Viral Hepatitis in Massachusetts: What Local Health Departments need to know

Shauna Onofrey
Objectives

• Provide basic information about viral hepatitis
• Provide information about hepatitis B and C
• Describe surveillance for hepatitis B and C in Massachusetts
• Explain LBOH role in acute hepatitis B and C investigation
• Show how data collected through surveillance is used
• Provide some resources on hepatitis B and C
What is hepatitis?

- Inflammation of the liver
- Can be caused by viruses OR other non-infectious sources
- Symptoms include
  - Jaundice
  - Dark Urine
  - Light-colored stool
  - Abdominal pain
  - Diarrhea and vomiting
- Elevated liver enzyme levels (ALT/AST) indicate damage to the liver
Some of the many functions of the liver include:

- Cleans and filters the blood
- Regulates supply of body fuel
- Makes many essential proteins
- Assists in clotting of blood
- Regulates balance of many hormones
- Makes, processes and removes cholesterol from the body
- Produces bile which is necessary for the digestion of fats
# The ABCs of hepatitis

<table>
<thead>
<tr>
<th></th>
<th>Hepatitis A</th>
<th>Hepatitis B</th>
<th>Hepatitis C</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Most effective mode of transmission</strong></td>
<td>Fecal-oral</td>
<td>Bloodborne, mother-to-child, sexual contact</td>
<td>Bloodborne</td>
</tr>
<tr>
<td><strong>Vaccine preventable?</strong></td>
<td>Yes</td>
<td>Yes</td>
<td>No</td>
</tr>
<tr>
<td><strong>Acute or chronic infection?</strong></td>
<td>Acute infection only</td>
<td>Acute and chronic infection</td>
<td>Acute and chronic infection</td>
</tr>
<tr>
<td><strong>% of cases that become chronic</strong></td>
<td>Not applicable</td>
<td>5-95% (depends on age)</td>
<td>75-85%</td>
</tr>
</tbody>
</table>
Why do we do surveillance for viral hepatitis?

• Detect potential outbreaks
Why do we do surveillance for viral hepatitis?

- Inform public health action
  - Interrupt transmission
    - Identify source of transmission and at-risk contacts
    - Provide harm reduction messages
  - Support linkage to care
  - Identify at-risk populations and emerging issues
  - Target areas for services
- Provide infrastructure for research and analysis
- Justify increasing public investment in hepatitis control
Surveillance for viral hepatitis in the United States

- Passive system with limited capacity to monitor cases of HBV and HCV infection at local and state level
- States electronically report acute and chronic HBV and HCV cases to CDC weekly (if reportable in the state)
- 7 jurisdictions funded by CDC to conduct viral hepatitis surveillance
Viral Hepatitis Surveillance MA

- Hepatitis A, B, C, D and E are reportable from laboratories to MDPH
- Hepatitis A is an immediate reportable and is handled by an Epi of the Day
- For hepatitis B and C:
  - Laboratories append to existing cases in MAVEN.
  - If a case is newly reported, a form is sent to the ordering provider.
  - If information received from the ordering provider or the laboratory indicate the case might be acute, cases are assigned to the LBOH by an epidemiologist
Hepatitis B
HBV: Virus

- DNA Virus, first identified in 1965
- More infectious than HCV or HIV
- Vaccine preventable! First vaccine available in 1969, modern vaccine available since 1986
- Blood supply has been screened since 1971
- Spread through blood and sexual contact, and from mother to child
  - Pregnancy status is particularly important
- Causes acute and chronic disease
  - Often asymptomatic
- Chronic infection can be managed but not ‘cured’ with medication
With HBV, age matters

- The younger a person is when infected with HBV, the less likely they are to have symptoms of acute infection
  - <1% of infected infants.
  - 5%-15% of children infected ages of 1-5 years
  - 30%-50% of people infected over 5 years of age.
- The younger a person is when infected with Hepatitis B virus, the greater his or her chance of developing chronic Hepatitis B.
  - ~90% of infected infants.
  - 25%–50% of children infected ages of 1-5 years
  - 6%–10% of people infected over 5 years of age.
Hepatitis B: the epidemic

• HBV can cause chronic liver disease and chronic infection and puts people at high risk of death from cirrhosis of the liver and liver cancer.

