Sexually Transmitted Infections in New York State and Dutchess County

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Dutchess County Department of Behavioral and Community Health
<table>
<thead>
<tr>
<th>Disease</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Chlamydia</td>
<td>1,598,354</td>
</tr>
<tr>
<td>2. Gonorrhea</td>
<td>468,514</td>
</tr>
<tr>
<td>3. Syphilis</td>
<td>88,042</td>
</tr>
<tr>
<td>4. Campylobacteriosis</td>
<td>60,120</td>
</tr>
<tr>
<td>5. Salmonellosis</td>
<td>53,850</td>
</tr>
<tr>
<td>6. Lyme disease</td>
<td>36,429</td>
</tr>
<tr>
<td>7. HIV diagnosis</td>
<td>34,755</td>
</tr>
<tr>
<td>8. Pertussis</td>
<td>17,972</td>
</tr>
</tbody>
</table>
Outline

- Overall Trends in New York State
- Eastern Dutchess County
- Chlamydia
- Gonorrhea
- Syphilis
- HIV/AIDS
- Bending the Curve
Sexually Transmitted Infection Trends in New York State

The Reportable STI’s
Age Adjusted Rate of Sexually Transmitted Infections (STIs) and HIV by Diagnosis Year, New York State, 2001-2017

HIV Data as of September 2017
Age adjusted using Surveillance, Epidemiology, and End Results Program (SEER) Data
STI Diagnosis is Linked to Very High Risk of Subsequent HIV Acquisition


Sexually Transmitted Infections
New York State including New York City (NYC), 2017*

<table>
<thead>
<tr>
<th>Condition</th>
<th>2016 Diagnoses</th>
<th>2017 Diagnoses</th>
<th>Increase Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlamydia</td>
<td>109,549</td>
<td>116,843</td>
<td>7%</td>
</tr>
<tr>
<td>Gonorrhea</td>
<td>29,048</td>
<td>34,111</td>
<td>17%</td>
</tr>
<tr>
<td>Early Syphilis</td>
<td>6,027</td>
<td>6,274</td>
<td>4%</td>
</tr>
<tr>
<td>Congenital Syphilis</td>
<td>13</td>
<td>15</td>
<td>15%</td>
</tr>
</tbody>
</table>

Years of consecutive increases:

- Chlamydia: 4 years
- Gonorrhea: 4 years
- Early Syphilis: 8 years
- Congenital Syphilis: 3 years

*Primary and secondary (P&S) syphilis diagnoses declined from 2016 to 2017; reduction in cases seen in NYC only;
## Comparison of STI Cases Reported to CDC in 2016 and 2017

### New York State to United States

<table>
<thead>
<tr>
<th></th>
<th></th>
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<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Primary &amp; Secondary Syphilis</td>
<td>27,814</td>
<td>30,644</td>
<td>+10</td>
<td>2,455</td>
<td>2,355</td>
<td>-4.2</td>
<td>6</td>
</tr>
<tr>
<td>Gonorrhea</td>
<td>468,514</td>
<td>555,608</td>
<td>+18.5</td>
<td>29,000</td>
<td>34,099</td>
<td>+17.6</td>
<td>21</td>
</tr>
<tr>
<td>Chlamydia</td>
<td>1,598,354</td>
<td>1,708,569</td>
<td>+6.9</td>
<td>109,433</td>
<td>116,814</td>
<td>+6.7</td>
<td>9</td>
</tr>
<tr>
<td>Congenital Syphilis</td>
<td>639</td>
<td>918</td>
<td>+43.7</td>
<td>13</td>
<td>16</td>
<td>+23</td>
<td>28</td>
</tr>
<tr>
<td>Total</td>
<td>2,095,321</td>
<td>2,295,739</td>
<td>+9.6</td>
<td>140,901</td>
<td>153,284</td>
<td>+8.8</td>
<td></td>
</tr>
</tbody>
</table>
The Eastern Corridor of Dutchess County
Total Number of Reported Cases of STI
Dutchess County 2014 to 2018

- City of Poughkeepsie: 2,379
- Southwest Dutchess County: 2,292
- Northwest Dutchess County: 638
- Eastern Dutchess County: 466
Chlamydia
Rate of Chlamydia by Sex and Year, New York State, 2001-2017

- Females: 70,416 diagnoses in 2017
- Males: 46,365 diagnoses
- Total: 116,843 diagnoses
New York State excluding NYC: Chlamydia Rates by County and Over Time

Case rate (per 100,000)

# Reported Cases by Year

Chlamydia Rate* by County

*Age-adjusted rates per 100,000 population

2017 data considered preliminary
Chlamydia in the Hudson Valley, New York State

Age-Adjusted Rate: Chlamydia Diagnoses per 100,000 Residents, 2017

- Westchester: 428.0
- Sullivan: 417.4
- NYS excluding NYC: 414.0
- Orange: 401.9
- Dutchess: 360.6
- Ulster: 344.8
- Rockland: 307.0
- Putnam: 209.2

Number of Diagnoses in 2017 Compared to 2012-2016 average

- No diagnoses in 2012-2017
- No diagnoses in 2017
- Less than previous average

- Up to 50% increase
- 50% to 100% increase
- More than doubled
- Diagnoses in 2017; not 2012-2016

Dots represent ZIP Codes with Gonorrhea diagnoses in 2017

New Diagnoses by Year

NYS excl NYC

- 2000: 1542
- 2001: 2749
- 2002: 2568
- 2003: 3311
- 2004: 3557
- 2005: 3927
- 2006: 4294
- 2007: 5018
- 2008: 5218
- 2009: 5300
- 2010: 5621
- 2011: 6366
- 2012: 6609
- 2013: 6651
- 2014: 6922
- 2015: 7148
- 2016: 7911
- 2017: 8393

In 2017, 67% chlamydia were diagnosed among females

Rates were highest among females, 20-24 years of age

The highest burden of chlamydia was among black, NH males females

Source: NYSDOH Bureau of Sexual Health and Epidemiology STDC@health.ny.gov
Reported Chlamydia Dutchess County NY 2001-2018
Top Testing and Treating Providers for Chlamydia Cases Dutchess County 2017

Planned Parenthood 160
Misc PMDs 151
HRHC 107
Mt Kisco 88
MG 83
Health quest 85
Missing 83
DBCH STD Clinic 82
Marist College 74
VBMC 78
CMG 63
DC Jail 48

Tester  Treater
Gonorrhea
New York State excluding NYC: Gonorrhea Rates by County and Over Time

Gonorrhea Rate* by County

- Blue: >200
- Dark Blue: 150-200
- Light Blue: 75-150
- Green: 40-75
- Light Green: <40

*Age-adjusted rates per 100,000 population

2017 data considered preliminary

# Reported Cases by Year

- 2013: 6,460
- 2014: 6,616
- 2015: 8,719
- 2016: 10,019
- 2017: 10,620

Year

# Reported cases
Gonorrhea in the Hudson Valley, New York State

Age-Adjusted Rate:
Gonorrhea Diagnoses per 100,000 Residents, 2017

- Sullivan: 113.3
- NYS excluding NYC: 99.9
- Orange: 80.3
- Westchester: 76.8
- Ulster: 75.4
- Dutchess: 73.8
- Rockland: 41.2
- Putnam: 29.3

Number of Diagnoses in 2017 Compared to 2012-2016 average
- No diagnoses in 2012-2017
- No diagnoses in 2017
- Less than previous average

New Diagnoses by Year

- NYS excluding NYC: 1127, 1149, 967, 824, 764, 813, 813, 846, 511, 1018, 957, 977, 1018, 1167, 1526

Hudson valley

In 2017, males accounted for 65% of gonorrhea diagnoses
The highest rate was among males, 20-24 years of age
Rate were highest among black, NH males and females

Source: NYS DOH Bureau of Sexual Health and Epidemiology STG@health.ny.gov
Top Testing and Treating Providers for Gonorrhea Cases Dutchess County 2017

DBCH STD Clinic: Tester 40, Treater 32
Planned Parenthood: Tester 28, Treater 27
VBMC: Tester 19, Treater 18
HRHC: Tester 18, Treater 17
Missing: Tester 18, Treater 17
Healthquest: Tester 12, Treater 11
Misc. PMDs: Tester 12, Treater 9
MHR Hospital: Tester 10, Treater 10
DC Jail: Tester 8, Treater 8
MKMG: Tester 7, Treater 7
Incidence of Early Syphilis by Year and Sex
New York State excluding NYC, 1936-2017
Rate of Primary and Secondary Syphilis by race/ethnicity * and Year, Males, NYS excluding NYC, 2017*

