

Investigation of Healthcare-Associated Viral Hepatitis B and C

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Regional Hepatitis Training 2015



Objectives

- Describe healthcare-associated viral hepatitis infection
- Discuss the epidemiology of healthcare-associated viral hepatitis
- Learn how to detect healthcare-associated hepatitis B virus (HBV) and hepatitis C virus (HCV)

- A HBV or HCV infection acquired while receiving treatment or care
- One case of healthcare acquired viral HBV or HCV is considered an outbreak

2008 – 2014: 44 outbreaks of viral hepatitis linked to healthcare in the United States

- 95% occurred in non-hospital settings

Hepatitis B

- 23 outbreaks
- 175 associated cases
- >10,700 patient notifications

Hepatitis C

- 22 outbreaks
- 239 associated cases
- >90,400 patient notifications

What Are the Modes of Transmission?

- A multi-dose vial entered with a contaminated needle or syringe and used for another patient
- Drug diversion by an infected individual
- Use of finger stick devices for >1 individual
- Preparation of medication where blood specimens are processed
- Contaminated nail care tools
- Contaminated equipment or tubing



Portable Mass Dental Clinic in West Virginia

- Clinic detected a cluster of acute hepatitis B
- Cluster was associated with a mass dental clinic
- 5 cases were identified (3 patients, 2 volunteers)
- No specific breaches in infection control
- Volunteers were not trained in infection control, no written procedures, and volunteers not required to receive HBV vaccine
- Backflow in suction tubing during procedures and tubing was not changed between patients

Physician notified the State Health Department

- HCV positive patient
- No high risk behavior

Case review by an Epidemiologist

- Identified suspect HBV case with no risk factors

Two clusters of HCV infection identified

- 8 cases of HCV infection

Two clusters of HBV infection identified

- 4 cases of HBV infection

Is this a new case of *acute* HBV or *acute* HCV?

- Interview the patient with the viral hepatitis questionnaire

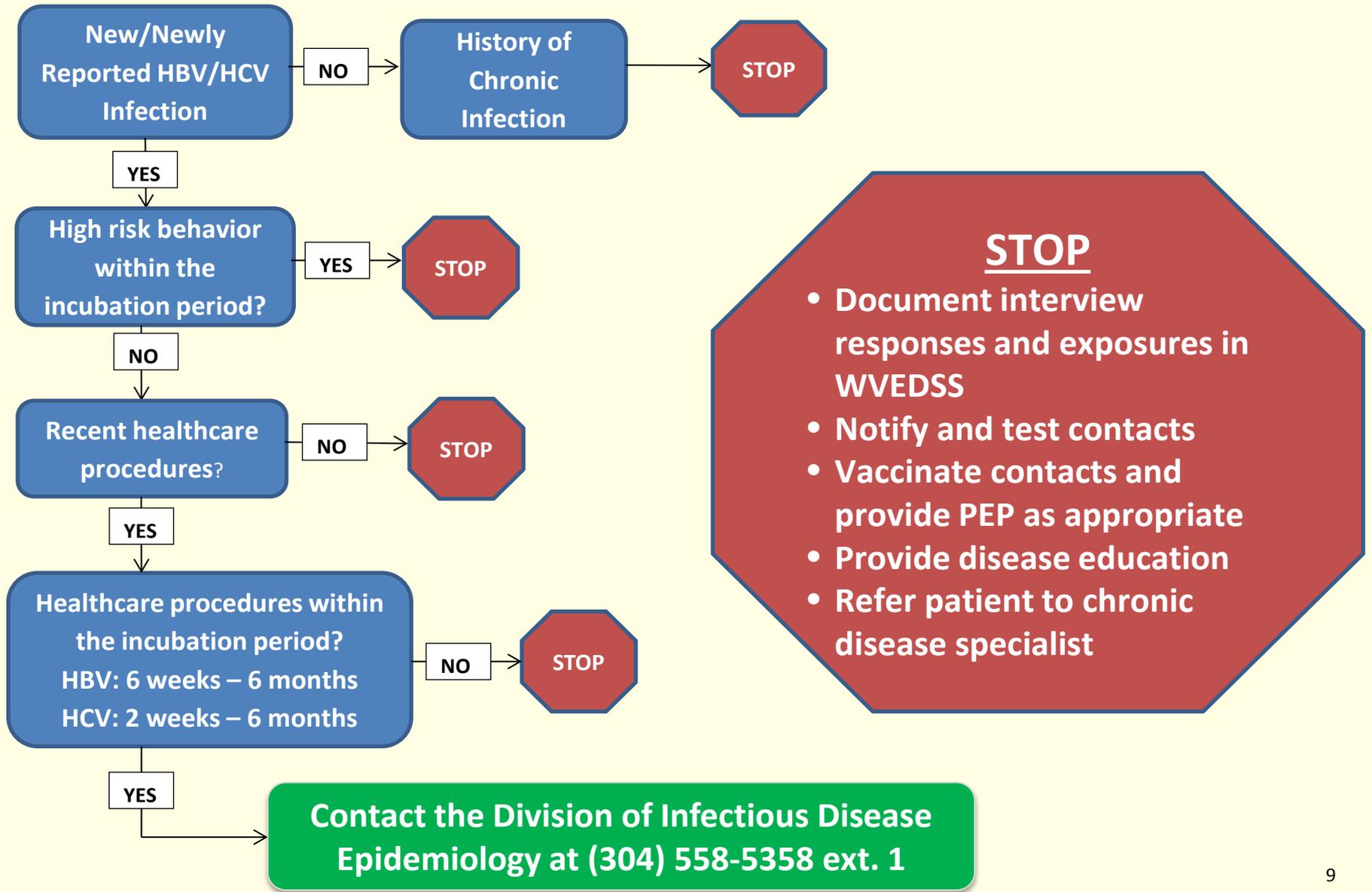
Determine the patient's risk factors

- A history of a sexually transmitted disease, incarceration, or injection drug use within the incubation period
- Determine if behavioral or household exposures are likely modes of transmission

Is the infection healthcare related?