• Worldwide (WHO): 240 million people have chronic liver infections and 600,000 people die every year due to the acute or chronic consequences of hepatitis B.
Burden of HBV disease in Massachusetts

- The number of reported cases of acute HBV infection has been at low levels since 2005
- The number of reported chronic cases of HBV infection have been at relatively steady levels with some decrease in recent years
- Follow-up with pregnant women and their children has been effective and enhanced
- Cases only represent those people who have been screened, tested and reported to MDPH
Why do surveillance?

- Risk history provides information regarding possible exposures and allows identification of potential outbreaks of HBV infection.
- Of particular concern are those that may occur in a healthcare setting:
  - Use of multi-dose vials
  - Improper sterilization techniques
  - Blood glucose monitoring
HBV screening recommendations

- Persons born in regions where HBV is common (immigrants, refugees, international adoptions)
- US born persons not vaccinated as infants whose parents were born in the regions above
- Injection drug users
- Men who have sex with men
- Persons needing immunosuppressive therapy
- Anyone with elevated ALT/AST
- Donors of blood, plasma, organs, tissues or semen
- Hemodialysis patients
- All pregnant women
- Infants born to mothers who test positive for HBV
- Household, needle sharing or sexual partners of people who test positive
- HIV positive persons
- Persons who are the sources of blood or body fluids resulting in an exposure (e.g. needlestick, sexual assault) that might require postexposure prophylaxis
Important to remember about HBV testing..

- Hepatitis B generally has two different disease progressions
  - Acute with recovery
  - Chronic
- Lab tests can distinguish between the two
- There are tools to help you interpret the laboratory results!
Antigens and antibodies

• Antigen = protein that is foreign to the body
• Antibody = produced by the body to attack antigens
  – Some are specific to certain viruses
The hepatitis B virus
# HBV lab tests

<table>
<thead>
<tr>
<th>Lab test description</th>
<th>What it detects</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>HBV antigen tests</strong></td>
<td></td>
</tr>
<tr>
<td>HBsAg</td>
<td>Surface antigen</td>
</tr>
<tr>
<td></td>
<td>Acute or chronic infection</td>
</tr>
<tr>
<td>HBsAg neutralization</td>
<td>Surface antigen neutralization</td>
</tr>
<tr>
<td></td>
<td>Acute or chronic infection (more specific than HBsAg)</td>
</tr>
<tr>
<td>HBeAg</td>
<td>Envelope antigen</td>
</tr>
<tr>
<td></td>
<td>Detects level of infectiousness</td>
</tr>
<tr>
<td><strong>HBV antibody tests</strong></td>
<td></td>
</tr>
<tr>
<td>IgM anti-HBc</td>
<td>IgM core antibody</td>
</tr>
<tr>
<td></td>
<td>Antibody in acute infection</td>
</tr>
<tr>
<td>Total anti-HBc</td>
<td>Total core antibody</td>
</tr>
<tr>
<td></td>
<td>Antibody (after infection or during chronic infection)</td>
</tr>
<tr>
<td>anti-HBs</td>
<td>Surface antibody</td>
</tr>
<tr>
<td></td>
<td>Immunity (after cleared infection or vaccination)</td>
</tr>
<tr>
<td>anti-HBe</td>
<td>Envelope antibody</td>
</tr>
<tr>
<td></td>
<td>Antibody</td>
</tr>
<tr>
<td><strong>Other HBV tests</strong></td>
<td></td>
</tr>
<tr>
<td>HBV DNA</td>
<td>Nucleic acid test for DNA</td>
</tr>
<tr>
<td></td>
<td>Viral DNA</td>
</tr>
<tr>
<td>HBV genotype</td>
<td>Genotype test</td>
</tr>
<tr>
<td></td>
<td>Virus genotype</td>
</tr>
</tbody>
</table>
Acute Hepatitis B Virus Infection with Recovery