*Rates are age adjusted
**NH: non-Hispanic
Rate of Primary and Secondary Syphilis by Age Group and Year, Males, NYS excluding NYC, 2010-2017
Rate of Primary and Secondary Syphilis by Sex and Year, NYS excluding NYC, 1999-2017*

- Males: 507 cases in 2017
- Total: 559 cases in 2017
- Females: 52 cases in 2017

*Rates are age adjusted

2017 data considered preliminary
**Reported Diagnoses of Primary and Secondary Syphilis by Sex and Sex of Sex Partner, 2010-2017**

*82% of male cases had information on sex partners

- **MSM** – Men who report a history of sex with men
- **MSMW** – Men who report a history of sex with both men and women
- **MSW** – Men who report a history of sex with women only
- **Women only** – Women who report a history of sex with men and/or women

Legend:
- **MSM**
- **MSW**
- **MSMW**
- **Women only**
New York State excluding NYC: Early Syphilis Rates by County and Over Time

Case rate (per 100,000)

# Reported Cases by Year

Early Syphilis Rate* by County

*Age-adjusted rates per 100,000 population

2017 data considered preliminary
Early Syphilis in the Hudson Valley, New York State

Age-Adjusted Rate: Early Syphilis Diagnoses per 100,000 Residents, 2017

- Dutchess: 21.5
- Westchester: 15.8
- Orange: 14.2
- Sullivan: 13.1
- Putnam: 10.9
- NYS excluding NYC: 10.6
- Rockland: 10.3
- Ulster: 8.2

Number of Diagnoses in 2017 Compared to 2012-2016 average

- No diagnoses in 2012-2017
- No diagnoses in 2017
- Less than previous average

- Up to 50% increase
- 50% to 100% increase
- More than doubled
- Diagnoses in 2017; not 2012-2016

- Dots represent ZIP Codes with early syphilis diagnosed in 2017

New Diagnoses by Year

- Hudson Valley
- NYS excl NYC

- Source: NYSDOH Bureau of Sexual Health and Epidemiology STDC@health.ny.gov

- 89% of Early Syphilis diagnoses were among men, of which 86% were among men who have sex with men

- The highest rate was among males, 25-29 years of age

- Rates were highest among black, NH males and females
Reported Early Syphilis – Dutchess County NY 1997 - 2018
Reported Early Syphilis – Dutchess County NY 2007 - 2018
Top Testing and Treating Providers for Syphilis Cases Dutchess County 2017

![Bar chart showing top testing and treating providers for syphilis cases in Dutchess County in 2017. The chart compares HRHC, Mening, DBCH STD Clinic, HRMC - Poughkeepsie, Downstate, VBMC, DC Jail, Misc PMDS, Beacon Community Health Center, Orange County STD Clinic, and DC Jail. The providers are ranked based on the number of tests and treatments performed.]
SYPHILIS IN NEWBORNS IS ON THE RISE IN U.S.

Congenital syphilis is a tragic disease that can cause miscarriages, premature births, stillbirths, or even death of newborn babies.

In the past 4 years, cases of congenital syphilis have MORE THAN DOUBLED

<table>
<thead>
<tr>
<th>Year</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>362</td>
</tr>
<tr>
<td>2014</td>
<td>462</td>
</tr>
<tr>
<td>2015</td>
<td>492</td>
</tr>
<tr>
<td>2016</td>
<td>639</td>
</tr>
<tr>
<td>2017</td>
<td>918</td>
</tr>
</tbody>
</table>

The chance of a mother passing syphilis onto her unborn baby if left untested or untreated is 80%.

Source: U.S. Centers for Disease Control and Prevention

CONGENITAL SYPHILIS IS:
A SOURCE OF MAJOR HEALTH PROBLEMS, EVEN DEATH
PREVENTABLE

NEW YORK STATE OF OPPORTUNITY.

Department of Health

ANDREW M. CUOMO
Governor

HOWARD A. ZUCKER, M.D., J.D.
Commissioner

SALLY DRESLIN, M.S., R.N.
Executive Deputy Commissioner

To: Family Planning Providers, Hospitals, Emergency Rooms, Community Health Centers, Urgent Care, College Health Centers, Local Health Departments, Community Based Organizations, and Internal Medicine, Obstetrics and Gynecology, Pediatric, Adolescent Medicine, Dermatology, Family Medicine, Infectious Disease, and Primary Care Providers

From: New York State Department of Health, AIDS Institute, Bureau of Sexual Health & Epidemiology

Date: July 16, 2018

HEALTH ADVISORY: CONGENITAL SYPHILIS INCREASING IN NEW YORK STATE (NYS) EXCLUDING NEW YORK CITY (NYC)

SUMMARY

- Congenital syphilis (CS) diagnoses increased 167% in 2017 (n=8) compared to the average number of annual diagnoses from 2014 – 2016 (n=3).
- Preliminary 2018 data suggest this concerning trend will continue, with four cases diagnosed in the first three months of the year.
- CS can cause miscarriage, stillbirth, prematurity, or death shortly after birth.
- Infants born with CS may have and/or develop deformed bones, neurological problems, skin rashes, severe anemia, jaundice, or meningitis.
- Providers who provide care for women of childbearing age are encouraged to take measures to ensure timely screening, diagnosis, and treatment of syphilis infection.
Primary and Secondary Syphilis Diagnoses by Region and Sex: 2016-2017

<table>
<thead>
<tr>
<th>Region</th>
<th>Male 2016</th>
<th>Male 2017</th>
<th>Female 2016</th>
<th>Female 2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>New York City</td>
<td>503</td>
<td>507</td>
<td>29</td>
<td>69</td>
</tr>
<tr>
<td>Rest of State</td>
<td>507</td>
<td>1707</td>
<td>79</td>
<td>20%</td>
</tr>
</tbody>
</table>

- Male New York City: 1%
- Male Rest of State: 6%
- Female New York City: 79%
- Female Rest of State: 20%
Congenital Syphilis and Primary and Secondary Syphilis Cases among Women of Childbearing Age, by County, New York State excluding New York City, 2013-2018

Number of Primary and Secondary Syphilis Cases (n=108)
- Zero Cases
- 1 Case
- 2 - 5 Cases
- >5 Cases

* Source: AIDS Institute, Bureau of Sexual Health and Epidemiology. For internal use only, do not release.

2017 data considered preliminary
Number and Rate of Mother-to-Child HIV Transmissions by Year of Delivery, New York State, 1997-2017

* 1990 - estimate based on 1,898 exposures and an estimated 25% transmission rate
** 1997 data include February-December births.
Reported Congenital Syphilis Dutchess County NY 1997 - 2018

- 1997: 0
- 1998: 0
- 1999: 0
- 2000: 0
- 2001: 0
- 2002: 0
- 2003: 2
- 2004: 2
- 2005: 0
- 2006: 1
- 2007: 1
- 2008: 0
- 2009: 0
- 2010: 0
- 2011: 0
- 2012: 0
- 2013: 1
- 2014: 1
- 2015: 0
- 2016: 0
- 2017: 1
- 2018: 1
Human Immunodeficiency Virus
HIV/AIDS
Dutchess County, NY 2004 - 2015

Newly Diagnosed HIV and AIDS
Rates per 100,000 (Age Adjusted)

Persons diagnosed with HIV may also be diagnosed with AIDS in the same year or later; thus, HIV and AIDS diagnoses cannot be added together.
Statistics are exclusive of prison inmates.
Governor Cuomo's Three Point Plan

1. **Identify all persons with HIV who remain undiagnosed and link them to health care.**

2. **Link and retain those with HIV in health care, to treat them with anti-HIV therapy to maximize virus suppression so they remain healthy and prevent further transmission.**

3. **Provide Pre-Exposure Prophylaxis for high risk persons to keep them HIV negative.**
Ending the Epidemic
Select Metrics
# New HIV Infections (Incidence)

By the end of 2020, reduce the number of new HIV infections to 750.

