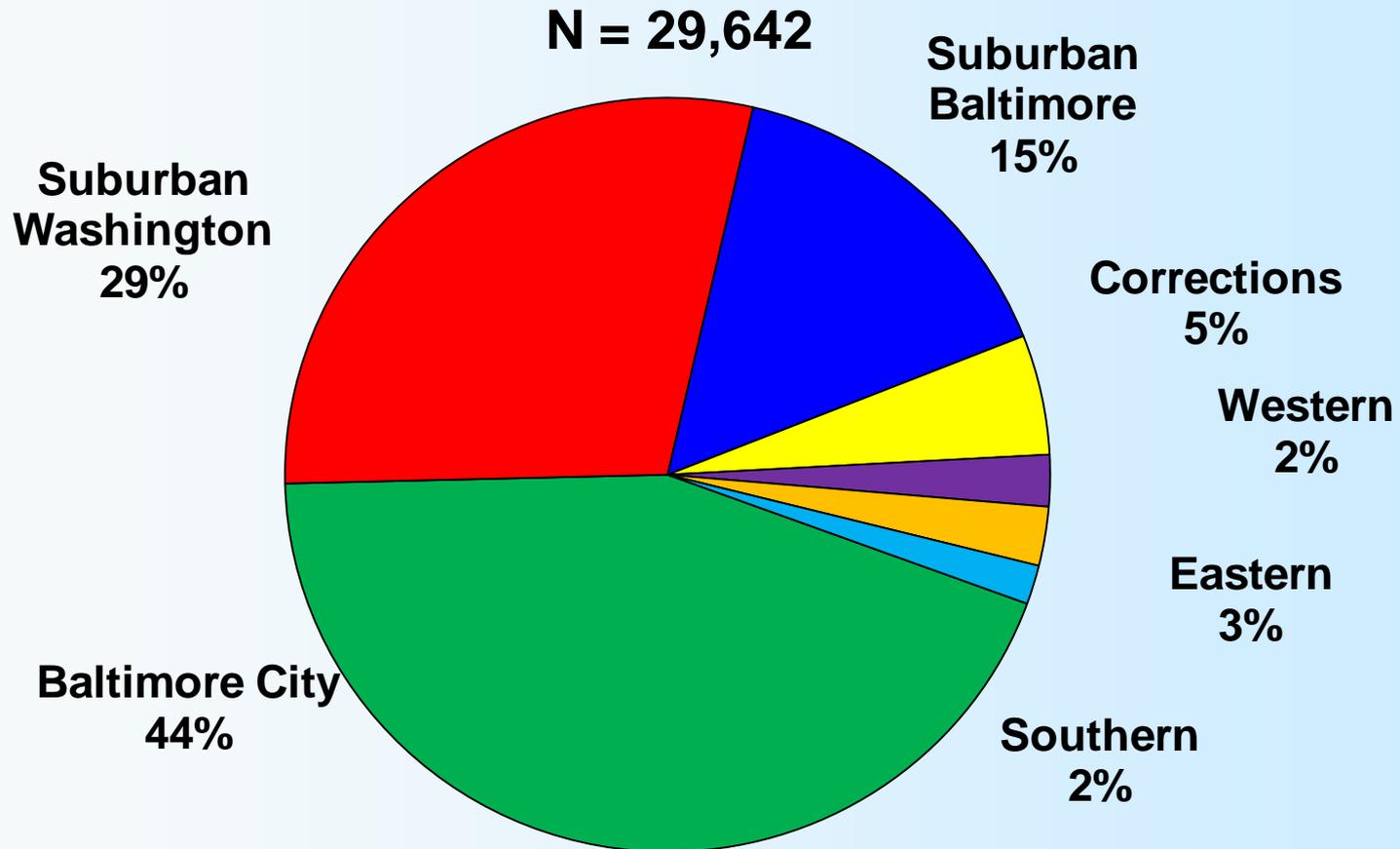


- Engagement in Care: 46% had a CD4 test and 41% had a VL test in the last 12 months
- Immunosuppression: The median CD4 value for those with a CD4 test was 451 cells/microliter
- Viral Suppression: 50% of those with a VL test had undetectable VL levels

Using data as reported through 12/31/2011



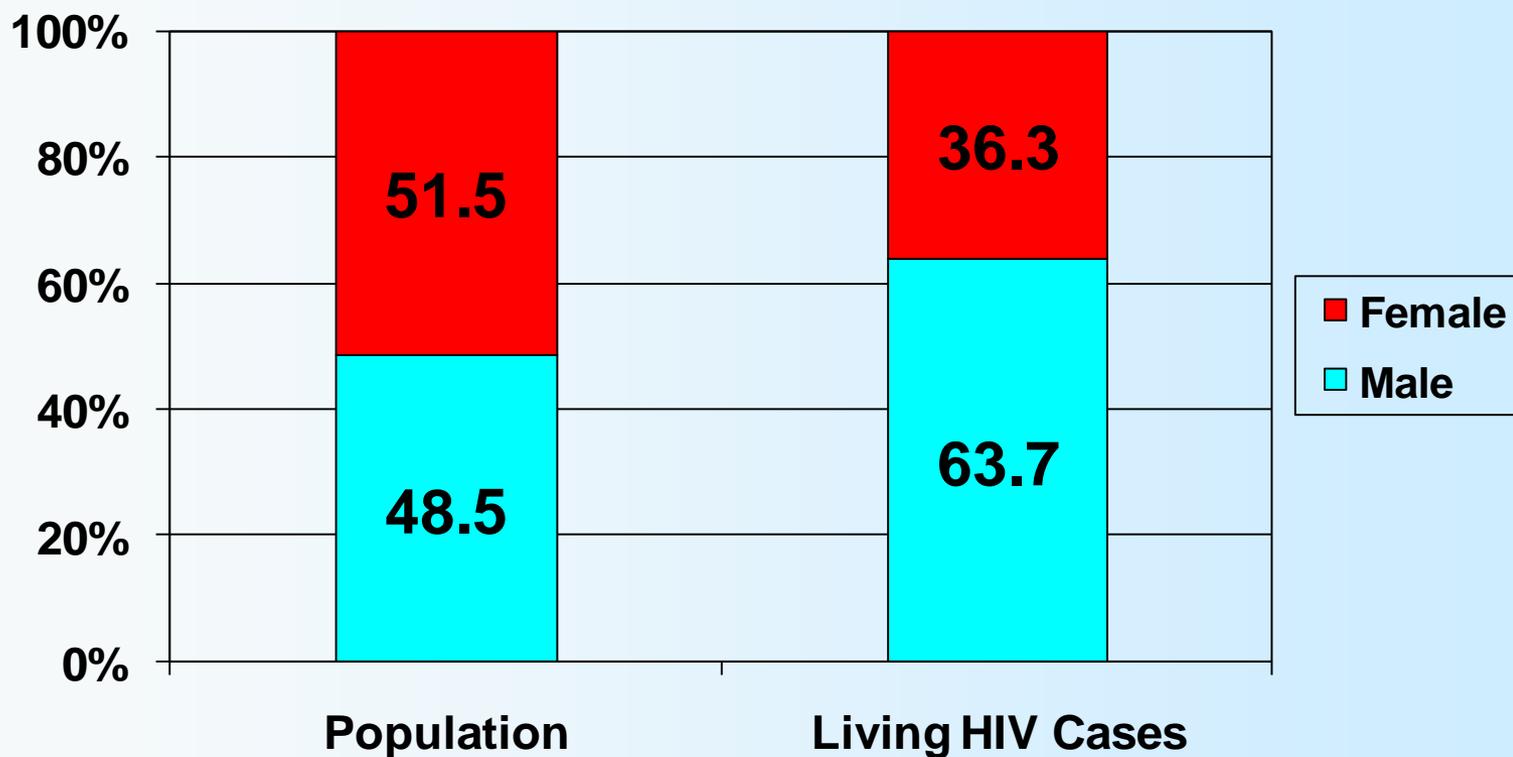
Maryland Living Adult/Adolescent HIV Cases by Region, 12/31/10



Using data as reported through 12/31/2011



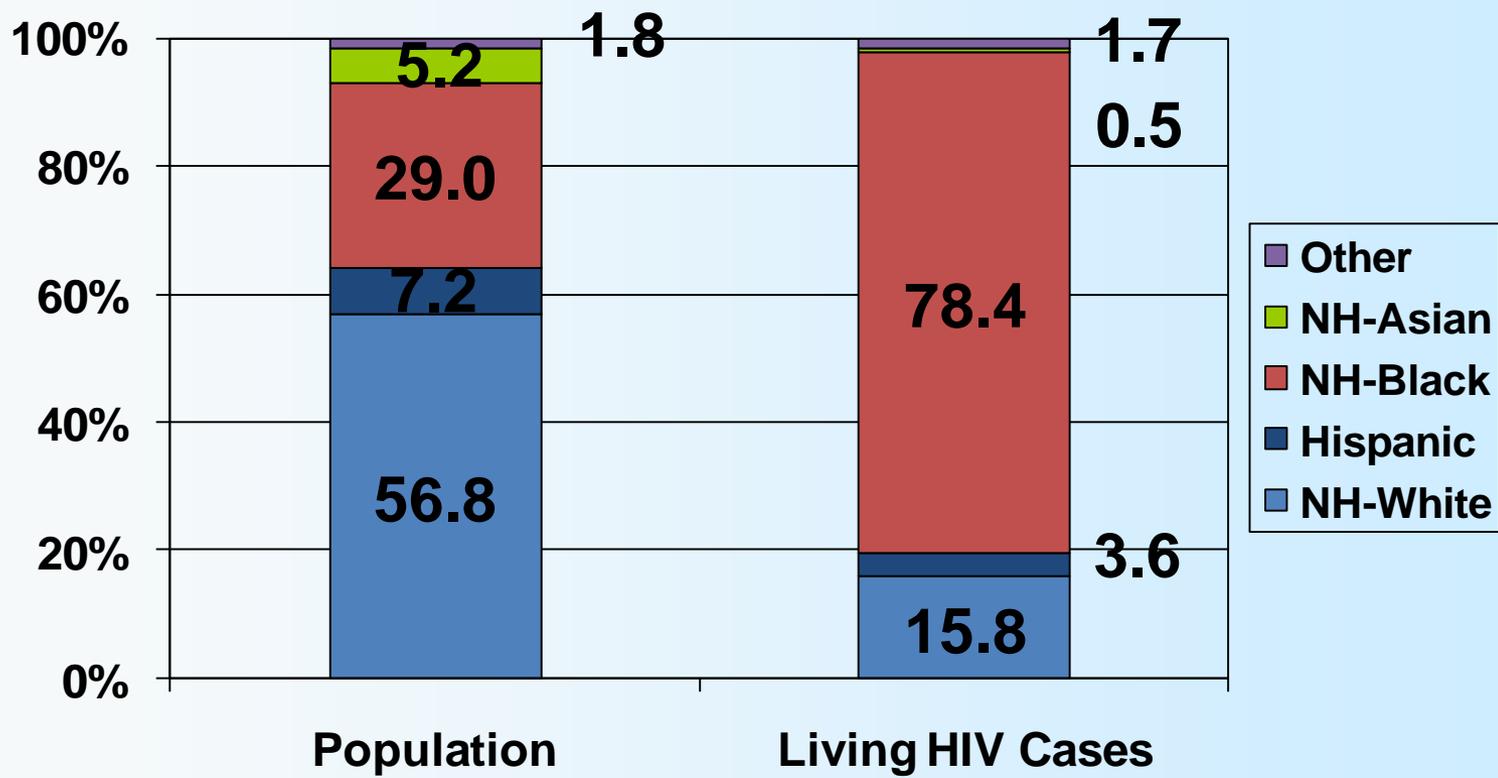
Population and Living HIV Cases by Sex at Birth



