Acute Communicable Disease Outbreaks among MSM, 2016

Benjamin Schwartz, MD
Acute Communicable Disease Control Program
Los Angeles County Department of Public Health
bschwartz@ph.lacounty.gov
(213) 240-7941
Acute Communicable Disease Control Program: Who We Are & What We Do

- ~70 doctors, nurses, epidemiologists, and health educators
- Key activities
  - Surveillance for reportable infections & syndromes
  - Outbreak and case investigations
  - Collaborative prevention programs
  - Emergency and BT preparedness
  - Consultation to healthcare providers
  - Public health research

10/14/2016
Presentation Outline

• Invasive meningococcal disease (IMD) outbreak

• *Shigella flexneri* outbreak
Meningococcal Disease Background

- Type of infections – meningitis, sepsis, pneumonia
- Decreasing incidence – currently ~15 cases/yr in LAC
- Institutional outbreaks – e.g., colleges
- Outbreaks among men who have sex with men (MSM)
  - Increased risk with HIV
  - Associated with multiple partners, smoking, crowding
  - Caused by serogroup C, clonal complex ST-11
Declining Incidence of IMD in LAC

LAC 2014 incidence = 0.24 cases per 100,000
LAC Meningococcal Disease Outbreak: 2012-14

• Based on knowledge of NYC outbreak and 2 cases among MSM in LAC, data on MSM status routinely collected since October 2012

• From Oct 2012 to Sept 2014, 34 cases reported in LAC
  – 13 (38%) among MSM; 5 (38%) died
  – 10 (77%) of MSM cases serogroup C
  – 4 (31%) with HIV infection

• Vaccination recommendation (4/14) for all persons with HIV and MSM with multiple partners or who identify partners using apps, particularly those who smoke or use drugs
## Risk Factors for IMD: MSM & non-MSM males >18 yrs old (10/12 – 3/14)*

<table>
<thead>
<tr>
<th>Factor</th>
<th>MSM (N=11)</th>
<th>Non-MSM (N=12)</th>
<th>P-value**</th>
</tr>
</thead>
<tbody>
<tr>
<td>Drug Use***</td>
<td>5 (45)</td>
<td>1 (8)</td>
<td>0.06</td>
</tr>
<tr>
<td>Smoke cigarettes</td>
<td>4 (36)</td>
<td>4 (33)</td>
<td>0.61</td>
</tr>
<tr>
<td>Smoke marijuana</td>
<td>5 (45)</td>
<td>2 (17)</td>
<td>0.15</td>
</tr>
<tr>
<td>Shared beverages</td>
<td>4 (36)</td>
<td>5 (42)</td>
<td>0.75</td>
</tr>
<tr>
<td>Attended large social gatherings</td>
<td>7 (64)</td>
<td>5 (42)</td>
<td>0.26</td>
</tr>
<tr>
<td>Met partners online, at bar, streets</td>
<td>5 (45)</td>
<td>--</td>
<td>--</td>
</tr>
<tr>
<td>None</td>
<td>1 (9)</td>
<td>3 (25)</td>
<td>0.94</td>
</tr>
</tbody>
</table>

*Data range reflects documented IMD cases at time of vaccine recommendation

**Includes cocaine, crystal meth, crack, and “IV drug use”.

**P-value reflects Fisher’s Exact Test right-sided p-value.

***Excludes fatal case with unknown history and another who declined to comment how he met his partners.
2016 Meningococcal Disease Outbreak

- Outbreak recognized after several LAC and Long Beach cases in mid- to late-May
- Investigation begun collaboratively with Long Beach, Orange County, and California Department of Public Health
- CDC invited to participate in the investigation in early July
Outbreak Case Definition, 2016

• **Confirmed**
  
  – Invasive meningococcal disease
  
  – Onset since March 1, 2016
  
  – Epidemiologic link to LAC, Orange County, Ventura County, or Long Beach
  
  – Caused by *Neisseria meningitidis*, serogroup C; if sequenced clonal complex ST-11