<table>
<thead>
<tr>
<th>Year</th>
<th>Target</th>
<th>Actual – Old Methodology</th>
<th>Actual – New Methodology</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>*</td>
<td>2,509</td>
<td>3,347</td>
</tr>
<tr>
<td>2014</td>
<td>*</td>
<td>2,497</td>
<td>3,273</td>
</tr>
<tr>
<td>2015</td>
<td>*</td>
<td>2,436</td>
<td>2,983</td>
</tr>
<tr>
<td>2016</td>
<td>2,050</td>
<td>2,115</td>
<td>2,732</td>
</tr>
<tr>
<td>2017</td>
<td>1,750</td>
<td>NA</td>
<td>2,269</td>
</tr>
<tr>
<td>2018</td>
<td>1,410</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>2019</td>
<td>1,060</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td><strong>2020</strong></td>
<td><strong>750</strong></td>
<td><strong>NA</strong></td>
<td></td>
</tr>
</tbody>
</table>

Measure: Incidence estimates are calculated using CDC statistical methods.

- 17% decrease 2016-2017
- 32% decrease 2013-2017

Data: 2016 actual case data as of September 2017 and considered preliminary.
Bending the Curve (Ending AIDS)

By the end of 2020, achieve fewer new HIV infections than deaths, resulting in the first ever decrease in HIV prevalence and the end of AIDS as an epidemic in NYS.

<table>
<thead>
<tr>
<th>Year</th>
<th>HIV Infections (New Methodology)</th>
<th>Deaths among PLWDHI</th>
<th>New Infections minus Deaths</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>3,347</td>
<td>2,108</td>
<td>1,239</td>
</tr>
<tr>
<td>2014</td>
<td>3,273</td>
<td>2,063</td>
<td>1,210</td>
</tr>
<tr>
<td>2015</td>
<td>2,983</td>
<td>1,955</td>
<td>1,028</td>
</tr>
<tr>
<td>2016</td>
<td>2,732</td>
<td>1,974</td>
<td>758</td>
</tr>
<tr>
<td>2017</td>
<td>2,269</td>
<td>1,545</td>
<td>724</td>
</tr>
<tr>
<td>2018</td>
<td></td>
<td></td>
<td>500 (Target)</td>
</tr>
<tr>
<td>2019</td>
<td></td>
<td></td>
<td>250 (Target)</td>
</tr>
<tr>
<td>2020</td>
<td></td>
<td></td>
<td>&lt; 0 (Target)</td>
</tr>
</tbody>
</table>

Measure: HIV Incidence (using CDC estimation method) minus all deaths among Persons Living with Diagnosed HIV Infection (PLWDHI)

2016 actual case data as of September 2017 and considered preliminary.
# New HIV Diagnoses

By the end of 2020, reduce the number of new HIV diagnoses by 55%.

<table>
<thead>
<tr>
<th>Year</th>
<th>Target</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>*</td>
<td>3,391</td>
</tr>
<tr>
<td>2014</td>
<td></td>
<td>3,443</td>
</tr>
<tr>
<td>2015</td>
<td></td>
<td>3,155</td>
</tr>
<tr>
<td>2016</td>
<td>2,911</td>
<td>2,881</td>
</tr>
<tr>
<td>2017</td>
<td>2,620</td>
<td>2,769</td>
</tr>
<tr>
<td>2018</td>
<td>2,253</td>
<td>1,870</td>
</tr>
<tr>
<td>2019</td>
<td>1,870</td>
<td>1,515</td>
</tr>
<tr>
<td>2020</td>
<td>1,515</td>
<td></td>
</tr>
</tbody>
</table>

Measure: Number of newly diagnosed HIV cases reported.


- 4% decrease 2016-2017
- 18% decrease 2013-2017
Case Rate for People Newly Diagnosed with HIV by Race/Ethnicity: NYS, 2007-2017*

*Data as of June 2018. Limited to racial/ethnic groups with at least 50 new HIV diagnoses per year. Rate per 100,000 population. Rates are age adjusted to the Census Population.
Linkage to Care After Diagnosis

By the end of 2020, increase the percentage of newly diagnosed persons linked to HIV medical care within 30 days of diagnosis to at least 90%

<table>
<thead>
<tr>
<th>Year</th>
<th>Target</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>*</td>
<td>69%</td>
</tr>
<tr>
<td>2014</td>
<td>*</td>
<td>72%</td>
</tr>
<tr>
<td>2015</td>
<td>*</td>
<td>73%</td>
</tr>
<tr>
<td>2016</td>
<td>78%</td>
<td>75%</td>
</tr>
<tr>
<td><strong>2017</strong></td>
<td><strong>81%</strong></td>
<td><strong>81%</strong></td>
</tr>
<tr>
<td>2018</td>
<td>84%</td>
<td>*</td>
</tr>
<tr>
<td>2019</td>
<td>87%</td>
<td>*</td>
</tr>
<tr>
<td>2020</td>
<td>90%</td>
<td>*</td>
</tr>
</tbody>
</table>

Measure: Any CD4, VL or genotype test in NYSDOH HIV Surveillance system.


- 6 percentage point increase 2016-2017
- 12 percentage point increase 2013-2017
By the end of 2020, increase the percentage of persons living with diagnosed HIV infection who receive any care to 90%.

<table>
<thead>
<tr>
<th>Year</th>
<th>Target</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>*</td>
<td>81%</td>
</tr>
<tr>
<td>2014</td>
<td>*</td>
<td>81%</td>
</tr>
<tr>
<td>2015</td>
<td>*</td>
<td>81%</td>
</tr>
<tr>
<td>2016</td>
<td>84%</td>
<td>80%</td>
</tr>
<tr>
<td>2017</td>
<td>86%</td>
<td>83%</td>
</tr>
<tr>
<td>2018</td>
<td>88%</td>
<td>*</td>
</tr>
<tr>
<td>2019</td>
<td>89%</td>
<td>*</td>
</tr>
<tr>
<td>2020</td>
<td>90%</td>
<td>*</td>
</tr>
</tbody>
</table>

*Measure: Any VL, CD4 or genotype test in NYSDOH HIV Surveillance system in calendar year.*

Viral Suppression – Receiving Any Care

By the end of 2020, increase the percentage of individuals living with diagnosed HIV infection and receiving any care with suppressed viral load to 95%.

<table>
<thead>
<tr>
<th>Year</th>
<th>Target</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>*</td>
<td>81%</td>
</tr>
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<td>2014</td>
<td>*</td>
<td>84%</td>
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<td>2015</td>
<td>*</td>
<td>85%</td>
</tr>
<tr>
<td>2016</td>
<td>87%</td>
<td>87%</td>
</tr>
<tr>
<td>2017</td>
<td>89%</td>
<td>87%</td>
</tr>
<tr>
<td>2018</td>
<td>91%</td>
<td>*</td>
</tr>
<tr>
<td>2019</td>
<td>93%</td>
<td>*</td>
</tr>
<tr>
<td>2020</td>
<td>95%</td>
<td>*</td>
</tr>
</tbody>
</table>

Measure: Last VL test in calendar year is non detectable or <200 copies/ml in NYSDOH HIV Surveillance system.


- 0 percentage point change 2016-2017
- 6 percentage point increase 2013-2017
Concurrent AIDS Diagnosis

By the end of 2020, reduce the proportion of persons with a diagnosis of AIDS within 30 days of HIV diagnosis to 15%.

<table>
<thead>
<tr>
<th>Year</th>
<th>Target</th>
<th>Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td></td>
<td>n</td>
<td>%</td>
</tr>
<tr>
<td>2013</td>
<td>*</td>
<td>736</td>
</tr>
<tr>
<td>2014</td>
<td>*</td>
<td>674</td>
</tr>
<tr>
<td>2015</td>
<td>*</td>
<td>612</td>
</tr>
<tr>
<td>2016</td>
<td>536</td>
<td>18.4</td>
</tr>
<tr>
<td>2017</td>
<td>461</td>
<td>17.6</td>
</tr>
<tr>
<td>2018</td>
<td>376</td>
<td>16.7</td>
</tr>
<tr>
<td>2019</td>
<td>295</td>
<td>15.8</td>
</tr>
<tr>
<td>2020</td>
<td>225</td>
<td>15.0</td>
</tr>
</tbody>
</table>

Measure: CD4 <200 (Stage 3 HIV) within 30 days of dx.