Typical Serologic Course

**Symptoms**

<table>
<thead>
<tr>
<th>Titer</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
</tr>
<tr>
<td>4</td>
</tr>
<tr>
<td>8</td>
</tr>
<tr>
<td>12</td>
</tr>
<tr>
<td>16</td>
</tr>
<tr>
<td>20</td>
</tr>
<tr>
<td>24</td>
</tr>
<tr>
<td>28</td>
</tr>
<tr>
<td>32</td>
</tr>
<tr>
<td>36</td>
</tr>
<tr>
<td>52</td>
</tr>
<tr>
<td>100</td>
</tr>
</tbody>
</table>

**Weeks after Exposure**

- **HBsAg**
- **IgM anti-HBc**
- **anti-HBe**
- **Total anti-HBc**
- **anti-HBs**
Progression to Chronic Hepatitis B Virus Infection

Typical Serologic Course

- Acute (6 months)
- Chronic (Years)
- HBsAg
- Total anti-HBc
- IgM anti-HBc
- HBeAg
- anti-HBe

Titer

Weeks after Exposure

Years

0 4 8 12 16 20 24 28 32 36 52

Centers for Disease Control and Prevention (CDC)
**Choices:** Acute infection, Chronic infection, Susceptible to infection, Immune due to vaccination, Immune due to natural infection

<table>
<thead>
<tr>
<th>HBsAg</th>
<th>anti-HBc</th>
<th>anti-HBs</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>negative</td>
<td>negative</td>
<td>Susceptible to infection</td>
</tr>
<tr>
<td>HBsAg</td>
<td>negative</td>
<td>positive</td>
<td>Immune due to natural infection</td>
</tr>
<tr>
<td></td>
<td>negative</td>
<td>negative</td>
<td>Immune due to vaccination</td>
</tr>
<tr>
<td>HBsAg</td>
<td>positive</td>
<td>positive</td>
<td>Acute infection</td>
</tr>
<tr>
<td></td>
<td>positive</td>
<td>negative</td>
<td>Chronic infection</td>
</tr>
</tbody>
</table>

Hepatitis B at MDPH

• Epidemiology program
  – Follow-up on all acute HBV cases
  – Acute and chronic data analysis

• Immunization program
  – Perinatal hepatitis B follow-up (women aged 14-44)
  – Acute data provides insight into the need for vaccination
Perinatal HBV and surveillance

• Need to be able to identify HBsAg+ pregnant women quickly and provide case management
  – Assess immunoglobulin and vaccination provision to newborn
  – Follow-up through 6 months after the birth
• Identification and follow-up with household contacts
HBV Disease classification status

| Disease classification status: | Suspect |
| Perinatal or acute HBV status: | Acute suspect |
| Reporting source: | Teleform |
| Date: | 05/29/2013 |

For Perinatal Hepatitis B Team Use Only

Reporter type:

CRF reviewed:

Someone can be acute confirmed and chronic revoked because the case definitions are mutually exclusive
Acute hepatitis B

- MAVEN ‘flags’ HBV cases that meet any of the following criteria:
  - IgM anti-HBc
  - Acute onset of symptoms or any of the symptoms marked “yes” in the clinical q. package
Acute HBV

• Confirmed acute illness: hepatitis B core IgM antibody positive (or hepatitis B surface antigen positive), discrete onset of symptoms, and jaundice or ALT>100

• Suspect acute illness: hepatitis B core IgM antibody positive without evidence of symptoms or elevated ALT

• Newly identified cases over age 70

• All are assigned to LBOH for investigation
Acute hepatitis B follow-up

- Local health departments (LBOH) are asked to complete the Hepatitis B (Acute) Case Report Form, either electronically via MAVEN or on paper, only for those cases who appear to have acute illness.
  - These cases will be assigned to the public health nurse at the LBOH by an epidemiologist at the Massachusetts Department of Public Health (MDPH).
Goals of follow-up:

• To identify clusters of cases or outbreaks, especially those that appear to involve healthcare-associated transmission.
• To provide information to hepatitis B virus (HBV)-infected individuals on how to prevent exposing others to HBV.
• To identify household and sexual contacts of HBV-infected individuals and recommend vaccination.
Tip Sheets

