Hepatitis A in Boston
BPHC Board Meeting
October 17, 2018

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Stacey Kokaram, Director Office of Public Health Preparedness
▪ Vaccine-preventable illness transmitted primarily via person-to-person through the fecal-oral route.

▪ 70% of adults are symptomatic.
  ▪ Fever, fatigue, loss of appetite, nausea, vomiting, abdominal pain, dark urine, and jaundice.

▪ Average incubation (period between exposure and appearance of symptoms) = 28 days (range: 15–50 days)

▪ Infectious period (period during which an infected person can transmit a pathogen to a susceptible host) = 2 weeks prior to becoming symptomatic until 1+ weeks after symptoms develop.
  ▪ Prolonged period of infectivity prior to symptom onset contributes to difficulty in identifying exposures and controlling transmission.

▪ Illness typically acute and self-limited; however, among >50 years of age and populations with underlying medical conditions (e.g., hepatitis B and C infections, chronic liver disease), infection can lead to fulminant hepatitis resulting in death.

▪ Symptoms usually last <2 months; ~10%–15% have prolonged or relapsing disease for up to 6 months.
HAV – General Information

- HAV can live outside the body for months, depending on environmental conditions.
- HAV requires high cooking temperatures to kill. However, virus can still be spread from cooked food contaminated after cooking. Freezing does not inactivate HAV.
- HAV vaccine is >94% effective in preventing infection. Good hand hygiene plays an important role in preventing spread.
Several recent large U.S. outbreaks affecting people experiencing homelessness and those with substance use disorder, especially people who inject drugs.

- On September 1, 2017, the San Diego County Health and Human Services Agency declared a local health emergency in response to an HAV outbreak unprecedented in size and severity which began November 2016.

- The majority of persons infected were experiencing homelessness and/or SUD. As of July 4, 2018, a total of 590 cases have been identified, including 408 (68%) hospitalizations, and 20 (3.4%) deaths. There were additional large clusters in Los Angeles and Santa Cruz Counties.

- Indiana, Kentucky, Michigan, Tennessee, Utah and West Virginia have also reported outbreaks of HAV since March 2017.
Outbreak-associated Hepatitis A cases by onset week

11/1/2016–10/26/2017, N = 536*

*Date of specimen collection or report used if onset date unknown; dates may change as information becomes available
Following Case #1, BPHC collaborated with Boston Healthcare for the Homeless Program (BHCHP) to increase HAV vaccine delivery to shelter clients; BPHC’s AHOPE program increased education and outreach efforts.

- Focus on downtown encampments and Engagement Center
- ISD and BPHC (Env, IDB) inspected the EC; ISD performed food service evaluation; cleaning/disinfection recommendations provided, particularly re porta-potties and increasing access to mobile hand washing unit; hand hygiene education
Following Case #2, outreach efforts expanded to address the highly transient and fluid nature of these overlapping high risk populations.

- Enhanced cleaning/sanitation efforts initiated at all BPHC BHR, BRS, and BHCHP sites including AHOPE, PAATHS, Engagement Center, The Boston Night Center, The Barbara McInnis House, and all Boston shelters.

- Active education and outreach to clients expanded including efforts to reach the unsheltered homeless population through BPHC and BHCHP street teams and mobile units including the Kraft Center’s CareZONE van, BHCHP’s Pine Street Shelter van.

- Coordinated efforts to increase HAV coverage for all BHCHP clients as well as increase vaccine delivery among non-clients.

- Increase awareness among hospital ED’s providers and Lemuel Shattuck Hospital to assess HAV vaccine status and offer vaccine to all susceptible persons.
Following Case #3, multi-stakeholder conf call with BPHC (IDB, OPHP, BHS, BRS, AHOPE, CIB-Env); MDPH; BHCHP including Pine Street Shelter; Emergency Preparedness Directors at MGH, BMC, Tufts to review current preparedness strategies.

- Identified current capacity and gaps; discussed increase use of mobile units re vaccine delivery particularly for unsheltered homeless; increased vaccine outreach and delivery efforts at shelters; MDPH offered vaccine supply and potential purchase of additional supply; discussed difficulty of delivering vaccine at hospital EDs

- Provided 3 HAV vaccine clinics at WM and AHOPE

- Joint HAV Advisory by BPHC/MDPH July 31, 2018
Since April 3, 2018, 44 cases of acute HAV infection have been reported in Boston among people experiencing homelessness and/or SUD, particularly IDU.

- Non-travel associated; first case in food handler reported last week
- Unique genotype not found in other outbreaks across the country
- 98 cases reported total in MA, majority reported from Suffolk (45%), Plymouth (14%), Middlesex (8%), and Worcester (8%) Counties.