- 1.0 Percentage point increase 2016-2017
- 1.9 percentage point decrease 2013-2017
Viral Load Suppression - Newly Diagnosed HIV

By the end of 2020, increase the percentage of persons newly diagnosed who reach viral load suppression within three months of diagnosis to 75%.

<table>
<thead>
<tr>
<th>Baseline:</th>
<th>Actual</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>22.7%</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>28.5%</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>32.3%</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>39.1%</td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>48.1%</td>
<td>47%</td>
</tr>
<tr>
<td>2018</td>
<td>56%</td>
<td></td>
</tr>
<tr>
<td>2019</td>
<td>65%</td>
<td></td>
</tr>
<tr>
<td>Target:</td>
<td>2020</td>
<td>75%</td>
</tr>
</tbody>
</table>

Definition: The percent of persons newly diagnosed with HIV who had a viral load test that was suppressed (<200 copies/mL) within 91 days from the date of HIV diagnosis.

Source: NYS HIV Surveillance System
Sustained Viral Load Suppression

By the end of 2020, increase the percentage of persons living with diagnosed HIV with sustained viral load suppression to 75%.

<table>
<thead>
<tr>
<th>Year</th>
<th>Actual</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>53.8%</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>58.2%</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>61.6%</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>63.5%</td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>64.9%</td>
<td>66.3%</td>
</tr>
<tr>
<td>2018</td>
<td>69.2%</td>
<td></td>
</tr>
<tr>
<td>2019</td>
<td>72.1%</td>
<td></td>
</tr>
<tr>
<td>Target</td>
<td>2020</td>
<td>75%</td>
</tr>
</tbody>
</table>

Definition: The percentage of people living with diagnosed HIV (PLWDH) who were virally suppressed (<200 copies/mL) on all viral load tests in the previous two years, among those with at least two viral load tests in the previous two years.

Source: NYS HIV Surveillance System
Newly Diagnosed HIV
Persons Who Inject Drugs

By the end of 2020, reduce the percentage of persons newly diagnosed with HIV who indicate a history of injection drug use to 2.8%.

<table>
<thead>
<tr>
<th>Year</th>
<th>Actual</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Baseline:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2013</td>
<td>4.8%</td>
<td></td>
</tr>
<tr>
<td>2014</td>
<td>4.4%</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>4.2%</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>3.9%</td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>4.0% 4.2%</td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td>3.7%</td>
<td></td>
</tr>
<tr>
<td>2019</td>
<td>3.2%</td>
<td></td>
</tr>
<tr>
<td>Target:</td>
<td>2020</td>
<td>2.8%</td>
</tr>
</tbody>
</table>

Source: NYS HIV Surveillance System

Definition: The number of persons newly diagnosed with HIV who indicate a history of injection drug use (IDU). Includes persons who indicate IDU and MSM/IDU history.
**PrEP Utilization**

By the end of 2020, increase the number of individuals filling prescriptions for PrEP to 65,000.

<table>
<thead>
<tr>
<th>Year</th>
<th>Actual</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>3,388</td>
<td></td>
</tr>
<tr>
<td>2015</td>
<td>9,324</td>
<td></td>
</tr>
<tr>
<td>2016</td>
<td>17,368</td>
<td></td>
</tr>
<tr>
<td>2017</td>
<td>24,284</td>
<td></td>
</tr>
<tr>
<td>2018</td>
<td>34,000</td>
<td></td>
</tr>
<tr>
<td>2019</td>
<td>48,000</td>
<td></td>
</tr>
<tr>
<td>Target:</td>
<td>2020</td>
<td>65,000</td>
</tr>
</tbody>
</table>

Source: Symphony Health data with Medicaid Adjustment

Definition: Number of individuals filling at least one prescription for Truvada within the calendar year.
PrEP Utilization
Medicaid

By the end of 2020, increase the number of Medicaid recipients filling prescriptions for PrEP to 30,000.

<table>
<thead>
<tr>
<th>Baseline:</th>
<th>Actual</th>
<th>Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>2013</td>
<td>251</td>
<td>2013</td>
</tr>
<tr>
<td>2014</td>
<td>650</td>
<td>2014</td>
</tr>
<tr>
<td>2015</td>
<td>2,244</td>
<td>2015</td>
</tr>
<tr>
<td>2016</td>
<td>4,226</td>
<td>2016</td>
</tr>
<tr>
<td>2017</td>
<td>6,026</td>
<td>2017</td>
</tr>
<tr>
<td>2018</td>
<td>16,000</td>
<td>2018</td>
</tr>
<tr>
<td>2019</td>
<td>22,000</td>
<td>2019</td>
</tr>
<tr>
<td>Target:</td>
<td></td>
<td>2020</td>
</tr>
<tr>
<td>Source:</td>
<td>NYS Medicaid Data Mart (Vertica)</td>
<td>2020</td>
</tr>
</tbody>
</table>

Definition: Number of Medicaid recipients filling at least one prescription for Truvada within the calendar year.
Acknowledgements

• New York State Department of Health
• Dutchess County Department of Behavioral and Community Health
• The Foundation for Community Health
A SPECIAL THANK YOU

Gertrude O'Sullivan
Director of Communications and Special Programs
The Foundation for Community Health
Thank You for Your Attention

Andrew Sherman Evans Jr, MPH
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845-486-3452
aevans@dutchessny.gov
Epidemiology of Sexually Transmitted Diseases Connecticut

Connecticut Department of Public Health

Lynn Sosa, M.D.

STD Program Coordinator

Deputy State Epidemiologist
Primary & Secondary Syphilis Case Rates
Connecticut v. USA, 1990–2017

Source: CT STD Control Program and CDC
Early Syphilis Cases
Primary/Secondary & Early Latent 2000–2017

Source: CT STD Control Program
Primary & Secondary Syphilis Cases By Sex, 2000–2017

Source: CT STD Control Program
### Primary & Secondary Syphilis Case Counts

By Age Groups, 2015–2017

<table>
<thead>
<tr>
<th>Age Group</th>
<th>2015</th>
<th>2016</th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-19</td>
<td>2</td>
<td>3</td>
<td>1</td>
</tr>
<tr>
<td>20-24</td>
<td>15</td>
<td>18</td>
<td>16</td>
</tr>
<tr>
<td>25-29</td>
<td>10</td>
<td>14</td>
<td>12</td>
</tr>
<tr>
<td>30-34</td>
<td>12</td>
<td>13</td>
<td>11</td>
</tr>
<tr>
<td>35-39</td>
<td>8</td>
<td>9</td>
<td>7</td>
</tr>
<tr>
<td>40-44</td>
<td>6</td>
<td>7</td>
<td>6</td>
</tr>
<tr>
<td>45+</td>
<td>4</td>
<td>5</td>
<td>4</td>
</tr>
</tbody>
</table>

Source: CT STD Control Program
Primary & Secondary Syphilis Case Rates
By Age Groups, 2015–2017

Source: CT STD Control Program
Primary & Secondary Syphilis Cases
By Race/Ethnicity, 2015–2017

Source: CT STD Control Program
Males With Primary & Secondary Syphilis
By Sexual Orientation, 2015–2017

*Men who have sex with men

Source: CT STD Control Program
Female Primary & Secondary Syphilis Cases and Congenital Syphilis, 2000–2017**

* Under 1 Year of Age

Source: CT STD Control Program
Primary & Secondary Syphilis Cases By Selected Towns, 2015–2017

- Waterbury
- Stamford
- Norwalk
- New Haven
- Hartford
- Bridgeport

2017  2016  2015
Gonorrhea Case Rates
Connecticut v. USA, 2000–2017

Source: CT STD Control Program and CDC
Reported Gonorrhea Cases By Sex, 2000–2017

Source: CT STD Control Program
Gonorrhea Cases Among 15–24 Year Olds, 2013–2017

Year 2013: 2900 cases
Year 2014: 2000 cases
Year 2015: 1500 cases
Year 2016: 2700 cases
Year 2017: 4100 cases
### Gonorrhea Case Rates
**By Selected Age Groups, 2015–2017**