- The Maven Dashboard
- MAVEN Cache Times (workflow refresh times)
- Addresses in MAVEN
- Creating linked events and contacts
- Follow up for Suspect Cases of Tickborne Disease
- How to attach documents/files
- How to access last your 30 events by using the push pin icon
- How to check your workflows
- How to create a new event
- How to create an Outbreak and Import a Roster
- How to mark an event as lost to followup
- How to read & understand a MAVEN lab
- How to run reports in MAVEN for your local board of health
- How to search for an event
- How to share an event with another town(s)
- How to update personal information and email address to receive immediate notifications
- How to print documents, letter template documents, and event information

Acute Hepatitis B follow up tip cheat sheet
Perinatal Hepatitis B contact cheat sheet
Investigating Acute Hepatitis C Cases
Steps for follow-up (LBOH)

• Contact ordering provider to obtain missing clinical information and confirm the diagnosis.
• Complete missing information on the case (particularly information about risks/exposures). This can be completed in MAVEN or through the acute hepatitis B case report form, if the town is not on MAVEN.
• Conduct **contact investigation** for family/household/close contacts and sexual contacts to the case of acute hepatitis B, similar to the follow-up conducted for HBsAg positive pregnant women.
• Complete local health and investigation steps 1-5 and assign back to epidemiologist.
Questions to focus on

- Test results (with medical provider)
- Demographics
  - Place of birth
    - Will help us to determine if case is more likely chronic
  - Race and Ethnicity
    - Allows us to look at disparities, areas to focus vaccine efforts, etc
- Risk
  - All questions pertaining to medical history
    - Will help to identify clusters and determine if more follow up is needed.
  - Any other blood exposure information
Household/ Sexual contacts

- Once the risk/exposure investigation has been conducted, contacts who may have been exposed to the case (especially household contacts and sexual contacts) should be identified by interviewing the case.
Household/ Sexual contacts

- Household and sexual contacts should also be entered into MAVEN to keep track of the work done. Begin by clicking on the "Linked Events/Contacts" icon on the dashboard of the case:
Household/ Sexual contacts

Options
- Dashboard
- Create Case Link
- Show Filter | Apply Filter | Reset Filter

Linked Events

<table>
<thead>
<tr>
<th>Event ID</th>
<th>Person</th>
<th>Status</th>
<th>Create Date</th>
<th>Event</th>
<th>Event Date</th>
<th>Link</th>
</tr>
</thead>
</table>

Displaying link(s) 0...0

Link Events

<table>
<thead>
<tr>
<th>Operation:</th>
<th>Create Linked Event</th>
</tr>
</thead>
<tbody>
<tr>
<td>Event:</td>
<td>Hepatitis B</td>
</tr>
<tr>
<td>Event Date:</td>
<td>04/29/2014</td>
</tr>
<tr>
<td>Link Type:</td>
<td></td>
</tr>
</tbody>
</table>

First Name: 
Middle Name: 
Last Name: 
Suffix: 
Maiden/Other Name: 
Alias: 
Important when “linking” events

- There are three choices for creating contacts in the “Operation” field:

1- If you choose "Link to Existing Event", you will be creating a link between the current event and an existing event already in the MAVEN system.

2- "Link to Multiple Events" allows you to choose multiple events from the search screen allowing faster creation of linked events than by doing them one by one.

3- Choose "Create Linked Event" if you will be entering a brand new event to link to the index case.

**Also note that there are several possible link types in the "Link Type" menu in the 4th field; if you are not certain of the link type then leave the contact type defaulted to "contact."
Link Types

- If the contact lives in the same household as the initial case, select "household contact:" as the link type.
- If the contact is a sexual contact of the case, select "sexual contact" as the link type.
- If the contact is both a sexual and household contact, use "sexual contact" as the link type.
Dashboard of contact
Vaccination of contacts

<table>
<thead>
<tr>
<th>Event Information</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Event Data</strong></td>
</tr>
</tbody>
</table>

**Question Packages**

- QUESTION PACKAGE
- 1. Administrative
- 2. Demographic
- 3. Clinical
- 4. Vaccine and IG Information
- 5. Perinatal hepatitis B case management
What do I tell a case of hepatitis B?

• Your health information is protected
  – Your information was disclosed to the local and state health departments so that we can ensure there is not ongoing risk from someplace like a healthcare setting.
  – Information you provided will be used to create statistics about HBV in Massachusetts, but your personal identifying information will not be released.