Population on 7/1/09, Cases on 12/31/09
as reported through 12/31/10



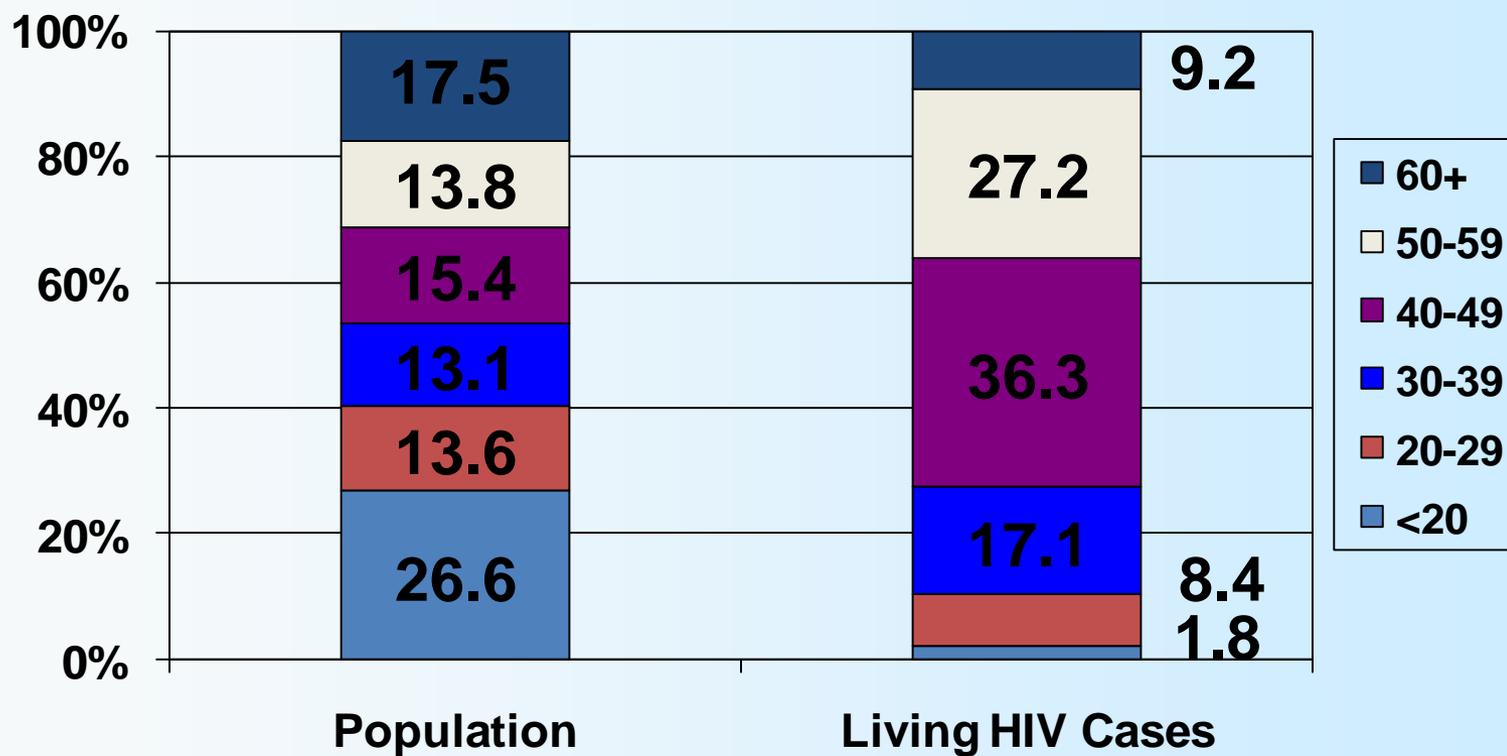
Population and Living HIV Cases by Race/Ethnicity



Population on 7/1/09, Cases on 12/31/09
as reported through 12/31/10



Population and Living HIV Cases by Age



Population on 7/1/09, Cases on 12/31/09
as reported through 12/31/10

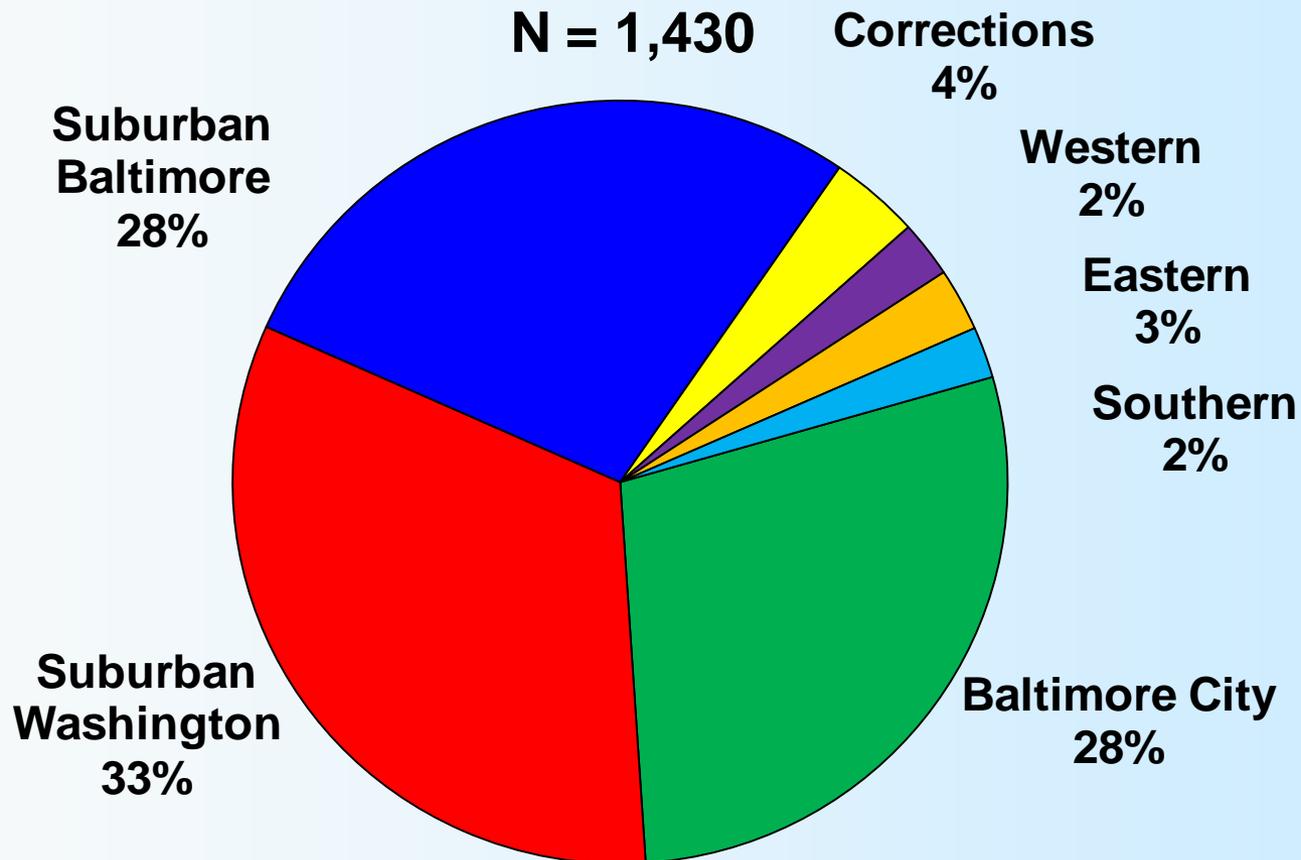


Maryland Reported HIV Diagnoses

Reported HIV cases with or without an AIDS diagnosis, diagnosed with HIV during 2010, as reported by name through 12/31/11



