STIs in Chicago: Current Status and Next Steps

Stephanie Masiello Schuette

Director of HIV/STI Surveillance, Epidemiology, and Research
Stephanie.Schuette@cityofchicago.org
Overview

- Status of STIs in Chicago
  - Rates, Risk Populations, Community Areas

- Data Sources
  - Reporting Guidance

- Collaboration
  - What can we do together?
Status of STIs in Chicago
### Chlamydia, Gonorrhea, and Primary and Secondary (P&S) Syphilis

#### Counties and Independent Cities Ranked by Number of Reported Cases: United States, 2014

<table>
<thead>
<tr>
<th>Rank</th>
<th>Chlamydia</th>
<th>Gonorrhea</th>
<th>P&amp;S Syphilis</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Los Angeles County, CA</td>
<td>Los Angeles County, CA</td>
<td>Los Angeles County, CA</td>
</tr>
<tr>
<td></td>
<td>54,881 cases</td>
<td>15,316 cases</td>
<td>1,204 cases</td>
</tr>
<tr>
<td></td>
<td>547.9/100,000 population</td>
<td>152.9/100,000 population</td>
<td>12.0/100,000 population</td>
</tr>
<tr>
<td>2</td>
<td>Cook County, IL</td>
<td>Cook County, IL</td>
<td>Cook County, IL</td>
</tr>
<tr>
<td></td>
<td>37,371 cases</td>
<td>10,387 cases</td>
<td>724 cases</td>
</tr>
<tr>
<td></td>
<td>713.1/100,000 population</td>
<td>198.2/100,000 population</td>
<td>13.8/100,000 population</td>
</tr>
<tr>
<td>3</td>
<td>Harris County, TX</td>
<td>Harris County, TX</td>
<td>New York County, NY</td>
</tr>
<tr>
<td></td>
<td>24,785 cases</td>
<td>7,126 cases</td>
<td>497 cases</td>
</tr>
<tr>
<td></td>
<td>571.5/100,000 population</td>
<td>164.3/100,000 population</td>
<td>30.6/100,000 population</td>
</tr>
</tbody>
</table>

#### Chicago

<table>
<thead>
<tr>
<th></th>
<th>Chlamydia</th>
<th>Gonorrhea</th>
<th>P&amp;S Syphilis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>27,320 cases</td>
<td>8,306 cases</td>
<td>643 cases</td>
</tr>
<tr>
<td></td>
<td>1,012/100,000 population</td>
<td>307.8/100,000 population</td>
<td>23.8/100,000 population</td>
</tr>
</tbody>
</table>

#### State of IL Rate

<table>
<thead>
<tr>
<th></th>
<th>Chlamydia</th>
<th>Gonorrhea</th>
<th>P&amp;S Syphilis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>66,536 cases</td>
<td>15,971 cases</td>
<td>863 cases</td>
</tr>
<tr>
<td></td>
<td>516.5/100,000 population</td>
<td>124.0/100,000 population</td>
<td>6.7/100,000 population</td>
</tr>
</tbody>
</table>

#### U.S. Rate

<table>
<thead>
<tr>
<th></th>
<th>Chlamydia</th>
<th>Gonorrhea</th>
<th>P&amp;S Syphilis</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1,441,789 cases</td>
<td>350,062 cases</td>
<td>19,999 cases</td>
</tr>
<tr>
<td></td>
<td>456.1/100,000 population</td>
<td>110.7/100,000 population</td>
<td>6.3/100,000 population</td>
</tr>
</tbody>
</table>

* Centers for Disease Control and Prevention, Sexually Transmitted Disease Surveillance Report 2014
# Number of Reported STIs in Illinois, 2014

<table>
<thead>
<tr>
<th></th>
<th>Illinois</th>
<th>Chicago</th>
<th>% of Illinois Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlamydia</td>
<td>66,593</td>
<td>27,320</td>
<td>41%</td>
</tr>
<tr>
<td>Gonorrhea</td>
<td>15,971</td>
<td>8,306</td>
<td>52%</td>
</tr>
<tr>
<td>P&amp;S Syphilis</td>
<td>863</td>
<td>643</td>
<td>75%</td>
</tr>
<tr>
<td>Congenital Syphilis</td>
<td>27</td>
<td>20</td>
<td>74%</td>
</tr>
</tbody>
</table>
Figure 6. Number of Reported Sexually Transmitted Infections, Chicago, 1997-2014

CDPH, HIV/STI Surveillance Report 2015
STI by Sex, 2010-2014

- **Chlamydia** = The number of reported cases among females were about 2x the number of cases among males.

