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

Uninfected → Exposure → Infected

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+

\[ 531,524 \times 0.0007 \times 50 \times 0.03 = 558 \text{ infections} \]

Behavioral Interventions
HIV Transmission

Exposure = Transmission Probability X Frequency X Prevalence

More undetectable viral load ➔ 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.

## 2009 Estimated AIDS Diagnoses, Ranked by Rates

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

**United States**

- Cases: 34,993
- Rate per 100,000: 11.2

## 2009 Estimated AIDS Diagnoses, Ranked by Rates

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

## 2008 Estimated Adults Living with AIDS, Ranked by Rates

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

Epidemiological Description
Maryland HIV/AIDS Trends

2001-2008 HIV high, due to reporting transition

Using data as reported through 12/31/2011
Maryland Living HIV Cases

Number of Cases

+20% Undiagnosed?

Using data as reported through 12/31/2011
### Maryland Adult/Adolescent HIV/AIDS Statistics

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

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

- Baltimore City: 44%
- Suburban Washington: 29%
- Suburban Baltimore: 15%
- Corrections: 5%
- Western: 2%
- Eastern: 3%
- Southern: 2%
- N = 29,642
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

N = 1,430

- Suburban Baltimore: 28%
- Suburban Washington: 33%
- Baltimore City: 28%
- Corrections: 4%
- Western: 2%
- Eastern: 3%
- Southern: 2%

Using data as reported through 12/31/2011
Maryland Reported Adult/Adolescent HIV Diagnosis Rates by Jurisdiction, 2010

Reported Adult/Adolescent (age 13+ at HIV Diagnosis) HIV Cases with or without an AIDS diagnosis, per 100,000 population

State Rate = 29.7 per 100,000

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

Using data as reported through 12/31/2011
Reported Adult/Adolescent HIV Diagnosis Trends by Sex at Birth

Using data as reported through 12/31/2011
Reported Adult/Adolescent HIV Diagnosis Trends by Race/Ethnicity

Using data as reported through 12/31/2011
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 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
Reported Adult/Adolescent HIV Diagnosis Trends by Age at Diagnosis – MSM Exposure

Using data as reported through 12/31/2011
### Behavioral Surveillance

#### MSM Overview

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Data collection method</td>
<td>Venue – based</td>
<td>Venue – based</td>
</tr>
<tr>
<td>Total MSM in past year *</td>
<td>645</td>
<td>448</td>
</tr>
<tr>
<td>HIV prevalence</td>
<td>37.7%</td>
<td>37.5%</td>
</tr>
<tr>
<td>Prevalence unrecognized</td>
<td></td>
<td></td>
</tr>
<tr>
<td>infection</td>
<td>58.4%</td>
<td>78.4%</td>
</tr>
</tbody>
</table>

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

*Complete survey and HIV test*
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
Using data as reported through 12/31/2011
Reported Adult/Adolescent HIV Diagnosis Trends by Age at Diagnosis – Heterosexual Exposure

Using data as reported through 12/31/2011
Behavioral Surveillance
HET Overview

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Venue – based</td>
<td>332</td>
<td>338</td>
</tr>
<tr>
<td>Respondent Driven</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total recruited *</td>
<td>3.9%</td>
<td>6.3%</td>
</tr>
<tr>
<td>HIV prevalence</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prevalence unrecognized infection</td>
<td>83.3%</td>
<td>62.5%</td>
</tr>
</tbody>
</table>

*Complete survey and HIV test
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
Reported Adult/Adolescent HIV Diagnosis Trends by Age at Diagnosis – IDU Exposure

Using data as reported through 12/31/2011
Behavioral Surveillance
IDU Overview

**Behavioral Surveillance**

**IDU Overview**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Total IDU in past year *</td>
<td>539</td>
<td>507</td>
</tr>
<tr>
<td>HIV prevalence</td>
<td>11.9%</td>
<td>16.2%</td>
</tr>
<tr>
<td>Prevalence unrecognized infection</td>
<td>50%</td>
<td>48%</td>
</tr>
</tbody>
</table>

*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
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)
3) Heterosexuals

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

82% non-Hispanic black

68% female

58% were 30-49 years old at HIV diagnosis
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