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Cases per 100,000 Population</th>
</tr>
</thead>
<tbody>
<tr>
<td>10-14</td>
<td>0</td>
</tr>
<tr>
<td>15-19</td>
<td>10</td>
</tr>
<tr>
<td>20-24</td>
<td>20</td>
</tr>
<tr>
<td>25-29</td>
<td>30</td>
</tr>
<tr>
<td>30-34</td>
<td>40</td>
</tr>
<tr>
<td>35-39</td>
<td>50</td>
</tr>
<tr>
<td>40-44</td>
<td>60</td>
</tr>
<tr>
<td>45+</td>
<td>70</td>
</tr>
</tbody>
</table>

**Source:** CT STD Control Program
Gonorrhea Cases
By Race/Ethnicity, 2013–2017*

*30% Unknown Race/Ethnicity

Source: CT STD Control Program
Gonorrhea Cases by Selected Towns, 2015–2017
Chlamydia Case Rates
Connecticut v USA, 2000–2017

Source: CT STD Control Program and CDC
Chlamydia Cases By Sex, 2000–2017

Source: CT STD Control Program
Chlamydia Case Counts
Among 15–24 Year Olds, 2000–2016

Source: CT STD Control Program
Chlamydia Case Rates
By Age Groups, 2014–2016

Source: CT STD Control Program
Chlamydia Cases By Race/Ethnicity, 2012–2016*

Source: CT STD Control Program: * 69% race/ethnicity not reported
Chlamydia Cases by Selected Towns, 2014–2016
Litchfield County Data
STD CASES DIAGNOSED AMONG LITCHFIELD COUNTY RESIDENTS, 2015–2017

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>RATE</th>
<th>2016</th>
<th>RATE</th>
<th>2017</th>
<th>RATE</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHLAMYDIA</td>
<td>306</td>
<td>161</td>
<td>428</td>
<td>225</td>
<td>302</td>
<td>159</td>
</tr>
<tr>
<td>GONORRHEA</td>
<td>40</td>
<td>21</td>
<td>58</td>
<td>31</td>
<td>78</td>
<td>41</td>
</tr>
<tr>
<td>EARLY SYPHILIS</td>
<td>4</td>
<td>1</td>
<td>4</td>
<td>1</td>
<td>4</td>
<td>1</td>
</tr>
</tbody>
</table>
## Chlamydia

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>%</th>
<th>2016</th>
<th>%</th>
<th>2017</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>MALES</td>
<td>77</td>
<td>25%</td>
<td>121</td>
<td>28%</td>
<td>86</td>
<td>28%</td>
</tr>
<tr>
<td>FEMALES</td>
<td>229</td>
<td>75%</td>
<td>307</td>
<td>72%</td>
<td>216</td>
<td>72%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>306</td>
<td>100%</td>
<td>428</td>
<td>100%</td>
<td>302</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Ages</th>
<th>2015</th>
<th>%</th>
<th>2016</th>
<th>%</th>
<th>2017</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ages 10-14</td>
<td>1</td>
<td>0%</td>
<td>2</td>
<td>0%</td>
<td>1</td>
<td>0%</td>
</tr>
<tr>
<td>Ages 15-19</td>
<td>58</td>
<td>19%</td>
<td>94</td>
<td>22%</td>
<td>72</td>
<td>24%</td>
</tr>
<tr>
<td>Ages 20-24</td>
<td>140</td>
<td>46%</td>
<td>195</td>
<td>46%</td>
<td>122</td>
<td>40%</td>
</tr>
<tr>
<td>Ages 25-29</td>
<td>57</td>
<td>19%</td>
<td>75</td>
<td>18%</td>
<td>58</td>
<td>19%</td>
</tr>
<tr>
<td>Ages 30-34</td>
<td>21</td>
<td>7%</td>
<td>25</td>
<td>6%</td>
<td>23</td>
<td>8%</td>
</tr>
<tr>
<td>Ages 35-39</td>
<td>8</td>
<td>3%</td>
<td>19</td>
<td>4%</td>
<td>8</td>
<td>3%</td>
</tr>
<tr>
<td>Ages 40-44</td>
<td>7</td>
<td>2%</td>
<td>4</td>
<td>1%</td>
<td>3</td>
<td>1%</td>
</tr>
<tr>
<td>Ages 45-49</td>
<td>5</td>
<td>2%</td>
<td>5</td>
<td>1%</td>
<td>5</td>
<td>2%</td>
</tr>
<tr>
<td>Ages 50 and over</td>
<td>9</td>
<td>3%</td>
<td>9</td>
<td>2%</td>
<td>10</td>
<td>3%</td>
</tr>
<tr>
<td>TOTAL</td>
<td>306</td>
<td>100%</td>
<td>428</td>
<td>100%</td>
<td>302</td>
<td>100%</td>
</tr>
</tbody>
</table>
# Gonorrhea

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>%</th>
<th>2016</th>
<th>%</th>
<th>2017</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>MALES</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Females</td>
<td>24</td>
<td>60%</td>
<td>29</td>
<td>50%</td>
<td>48</td>
<td>62%</td>
</tr>
<tr>
<td><strong>FEMALES</strong></td>
<td>16</td>
<td>40%</td>
<td>29</td>
<td>50%</td>
<td>30</td>
<td>38%</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td>40</td>
<td>100%</td>
<td>58</td>
<td>100%</td>
<td>78</td>
<td>100%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
<th>%</th>
<th>2016</th>
<th>%</th>
<th>2017</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ages 15-19</td>
<td>9</td>
<td>23%</td>
<td>5</td>
<td>9%</td>
<td>12</td>
<td>15%</td>
</tr>
<tr>
<td>Ages 20-24</td>
<td>3</td>
<td>8%</td>
<td>13</td>
<td>22%</td>
<td>18</td>
<td>23%</td>
</tr>
<tr>
<td>Ages 25-29</td>
<td>7</td>
<td>18%</td>
<td>18</td>
<td>31%</td>
<td>13</td>
<td>17%</td>
</tr>
<tr>
<td>Ages 30-34</td>
<td>7</td>
<td>18%</td>
<td>4</td>
<td>7%</td>
<td>7</td>
<td>9%</td>
</tr>
<tr>
<td>Ages 35-39</td>
<td>0</td>
<td>0%</td>
<td>5</td>
<td>9%</td>
<td>10</td>
<td>13%</td>
</tr>
<tr>
<td>Ages 40-44</td>
<td>3</td>
<td>8%</td>
<td>0</td>
<td>0%</td>
<td>5</td>
<td>6%</td>
</tr>
<tr>
<td>Ages 45-49</td>
<td>1</td>
<td>3%</td>
<td>4</td>
<td>7%</td>
<td>3</td>
<td>4%</td>
</tr>
<tr>
<td>Ages 50 and above</td>
<td>10</td>
<td>25%</td>
<td>9</td>
<td>16%</td>
<td>10</td>
<td>13%</td>
</tr>
</tbody>
</table>
Thank you!

Lynn Sosa, MD
860.509.7723
Resurgence of STIs: Who, Why, and What Public Health & Clinical Medicine Can Do Together

Katherine Hsu, MD, MPH, FAAP*
Medical Director, Div. of STD Prev., Mass. Dept. of Pub. Health
Associate Professor of Pediatrics, Boston Univ. Med. Ctr.

Spring 2019
Disclosures

• In the past 12 months, Dr. Hsu has had the following significant financial interests or other relationships with manufacturer(s) of product(s) or provider(s) of service(s) that will be discussed in this presentation:
  – None

• This presentation will include discussion of pharmaceuticals or devices that have not been approved by the FDA
  – “Off-label” use of extra-genital (rectal and pharyngeal) nucleic acid amplification tests (NAATs) for gonorrhea and chlamydia
Goals

• Distinguish relevant updates to STI epidemiology, management, and prevention
• Highlight areas of 2015 CDC STD Treatment Guidelines that should be read carefully for detailed recommendations
• Provide new clinical resources (smartphone applications, STD Clinical Consultation Network) to access expert guidance on STD management at the point of care
4. STIs have returned to 1990s levels
STDs in the News

What’s Behind The Jump In STD Rates
More Americans Have an STD Than Ever Before, Officials Say

In the U.S., 110 Million S.T.D. Infections

New STD cases hit record high in US, CDC says

A Record Breaking Number of Americans Contracted STIs in 2016

STDs hit record high in US, 2M cases reported in 2016

5 reasons why 3 STDs are roaring back in America

Sexually transmitted diseases are at an all time high. But why?