- **Gonorrhea** = The number of cases among females were the lowest since 2010 while the number of cases among men were the highest since 2010.

- **P&S Syphilis** = The number of reported cases among males were 9x the number of cases in females.
STI by Race/Ethnicity

- **Chlamydia (2008-2014)** = Non-Hispanic (NH) Blacks comprised 47.1% of cases

- **Gonorrhea (2008-2014)** = NH Blacks comprised 50.6% of cases

- **P&S Syphilis (2000-2014)** = NH Blacks comprised 43.4% of cases

Since 2010, number of reported cases for all STIs have increased for NH Whites and Hispanics
STIs by Age, 2014

• Majority of STI diagnoses in Chicago are concentrated among adolescents and young adults

• Individuals 13-24 yrs old accounted for 59.7% of Gonorrhea cases and 66.7% of Chlamydia cases

• 44.0% of P&S Syphilis cases were reported in individuals < 30 years
Most Reported Chlamydia and Gonorrhea Infections are among 13 – 24-Year-Olds, 2014

- **Chlamydia**
  - 27,320 Cases Reported
  - Less than 13: 31%
  - 13-19: 36%
  - 20-24: 17%
  - 25-29: 11%
  - 30-39: 5%

- **Gonorrhea**
  - 8,306 Cases Reported
  - Less than 13: 26%
  - 13-19: 34%
  - 20-24: 18%
  - 25-29: 14%
  - 30-39: 8%
P&S Syphilis, Cases by Age groups, Chicago, 2000-2014

Chicago Department of Public Health – STI/HIV Bureau

I. Tabidze, 2015
STIs by Community Area, 2014

• Chicago community areas with the highest Chlamydia and Gonorrhea case rates were located in the west and south

• Chicago community areas with the highest P&S Syphilis case rates were located mostly in the north, with other smaller high rate areas in the west and south
Top Community Areas with Highest GG/CT Rates-Chicago, 2014

26 WEST GARFIELD PARK
27 EAST GARFIELD PARL
29 NORTH LAWNDALE
40 NORTH LAWDABLE
54 RIVERDALE
67 WEST ENGLEWOOD
68 ENGLEWOOD
69 GREATER GRAND CROSSING

CDPH, HIV/STI Surveillance Report 2015
Top Community Areas with Highest P&S Syphilis Rates - Chicago, 2014

1 ROGERS PARK
3 UPTOWN
6 LAKE VIEW
77 ENGEWATER
27 EAST GARFIELD PARK
50 PULLMAN

Data classified using quartiles
Data source: STD Management Information Systems (7/2015)
and City of Chicago GIS Shapefiles
Map Prepared by: Margaret Esglin, MPH, MUPP on 11/16/2015

CDPH, HIV/STI Surveillance Report 2015
Chlamydia Case Rates (per 100,000) among Adolescents Aged 13-19 by Community Area, Chicago, 2014

Data classified using quintiles
Data source: Illinois National Electronic Disease Surveillance System (7/2015) and City of Chicago GIS Shapefiles
Map Prepared by: Margaret Eglin, MPH, MUPH on 9/11/2015

Gonorrhea Case Rates (per 100,000) among Adolescents Aged 13-19 by Community Area, Chicago, 2014

Data classified using quintiles
Data source: Illinois National Electronic Disease Surveillance System (7/2015) and City of Chicago GIS Shapefiles
Map Prepared by: Margaret Eglin, MPH, MUPH on 9/11/2015
### Characteristics of MSM with multiple versus single episodes of P&S syphilis in Chicago (N=3,544)

<table>
<thead>
<tr>
<th></th>
<th>Multiple Episodes</th>
<th>Single Episodes</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>316</td>
<td>3,228</td>
</tr>
<tr>
<td><strong>Median Age (years)</strong></td>
<td>35</td>
<td>33</td>
</tr>
<tr>
<td><strong>Median # Sex Partners</strong></td>
<td>4</td>
<td>3</td>
</tr>
<tr>
<td><strong>Race/Ethnicity, N(%)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>NH White</td>
<td>136 (43.0)</td>
<td>1333 (41.3)</td>
</tr>
<tr>
<td>NH Black</td>
<td>134 (42.4)</td>
<td>1180 (36.6)</td>
</tr>
<tr>
<td>Hispanic</td>
<td>39 (12.3)</td>
<td>546 (16.9)</td>
</tr>
<tr>
<td>Other</td>
<td>7 (2.2)</td>
<td>169 (5.2)</td>
</tr>
<tr>
<td><strong>HIV status, N(%)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Positive</td>
<td>168 (53.2)</td>
<td>915 (28.3)</td>
</tr>
<tr>
<td>Negative</td>
<td>121 (38.3)</td>
<td>1,729 (53.6)</td>
</tr>
<tr>
<td>Unk/Refused</td>
<td>27 (8.5)</td>
<td>584 (18.1)</td>
</tr>
</tbody>
</table>

