Epidemiology of Hepatitis C
Boston & Beyond, 2013

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Boston Public Health Commission
Epidemics may become nationwide, but they are always local somewhere.
Overview

- Case definitions
- Worldwide, national, and statewide statistics
- Local data
  - Demographics
  - Rates by neighborhood
- Hepatitis C in youth
Case Definitions

• The following case reports were included in the data

**Confirmed**
• Tests were positive HCV by viral load testing or a significant antibody level followed by a confirmatory test or a single antibody test at a cutoff defined as positive by the manufacturer

**Suspect/Probable**
• Tests were positive for antibody, but additional laboratory information unknown
WHO estimates that between 130-150 million people globally have chronic hepatitis C infection\(^1\)
- Countries in Africa and Asia historically have the highest reported prevalence\(^2\)

- Injection drug use
- Inadequate sterilization in healthcare settings
- Transfusion of unscreened blood and blood products
- Sexual and vertical transmission occur, but are less common

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1. World Health Organization (WHO) Hepatitis C Fact Sheet. April, 2014
The Global Epidemic (continued)

• **Genotypes** vary depending on region\(^1\)
  – Of the 11 different genotypes, genotypes 1-3 have a worldwide distribution:
    • **Genotype 1** predominates in North & South America, Europe, and Japan (60% of global infections)
    • **Genotype 2** has a similar distribution to genotype 1, but is less common overall
    • **Genotype 3** predominates in southeast Asia and is variably distributed in other countries
• WHO estimates that **350,000 to 500,000** die each year from hepatitis C related cancers\(^2\)

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2. World Health Organization (WHO) Hepatitis C Fact Sheet. April, 2014
Hepatitis C in the United States

- Around **3.2 million** chronically infected
- Estimated **17,000** new infections per year
- Risk factors
  - Injection drug use (most common mode of transmission)
  - Vertical transmission (mother to child at birth)
  - Needle stick injuries
  - Transmission through sexual contact, blood transfusions, organ transplants, and sharing of contaminated personal items occur, but are less common
- **Genotype 1** most common in the United States

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In Massachusetts, there were 8,056 cases of hepatitis C reported in 2012. This translates into an incidence rate of 80 cases per 100,000 people.

- Highest rates in the Cape Cod counties, Suffolk County, and Hampden County.
- White residents accounted for 72% of all confirmed cases in 2012.
- Injection drug use is the most commonly reported risk factor (over 70%).

*Data from MDPH as of November, 2013*
Massachusetts: Reported Cases by Year

*Data from MDPH as of November, 2013*
In Boston, there were 956 cases* of hepatitis C reported to BPHC in 2013 – This translates into an incidence rate of 155 cases per 100,000 people.

Hepatitis C was the 4th most frequently reported disease to BPHC in 2013 – Surpassed by chlamydia, gonorrhea, and influenza.

*Data for Boston residents only
Boston: Reported Cases by Year

<table>
<thead>
<tr>
<th>Year</th>
<th>Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>2004</td>
<td>1244</td>
</tr>
<tr>
<td>2005</td>
<td>862</td>
</tr>
<tr>
<td>2006</td>
<td>753</td>
</tr>
<tr>
<td>2007</td>
<td>1019</td>
</tr>
<tr>
<td>2008</td>
<td>918</td>
</tr>
<tr>
<td>2009</td>
<td>715</td>
</tr>
<tr>
<td>2010</td>
<td>1051</td>
</tr>
<tr>
<td>2011</td>
<td>1015</td>
</tr>
<tr>
<td>2012</td>
<td>1053</td>
</tr>
<tr>
<td>2013</td>
<td>956</td>
</tr>
</tbody>
</table>
The majority of cases in 2013 occurred in men (66%).

*Transgender cases accounted for <1% of 2013 hepatitis C cases*
Boston 2013: Race

- White residents represented the greatest proportion of cases in 2013, followed by Black and Latino residents.
Boston 2013: Age

- **85%** of cases in 2013 occurred in people between the ages of **20 and 59**
  - High rates in both young adults and baby boomers

N=956
Genotype 1 was the most common in Boston in 2013

N=280
Boston 2013: Diagnoses at Congregate Settings

- ONLY 31% of all hepatitis C cases were diagnosed at a congregate setting, including homeless shelters, drug treatment facilities, and correctional facilities.