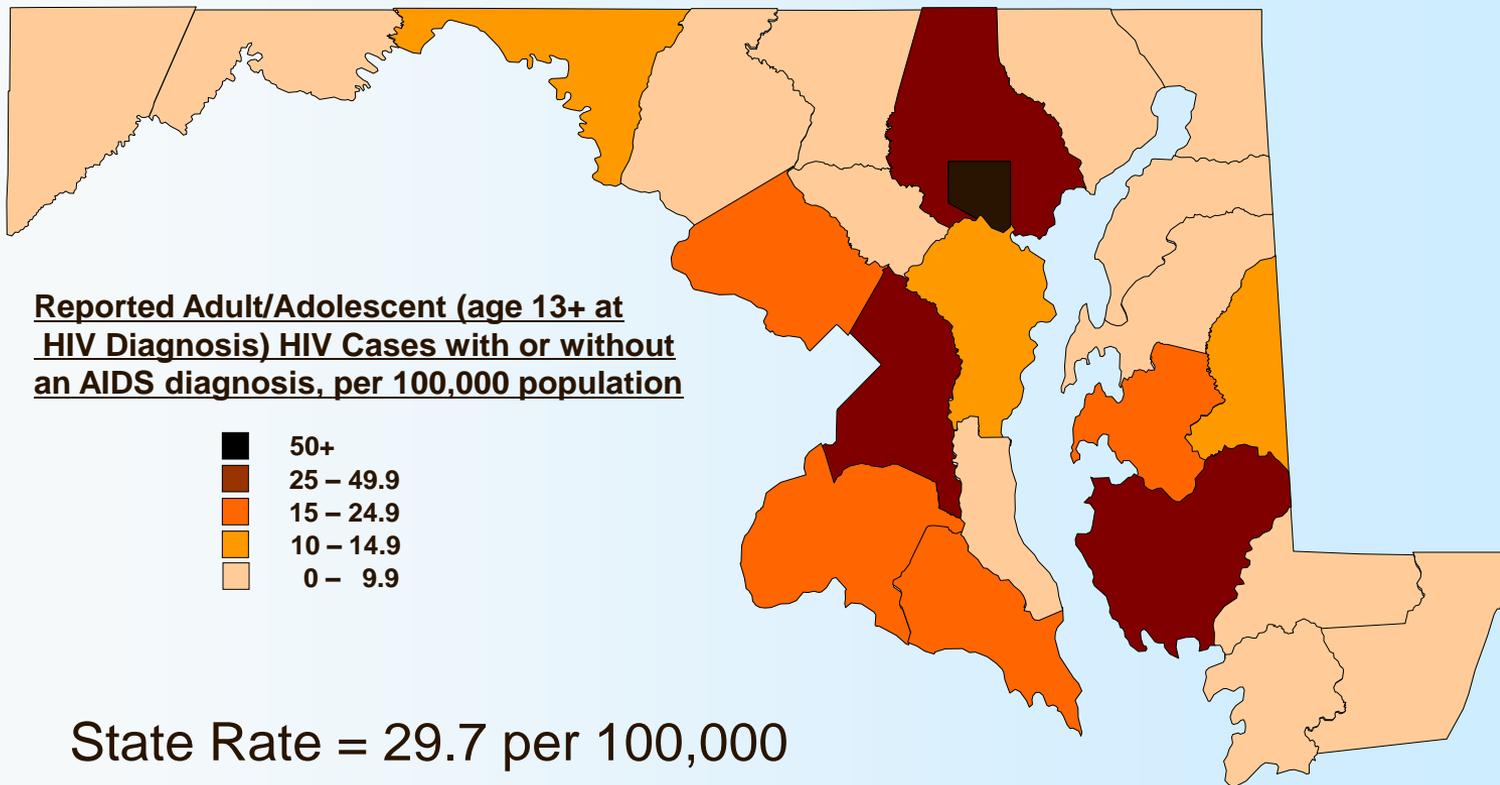
Maryland Reported Adult/Adolescent HIV Diagnoses by Region, 2010



Using data as reported through 12/31/2011



Maryland Reported Adult/Adolescent HIV Diagnosis Rates by Jurisdiction, 2010



Using data as reported through 12/31/2011



2010 Reported Adult/Adolescent HIV Diagnoses (N=1,430)



- Linkage to Care: 68% had a CD4 or VL test within 3 months of HIV diagnosis
- CD4 at Diagnosis: 72% had a CD4 test within 12 months of HIV diagnosis, and the median value was 327 cells/microliter
- Late HIV Diagnosis: 30% had an AIDS diagnosis within 12 months of their HIV diagnosis

Using data as reported through 12/31/2011



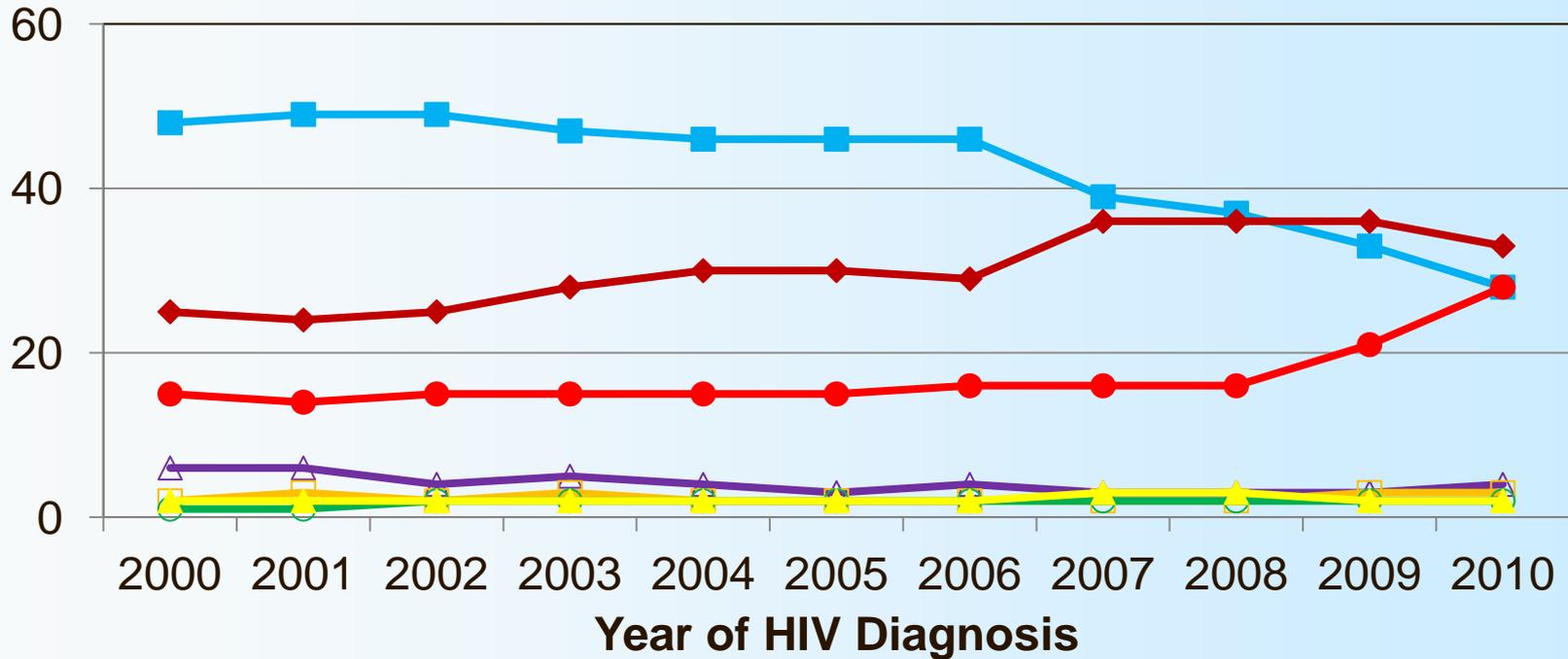
Epidemiological Trends



Reported Adult/Adolescent HIV Diagnosis Trends by Region



Percent



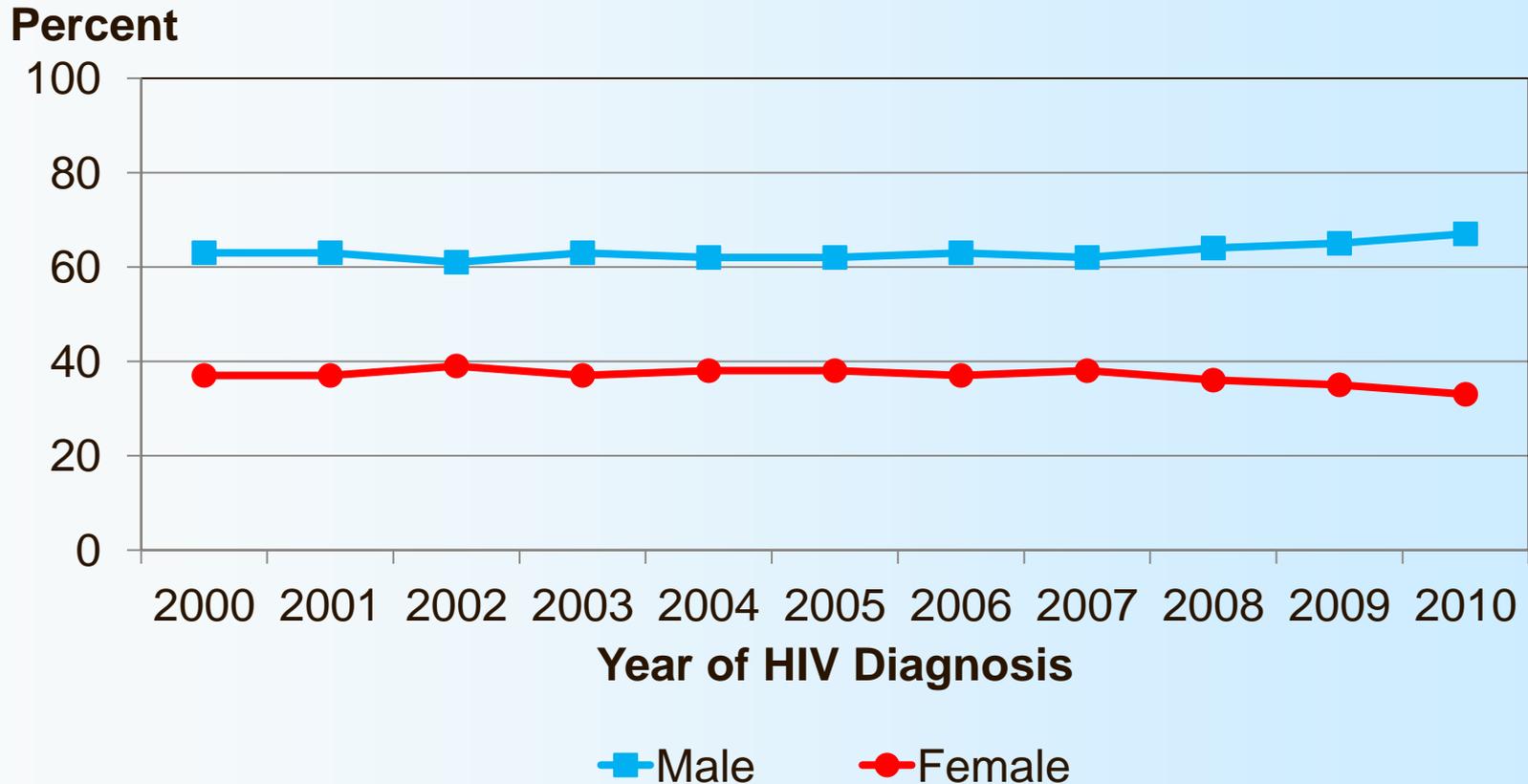
- Baltimore City
- Suburban Baltimore
- ◆ Suburban Washington
- ▲ Corrections
- Eastern
- Southern