Doctors See A Surge In Babies With Syphilis-Associated Birth Defects

Another threat to good health

The Best Explanation For The Growing STD Crisis?
STDs IN THE UNITED STATES

2,295,739
TOTAL CASES IN 2017

STDs tighten their grip on the nation’s health as rates increase for a fourth year.

Source: U.S. Centers for Disease Control and Prevention

CHLAMYDIA
1,708,569
TOTAL CASES IN 2017
6.89% INCREASE SINCE 2016

GONORRHEA
555,608
TOTAL CASES IN 2017
18.58% INCREASE SINCE 2016

SYPHILIS
30,644
TOTAL CASES IN 2017
10.17% INCREASE SINCE 2016

CONGENITAL SYPHILIS
918
TOTAL CASES IN 2017
43.66% INCREASE SINCE 2016
Rise in Congenital Syphilis

SYPHILIS IN NEWBORNS: THE STATE OF THE NATION
2017

Reported at least ONE CASE of congenital syphilis.

SYPHILIS IN NEWBORNS IS ON THE RISE IN U.S.

Congenital syphilis is a tragic disease that can cause miscarriages, premature births, stillbirths, or even death of newborn babies.

In the past 4 years, cases of congenital syphilis have MORE THAN DOUBLED.

- 362 cases in 2013
- 462 cases in 2014
- 492 cases in 2015
- 639 cases in 2016
- 918 cases in 2017

The chance of a mother passing syphilis onto her unborn baby if left untreated or untreated.

Source: U.S. Centers for Disease Control and Prevention
Syphilis and Gonorrhea Over Time

*Infectious syphilis is defined as primary, secondary and early latent stages of syphilis within one year of infection.


Decreases in syphilis cases were due to BOTH behavior change AND to deaths occurring in HIV-syphilis co-infected individuals.
Chlamydia Incidence Rate per 100,000 Among Individuals 50 and Older, Massachusetts, 2000-2017

2017 N = 613
Data are current as of 10/31/2018 and are subject to change.
Data Source: Massachusetts Department of Public Health/Bureau of Infectious Disease and Laboratory Sciences/ Division STD Prevention
*There were several cases reported as transgendered in 2014 through 2016. Transgender identity was not documented prior to the MAVEN transition in 2014 and transgendered individual are included in the specified gender categories.
STI COMPLICATIONS ARE THEREFORE MORE COMMON
Epi Take Home Points

• STI rates are at record highs
  — Reflective of national and regional trends
  — Male signal dominating reporting trends for syphilis and gonorrhea
  — Increases not limited to those ≤25 years of age
  — We are seeing more STI complications

• Are these increases reflective of increased
  — Screening
  — Reporting
  — True increases in underlying incidence in specific sexual networks
  — All of the above?
3. FOCUS SCREENING ON HIGH-RISK POPULATIONS FOR HIGHEST YIELD
Population-level Control of STIs

Basic Reproductive Rate

\[ R_0 = T \cdot C \cdot D \]

Screening decreases D (duration) of carriage and therefore transmission

Anderson & May, 1980s
3a. MSM STI Screening Is Important for Maintaining Male Sexual Health
Proportion of CT and GC infections MISSED among 3398 asymptomatic MSM if screening only urine/urethral sites, San Francisco, 2008-2009

Marcus et al, STD Oct 2011; 38: 922-4
The q3mth “Triple Dip” for at-risk MSM

HIV/Syphilis/ HepC* Serologies

Pharyngeal GC NAAT**

Urine GC/CT NAAT

Rectal GC/CT NAAT**

*In HIV-coinfected individuals, screen hep C at least annually

**Off-label use - not FDA-approved for testing at extragenital sites, but many reference labs have validated the assay for use

Slide courtesy of Brad Stoner
This Week’s MMWR …
Extragenital Chlamydia and Gonorrhea
Among Community Venue-Attending MSM
Five Cities, United States, 2017

MMWR
MSM* & STDs: TEST MORE THAN GENITALS

STDs IN THE THROAT AND RECTUM
- MSM AT HIGH RISK
- OFTEN NO SYMPTOMS
- DETECT BY SCREENING
- INCREASES HIV RISK

OF MSM SCREENED FOR CHLAMYDIA & GONORRHEA**:
1 IN 8 HAD AN STD IN THROAT OR RECTUM

SCREEN SEXUALLY ACTIVE MSM FOR STDs!
- AT LEAST 1X/YEAR
- HIGHER RISK? EVERY 3-6 MONTHS
- IF INDICATED, TEST THROAT & RECTUM

1/3 NOT SCREENED IN LAST 12 MONTHS

Data from National HIV Behavioral Surveillance (NHBS) as published in Johnson Jones et al. MMWR 2019.
* Men who have sex with men
** MSM recruited from social venues in 5 cities provided data and self-collected swabs
bit.ly/CDCVA24

WWW.CDC.GOV

Jones et al. MMWR, 2019
Self-collected STI Testing

- Acceptable to many patient populations
- FDA-approved for certain GC/CT/trich NAAT testing platforms and sample types
- Equivalent or greater sensitivity than clinician-collected samples
- Improved uptake of STI screening

Gaydos. Sex Trans Dis, 2018
Dean St Express Clinic, Soho, London

- **Walk-ins**
  - Treatment for positive gonorrhoea and chlamydia tests
  - If you’ve had sex with a person who tells you they had gonorrhoea or chlamydia
  - HIV PrEP three monthly monitoring
  - Follow up for people who started emergency HIV PEP at 56 Dean Street
- **Vaccines**
- **Appointments**
  - Sexual health screening for people without symptoms (STI/STD and HIV tests) with results in 6 hours
MSM in SF City Clinic
Diagnosed with Rectal Chlamydia or Gonorrhea 2003-05

HIV Seroconversion by Number of Prior Rectal Infections

<table>
<thead>
<tr>
<th>Rectal Chl or GC</th>
<th>Annual HIV Incidence</th>
<th>Adjusted HR</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>2.25%</td>
<td>--</td>
</tr>
<tr>
<td>2 or more episodes</td>
<td>15.00%</td>
<td>8.81</td>
</tr>
</tbody>
</table>

Bernstein et al. JAIDS, 2010
CONSIDER HIV PREP

*Tenofovir/emtricitabine now licensed for HIV PrEP in adolescents weighing ≥35kg
## Prescribing PrEP: CDC Guidance for MSM, Heterosexual Couples, IDUs

### Component

<table>
<thead>
<tr>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk assessment</td>
</tr>
<tr>
<td>• PrEP indicated for those at high HIV risk</td>
</tr>
<tr>
<td>• FDA-approved for adults and adolescents weighing &gt;=35kg</td>
</tr>
<tr>
<td>Eligibility</td>
</tr>
<tr>
<td>• HIV negative, adequate renal function</td>
</tr>
<tr>
<td>Dosing</td>
</tr>
<tr>
<td>• 1 tenofovir/emtricitabine tablet, once daily</td>
</tr>
<tr>
<td>Follow-up</td>
</tr>
<tr>
<td>• Testing for HIV/STI every 3 mos, even if asymptomatic</td>
</tr>
<tr>
<td>• Counseling on risk reduction and testing creatinine at 3 mos and then annually</td>
</tr>
<tr>
<td>Discontinuation</td>
</tr>
<tr>
<td>• PrEP not meant for lifelong administration but rather for periods of highest risk</td>
</tr>
</tbody>
</table>

HIV Treatment as Prevention

Antiretroviral treatment should be offered to all HIV-infected persons not only to provide benefit to individual health but also to reduce transmission to sex partners.

HIV pre-exposure prophylaxis should be available to HIV-negative men and women who are sexually active or injecting illicit drugs who are at substantial risk of HIV infection.


3b. Re-screening for STIs in those previously infected, reaches those at highest STI risk
Characteristics of Cases With Repeated Sexually Transmitted Infections, Massachusetts, 2014–2016

Katherine K. Hsu,1,2 Lauren E. Molotnikov,1 Kathleen A. Roosevelt1, Heather R. Elder,1 R. Monina Klevens,3 Alfred DeMaria, Jr.,4 and Sevgi O. Aral5

1Division of STD Prevention and HIV/AIDS Surveillance, Massachusetts Department of Public Health, Jamaica Plain, 2Section of Pediatric Infectious Diseases, Boston University Medical Center, Massachusetts, and 3Office of Research and Evaluation and 4Bureau of Infectious Disease and Laboratory Sciences, Massachusetts Department of Public Health, Jamaica Plain; and 5Division of STD Prevention, Centers for Disease Control and Prevention, Atlanta, Georgia

Background. Persons with prior sexually transmitted infections (STIs) are at high risk for reinfection. No recent studies have examined frequency with which persons are diagnosed and reported with multiple bacterial STIs over time.

