Meningococcal Disease Outbreak among Gay and Bisexual Men

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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
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 cc11
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>Risk 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

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

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

***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
  – Epidemiological link to LAC, Orange County, or Long Beach
  – Caused by Neisseria meningitidis, serogroup C; if sequenced cc11

• Possible
  – Same as confirmed, but pending or unknown serogroup
Epidemic Curve

No. of cases

Mar
Apr
May
Jun
Jul

28-Feb-16
6-Mar-16
13-Mar-16
20-Mar-16
27-Mar-16
3-Apr-16
10-Apr-16
17-Apr-16
24-Apr-16
1-May-16
8-May-16
15-May-16
22-May-16
29-May-16
5-Jun-16
12-Jun-16
19-Jun-16
26-Jun-16
3 Jul-16
10-Jul-16
17-Jul-16
24-Jul-16

LA county
Long Beach
Orange County
Minnesota/LA
Epidemic Curve with Local Events

No. of cases

Mar    Apr    May    Jun    Jul

28-Feb-16  6-Mar-16  13-Mar-16  20-Mar-16  27-Mar-16
3-Apr-16  10-Apr-16  17-Apr-16  24-Apr-16  1-May-16
8-May-16  15-May-16  22-May-16  29-May-16  5-Jun-16
12-Jun-16  19-Jun-16  26-Jun-16  3-Jul-16  10-Jul-16
17-Jul-16  24-Jul-16

Palms Springs White Party
Long Beach Pride
LA Pride

LA county  Long Beach  Orange County  Minnesota/LA
Patient Characteristics

• Total cases – 24
• Fatal outcome – 2 (8%)
• Gender – male 22 (92%)
• MSM – 19 (79%); HIV positive – 2 (8%)
• Age 20-39 years – 20 (83%)
• Race/ethnicity – White (29%), Latino (46%), Black (13%), Asian/Other (13%)
Findings from Case Interviews

- No common geographic location
- No common venues attended
- No common exposures
- No common risk factors
Case Locations – Residence & Activities
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
Ongoing Investigations

• Surveillance and investigation of new cases
• Laboratory testing at CDC to identify type cc11
• Outreach to social contacts of cases to identify potential common exposures
• Assessment of meningococcal carriage among gay and bisexual men