Using data as reported through 12/31/2011

Maryland Infectious Disease and
Environmental Health Administration
March 1, 2012



Reported Adult/Adolescent HIV Diagnosis Trends by Sex at Birth

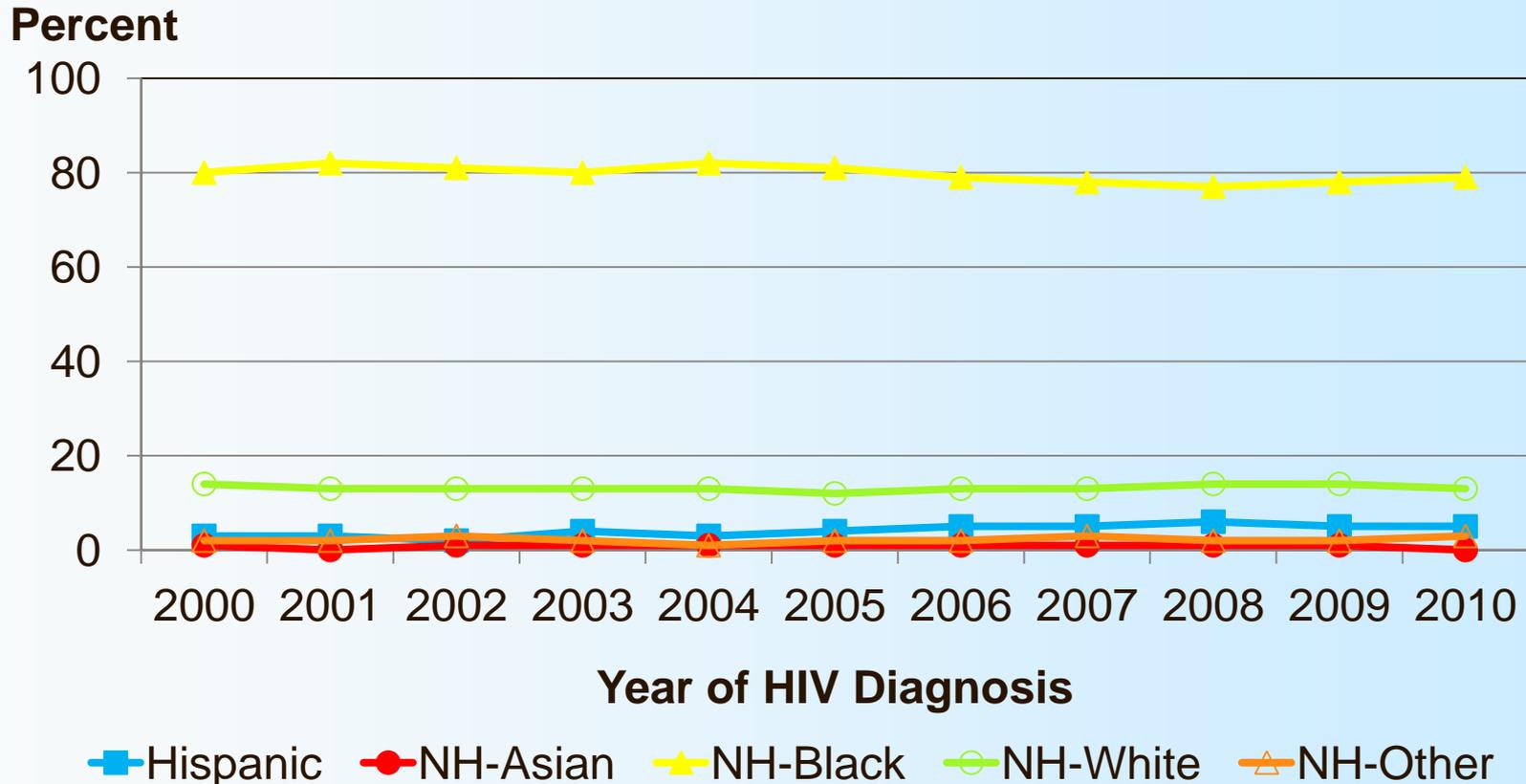


Using data as reported through 12/31/2011

Maryland Infectious Disease and
Environmental Health Administration
March 1, 2012



Reported Adult/Adolescent HIV Diagnosis Trends by Race/Ethnicity

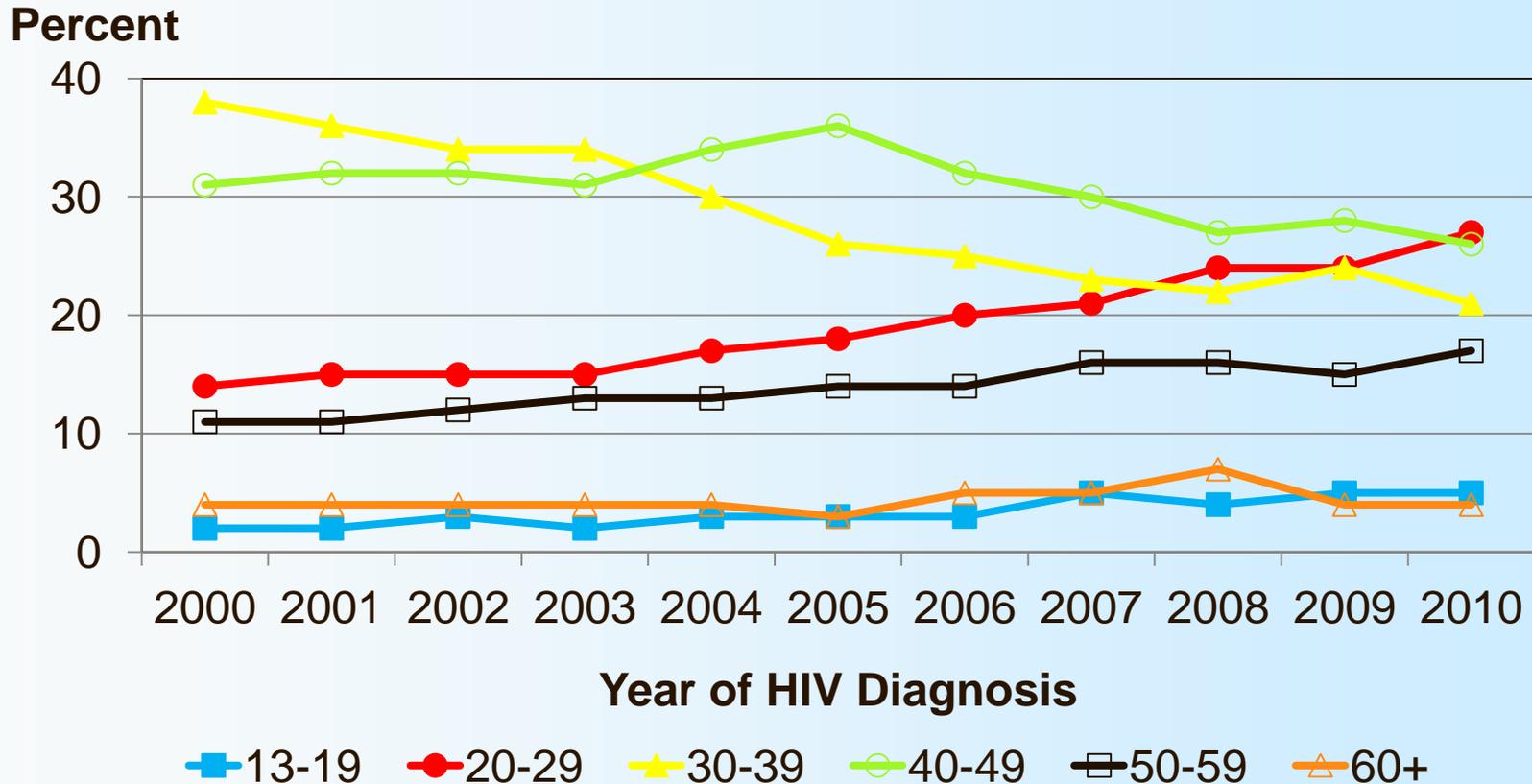


Using data as reported through 12/31/2011

Maryland Infectious Disease and
Environmental Health Administration
March 1, 2012