• **Possible**
  
  – Same as confirmed, but pending or unknown serogroup
Epidemic Curve with Local Events

No. of cases

Mar Apr May Jun Jul Aug Sep Oct

10/14/2016

- Palms Springs White Party
- Long Beach Pride
- LA Pride

LA county    Long Beach  Orange County    Ventura    Traveler - LA
### Characteristics of IMD Cases

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Number (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hospitalized (%)</td>
<td>27 (100)</td>
</tr>
<tr>
<td>Male (%)</td>
<td>25 (93)</td>
</tr>
<tr>
<td>MSM (% of Males)</td>
<td>21 (84)</td>
</tr>
<tr>
<td>Known HIV infected</td>
<td>3 (11)</td>
</tr>
<tr>
<td>Median Age (Range)</td>
<td>32 (17-72)</td>
</tr>
<tr>
<td>Deaths (%)</td>
<td>2 (7)</td>
</tr>
</tbody>
</table>
IMD Case Race & Ethnicity

- Hispanic/Latino (N=12): 45%
- White Non-Hispanic (N=9): 33%
- Asian/Pacific Islander (N=2): 7%
- Black Non-Hispanic (N=3): 11%
- Other (N=1): 4%

10/14/2016
IMD Cases by Jurisdiction

- Ventura County: N=1
- Long Beach: N=7
- Orange County: N=7
- Los Angeles County: N=11
- Travel Associated: N=1
Findings from Case Interviews

- No common geographic location
- No common venues attended
- No common exposures
- No common risk factors
Case Locations – Residence & Activities
Social Behaviors of IMD Cases

# times per week visit bars, nightclubs, or attend parties

- Zero: 13
- 1 or 2: 4
- 3 or more: 5

In 3 mo before getting sick, number of times gone to a place where gay men hang out

- Never: 6
- Once a month: 7
- Once a week or more: 5

10/14/2016
### Sexual Behaviors

<table>
<thead>
<tr>
<th>Behavior</th>
<th>N (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Median sexual partners (range)</td>
<td>1 (range 0-7)</td>
</tr>
<tr>
<td>Gave oral sex</td>
<td>11 (57.9)</td>
</tr>
<tr>
<td>Received oral sex</td>
<td>8 (42.1)</td>
</tr>
<tr>
<td>Had sex with anonymous partners</td>
<td>2 (9.5)</td>
</tr>
<tr>
<td>Had group sex</td>
<td>1 (4.8)</td>
</tr>
<tr>
<td>STD diagnosis in past year</td>
<td>1 (5.3)</td>
</tr>
<tr>
<td>Paid for sex</td>
<td>0 (0.0)</td>
</tr>
<tr>
<td>Had sex in exchange for money, drugs, or shelter</td>
<td>0 (0.0)</td>
</tr>
</tbody>
</table>

Two cases reported only heterosexual behavior
Prevention

• Vaccination recommended for
  – All MSM in the affected jurisdictions (and SD)
  – All persons with HIV (national recommendation by ACIP)

• Free vaccine available regardless of health insurance status

• Outreach
  – Information and education via media, LGBT orgs, apps
  – Vaccination through healthcare providers, LGBT orgs, public health clinics, venues

10/14/2016
Ongoing Investigations

• Surveillance and investigation of new cases
• Laboratory testing at CDC to identify type cc11
• Assessment of meningococcal carriage among gay and bisexual men: why does cc11 cause outbreaks in gay men?
  – Obtain throat, urethral and rectal cultures from 500 men to identify carriage at those sites
Shigella flexneri Outbreak
Background (1)

• Shigellosis
  – Febrile gastrointestinal illness
  – Typically transmitted person-to-person via fecal-oral route
  – Small infective dose (>10 organisms) so easily spread
  – Incubation period is 1-4 days
  – Symptoms typically start 1–2 days after exposure
  – LAC incidence 5.31 per 100,000 people (2015) – over 500 reports per year
Background (2)