• Hepatitis B is spread through blood and other body fluids.
  – Household and sexual contact should be vaccinated if they have not been already
  – Use a latex condom every time you have intercourse
  – Do not share household items that may be contaminated with blood (razors, nail care tools, toothbrushes)

• Hepatitis impacts your liver
  – Limit your alcohol consumption
  – Other medications, including things like Tylenol and some herbs, can also impact your liver. Talk to your doctor about what to avoid
  – If you are not already, consider getting vaccinated against hepatitis A

• Hepatitis B can cause chronic infection and long term liver damage
  – The only way to know if you are chronically infected is more testing. Your doctor can refer you to an infectious disease specialist, gastroenterologist or hepatologists for specialized care.
Useful references

• Please see the following references for information regarding transmission of the disease and testing/vaccination recommendations for identified sexual and household contacts:

  • MMWR 2008: Recommendations for Identification and Public Health Management of Persons with Chronic Hepatitis B Virus Infection
    http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5708a1.htm

  • MMWR 2005: Appendix C: Postexposure Prophylaxis of Persons with Discrete Identifiable Exposures to Hepatitis B Virus (HBV)
    http://www.cdc.gov/mmwr/preview/mmwrhtml/rr5416a4.htm
Acute confirmed cases of HBV infection, 2002-2012*

+48 acute suspect cases in 2012=123 cases investigated

*Data as of 8/29/13 and are subject to change
Source: MDPH Office of Integrated Surveillance and Informatics Services
## Confirmed acute HBV in 2012: Reported Risk Factors (n=75)

<table>
<thead>
<tr>
<th>Risk Factor</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accidental Needle Stick</td>
<td>2</td>
</tr>
<tr>
<td>Blood transfusion /Organ transplant</td>
<td>2*</td>
</tr>
<tr>
<td>Hemodialysis</td>
<td>0</td>
</tr>
<tr>
<td>History of Surgery</td>
<td>3*</td>
</tr>
<tr>
<td>Illicit IV Drugs</td>
<td>10</td>
</tr>
<tr>
<td>Illicit non-IV Drugs</td>
<td>4</td>
</tr>
<tr>
<td>Incarcerated</td>
<td>2</td>
</tr>
<tr>
<td>Occupational Direct Blood</td>
<td>2</td>
</tr>
<tr>
<td>Other Blood Exposure</td>
<td>8</td>
</tr>
<tr>
<td>Sexual Contact of Case</td>
<td>4</td>
</tr>
<tr>
<td>All Risk Factors Unknown</td>
<td>36</td>
</tr>
</tbody>
</table>

*Of those with a blood transfusion: 1 had it several years prior in the DR and 1 had several other risk factors.

Of those with surgery listed: 1 case had surgery in the DR, 1 had surgery in Brazil, and 1 case had several other high suspect exposures.
Confirmed and probable chronic cases of HBV infection, 2002-2012*

*Data as of 8/29/13 and are subject to change
Source: MDPH Office of Integrated Surveillance and Informatics Services
Confirmed and probable chronic cases of HBV infection in 2012: Demographics

- Average Age: 42 years
- Gender: 45% female, 55% male
- Majority of cases are A/PI
- Likely represents immigrants from HBV endemic countries

2012 reported confirmed and probable chronic HBV infections = 1,806

*Data as of 8/29/13 and are subject to change.

Source: MDPH Office of Integrated Surveillance and Informatics Services
Confirmed and probable chronic cases of HBV infection in 2012: Country of birth (n=1,806)*

<table>
<thead>
<tr>
<th></th>
<th>N</th>
<th>% of total</th>
</tr>
</thead>
<tbody>
<tr>
<td>US-born</td>
<td>180</td>
<td>10.0</td>
</tr>
<tr>
<td>Non US-born</td>
<td>729</td>
<td>40.0</td>
</tr>
<tr>
<td>Unknown</td>
<td>897</td>
<td>50.0</td>
</tr>
</tbody>
</table>

Top 5 reported countries:

- China (n=56)
- Haiti (n=12)
- Cambodia (n=9)
- Vietnam (n=7)
- Ghana (n=5)