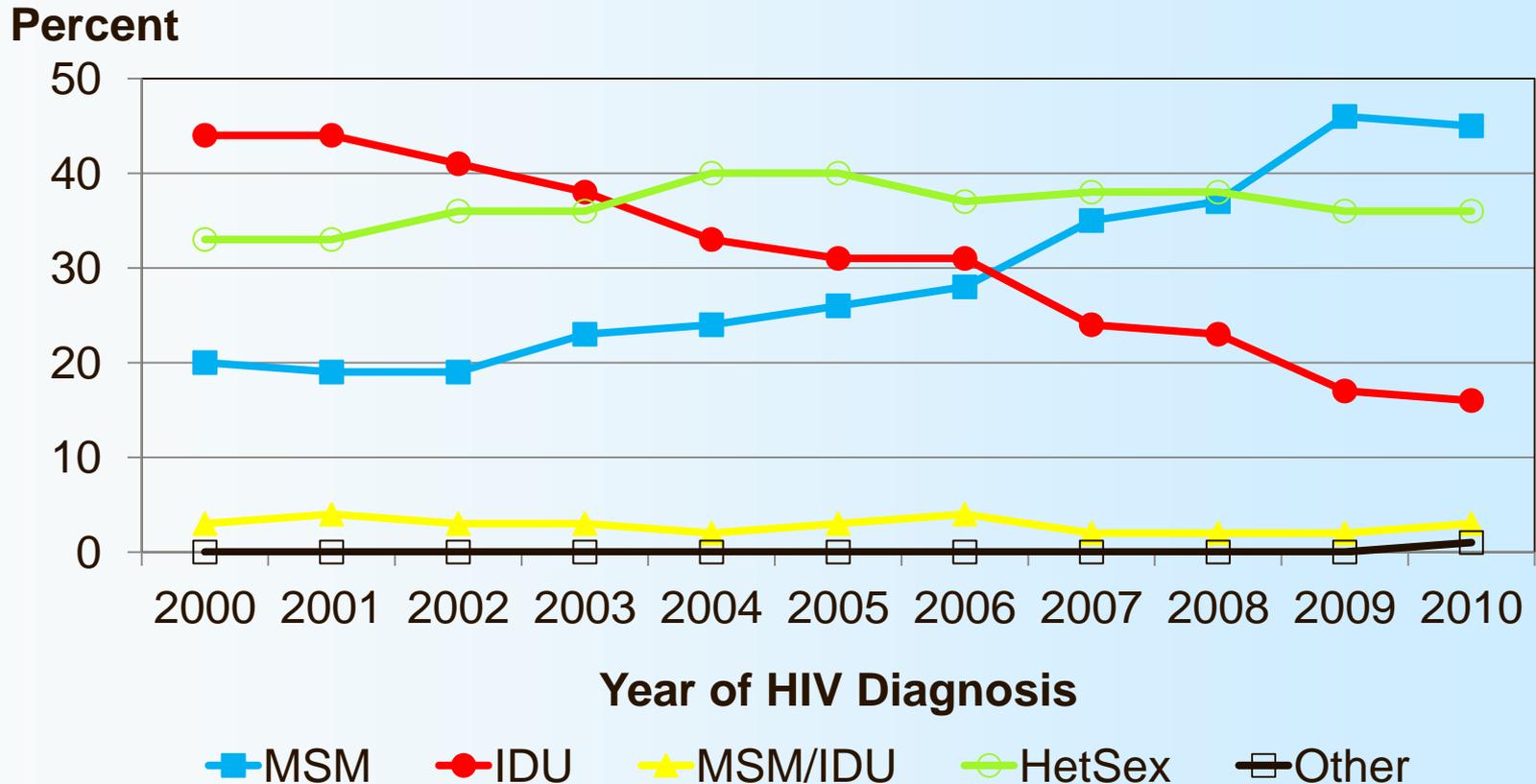
Reported Adult/Adolescent HIV Diagnosis Trends by Age at Diagnosis



Using data as reported through 12/31/2011



Reported Adult/Adolescent HIV Diagnosis Trends by Exposure Category



Using data as reported through 12/31/2011

Maryland Infectious Disease and
Environmental Health Administration
March 1, 2012