MSM with multiple episodes were similar to those with single episode with respect to median age, number of sex partners and race/ethnicity (OR black vs white) = 1.1 (95% CI=0.866-1.431) but were more likely to be HIV positive (OR HIV status) = 2.6 (95% CI: 2.049–3.359).
Congenital Syphilis, 2014

• Trends observed in Congenital Syphilis case numbers usually follow trends for P&S Syphilis in females, with a lag of 1-2 yrs

• From 2010-2014, the number of P&S Syphilis cases among females decreased from 84 to 62 cases

• During this same time period, the number of Congenital Syphilis cases increased only slightly (19 to 20 cases)

Number of cases

Year


P&S in women
CS cases

I. Tabidze, 2015
Figure 10. Average Annual Congenital Syphilis Case Rates (per 100,000 live births) by Community Area, Chicago, 2010-2014 (city total rate = 39.7)

Case Rates per 100,000 Population

- No Cases
- 15.0 - 45.0
- 46.1 - 85.3
- 88.4 - 165.6
- 165.9 - 260.5

Data classified using quintiles.
Data source: STD Management Information System, and City of Chicago GIS Shapfiles.
Note: Rates per 100,000 were calculated using 2012 live births as the denominator.
Map Prepared by: Margaret Ezell, MPH, NUFF on 11/23/2015

CDPH, HIV/STI Surveillance Report 2015
Gonococcal Isolate Surveillance Project (GISP), 2014

Figure D. Primary antimicrobial drug used to treat gonorrhea among GISP participants, 2014

Figure E. Secondary antimicrobial drug used to treat gonorrhea among GISP participants, 2014
Figure F. Percentage of isolates with penicillin, tetracycline, and/or ciprofloxacin resistance, 2014

Chicago, Illinois (N=129)
Figure 1. Percentage of isolates with intermediate resistance or resistance to ciprofloxacin, 2000-2014
Chicago, Illinois

Figure J. Distribution of azithromycin minimum inhibitory concentrations (MICs) among GISP isolates, 2010-2014

Gonococcal Isolate Surveillance Project (GISP) Supplement & Profiles (2014), CDC 2016
Sneak Peak 2015 STI Data
# Ocular Syphilis

## Ocular Syphilis Cases Chicago vs West coast, 2015

<table>
<thead>
<tr>
<th>Jurisdiction</th>
<th>Time Period</th>
<th>Total# cases</th>
<th>Sexual Behavior</th>
<th>Median Age (Range)</th>
<th>Ocular Sign/Symptoms</th>
<th>RPR Test (titer range)</th>
<th>Syphilis Stage</th>
<th>HIV status</th>
<th>Median CD4 count</th>
<th>Median HIV-RNA</th>
<th>Ophtho Exam</th>
<th>CSF VDRL (# of cases)</th>
<th>Rx (# of case)</th>
<th>Ocular symptoms after Rx</th>
</tr>
</thead>
<tbody>
<tr>
<td>King County, WA¹</td>
<td>12/1/14-01/30/15</td>
<td>4</td>
<td>MSM(7)</td>
<td>39 years (29-52)</td>
<td>Blurry Vision/loss &amp; flashing lights</td>
<td>1:256 - 1:4096</td>
<td>Early Latent (3) Late Latent (1)</td>
<td>Positive (75%) 3 cases</td>
<td>111 cells/ml</td>
<td>34,740 copies/ml</td>
<td>Uveitis(4)</td>
<td>Positive(2)</td>
<td>Pen G IV (3) Procaen pen and probenecid (1)</td>
<td>Initial improvement(4). However: 1 pt still had a 2 legally blind after 5 month 1 lost to follow up</td>
</tr>
<tr>
<td>San Francisco, CA¹</td>
<td>12/15/14-03/25/15</td>
<td>8</td>
<td>MSM(6) MSW(1) Female(1)</td>
<td>52 years (35-58)</td>
<td>Blurry vision</td>
<td>1:256 - 1:8192</td>
<td>Secondary(3) Early Latent (4) Late Latent (1)</td>
<td>Positive (88%) 6 cases</td>
<td>291 cells/ml</td>
<td>84,500 copies/ml</td>
<td>Optic neuropathy, Uveitis Retinal</td>
<td>Positive (3)</td>
<td>Pen G IV(8)</td>
<td>Improvement (7) Permanent visual loss after 3 months (1)</td>
</tr>
<tr>
<td>Chicago, IL²</td>
<td>01/01/15-12/31/15</td>
<td>5</td>
<td>MSM(3) MSWW(1) MSW(1)</td>
<td>32 years (32-58)</td>
<td>Blurry vision</td>
<td>1:16 - 1:4096</td>
<td>Secondary 2) Late Latent(3)</td>
<td>Positive (80%) 4 cases</td>
<td>221 cells/ml</td>
<td>56,037 copies/ml</td>
<td>Panuveitis (2) Chorioretinitis (2) Papiledema(1)</td>
<td>Positive (2)</td>
<td>Pen G IV(3) Pen G IV &amp; BIC 2.4 IM (1)</td>
<td>Improvement (3) No information (2)</td>
</tr>
</tbody>
</table>