*Data as of 8/29/13 and are subject to change.
Hepatitis C
HCV – the virus

- RNA virus first identified and named in 1988
  - Noticed in 1970s but called non-A, non-B
- Testing only available since 1990
- More infectious than HIV
- Causes chronic infection in 75%-85% of infected individuals
- Most people (~80%) newly infected have no symptoms
- Younger people more likely to clear the virus
- 6 genotypes
  - Most Americans have genotype 1
- Re-infection possible
- There is no vaccine for HCV
Hepatitis C: the epidemic

• HCV found world wide
• Estimated 3-4 million people infected annually
• Between 130-170 million people chronically infected
• More than 350,000 people die for HCV related liver disease each year
• High rates of HCV in Egypt, Pakistan and China
HCV in the United States

- Estimated 2.7-3.9 million people infected
- At least 19,000 new cases each year
- Prevalence highest in groups with risk factors that include:
  - **Injection drug use**
  - Patients with hemophilia
  - Long term hemodialysis
  - Prison inmates
  - People who received blood products before June 1992
Burden of HCV disease in Massachusetts

- Estimated ~100,000 people in Massachusetts exposed to HCV in the past
- Number of cases relatively stable since 2002 with 8-10,000 newly diagnosed cases reported to MDPH annually
- Cases only represent those people who have been screened, tested and reported to MDPH
HCV transmission: all about the blood
HCV transmission

• Most people infected through:
  – Injection drug use
    • Sharing of syringes, cookers, cottons, rinse water, etc. from injection drug use is the greatest risk for HCV transmission
  – Blood transfusions/clotting factors/organ transplants prior to 1992
  – Chronic hemodialysis
  – Sexual transmission - inefficient but does occur
    – Increased transmission among HIV+ MSM (CDC, 2011)
  – Vertical transmission – 4-7% of births to infected mother
    • RNA positive at the time of delivery
    • (20% in HIV/HCV co-infected)

• New concerns about healthcare associated transmissions
Other possible transmission risks

• Occupational exposures
  – Risk from needlestick:
    • HIV=3/1000  HCV=2/100  HBV=3/10
  – Prevalence of HCV in health care workers is the same as the general population

• Sharing personal/household items with blood

• Intranasal drug use

• Tattoo/body piercing: nonsterile practices
Natural history of hepatitis C

More common with:
- Young patients
- Females

Exposure

2-12 wk incubation period

Acute infection
Ab + or -, VL +, ALT ↑↑

80% asymptomatic

Viral clearance (15-25%):
Ab +, VL -, ALT nl

Chronic infection (75-85%)
Ab +, VL +, ALT ↑

Cirrhosis (30%/30yrs)

Decompensation or Hepatocellular carcinoma (1-4% per year)

Promoted by:
- Alcohol use
- Older age, male gender
- HBV or HIV infection
- High BMI or fatty liver

Slide courtesy of J Morrill, MD (2013)
HCV Testing

• Antibody test
  – Best if used on high risk individuals
  – CDC recommendation of one-time antibody test for all baby boomers
  – Indicates past or present infection

• RNA test to determine presence of viral load

• Genotype
Why should we screen for HCV?

• Public & personal health
  – Those infected may transmit to others
  – Long term effects of HCV great burden on health care system
  – 18,000 deaths/year by 2020, 35,000 deaths/year by 2030

• We can do something about it
  – Treatments are available that can cure the majority of patients (and keep improving)
Changes to HCV screening recommendations (2012)

• Move to focus on age-based screening
  – 2/3 of HCV cases among “baby-boomer” population

• Recommendation: One-time HCV screening for all people born between 1945-1965
  – Alcohol use screening and treatment for HCV+

• Risk-based screening still important
Recommended testing sequence for identifying current HCV infection (CDC, 2013)

For persons who might have been exposed to HCV within the past 6 months, testing for HCV RNA or follow-up testing for HCV antibody is recommended. For persons who are immunocompromised, testing for HCV RNA can be considered.

Additional testing as appropriate†

† To differentiate past, resolved HCV infection from biologic false positivity for HCV antibody, testing with another HCV antibody assay can be considered. Repeat HCV RNA testing if the person tested is suspected to have had HCV exposure within the past 6 months or has clinical evidence of HCV disease, or if there is concern regarding the handling or storage of the test specimen.