Methods. We conducted a retrospective, of confirmed syphilis, gonorrhea, and chlamydial infections reported to Massachusetts state surveillance system within a 2-year period, 28 July 2014–27 July 2016.

Results. Among Massachusetts population aged 13–65 years (4 847 510), 49 142 (1.0%) were reported with ≥1 STIs; 6999 (14.2% of those with ≥1 STI) had ≥2 STIs, accounting for 27.7% of STIs. Of cases with ≥5 or more STIs (high-volume repeaters), 118 (74%) were men and 42 (26%) were women. Men spanned the age spectrum and were predominantly non-Hispanic white; 87% reported same-sex contacts. Women were younger, predominantly nonwhite, and without known same-sex contacts. Women were reinfected with gonorrhea and chlamydia or chlamydia alone; none had syphilis or human immunodeficiency virus (HIV) infection. All men with syphilis also had gonorrhea and/or chlamydia; 35% were diagnosed with HIV before, during, or within 10 months after study period. The majority (56%) of high-volume repeaters were seen at more than 1 care site/system.

Conclusions. In Massachusetts, a large proportion of bacterial STIs are reported from a small subpopulation, many of whom have repeated infections and are likely to have higher impact on STI and HIV rates. Public health can play a crucial role in reaching high-volume repeaters whose STI histories may be hidden from clinicians due to fragmented care.

Keywords. repeated sexually transmitted infections; population-based surveillance.
Results: Cases of Confirmed Chlamydia, Gonorrhea, and Infectious Syphilis, Massachusetts 2014-2016

Of 13-65 year olds in Massachusetts (N = 4,847,510):

- 1% (49,142) were reported with bacterial STI
- 0.1% (6,999) accounted for 28% of all reported bacterial STIs
- 56% of high-volume repeaters sought care in >1 clinical system


Source: MDPH BIDLS Division of STD Prevention. Data are current as of 2/15/2017 and are subject to change.
Next Steps

• New Model for Field Follow-up
  – Need a greater understanding of the underlying sexual network
    • In order to intervene in the spread of STIs and HIV
  – Provide Pre-Exposure Prophylaxis (PrEP) referrals and other services to repeatedly infected HIV-negative cases
  – Help reduce risk to reproductive-aged females
    • Infertility prevention
    • Contact tracing, treatment, and prevention during pregnancy results in double benefit (mother and infant)
Repeat Screening After STI

- Women with CT, GC or trich should be rescreened at 3 months after treatment.
- Men with CT or GC should be rescreened at 3 months after treatment.
- Patients diagnosed with syphilis should undergo follow up serologic serology per current recommendations.
Multispecialty Massachusetts Practices: Percent of *Chlamydia trachomatis* cases retested within recommended time period

“Among cases with repeat tests, 16% of pregnant females, 15% of non-pregnant females, and 16% of males had positive results.”

We are underutilizing repeat testing as a tool for identifying higher risk patients.

---

Sylvie Ri
STD/HIV
Prevento
Center of

Dee et al., AJPM 2019
2. TREAT STI SYNDROMES QUICKLY
Population-level Control of STIs

\[ R_0 = T \cdot C \cdot D \]

- **Basic Reproductive Rate**
- **Transmissibility**
- **No. of Sexual Contacts**
- **Duration of infectiousness**

Screening and **RAPID APPROPRIATE** treatment decrease D (duration) of carriage and therefore transmission

Anderson & May, 1980s
Delays in Gonorrhea Treatment Massachusetts 2015-2017

- 599/2523 randomized cases agreed to interview
  - Symptomatic/contact cases
    - Median time to treatment = 0 days
    - BUT 42% not treated on day 0
  - Asymptomatic
    - Median time to treatment = 4 days
    - BUT 51% treated ≥5 days after sample collection
  - Delays more common in symptomatic women, asymptomatic MSM

Symptomatic/contact cases had shorter time to treatment compared to asymptomatic cases, who may contribute more to population transmission of gonorrhea.

BUT, in both groups, treatment delays are common.
Principles of STI Treatment

• Symptomatic
  – Test AND treat **immediately**, based on STI syndrome

• Reports contact
  – Test AND treat **immediately**, according to reported exposure

• Asymptomatic, no specific contact
  – Screen and treat according to results
Population-level Control of STIs

Basic Reproductive Rate $R_o = T \cdot C \cdot D$

Transmissibility
No. of Sexual Contacts
Duration of infectiousness

Screening and **RAPID APPROPRIATE** treatment decrease $D$ (duration) of carriage and therefore transmission.

But if sexual contacts are not treated, index cases may become re-infected!
Infection During Follow-up Among Patients Completing The EPT Trial

- **Gonorrhea**
  - N=358
  - Standard care: 10.6%
  - Expedited care: 3.4%

- **Chlamydia**
  - N=1595
  - Standard care: 13.2%
  - Expedited care: 10.8%

- **Gonorrhea or Chlamydia**
  - N=1860
  - Standard care: 13%
  - Expedited care: 9.9%

P-values:
- P=.02 (Gonorrhea)
- P=.17 (Chlamydia)
- P=.04 (Gonorrhea or Chlamydia)

Golden MR, *NEJM 2005*
PDPT can prevent reinfection of index case and has been associated with a higher likelihood of partner notification...
2A. NEW CONSIDERATIONS FOR PERSISTENT URETHRITIS
Case

20yo M treated with doxycycline for NGU 2 weeks prior ...

- His initial chlamydia and GC tests were negative. His urethral symptoms never fully resolved and he now returns for evaluation. NGU is demonstrated again.
- He reports compliance with treatment and sexual abstinence.
- He reports only female partners.
What’s next on your differential for persistent urethritis?

1. T. vaginalis
2. M. genitalium
3. U. urealyticum
4. HSV
5. N. meningitidis
Recurrent and Persistent Urethritis

• Check first for objective signs of urethritis
  – Mucoid, mucopurulent, or purulent discharge on exam
  – Gram, methylene blue, or gentian violet stain of urethral secretions: ≥2 WBC per oil immersion field
  – Positive leukocyte esterase test on first void urine
  – Urine micro of first void urine sediment: ≥10 WBC per high-power field

• If urethritis confirmed, re-treat with initial regimen if initially non-compliant or if re-exposed to untreated partner
  – Not this patient’s case, but this is the usual next step
DDx for Recurrent or Persistent Urethritis

• Consider azithromycin or doxycycline-resistant *U. urealyticum* or *M. genitalium*
  – May benefit from treatment with moxifloxacin 400 mg orally once daily for 7 days

• Consider *T. vaginalis*
  – More common in heterosexual men
    • Test using first-void urine or urethral swab, send for culture (not always available) or NAAT (now commercially available)
    • May benefit from treatment with metronidazole or tinidazole
  – Low probability in MSM

• Consider HSV if recurrent
What is *Mycoplasma genitalium*?