• MSM are more likely to acquire shigellosis than other adults
  – Most LAC Shigella cases occur among males
  – Recent MSM outbreaks
    • Quebec (2012/13), Tokyo (2011), London (2004/05)
• HIV-infected persons may have more severe and prolonged illness, including bacteremia
• MSM Shigella outbreaks more often caused by resistant strains
  – Azithromycin
  – Ciprofloxacin
**Shigella flexneri** serotype 7

- Requires testing at California Department of Public Health
- Uncommon
  - 2012 CDC report noted only 6 cases nationwide
  - No CA cases since 2014 before current cluster
- Symptoms and clinical illness does not appear to differ from other *S. flexneri* serotypes
Current Southern California *Shigella* Outbreak

- *S. flexneri*, Serotype 7 (aka 1c or provisional 88-893)
- 28 confirmed cases
  - 10+ possible cases
  - 92% (22/24) identify as MSM
  - Case onset April – September, 2016
- 6 Local Health Jurisdictions with cases
  - Los Angeles County
  - Pasadena
  - Long Beach
  - Orange County
  - Riverside County
  - San Diego County
S. flexneri Outbreak Case Definition

- **Confirmed**: lab confirmed S. *flexneri* serotype 7 with onset date from April – September, 2016, with an epidemiologic link to Southern California

- **Possible**: lab confirmed ungroupable S. *flexneri* with serotyping results from April – September, 2016, with an epidemiologic link to Southern California
Epidemic Curve of *S. flexneri* Serotype 7 by Local Health Jurisdiction, Southern California - 2016
Epidemic Curve of *S. flexneri* Serotype 7 by HIV Status, Southern California - 2016

- HIV-  
- Unknown  
- HIV+

Cases

<table>
<thead>
<tr>
<th>April</th>
<th>May</th>
<th>Jun</th>
<th>Jul</th>
<th>Aug</th>
<th>Sept</th>
</tr>
</thead>
<tbody>
<tr>
<td>3-Apr-16</td>
<td>10-Apr-16</td>
<td>17-Apr-16</td>
<td>24-Apr-16</td>
<td>1-May-16</td>
<td>8-May-16</td>
</tr>
<tr>
<td>1-May-16</td>
<td>8-May-16</td>
<td>15-May-16</td>
<td>22-May-16</td>
<td>29-May-16</td>
<td>5-Jun-16</td>
</tr>
<tr>
<td>5-Jun-16</td>
<td>12-Jun-16</td>
<td>19-Jun-16</td>
<td>26-Jun-16</td>
<td>3-Jul-16</td>
<td>10-Jul-16</td>
</tr>
<tr>
<td>10-Jul-16</td>
<td>17-Jul-16</td>
<td>24-Jul-16</td>
<td>31-Jul-16</td>
<td>7-Aug-16</td>
<td>14-Aug-16</td>
</tr>
<tr>
<td>7-Aug-16</td>
<td>14-Aug-16</td>
<td>21-Aug-16</td>
<td>28-Aug-16</td>
<td>4-Sep-16</td>
<td>11-Sep-16</td>
</tr>
<tr>
<td>4-Sep-16</td>
<td>11-Sep-16</td>
<td>18-Sep-16</td>
<td>25-Sep-16</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
LAC* S. flexneri Serotype 7 Cases, May - September 2016

*includes Long Beach and Pasadena
Outbreak Characteristics & Case Demographics

- All cases are male
- Median age: 35 (range 22-67)
- Race/ethnicity: 54% Latino/Hispanic; 43% White; 4% Black
- 92% MSM
- 77% (17/22) HIV+
  - 5 HIV-
  - 6 with unknown HIV status
- 1 death (LAC)
## Clinical Presentation