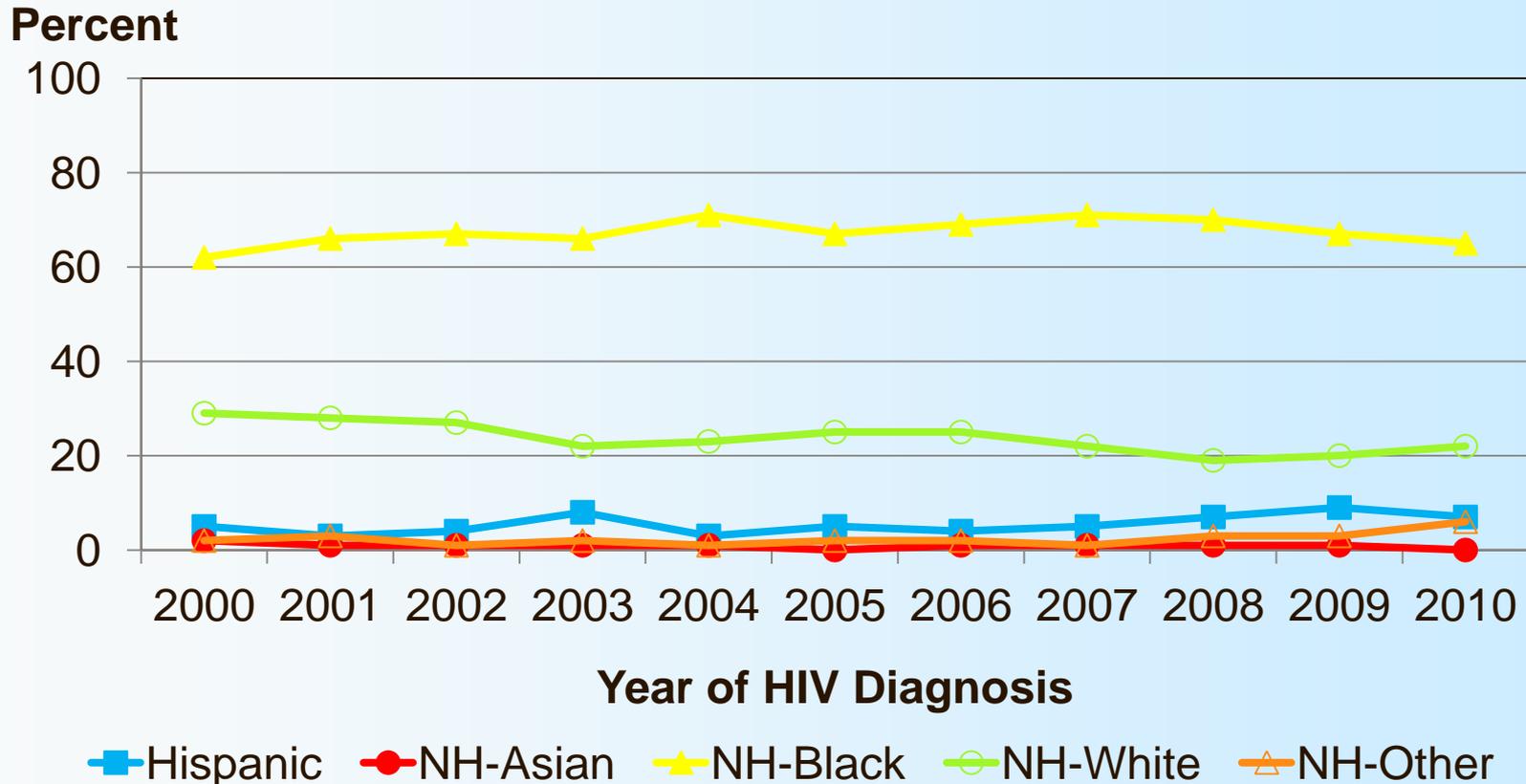


Maryland Reported HIV Diagnosis Trends

MSM Exposure



Reported Adult/Adolescent HIV Diagnosis Trends by Race/Ethnicity – MSM Exposure

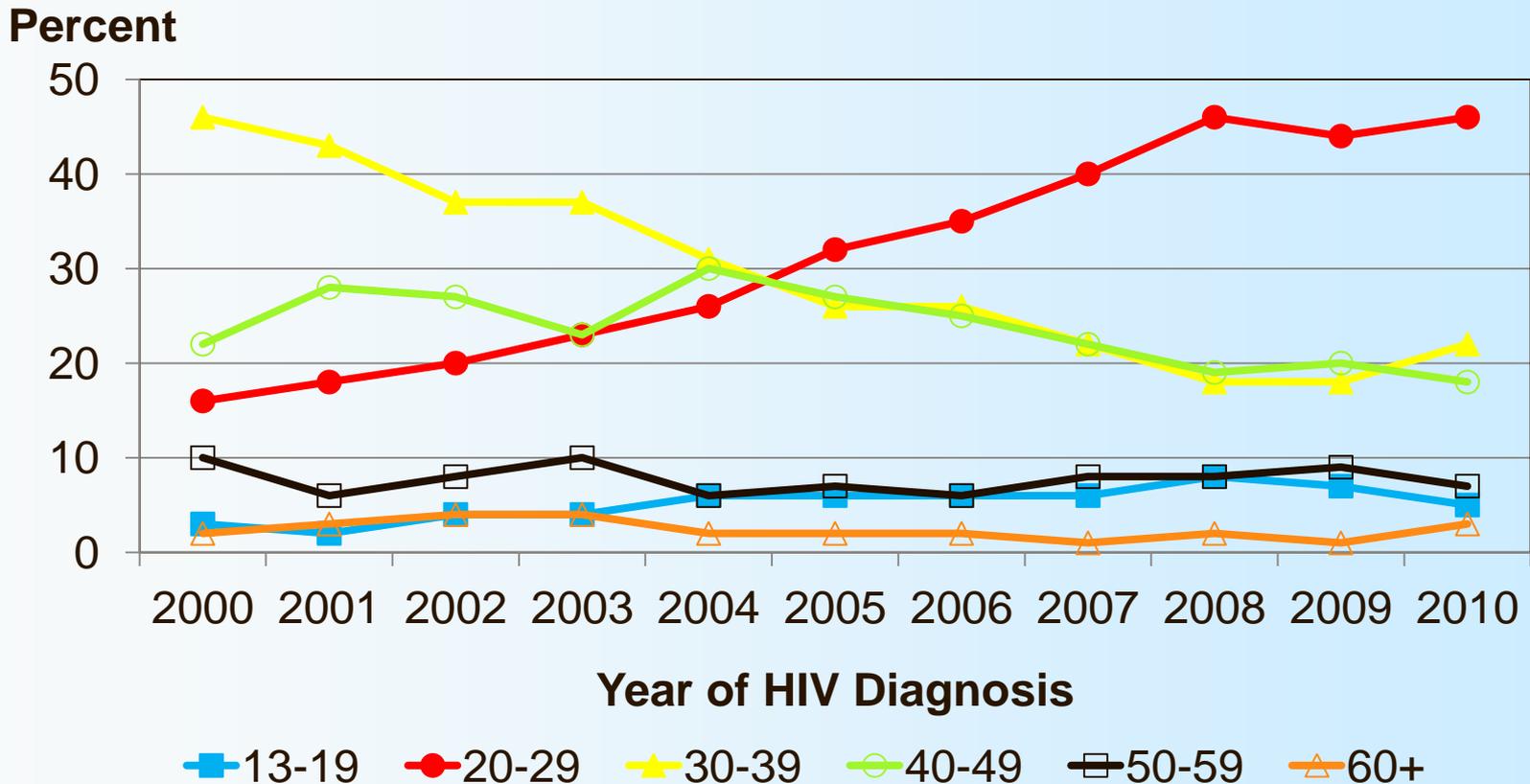


Using data as reported through 12/31/2011

Maryland Infectious Disease and
Environmental Health Administration
March 1, 2012



Reported Adult/Adolescent HIV Diagnosis Trends by Age at Diagnosis – MSM Exposure



Using data as reported through 12/31/2011

Maryland Infectious Disease and
Environmental Health Administration
March 1, 2012



Behavioral Surveillance MSM Overview



	Wave 1 June 2004 – Apr 2005	Wave 2 Aug – Nov 2008
Data collection method	Venue – based	Venue – based
Total MSM in past year *	645	448
HIV prevalence	37.7%	37.5%
Prevalence unrecognized infection	58.4%	78.4%

Preliminary results for Wave 3 (2011) similar to Wave 2

*Complete survey and HIV test

Maryland Infectious Disease and
Environmental Health Administration
March 1, 2012



2010 Reported Adult/Adolescent MSM HIV Diagnoses (N=208)



- Linkage to Care: 74% had a CD4 or VL test within 3 months of HIV diagnosis
- CD4 at Diagnosis: 81% had a CD4 test within 12 months of HIV diagnosis, and the median value was 351 cells/microliter
- Late HIV Diagnosis: 31% had an AIDS diagnosis within 12 months of their HIV diagnosis

Using data as reported through 12/31/2011

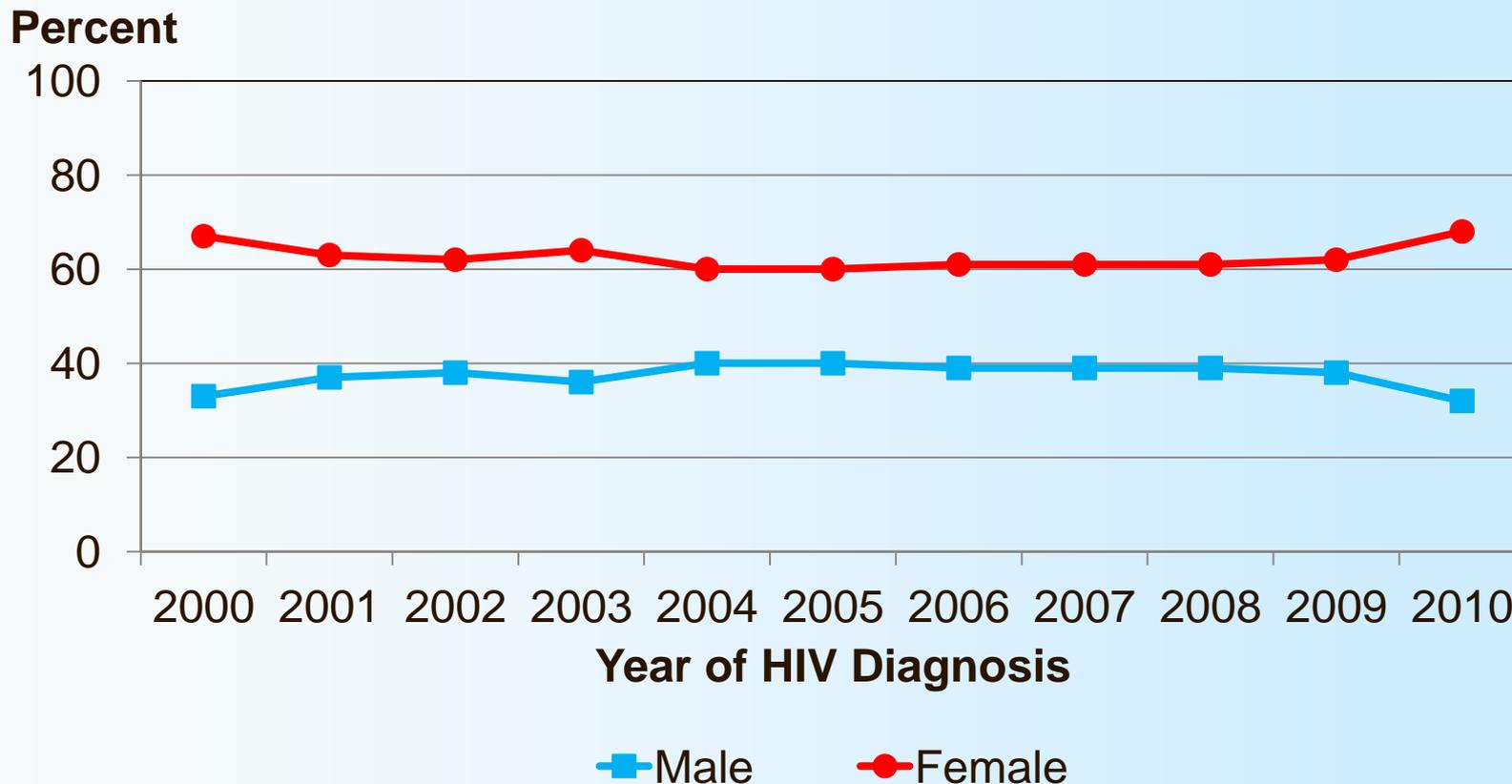


Maryland Reported HIV Diagnosis Trends

Heterosexual Exposure



Reported Adult/Adolescent HIV Diagnosis Trends by Sex at Birth – Heterosexual Exposure

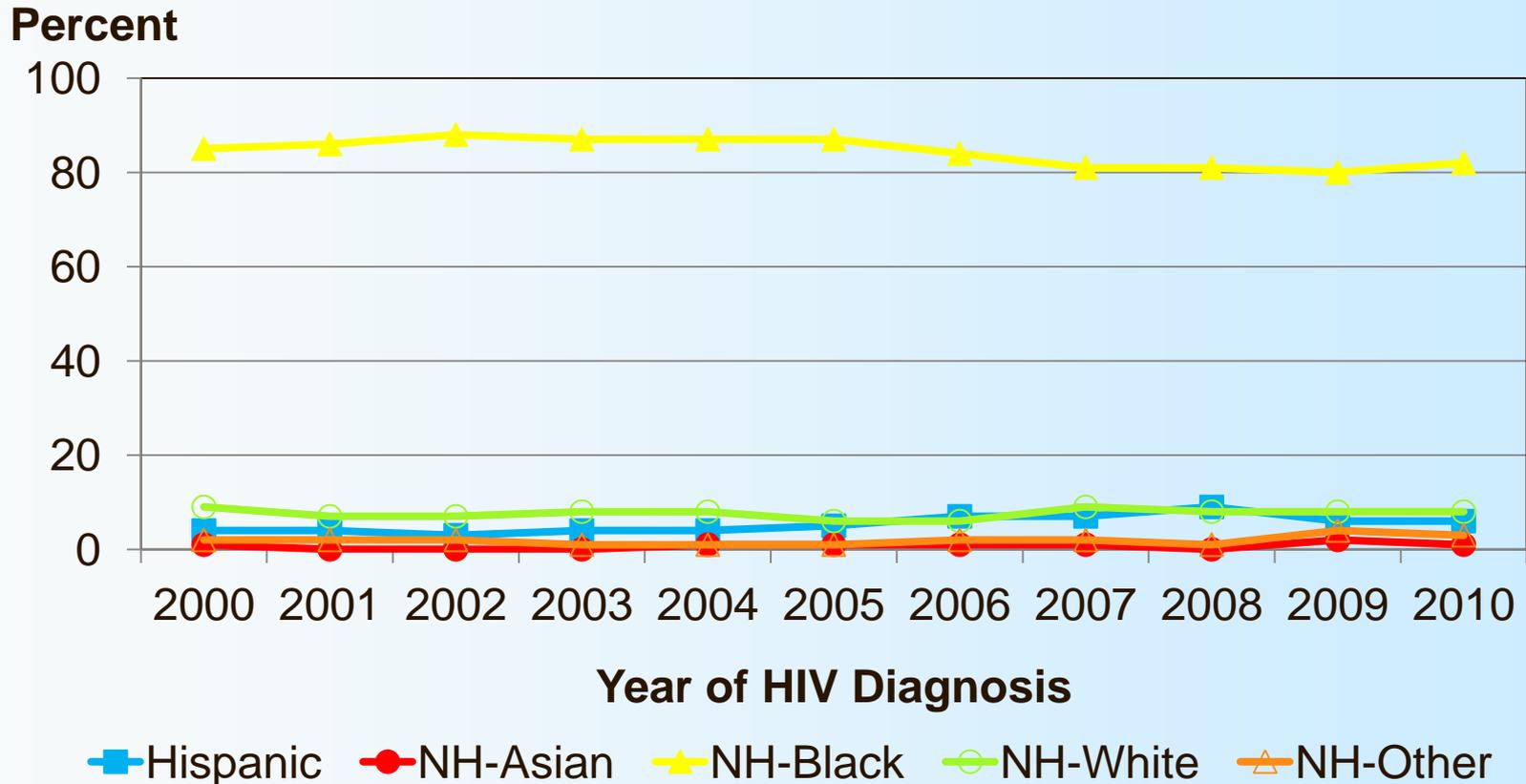


Using data as reported through 12/31/2011

Maryland Infectious Disease and
Environmental Health Administration
March 1, 2012



