California Department of Public Health – January 2020

Acute Hepatitis B and C

Public Health Investigation Quicksheet

Clinical symptoms

Signs and symptoms of acute hepatitis B virus (HBV) and hepatitis C virus (HCV) infection are indistinguishable and include subacute illness with non-specific symptoms (anorexia, nausea, malaise), clinical hepatitis with jaundice, or fulminant hepatitis. Development of clinical symptoms is age dependent with asymptomatic infection most common in young children. Both acute HBV and HCV infections can progress to chronic infections. Chronically infected persons are thought to be the main reservoir for new infections.

Modes of transmission

HBV may be transmitted by parenteral or mucosal exposure to body fluids (particularly blood and serous fluids) of an infected person. Common modes of transmission include sharing or using nonsterile injection drug use equipment, sexual contact, and perinatal transmission. Person-to-person transmission can also occur in settings involving interpersonal contact over extended periods (e.g., households). Transmission may also occur from sharing contaminated inanimate objects, such as fingerstick devices and glucometers or razors and toothbrushes. HBV can survive in the environment for ≥1 week.

HCV is most often transmitted by percutaneous exposure to blood. Most new HCV infections in the U.S. are related to injection drug use. Some infections are due to healthcare exposures (e.g., unsafe medical injections). Infection via sexual contact or perinatal transmission is possible but uncommon; these modes of transmission are more common in the presence of HIV co-infection. HCV can survive in the environment for up to 3 weeks and in a used syringe for up to 63 days.

Incubation period

HBV: 45 to 160 days (average, 90 days)
HCV: 2 weeks to 6 months (average, 6 to 7 weeks)

Period of Communicability

HBV: Any time hepatitis B surface antigen (HBsAg) is present in blood. HBsAg can be found in the blood and body fluids of infected persons for 1-2 months before and any time after symptom onset.

HCV: An individual is considered infectious anytime HCV RNA is present in the blood. HCV RNA can be detected in the blood or plasma 1 to 2 weeks after exposure and weeks before symptom onset.

Case Definitions

Confirmed Acute HBV: An acute illness with discrete onset of any sign or symptom* consistent with acute viral hepatitis (e.g., fever, headache, malaise, anorexia, nausea, vomiting, diarrhea, abdominal pain)**; AND**

- Either jaundice **OR** ALT levels > 100 IU/L; **AND**
- HBsAg positive; **AND**
- IgM anti-HBc positive (if done).

*A documented negative HBsAg laboratory test result <6 months prior to a positive HBsAg, HBeAg or HBV DNA result (seroconversion) does not require an acute clinical presentation to meet the surveillance case definition for a confirmed acute HBV case.

Acute HCV: One or more of the following in an individual >36 months of age, unless known to have been exposed non-perinatally:

- Jaundice **OR** peak elevated total bilirubin levels ≥3.0 mg/dL **OR** ALT levels >200 IU/L; **AND**
- The absence of a more likely diagnosis (e.g., evidence of acute liver disease from other causes or pre-existing chronic HCV infection) **AND**
- Anti-HCV positive **or** HCV RNA positive† **or** HCV antigen positive‡

Confirmed HCV: Case meets the clinical criteria and is HCV RNA positive or HCV antigen positive **OR** has documented anti-HCV or HCV RNA test seroconversion.†

Probable HCV: Case meets the clinical criteria and has a positive HCV antibody test, but no reports of a positive HCV RNA or positive HCV antigen test and has no documentation of anti-HCV or HCV RNA test seroconversion within 12 months.

[†]A documented negative HCV antibody, HCV antigen or HCV RNA laboratory test result <12 months prior to a positive test result (in someone without a prior diagnosis of HCV infection) does not require an acute clinical presentation to meet the surveillance case definition for a confirmed acute HCV case.

[‡]When and if an HCV antigen test is approved by FDA and available.

Initial Case Investigation

1) Confirm that case definition is met. Review clinical presentation and relevant laboratory information, including past hepatitis lab results.

2) Interview the case to identify risk factors and possible exposures <6 months of symptom onset, including:
- Traditional behavioral risk factors, e.g.
  - Infected household contact (HBV only)
  - Infected sexual contact, or
  - Injection drug use.
- Healthcare exposures (outpatient procedures, hospitalization, etc.).
- Cosmetic exposures (manicure/pedicure, tattoo, procedures involving instruments or injections).

3) Complete the "Acute Hepatitis B/C Case Report Form," which can be accessed via the CalREDIE Document Repository under the CDPH tab.

4) If healthcare, cosmetic exposures, or other likely exposures are identified, document dates and facility names.

5) If traditional risk factors are identified, determine if household, sexual, and/or injection contacts are infected with HBV and/or HCV.

6) For acute HBV cases, test contacts for immunity and, if uninfected and susceptible, vaccinate against hepatitis B per ACIP recommendations.

7) For acute HCV cases, link to HCV care and offer or provide linkages to HIV/STD testing and preventive services (e.g., condoms, HIV pre-exposure prophylaxis (PrEP), syringe services, substance use disorder treatment, naloxone for prevention of opioid overdose, etc.).

8) Provide education to patients and their contacts about disease and transmission risk and assess contacts' behavioral risk factors.

9) For contacts with ongoing risk, offer or provide linkages to testing and preventive services.

10) For contacts infected with chronic HBV and/or chronic HCV, link to HBV/HCV care.

If no sexual or household contacts are infected (or it cannot be determined), and patient had healthcare exposures during incubation period:

1) If healthcare exposures are a concern, identify and save all blood specimens (collected both before and after medical procedures, if available) for further testing. After discussions with the HAI Program, additional blood specimens might be requested if patient still infected.

2) If a list of facilities named by other acute HBV and HCV cases in the jurisdiction is available, review it to identify any prior acute HBV and HCV cases who received care at the same facility.
- Determine whether case has "red flags" for infection related to healthcare
  - Age >50 years
  - High-risk healthcare exposures, e.g., glucose monitoring or receipt of pain medications
  - Patient or physician suspicion
  - Linked to facility named by other cases

If patient has red flags for infection related to healthcare contact the CDPH Immunization Branch and CDPH HAI Program.

The Immunization Branch, in collaboration with the CDPH Healthcare-Associated Infections Program, will provide guidance on whether and how to proceed with further investigation. Refer to the CDPH Healthcare-Associated Hepatitis B and C (HBV/HCV) Investigation Quicksheet Algorithm for full guidance on the approach to investigating healthcare-associated hepatitis[††]

Additional CDPH resources related to acute HBV and HCV investigations can be found on the Healthcare-Associated Infections (HAI) Program web page at: https://www.cdph.ca.gov/Programs/CHCQ/HAI/Pages/PublicHealthPartners.aspx

Please contact the CDPH Immunization Branch at (510) 620-3737 for any additional assistance.

[††] **Healthcare-Associated Hepatitis B and C (HBV/HCV) Investigation Quicksheet Algorithm:** https://www.cdph.ca.gov/Programs/CHCQ/HAI/CDPH%20Document%20Library/HA_HBV_HCV_QuicksheetMarch2018.pdf