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>HIV- or UNK (n=11)</th>
<th>HIV+ (n=17)</th>
<th>TOTAL (n=28)</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Num</td>
<td>%</td>
<td>Num</td>
</tr>
<tr>
<td>Hospitalized</td>
<td>2</td>
<td>25%</td>
<td>9</td>
</tr>
<tr>
<td>Days hosp. (mean)</td>
<td>3</td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>Fever</td>
<td>6</td>
<td>75%</td>
<td>14</td>
</tr>
<tr>
<td>Diarrhea</td>
<td>8</td>
<td>100%</td>
<td>17</td>
</tr>
<tr>
<td>Bloody Diarrhea</td>
<td>5</td>
<td>63%</td>
<td>8</td>
</tr>
<tr>
<td>Abdominal cramps</td>
<td>7</td>
<td>88%</td>
<td>9</td>
</tr>
<tr>
<td>Antibiotic treatment</td>
<td>8</td>
<td>100%</td>
<td>16</td>
</tr>
</tbody>
</table>
Social/Behavioral Characteristics

- 32% (6/19) are homeless or transiently housed
  - All 6 are HIV+
- 33% (6/18) have Hepatitis C
  - All 6 are HIV+
- 24% (5/18) have Syphilis
  - All 5 are HIV+
- 50% (7/14) are IDUs
  - 6 of the 7 are HIV+
- 72% (13/18) are non-IDU meth and/or other drug users
HIV Characteristics

- Of the 17 HIV+ cases
  - 1 death: not on HAART at time of death and CD4 <10
  - 5 reported adherence to HAART
    - Only 2 reported last CD4: 589 and 700
  - 10 reported non-adherence/not in care
    - 6 reported last CD4: ranged 10-183
    - 3 did not report last CD4/could not remember
  - 2 had no data on if they were on HAART
Antimicrobial Susceptibility Testing

• 18 isolates tested
  – 0% susceptible to Ampicillin
  – 0% susceptible to Trimethoprim/sulfamethoxazole
  – 100% susceptible to Ciprofloxacin
**Guidance to Health Care Providers**

1) Obtain a stool culture from MSM who present with fever and diarrhea, particularly if the diarrhea is bloody
   - PCR does not replace culture as an isolate is needed for serotyping and antimicrobial susceptibility testing

2) Treat *Shigella* infection among MSM to shorten duration of illness, reduce shedding, and the risk of transmission
   - Empiric therapy may be warranted
   - Isolates from this cluster & most *Shigella* susceptible to cipro

3) Educate patients to reduce risk of transmitting *Shigella*
Guidance to Clinical Labs

- California Code of Regulations Title 17 changes in May/June 2016
  - Section 2505 - *Shigella* isolates are to be submitted as soon as available to the public health laboratory
  - New subsection (m)(3) states laboratories must attempt to obtain a bacterial culture isolate whenever there is a laboratory test result indicative of infection with *Shigella*
Prevention and Outreach

• Advise MSM to reduce oral-fecal contact, especially shortly after illness:
  – Avoid sex for at least 2 weeks after recovery from illness
  – When having sex again, refrain from oral-anal contact or use barriers
  – Wash hands, genitals, anus and sex toys before and after sexual activity to reduce transmission risk
  – If no access to soap and water, use gel or wipes
SAVE YOUR ASS.
Shigellosis is a disease that’s spreading among men who have sex with men.

- It spreads very easily from any contact with poop
- High risk of getting it during ass play (rimming, fisting, and anal toys)
- It causes diarrhea, stomach cramps, and fever
- It can be a serious illness, especially if you have HIV

If you think you have Shigellosis, call 2-1-1 to help you find a doctor for free.

SAVE YOUR ASS.
You can prevent Shigellosis.

- Don’t get poop in your mouth
- Wash your hands, penis, butt, and sex toys with soap and water before and after sex
- If you don’t have soap and water, use wipes or hand sanitizer (hand gel)
- No sex if you or your partner have diarrhea, or have had it in the last 2 weeks

Revised 03/29/2016
Conclusions

- Ongoing cluster among MSM, HIV + and homeless or transiently housed
- Many HIV+ cases not taking antiretrovirals or lost to care
- Culture is important to detect outbreak cases
- Strain of *Shigella* susceptible to Ciprofloxacin
- Prevention messaging should emphasize antibiotic completion, ease of transmission, washing hands, and avoiding high risk behaviors.
- Silver lining? May be opportunity to get back into HIV care