Reported Adult/Adolescent HIV Diagnosis Trends by Race/Ethnicity – Heterosexual Exposure

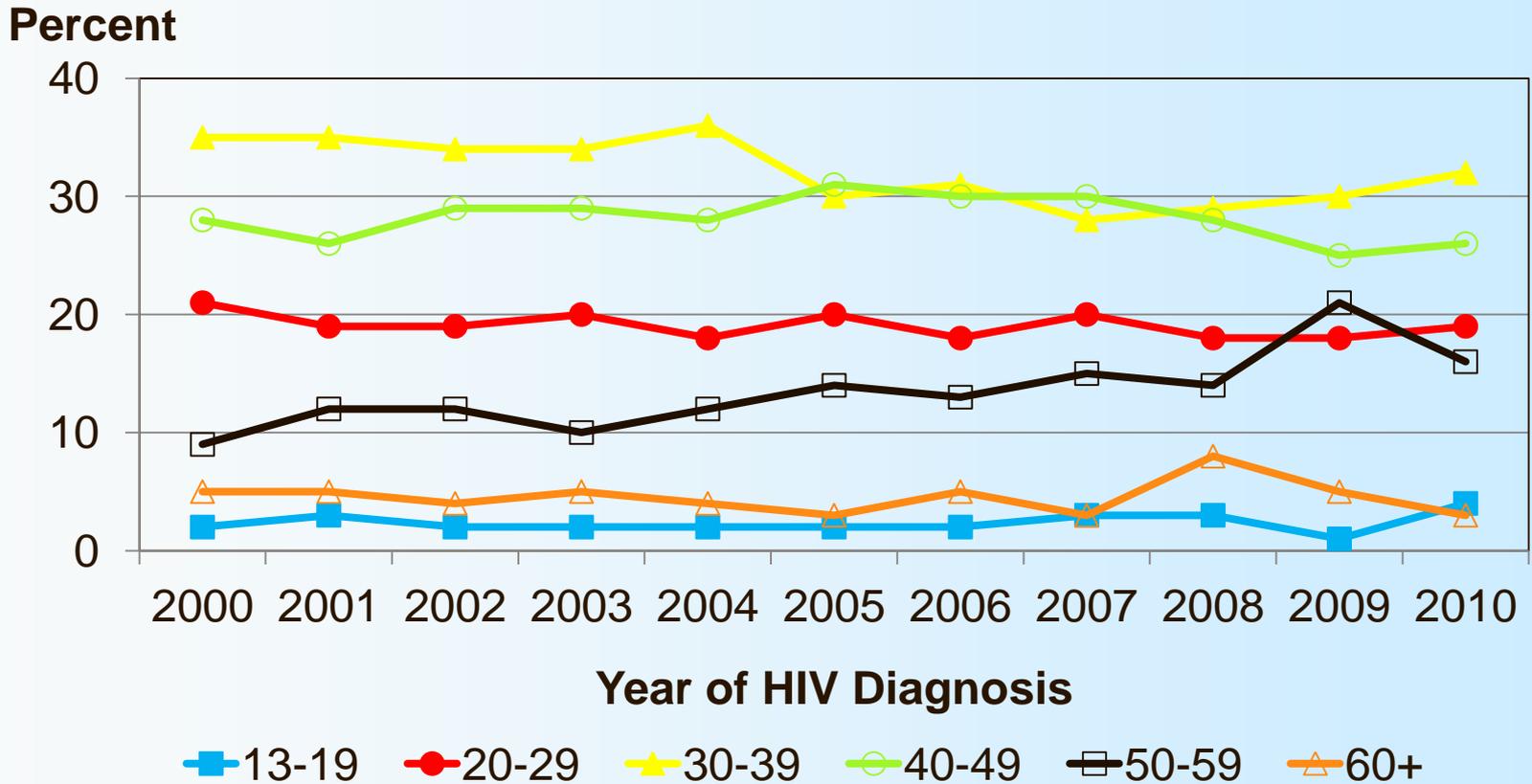


Using data as reported through 12/31/2011

Maryland Infectious Disease and
Environmental Health Administration
March 1, 2012



Reported Adult/Adolescent HIV Diagnosis Trends by Age at Diagnosis – Heterosexual Exposure



Using data as reported through 12/31/2011



Behavioral Surveillance HET Overview



	Wave 1 July – Oct 2007	Wave 2 Sept – Dec 2010
Data collection method	Venue – based	Respondent Driven
Total recruited *	332	338
HIV prevalence	3.9%	6.3%
Prevalence unrecognized infection	83.3%	62.5%

*Complete survey and HIV test

Maryland Infectious Disease and
Environmental Health Administration
March 1, 2012



2010 Reported Adult/Adolescent Heterosexual HIV Diagnoses (N=167)



- Linkage to Care: 82% had a CD4 or VL test within 3 months of HIV diagnosis
- CD4 at Diagnosis: 86% had a CD4 test within 12 months of HIV diagnosis, and the median value was 338 cells/microliter
- Late HIV Diagnosis: 38% had an AIDS diagnosis within 12 months of their HIV diagnosis