- Are there any recent healthcare procedures?
- Do any of the procedures involve percutaneous exposure?
- Do any of those procedures fall within the incubation period?

Healthcare Associated Viral Hepatitis Flowchart



Case Scenario

A 60 year old woman, who is an elementary school music teacher, lives alone with no household contacts, presents to her primary care physician (PCP) with elevated liver enzymes and joint pain. Her physician then ordered a hepatitis panel, and it is determined that she is HCV positive. In the past six months, she has seen her cardiologist, rheumatologist, and her PCP. She has no history of any previous elevated liver enzymes or positive HCV results. Occasionally, her nieces and nephews visit her at her home. She is a non-smoker and has no history of blood transfusion or drug use, although she did receive a tattoo 15 years ago.

Based on the information provided, how should this case be investigated?

Document Patient Exposures

Undergo hemodialysis? 

Have an accidental stick or puncture with a needle or other object contaminated with blood? 

Receive blood or blood products [transfusion]? 

Receive any IV infusions and/or injections in the outpatient setting? 

Have other exposure to someone else's blood?

Document Patient Exposures (continued)

Was the patient employed in a medical or dental field involving direct contact with human blood? ←

Was the patient employed as a public safety worker (fire fighter, law enforcement, or correctional officer) having direct contact with human blood?

Did the patient receive a tattoo?

Did the patient have any part of their body pierced (other than ear)?

Did the patient have dental work or oral surgery? ←

Did the patient have surgery (other than oral surgery)? ←

Was the patient hospitalized? ←

Was the patient a resident of a long term care facility? ←

Avenues of Detection

- Healthcare providers
- Local health departments
- Division of Infectious Diseases Epidemiology (DIDE)
- Blood collection centers
- West Virginia Electronic Disease Surveillance System (WVEDSS)
- Patient

Public Health Issues/Actions:

Patient has NO other hepatitis risk factors, EXCEPT for a procedure received at a health care facility/setting within the incubation period (i.e., possible healthcare-associated infection).

NO to all common risk factors and ONLY health-care exposures identified

- **YES** = DIDE must be notified immediately
- **Unknown** = only used for “lost to follow up” patients

What is the Incubation Period?

Exposure should fall between:

**Acute
HBV**

6 months - 6 weeks

180 to 42 days

**Acute
HCV**

6 months – 2 weeks

180 to 14 days

Exercise #1

INFECTION TIMELINE

Instructions:

Enter onset date in grey box. Count backward to determine probable exposure period

Days from onset

Calendar dates:

Exposure period

| | |
|--------------------------|-------------------------|
| -180 (Max Incubation) | -14 (Min Incubation) |
| __/__/__ | __/__/__ |

Onset date

↓
__/__/__

Determine probable exposure based on the incubation period for HCV:

- Onset date: 9/1/2015
- What is the probable exposure period?

March 1, 2015 - August 18, 2015

Exercise #2

INFECTION TIMELINE

Instructions:
Enter onset date in
grey box. Count
backward to determine
probable exposure
period

Days from onset

Calendar dates:

Exposure period

| | |
|--------------------------|-------------------------|
| -180 (Max Incubation) | -42 (Min Incubation) |
| __/__/__ | __/__/__ |

Onset date

↓

__/__/__

Determine probable exposure based on the incubation period for HBV:

- Onset date: 8/25/2015
- What is the probable exposure period?

February 21, 2015 – July 14, 2015

Document Patient Exposures

- Document the details of the exposure

Condition Specific Custom Fields

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Exposure Detail 1

| | |
|---|---|
| If yes to: | Oral Surgery |
| Date of event or exposure: | 4/11/2015 |
| Facility/Provider name where event/exposure occurred: | Safe & Clean Dental Associates |
| City: | Anywhere |
| State: | West Virginia |
| Facility phone number: | (304) 558-5358, ext. 1 |

Exposure Detail 2

- Notify DIDE at (304) 558-5358, ext. 1 of any suspected healthcare-associated HBV or HCV infection

Responsibilities

Local Health

- Document exposures in WVEDSS
- Assess risk of healthcare transmission
- Notify DIDE of suspected healthcare-associated HBV and HCV infection
- Interview patients with standard questionnaire
- Obtain blood specimens for genotyping or viral sequencing

State

- Search for the facility/provider's name in WVEDSS
- Inform the facility of the investigation
- Investigate and evaluate the facility
- Evaluate for common exposure (time/place)
- Consult with the Centers for Disease Control and Prevention (CDC)
- Patient notification recommending blood-borne pathogen testing

In Conclusion

- ONE case of healthcare-associated HBV or HCV is an outbreak
- No risk factors other than healthcare procedures
- Investigation of healthcare-associated HBV or HCV is a critical public health response
- Identification of an outbreak
- Unsafe clinical practices that place patients at risk
- Think outside the box
- Alternative modes of transmission
- When in doubt, contact DIDE at (304) 558-5358 ext. 1

Contact

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