How we classify cases

- Hepatitis C cases get two case classifications (General and Acute)

Unlike HBV, case definitions overlap. Case must be confirmed by general status to be a confirmed acute case.
Surveillance: Confirmed Acute Case Definition

- Confirmatory test (RNA, genotype, high signal to cutoff ratio)
- ALT > 400 within six months of initial HCV test
- Or jaundice noted within six months of initial HCV test
- Previous negative test in 6 months prior to first positive test
Acute hepatitis C

MAVEN ‘flags’ HCV cases that meet any of the following criteria:

• Jaundice is indicated
• ALT>400
• Case newly identified over the age 70
• Case newly identified between 15-25 years old
  • The youth cases are not typically assigned to LBOH
Acute hepatitis C follow-up

- Local health departments (LBOH) are asked to complete the Hepatitis C (Acute) Case Report Form, either electronically via MAVEN or on paper, only for those cases who appear to have acute illness.
  - These cases will be assigned to the public health nurse at the LBOH by an epidemiologist at the Massachusetts Department of Public Health (MDPH).
Goals of follow-up

• To identify clusters of cases or outbreaks, especially those that appear to involve healthcare-associated transmission.
• To provide information to hepatitis C virus (HCV)-infected individuals on how to prevent exposing others to HCV.
Investigating Acute Hepatitis C Cases
Steps for follow-up (LBOH)

• Contact ordering provider to obtain missing clinical information and confirm the diagnosis.
• Complete missing information on the case (particularly information about **risks/exposures**). This can be completed in MAVEN or through the acute hepatitis C case report form, if the town is not on MAVEN.
• Complete local health and investigation steps 1-5 and assign back to epidemiologist
Questions to focus on

• Test results and symptoms (with medical provider)

• Demographics
  – Race and Ethnicity

• Risk
  – All questions pertaining to medical history
    • Will help to identify clusters and determine if more follow up is needed.
  – Drug use history
    • May rule out other exposures
What do I tell a case of hepatitis C?

• Your health information is protected
  – Your information was disclosed to the local and state health departments so that we can ensure there is not ongoing risk from someplace like a healthcare setting.
  – Information you provided will be used to create statistics about HCV in Massachusetts, but your personal identifying information will not be released.

• Hepatitis C is spread through blood.
  – Do not share household items that may be contaminated with blood (razors, nail care tools, toothbrushes)
  – If you are injecting drugs, use your own equipment and clean needles every time
  – Use a latex condom every time you have intercourse

• Hepatitis impacts your liver
  – Limit your alcohol consumption
  – Other medications, including things like Tylenol and some herbs, can also impact your liver. Talk to your doctor about what to avoid
  – If you are not already, consider getting vaccinated against hepatitis A and B

• There are treatments for hepatitis C
  – Your doctor can refer you to an infectious disease specialist, gastroenterologist or hepatologists for specialized care.
  – There are medical management sites in MA that may be able to help
HCV treatment evolution

- Goal of treatment is to CURE
- HCV treatment is improving rapidly
- Interferon-free regimens
- More effective, easier to tolerate, all-oral
- New medications are very expensive
Factors Associated with Treatment and Cure

• HCV genotype

• Stage of liver fibrosis
  – Cirrhosis versus no cirrhosis

• HCV treatment status
  – Naïve versus treatment experienced

• Special populations
  – Transplant, chronic kidney disease, age >70, children, HIV+
MMWR: Age distribution of newly reported confirmed cases of hepatitis C virus infection --- Massachusetts, 2002 and 2009

* N = 6,281; excludes 35 cases with missing age or sex information.
† N = 3,904; excludes 346 cases with missing age or sex information.
Police: When prescription pill abuse becomes too expensive, users switch to cheaper heroin

Aggressive pill enforcement pushes young suburbanites to heroin

By Phil Traylor
Beacon Journal staff writer
Published: January 6, 2014 - 10:55 PM

In the '60s, the focus was on LSD, marijuana, turning on and turning out. In the '70s, it was cocaine at the discothèque. The '80s meant crack cocaine abuse, that urban nemesis that led Nancy Reagan to plead, “Stay no to drugs.” The '90s saw a rise in methamphetamine and homemade potions. Americans learned the drug could be made with similar household products. As the century turned, opiate use, such as prescription painkillers and heroin, came into vogue. Abuse rose, and the government and media are reacting. To many, the opiate/heroin plague is simply a shift in America’s attention on drug abuse. Efforts to stamp out pill abuse simply led to the increased popularity of heroin, a dark drug that has been judged to have no benefit from the hard knocks of previous decades.

