Hepatitis A and B outbreaks in Massachusetts, 2017-2018

Shauna Onofrey, MPH
Viral Hepatitis Surveillance Coordinator
Massachusetts Department of Public Health
Massachusetts Background

- Population: 6.86 Million
- 10,565 mi$^2$
- 10.4% of population live below the poverty line
- In 2007, we identified an increase Hepatitis C linked to injection drug use
- In 2015, Governor declared an opioid crisis in the state
Confirmed and Probable HCV Cases in MA 2002 (N=10,646)

Data Source: MDPH Division of Epidemiology and Immunization, Data current as of 14 Aug 2018 and subject to change

Missing age or gender: 149
Confirmed and Probable HCV Cases in MA 2009 (N=8,224)

Data Source: MDPH Division of Epidemiology and Immunization, Data current as of 14 Aug 2018 and subject to change

Missing age or gender: 585
Confirmed and Probable HCV Cases in MA 2016 (N=7,810)

Data Source: MDPH Division of Epidemiology and Immunization, Data current as of 14 Aug 2018 and subject to change

Missing age or gender: 213
Count of Reported Confirmed and Probable Hepatitis C Virus Infection Cases by Official Massachusetts City/Town: 2016*

Incidence Rate (N=6,394)

- No Reported Cases
- < 5
- 6 - 10
- 11 - 25
- 26 - 50
- 51 - 100
- > 100

*Bureau of Infectious Disease and Laboratory Sciences, Office of Integrated Surveillance & Informatics Services

*Data as of 13 NOVEMBER 2017 and are subject to change.

Note: 608 cases with residences listed in the 33 federal, state, and county correctional institutions in Massachusetts were excluded.

* Unknown Official City (N = 690)
Opioid-Related Deaths
Massachusetts Residents, 2000–2017

Rate of Opioid-Related Deaths (All Intents), by Year

Data points in red are estimates.

aOpioids include heroin, opioid-based prescription painkillers, and other unspecified opioids.

The Massachusetts Opioid Epidemic
EMS Data, 2013–2017

Count of All EMS Incidents Involving Naloxone Administration, by Year

EMS Incidents, Number

Trend Line
Naloxone-Administered EMS Incidents

Year and Quarter

EMS, emergency medical services
2881 (16%) people experiencing homelessness reporting substance use disorder

Viral Activity 2017-2018

• In October 2017, MDPH observed an increase in cases of acute HBV infection reported from a city of about 95,000 in southeastern Massachusetts.

• In November 2017, MDPH distributed a clinical alert due to an identified increase in the proportion of newly diagnosed and acute HIV infections associated with injection drug use.

• In April 2018, MDPH began seeing an increase in cases of HAV infection associated with people who were unstably housed or report substance use disorder.
HAV and HBV in Massachusetts

- **Hepatitis B**
  - Acute cases reported have been decreasing over time. (48 cases/year)
  - High vaccination rates for children and adolescents
    - 97% coverage for children (91% US)
    - 95% coverage adolescents 13-17 (92% US)
  - Only 37% adults estimate

- **Hepatitis A**
  - Typically, 50 acute cases/year (25% associated with travel)
  - Vaccination rates 67% children (61% US) children
  - Males and females affected equally
  - 50% hospitalization rate
Between January 1, 2017 and May 22, 2018, 28 acute cases reported in cluster area
  - Monthly average more than twice monthly average from 2010-2016
25 with injection drug use or laboratory evidence of HCV exposure
  - 3 cases reported with other addresses were known to have recent addresses in cluster area and fit same risk profile
  - Cluster defined as these 28 cases
Acute HBV cases by month, cluster-associated, 2017-2018

Data as of May 22, 2018
Cluster-associated cases \( (N = 28) \)

<table>
<thead>
<tr>
<th>Category</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender</td>
<td>21 males, 7 females</td>
</tr>
<tr>
<td>Age</td>
<td>Median 38, range 24-55</td>
</tr>
<tr>
<td>Race/ethnicity</td>
<td>21 white, 1 black, 4 “other,” 2 unknown race; 5 Hispanic, 12 non-Hispanic, 1 Portuguese, 10 unknown ethnicity</td>
</tr>
<tr>
<td>Vaccine history</td>
<td>1 with full vaccine series, 3 with 1 dose</td>
</tr>
<tr>
<td>Risk history</td>
<td>22 with known recent injection drug use</td>
</tr>
<tr>
<td></td>
<td>Little data on sexual risk history</td>
</tr>
<tr>
<td>Unique address condition</td>
<td>4 experiencing homelessness, 1 incarcerated</td>
</tr>
<tr>
<td>Coinfection</td>
<td>21 cases with lab evidence of HCV exposure; 15 tested positive for HCV first</td>
</tr>
</tbody>
</table>
Since April 2018, 90 cases reported to MDPH in individuals experiencing homelessness and/or substance use disorder.

Cases occurring in October 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 10/9/2018 and subject to change.
Outbreak cases (N= 90)

• Complications
  – Hospitalization rate: 89%
  – Mortality rate: 1%

• Demographics
  – Gender: 63% male
  – Age: Range 21-78, Median 32

• Risks:
  – Homelessness/unstable housing: 61%
  – Injection drug use: 68%
  – Any illicit drug use: 88%

Data as of 10/9/2018 and subject to change.
Outbreak cases (N= 90)

• Coinfections
  – Confirmed chronic hepatitis C infection: 64%
  – HIV infection: 7%

• Affected towns/cities
  – 44% of cases from the City of Boston
  – Increasing number of cases reported from other regions, including the Southeast and metro-Boston

• Genotyping/sequencing analysis (CDC) to date
  – 11 cases with genotype IIIA (10 identical, 1 unique)
  – 1 case with genotype IB (unique)
  – 9 negative

Data as of 10/9/2018 and subject to change.
Challenges Identified

• PWID are often challenging to engage through our usual investigation efforts

• Our smaller local health departments have limited capacity in these outbreaks
  – Some are less engaged with the most at risk in their community
  – They are doing less routine vaccinating and may lack vaccine storage capabilities

• Our communication network has significant gaps
• Utilized STD Field Epidemiologists for contact tracing
• Identified funded resources through Office of HIV/AIDS for field vaccination efforts
  – Sites are already funded to support viral hepatitis
  – Mobile Van provided vaccine where at risk population was located (HBV)
  – Syringe Service Providers able to vaccinate clients
• Partnered with Boston Public Health Commission and local shelter
• Identified state resources for utilizing 2 dose vaccine for HBV
Communication

• Communicate early and often
  – Clinical alerts and advisories
  – Conference calls
  – Direct outreach

• Make sure those communications are reaching the people you want them to reach

• For communicating with those at risk: many great resources already exist
Lessons learned

• Identify your partners now
• Ask what additional resources you and they would need
• Check for gaps in your lines of communication
• Start vaccinating now or expand the vaccination efforts you already have
Thank you

Lindsay Bouton and Daniel Church who have been leading the overall investigations, and to the Epidemiology program staff who investigate these cases daily

Our partners within and outside BIDLS, especially OHA, STD, Vaccine Unit, Boston Public Health Commission, and our SSP programs

Questions?
• Please feel free to email us:
  – Shauna.onofrey@state.ma.us
  – Daniel.church@state.ma.us
  – Lindsay.bouton@state.ma.us
• MDPH Epidemiology Program: 617-983-6800