N=956
**Boston 2011-2013: Risk Factors**

- 50% of 2013 hepatitis C cases reported **injection drug use (IDU)** as a risk factor

<table>
<thead>
<tr>
<th>Risk*</th>
<th>2011</th>
<th>2012</th>
<th>2013^</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injection Drug Use (IDU)</td>
<td>54%</td>
<td>55%</td>
<td>50%</td>
</tr>
<tr>
<td>Sexual Partner</td>
<td>4%</td>
<td>3%</td>
<td>4%</td>
</tr>
<tr>
<td>Household Contact</td>
<td>4%</td>
<td>5%</td>
<td>3%</td>
</tr>
<tr>
<td>Transfusion prior to 1992</td>
<td>4%</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>Hemodialysis</td>
<td>1%</td>
<td>&lt;1%</td>
<td>1%</td>
</tr>
</tbody>
</table>

*Note: These risks are not mutually exclusive

^Based on data as of 5/20/2014
Hepatitis C in Boston Youth 15-25

2004 - 2013
Between 2004 and 2013, there were 1,032 cases of hepatitis C reported in Boston residents between the ages of 15 and 25.

- This represents nearly 10% of all hepatitis C cases during this time period in Boston.
- Nearly 13% of all hepatitis C cases in 2013 were between the ages of 15 and 25.
Boston 15-25 Year Olds: Cases by Year

Year


Cases

86 73 98 136 107 68 134 96 113 121
The majority of the most recent diagnoses in this age range are women (55%)
Boston 15-25 Year Olds: Race, 2013

- The majority of the most recent hepatitis C cases in this age group were in White residents

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<table>
<thead>
<tr>
<th>Race</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>White</td>
<td>71%</td>
</tr>
<tr>
<td>Latino</td>
<td>5%</td>
</tr>
<tr>
<td>Black</td>
<td>4%</td>
</tr>
<tr>
<td>Asian</td>
<td>3%</td>
</tr>
<tr>
<td>Unknown</td>
<td>17%</td>
</tr>
</tbody>
</table>

N=121
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• 79% of the 1,032 hepatitis C cases in this age group were between ages 21-25
Genotype 1 was the most common in this age group in Boston from 2004-2013.
ONLY 34% of all cases in this age group were diagnosed at congregate settings, including drug treatment programs, homeless shelters, and correctional facilities.
## Boston 15-25 Year Olds: Risk Factors

<table>
<thead>
<tr>
<th>Route</th>
<th>2004-2010</th>
<th>2011</th>
<th>2012</th>
<th>2013&lt;sup&gt;^&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Injection</td>
<td>61%</td>
<td>69%</td>
<td>68%</td>
<td>65%</td>
</tr>
<tr>
<td>Intranasal</td>
<td>15%</td>
<td>10%</td>
<td>18%</td>
<td>18%</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Drug Class</th>
<th>2004-2010</th>
<th>2011</th>
<th>2012</th>
<th>2013&lt;sup&gt;^&lt;/sup&gt;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Opiates</td>
<td>48%</td>
<td>65%</td>
<td>55%</td>
<td>59%</td>
</tr>
<tr>
<td>Cocaine</td>
<td>25%</td>
<td>29%</td>
<td>27%</td>
<td>25%</td>
</tr>
<tr>
<td>Benzodiazepines</td>
<td>8%</td>
<td>14%</td>
<td>10%</td>
<td>10%</td>
</tr>
</tbody>
</table>

*Note: These risks are not mutually exclusive

<sup>^</sup>Based on data as of 5/20/2014
Conclusions

• Consistently high rates of hepatitis C in Boston
• High rates in young adults and baby boomers
• Some neighborhoods disproportionately affected by the epidemic, namely Charlestown, South Boston, East Boston, and Roxbury
• Driven by injection drug use
Questions?

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