Heroin replacing pain pills as drug of choice in some parts of Kentucky

Heroin has rapidly replaced prescription pain pills as the drug of choice in much of Northern Kentucky and Louisville, raising fears that a heroin scourge will soon ravage the state.

In Northern Kentucky, police are finding people passed out in cars at gas stations with needles poking from their arms. In Louisville, initial statistics suggest more than 50 people died of heroin overdoses in 2012.

"We’ve even found parents in the front seat with kids in the back seat in our car seats, wondering what was going on," said Covington police Chief Spike Jones.

Police in Louisville and the Northern Kentucky suburbs of Cincinnati said they began seeing more heroin as early as four years ago, but it was in the last 12 months that heroin surpassed pain pills as the preferred drug of addicts.

Heroin and pill abuse stir a battle cry in Vermont

NORTHEAST OF Vt. (AP) — Behind the facade of pristine ski slopes, craft beer, quaint village greens and one of the lowest unemployment rates in the country, Vermont is grappling with painkiller and heroin abuse, a challenge leaders say is having come and worsening lives and families disproportionately in this tiny state.

Nearly every day, police across Vermont respond to burglaries or armed robberies investigators believe are prompted by the escalating hunger for money to fuel heroin or pill habits. In many cases, law enforcement officials say, what began as the abuse of prescription drugs has turned into heroin use because it is less expensive and more readily to get.
Confirmed and probable reported HCV cases in Massachusetts, 2012

Data as of 13AUG2013 and subject to change
Confirmed and probable reported female HCV cases in Massachusetts, 2012

Data as of 13AUG2013 and subject to change
Confirmed and probable reported male HCV cases in Massachusetts, 2012

Data as of 13AUG2013 and subject to change
Mortality among reported HIV and HCV cases in Massachusetts, 2002-2011

Data represent all-cause mortality

Data as of 2/12/2012 and subject to change
Mortality among reported HCV cases in Massachusetts, 2002-2011

86,893 HCV diagnoses were reported to the MDPH between 2002 and 2011, 7,525 of these reported HCV cases died and are represented in the figure. Data as of 11/6/2013.
HCV Diagnosis and Access to Care

Laboratory results for reported cases of hepatitis C virus infection in MA, 2007-2010

34,023 HCV events in MAVEN with lab results

15,036 with only an antibody test reported (44.2%)

18,987 with any NAT/genotype reported (55.8%)

Data as of December 2012 and are subject to change

Barton, et al, 2013
Resources

- Office of HIV/AIDs Resource Guide
  http://www.mass.gov/eohhs/gov/departments/dph/programs/id/hiv-aids/services/
- CDC  http://www.cdc.gov/hepatitis/
- Caring Ambassadors Program: Hepatitis C
  http://www.hepcchallenge.org/index.htm
- Harm Reduction Coalition  http://harmreduction.org/
- Hepatitis C Support Project
  http://www.hcvadvocate.org/
- National Training Center for Integrated Hepatitis, HIV and STD Prevention Services
  www.knowhepatitis.org
- National Viral Hepatitis Roundtable  www.nvhr.org
Resources

- Treatment Action Group
  www.treatmentactiongroup.org/hcv


- Institute of Medicine Report on Hepatitis and Liver Cancer (2010)
  http://www.cdc.gov/hepatitis/IOMnews.htm

- Massachusetts SHARP Report on HCV:

- National Viral Hepatitis Roundtable
  www.nvhr.org

- National Alliance of State and Territorial AIDS Directors (NASTAD)
  www.nastad.org
I think it's A. No wait it's B. Either way it's hepatitis and now you have it too.