Using data as reported through 12/31/2011

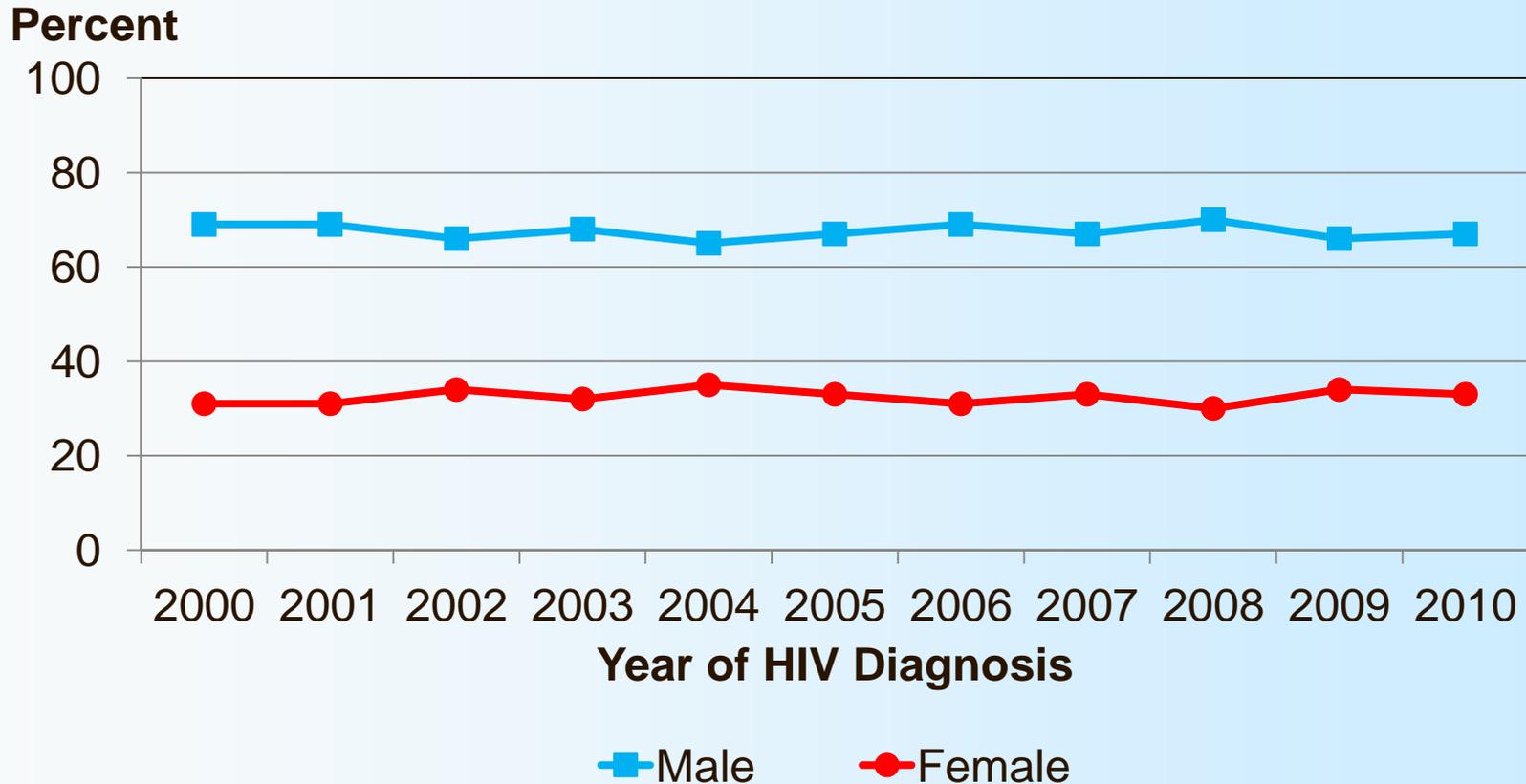


Maryland Reported HIV Diagnosis Trends

IDU Exposure



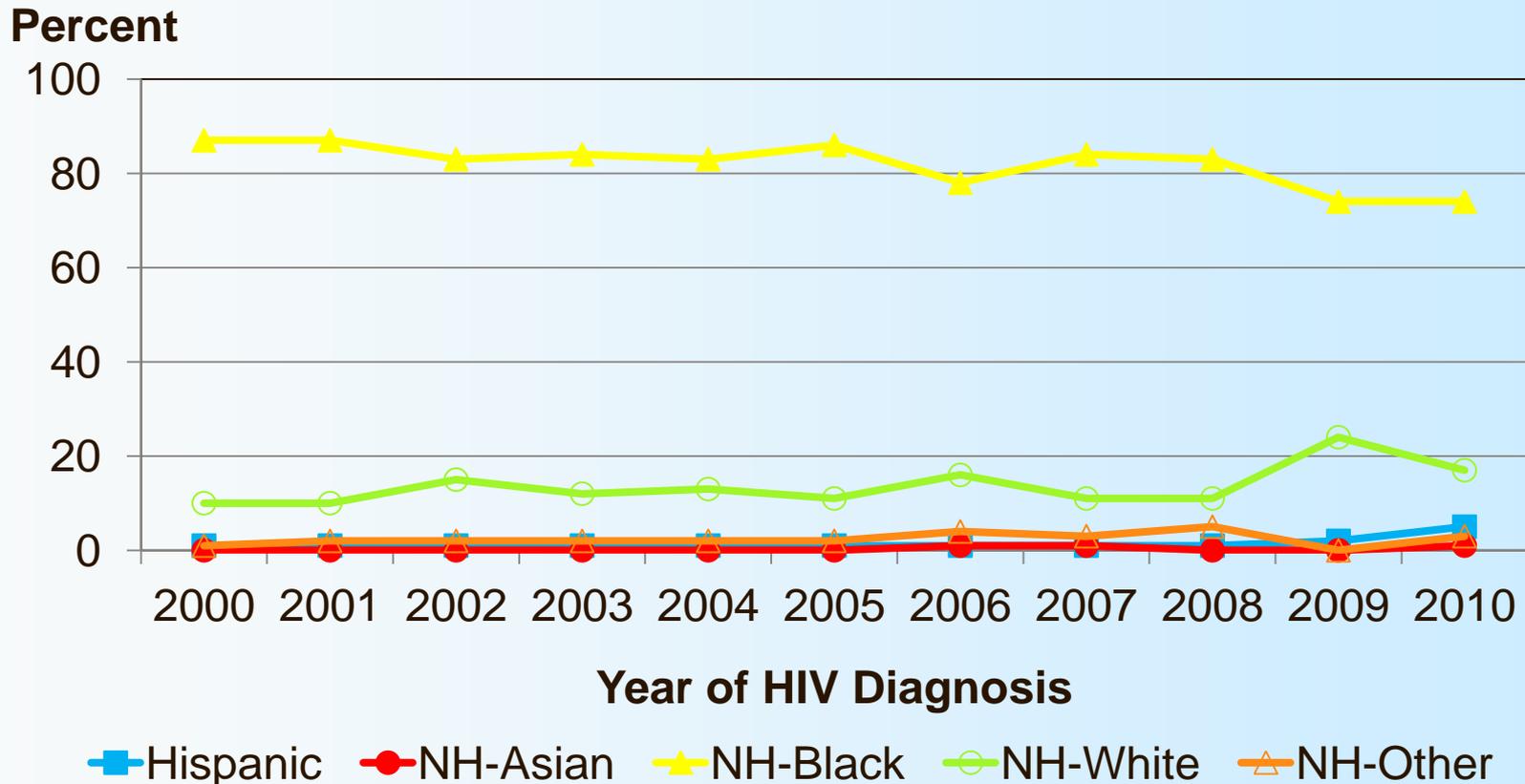
Reported Adult/Adolescent HIV Diagnosis Trends by Sex at Birth – IDU Exposure



Using data as reported through 12/31/2011



Reported Adult/Adolescent HIV Diagnosis Trends by Race/Ethnicity – IDU Exposure

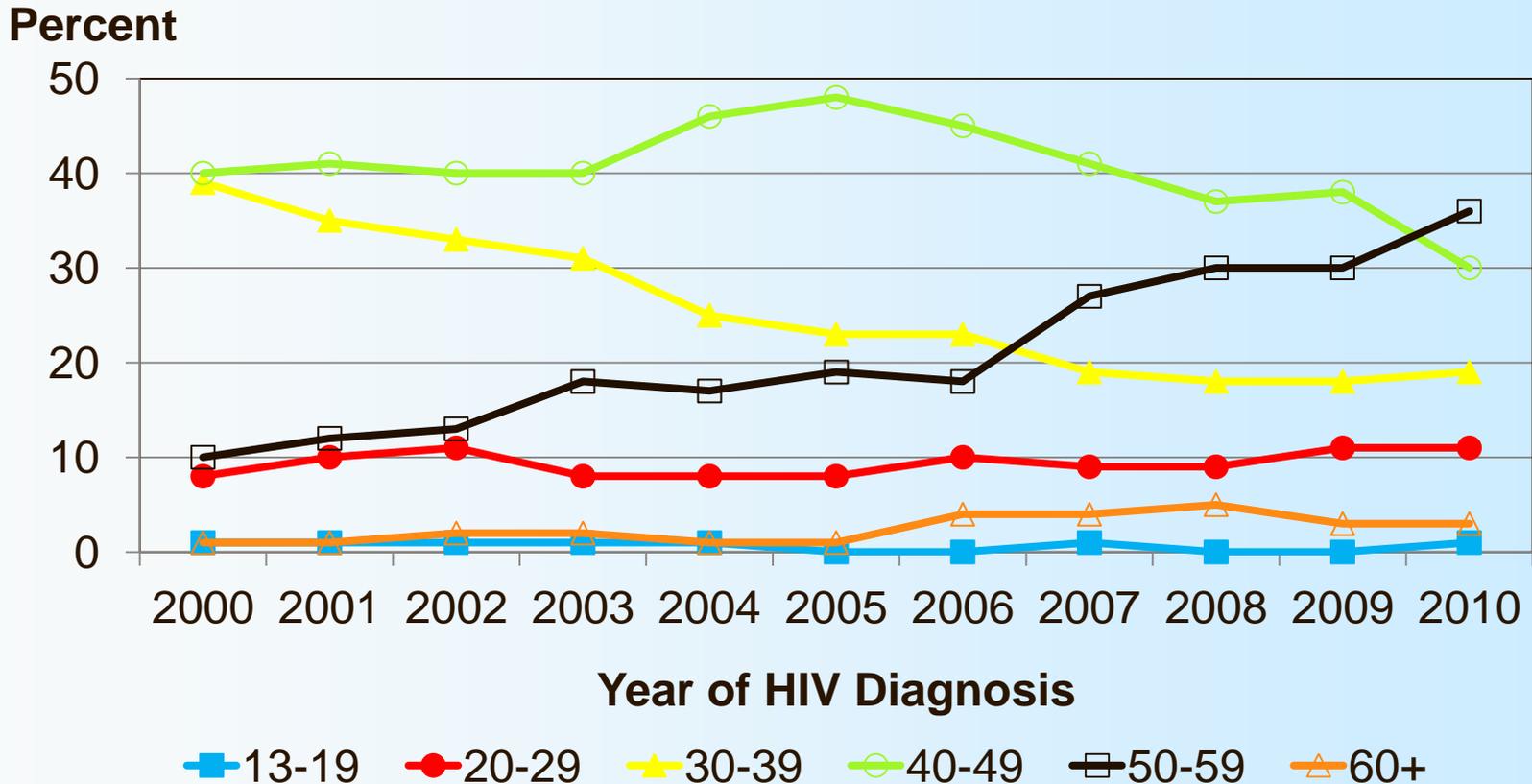


Using data as reported through 12/31/2011

Maryland Infectious Disease and
Environmental Health Administration
March 1, 2012



Reported Adult/Adolescent HIV Diagnosis Trends by Age at Diagnosis – IDU Exposure



Using data as reported through 12/31/2011



Behavioral Surveillance IDU Overview



	Wave 1 Aug 2006 – Jan 2007	Wave 2 Sept – Dec 2009
Data collection method	Respondent Driven	Respondent Driven
Total IDU in past year *	539	507
HIV prevalence	11.9%	16.2%
Prevalence unrecognized infection	50%	48%

*Complete survey and HIV test



2010 Reported Adult/Adolescent IDU HIV Diagnoses (N=74)



- Linkage to Care: 81% had a CD4 or VL test within 3 months of HIV diagnosis
- CD4 at Diagnosis: 88% had a CD4 test within 12 months of HIV diagnosis, and the median value was 288 cells/microliter
- Late HIV Diagnosis: 43% had an AIDS diagnosis within 12 months of their HIV diagnosis

Using data as reported through 12/31/2011



Priority Population Recommendations



Maryland HIV Prevention Priorities



1) HIV Positive Persons

Living adult/adolescent HIV cases on
12/31/2010 (N=29,642)

81% non-Hispanic black

64% male

64% were 40-59 years old on 12/31/2010



Maryland HIV Prevention Priorities (continued)



2) Men who have Sex with Men

47% of 2010 reported adult/adolescent HIV diagnoses (N≈680)

65% non-Hispanic black

51% were less than 30 years old at HIV diagnosis

(includes MSM and MSM/IDU)



Maryland HIV Prevention Priorities (continued)



3) Heterosexuals

36% of 2010 reported adult/adolescent HIV diagnoses (N \approx 510)

82% non-Hispanic black

68% female

58% were 30-49 years old at HIV diagnosis



Maryland HIV Prevention Priorities (continued)



4) Injection Drug Users

19% of 2010 reported HIV diagnoses (N≈265)

77% non-Hispanic black

61% male

69% were 40-59 years old at HIV diagnosis
(includes IDU and MSM/IDU)

5) Special Populations



Maryland Infectious Disease and Environmental Health Administration

<http://ideha.dhmh.maryland.gov/oideor/chse>