- **Mollicute**
  - Lacks a cell wall

- **Smallest known genome**\(^1,2\)
  - 580 kb translating to \(<500\) genes

- **First identified in 1981 from 2 of 13 men with NGU**\(^3\)

- **Extremely fastidious**
  - Culture only achieved by \(~3-4\) laboratories worldwide
  - Takes \(~6\) months\(^4\)

---

Slide courtesy of LE Manhart

**Mycoplasma genitalium:**

**Epidemiology**

- First identified in the early 1980’s
- Cause of male urethritis
  - 15-20% of non-gonococcal urethritis (NGU) cases
  - 20-25% of non-chlamydial NGU
  - 30% of persistent or recurrent urethritis
  - More common than *N. gonorrhoeae* but less common than *C. trachomatis*
  - Co-infection with *C. trachomatis* is not uncommon
- Unknown whether it can cause male infertility or other male anogenital tract disease syndromes
- Pathogenic role in women also less clear
Mycoplasma genitalium: Diagnostics

• Very slow-growing organism
  – Culture can take up to 6 months
  – Only a few laboratories in the world are able to recover clinical isolates

• Nucleic acid amplification testing (NAAT) is the preferred method to detect *M. genitalium*
  – Research settings
  – In-house PCR assays (?)
  – One commercially available NAAT (FDA approved, 2019)
    • [https://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm629746.htm](https://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm629746.htm)
### Treatment of MG:
RCTs Comparing Doxycycline vs. Azithromycin

<table>
<thead>
<tr>
<th>Study</th>
<th>Year</th>
<th>N</th>
<th>Drugs &amp; Dosages</th>
<th>Micro Cure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mena</td>
<td>2009</td>
<td>36</td>
<td>DOXY 100mg PO bid X 7d AZM 1g PO X1</td>
<td>45%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>42</td>
<td></td>
<td>87%</td>
</tr>
<tr>
<td>Schwebke</td>
<td>2011</td>
<td>39</td>
<td>DOXY 100mg PO bid X 7d AZM 1g PO X 1 +/- Tinidazole</td>
<td>31%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>45</td>
<td></td>
<td>67%</td>
</tr>
<tr>
<td>Manhart</td>
<td>2013</td>
<td>35</td>
<td>DOXY 100mg PO bid X 7d AZM 1g PO X 1</td>
<td>30%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>35</td>
<td></td>
<td>40%</td>
</tr>
</tbody>
</table>

Mena 2009 *Clin Inf Dis*; 48:1649; Schwebke 2011 *Clin Inf Dis*; 52:163; Manhart 2013 *Clin Inf Dis*; 56:934

- Doxycycline largely ineffective against *M. genitalium*: median cure rate of ~31%
- Resistance to azithromycin appears to be emerging: median cure rate for men and women ~85%, but only 40% in most recent trial
- Longer courses of AZM (e.g. 500 mg PO X1 followed by 250 mg QD X 4d) yield higher cure rates and may lead to decreased emergence of resistance

Reviewed by Manhart, 2013 Infect Dis Clin N Am 27;:779
“The 1-g single dose of azithromycin was significantly more effective against *M. genitalium* than doxycycline in two randomized urethritis treatment trials and is preferred over doxycycline. However, resistance to azithromycin appears to be rapidly emerging....

**Moxifloxacin (400mg daily x 7, 10, or 14 days)** has been successfully used to treat *M. genitalium* in men and women with previous treatment failures....

Although generally considered effective, studies in Japan, Australia, and the United States have reported **moxifloxacin treatment failures after the 7 day regimen**.”
Take Home Points

• Use strict objective criteria to define recurrent or persistent urethritis
• Likely pathogens depend on sexual behaviors and risk history
• Management is difficult if neither gonorrhea nor chlamydia are diagnosed on subsequent testing
  – Rule out reinfection
  – Test for *T. vaginalis* using NAAT
  – Strongly consider *M. genitalium* in DDx (may be difficult to test for and treat)
  – Consider referral to urologist
2B. Recurrent bacterial vaginosis is common, can be treated with prolonged therapy, but optimal management is in evolution.
Case

• JG is a 21 yo F who presents with 3d history of abnormal vaginal discharge and odor

• PMH – BV diagnosed 6 times in the last year (at least 3 of 4 Amsel Criteria fulfilled at each diagnosis)
Recurrent BV

• Recurrent disease remains common
  – Rates up to 70% within 3 months
• Reasons for recurrence unclear
  – Re-infection
  – Failure of lactobacilli to re-colonize
  – Inadequate length of therapy
  – Persistence of unidentified host factor
  – ?Resistance
• Despite comparable early cure rates, higher recurrence rates associated with shorter treatment
  – Single-dose 2 g metronidazole no longer recommended
  – 3-day clindamycin course no longer first-line
What strategy should this patient employ to prevent future BV recurrence?

1. Initiate suppression with twice weekly intravaginal metronidazole gel following treatment of current episode
2. Get a new partner
3. Use condoms 100% of time for vaginal sex
4. Pull out the boric acid!
5. All of the above
Present Day Recurrent BV Management

- Suppression with metronidazole gel twice weekly for 4-6 months
- Oral metronidazole, then intravaginal boric acid, then suppressive metronidazole gel twice weekly for 4-6 months
- Oral metronidazole administered monthly with fluconazole
Adherent Biofilms in Bacterial Vaginosis

*G. vaginalis*

Fig. 4. A continuous biofilm can be detected histologically on the vaginal epithelial surface in patients with bacterial vaginosis (Brown-Hopps modification of the Gram stain). Original magnifications: left panel, x100 (A); right panel, x250 (B). Note the desquamation of surface epithelial cells containing the biofilm that can be detected as “clue cells” in the vaginal smear (arrows).


Swidsinski, Obstet. Gynecol 2005

Slide courtesy of Marrazzo, IDSA 2011
What is new with BV?

• Biofilm disrupters – boric acid, octenidine, retrocyclin, quorum sensing inhibitors?

• New data presented in Durban, South Africa at the 21st International AIDS Conference
  – Follow-up studies of women in CAPRISA (PrEP study of vaginal gel)
  – Association of specific pathogens with increased inflammation/susceptibility
    • *P. bivia*
    • *G. vaginalis*
    • Lack of *Lactobacilli*
Partner Management

- Treatment of male sex partners has not been found to reduce BV recurrence
- Evaluate and treat female partners
- Patients should also be advised to refrain from douching and either abstain from sex or use a condom during and for a month after treatment
Take Home Points

• BV is a common clinical entity
• Understanding of BV continues to evolve
  – Biofilms may be important
• Use of appropriate diagnostic tests are critical for management
• Several strategies exist to treat recurrent BV, but more work is needed
4. STIs have returned to 1990s levels (complications are more common)

Therefore, to reduce transmission ...

3. Focus screening on high-risk populations for highest yield

3A. MSM STI screening is important for maintaining male sexual health

Consider HIV PrEP

3B. Re-screening for STIs in those previously infected, reaches those at highest STI risk

2. Treat STI syndromes quickly

Expedite Partner Therapy

2A. New considerations for persistent Urethritis

2B. Recurrent BV is common, can be treated with prolonged therapy, but optimal management is in evolution

Drum roll please ...
1. CDC STD TREATMENT GUIDELINES: A ROSE BY ANY OTHER NAME ...
• Harmony with USPSTF screening guidelines on gonorrhea/chlamydia in adolescents
• New hepatitis C screening recommendations for HIV+ MSM
• New information on clinical management of transgender men and women
CDC STD Treatment Guidelines Development

- Evidence-based on principal outcomes of STD therapy
  1. Microbiologic eradication
  2. Alleviation of signs & sx
  3. Prevention of sequelae
  4. Prevention of transmission
- Recommended regimens preferred over alternative regimens
- Alphabetized unless there is a priority of choice
- Reviewed April 2013; published 2015
- [www.cdc.gov/std/treatment](http://www.cdc.gov/std/treatment)
  - Pocket guides, teaching slides, charts, app

Language in yellow highlighted boxes reflects changes between 2010 and 2015 guidelines
Want to know more about STDs? There’s an app for that.

CDC STD Treatment Guidelines App for Apple and Android

Available now, FREE! (accept no competitors)

Search “STD Treatment” in App store
STD Clinical Consultation Network
STDCCN – NEW!!!

• Provides STD clinical consultation services within 1-5 business days, depending on urgency, to healthcare providers nationally
• Your consultation request is linked to your regional PTC’s STD expert faculty
• Just a click away!
• www.STDCCCN.org
The National STD Curriculum integrates the most recent CDC STD Treatment Guidelines into a free, up-to-date, educational website. The site addresses the epidemiology, pathogenesis, clinical manifestations, diagnosis, management, and prevention of STDs.

- Seven Self-Study Modules
- Twelve Question Bank topics with 100+ interactive board-review style questions
- Modular learning in any order with progress tracker
- Group registration and tracking for staff, students, and health care organizations
- FREE CME and CNE credits

This curriculum was funded by a grant from the CDC and developed by the National Network of STD Clinical Prevention Training Centers
Distribution of Chlamydia Cases by Age: 2009 vs 2018

Year: 2009

Average Age: 23.5 years

Year: 2018

Average Age: 25.0 years

Data are current as of 3/26/2019 and are subject to change.

Data Source: Massachusetts Department of Public Health/Bureau of Infectious Disease and Laboratory Sciences/ Division STD Prevention

Excluding infants and pediatric cases among individuals under the age of 12 years.