In 2003-2005, Massachusetts reported >1,000 cases of HAV (Boston = 136)

- 2/3 of cases were in individuals experiencing homelessness, SUD, incarceration.
- Large scale vaccination, education and control efforts were required to control the outbreak.
HAV, Boston 2018 – Epidemiological Curve

Weekly Diagnoses of Hepatitis A in Boston, 2018

Number of Cases

Week of Diagnosis
<table>
<thead>
<tr>
<th>Characteristic</th>
<th>#</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Cases</td>
<td>44</td>
<td></td>
</tr>
<tr>
<td>Median Age</td>
<td>33.5</td>
<td></td>
</tr>
<tr>
<td>Age range</td>
<td>26 to 61</td>
<td></td>
</tr>
<tr>
<td>% Male</td>
<td>30</td>
<td>68</td>
</tr>
<tr>
<td>Currently Experiencing Homelessness</td>
<td>34</td>
<td>77</td>
</tr>
<tr>
<td>Link to Homeless Community</td>
<td>7</td>
<td>16</td>
</tr>
<tr>
<td>No link to Homeless Community</td>
<td>3</td>
<td>7</td>
</tr>
<tr>
<td>Known to be current PWID</td>
<td>20</td>
<td>45</td>
</tr>
<tr>
<td>Food Handler</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>
HAV Massachusetts Case Characteristics, 10/15/18

Outbreak-associated hepatitis A cases, by event date, Massachusetts, 2018

Cases occurring in October Week 2 and later excluded. Data for more recent weeks may be incomplete due to diagnosis and reporting delays.

Data source: MDPH Bureau of Infectious Disease and Laboratory Sciences. Data as of 10/12/2018 and subject to change.

<table>
<thead>
<tr>
<th></th>
<th>2017 cases</th>
<th>2018 non-outbreak cases</th>
<th>2018 outbreak cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of cases</td>
<td>53</td>
<td>51</td>
<td>98</td>
</tr>
<tr>
<td>Demographics</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Gender</td>
<td>64% male</td>
<td>73% male</td>
<td>60% male</td>
</tr>
<tr>
<td>Age: median (range)</td>
<td>36 (5-85)</td>
<td>52 (22-90)</td>
<td>32 (21-78)</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asian</td>
<td>6%</td>
<td>4%</td>
<td>1%</td>
</tr>
<tr>
<td>Black</td>
<td>6%</td>
<td>4%</td>
<td>3%</td>
</tr>
<tr>
<td>White</td>
<td>49%</td>
<td>53%</td>
<td>77%</td>
</tr>
<tr>
<td>Other</td>
<td>4%</td>
<td>8%</td>
<td>10%</td>
</tr>
<tr>
<td>Unknown</td>
<td>36%</td>
<td>31%</td>
<td>9%</td>
</tr>
<tr>
<td>Ethnicity</td>
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<td></td>
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</tr>
<tr>
<td>Hispanic</td>
<td>2%</td>
<td>6%</td>
<td>8%</td>
</tr>
<tr>
<td>Non-Hispanic</td>
<td>47%</td>
<td>49%</td>
<td>75%</td>
</tr>
<tr>
<td>Unknown</td>
<td>51%</td>
<td>45%</td>
<td>17%</td>
</tr>
<tr>
<td>Coinfections</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>Hepatitis B*</td>
<td>2%</td>
<td>0%</td>
<td>4%</td>
</tr>
<tr>
<td>Hepatitis C*</td>
<td>2%</td>
<td>4%</td>
<td>78%</td>
</tr>
<tr>
<td>HIV</td>
<td>2%</td>
<td>2%</td>
<td>7%</td>
</tr>
</tbody>
</table>

*Includes confirmed and probable cases. Percentages may not add to 100 due to rounding.
Overall Response Objectives

Maintain ongoing **situational awareness** for leadership, media, and healthcare providers regarding the spread of Hepatitis A within the City of Boston.

Develop and implement a **vaccination plan** that will decrease the transmission of Hepatitis A within the at-risk population.

Provide guidance and resources related to **hygiene and sanitation** to help mitigate the transmission of Hepatitis A.

Provide coordinated **incident management** across BPHC, City of Boston agencies and external partners through the Medical Intelligence Center (MIC).
Medical Intelligence Center

- Public Health and Healthcare Coordination
  - Coordinates public health and healthcare response and recovery for all external partners

- Department Operations Center (DOC)
  - Coordinates response and recovery for BPHC programs
Situational Awareness

- Coordinate information sharing and decision making
- PH Advisories
- Press Release
- Conference Calls
Vaccination Plan

- At-risk population:
  - Unsheltered homeless
  - Individuals experiencing substance use disorders, specifically those that use injection drugs

- Primary at-risk workers:
  - EMS, Campus Police, Facilities
  - Homeless Service Providers
  - Engagement Center Staff
  - Recovery Services Staff

70-80% Vaccination Goal
Hygiene and Sanitation

- Hepatitis A Disinfection Guidelines
- Enhanced Cleaning at Facilities
- Personal Protective Equipment
- Posters
Established Incident Management Team

Weekly Coordination Calls

Weekly BPHC Situation Reports

Coordination w/the Massachusetts Department of Public Health
In-person planning session w/partners and providers

- Lessons Learned
- Future Planning

Continue implementation of current Hepatitis A Response Plan
Questions?