## 2015 STI Co-infection Data – Chicago (as of 06.21.2016)

<table>
<thead>
<tr>
<th>Disease</th>
<th>Total Morbidity</th>
<th>STI/HIV Co-infected (#)</th>
<th>STI/HIV Co-infected (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlamydia</td>
<td>29,018</td>
<td>839</td>
<td>3%</td>
</tr>
<tr>
<td>Gonorrhea</td>
<td>8,786</td>
<td>761</td>
<td>9%</td>
</tr>
<tr>
<td>Early Syphilis</td>
<td>1,352</td>
<td>567</td>
<td>42%</td>
</tr>
</tbody>
</table>
## 2015 MSM HIV/PS Co-infected – Chicago (as of 06.21.2016)

<table>
<thead>
<tr>
<th>Population</th>
<th>PS Syphilis (#) (n=241)</th>
<th>PS Syphilis (%)</th>
<th>% Change 2014-15</th>
</tr>
</thead>
<tbody>
<tr>
<td>NHB MSM 20-29</td>
<td>55</td>
<td>23%</td>
<td>+96%</td>
</tr>
<tr>
<td>NHB MSM 30-39</td>
<td>26</td>
<td>11%</td>
<td>+86%</td>
</tr>
<tr>
<td>NHW MSM 30-39</td>
<td>26</td>
<td>11%</td>
<td>+136%</td>
</tr>
<tr>
<td>NHW MSM 40-49</td>
<td>25</td>
<td>10%</td>
<td>+39%</td>
</tr>
<tr>
<td>NHB MSM 40-49</td>
<td>17</td>
<td>7%</td>
<td>+42%</td>
</tr>
</tbody>
</table>
CDPH Data Sources
Where do the data come from?

• Provider Reporting
  – You! Morbidity and Laboratory reports

• CDPH clinic reporting
  – Screening data

• Federally funded research projects
  – Behavioral associations

• CDPH funded collaborations
  – Specialized focus

We are only as accurate as the data we receive
State of Illinois Reporting Requirements
(77 Ill. Admin Code 693.30)

• Providers must report within **7 days** to local health department diagnosis and/or treatment for a client positive for STI test result

• Laboratories must report within **7 days** to local health department a positive STI result

• Failure to comply can be punishable by fines up to $500 for EACH violation or allows the Illinois Department of Public Health to report such violations to the regulatory agency which provides licensing for your health care profession
What happens with the data?

- CDPH STI Surveillance receives ~40,000 cases each year
  - 4-5 hrs to sift through mail each day
  - Triaged, followed-up, and closed

- 13.5 dedicated staff members

- Reported to IDPH and CDC
Reciprocal Reporting

- Case Reporting
  - Morbidity
  - Laboratory

- Provider Visits
  - Report Card
  - Population Metrics

- Communication via HAN

Above all else show the data.
Edward Tufte
Understanding the ‘why’ behind the ‘how many’

• Barriers to health care, medication, etc. for:
  – NH Black females and MSM
  – Individuals living in specific community areas

• Repeat infection
  – Behavioral characteristics
  – Co-morbidities

• Innovative prevention efforts surrounding young Chicagoans
Final Take-aways

• City of Chicago has high morbidities of STIs
  – NH Blacks have the highest burden across all STIs
    • Females
    • MSM
  – Individuals < 30 yrs of age account for the majority of reported STIs in Chicago

• Case reporting is crucial in obtaining accurate information and ensuring all patients are receiving appropriate care

• Provider and community partnerships to explain the ‘why’ behind the surveillance data
Thank You & Questions?

@ChiPublicHealth  /ChicagoPublicHealth
HealthyChicago@CityofChicago.org  www.CityofChicago.org/Health

Thanks to:

STI Surveillance Team
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Maria Vega
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Irina Tabidze
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