

**IN THIS ISSUE: Hepatitis Awareness Month – Hepatitis B**

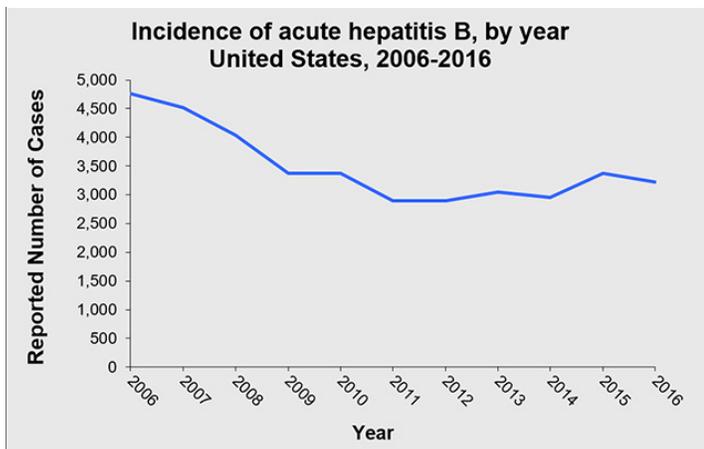
**Hepatitis Awareness Month - Acute and Chronic Hepatitis B Testing**

**Introduction**

May is Hepatitis Awareness Month and the Washoe County Health District’s Communicable Disease Program would like to highlight the importance of patient testing for hepatitis B virus (HBV). This edition of Epi News will provide an overview of HBV transmission, symptoms, and screening for both acute and chronic HBV. It will also address who should be vaccinated for HBV.

**Acute HBV Incidence**

In Washoe County, the incidence of acute HBV for 2017 was 1.1 cases per 100,000 population for those 19 years and older<sup>1</sup>. In 2016, the incidence rate of acute HBV infections was 1.0 cases per 100,000 population in the United States. Forty-eight states reported a total of 3,218 cases. Due to under-reporting, the actual case count is likely much higher<sup>2</sup>.



**HBV Transmission**

The hepatitis B virus is spread through contact with an infected person’s blood or body fluids. Activities that put a person at risk for transmission include:

- Unprotected sex with an infected partner
- Sharing needles and/or drug preparation equipment
- Infant born to an HBV infected mother
- Accidental needle stick
- Sharing items that may contain traces of blood like razors and toothbrushes

**Symptoms of Acute Hepatitis**

A patient may present to a health care provider or emergency room with symptoms of acute hepatitis. These symptoms include fever, fatigue, jaundice, abdominal pain, nausea, vomiting, diarrhea, clay colored stools, dark urine, and decreased appetite.

**Testing for Acute HBV**

Testing for acute HBV can be tricky since there are many seromarkers that can be tested. If an acute HBV infection is suspected, health care providers should test for **BOTH** hepatitis B surface antigen (**HBsAg**) and hepatitis B core antibody IgM (**IgM anti-HBc**). For disease surveillance purposes, a patient must be positive for both of these markers to be counted as a case. A comprehensive metabolic panel should also be done at this time to evaluate the patient’s liver enzymes.

**Chronic HBV Incidence**

The Centers for Disease Control and Prevention (CDC) estimates that between 850,000 -2.2 million people have chronic HBV in the United States<sup>3</sup>. From 1990-2017, Washoe County has had 1,615 cases of chronic HBV reported, with 65 cases newly reported in 2017<sup>5</sup>.

**Screening for Chronic HBV**

Patients should be tested for three (3) seromarkers; hepatitis B surface antigen (**HBsAg**), hepatitis B surface antibody (**Anti-HBs**) and hepatitis B core antibody, total (**Anti-HBc**). It is not recommended to test for hepatitis B core antibody, IgM (IgM anti-HBc) in individuals who have no signs or symptoms of acute hepatitis. Health care providers should consider screening for the following individuals<sup>2</sup>:

- Persons born in countries with 2% or higher prevalence – see <https://wwwnc.cdc.gov/travel/yellowbook/2018/infectious-diseases-related-to-travel/hepatitis-b#5182>
- Men who have sex with men
- Persons who inject drugs
- HIV-positive persons
- Household and sexual contacts of HBV-infected persons
- Persons requiring immunosuppressive therapy
- Persons with end-stage renal disease (including hemodialysis patients)
- Blood and tissue donors
- Persons infected with hepatitis C
- Persons with elevated alanine aminotransferase levels ( $\geq 19$  IU/L for women and  $\geq 30$  IU/L for men)
- Incarcerated persons
- Pregnant women (HBsAg only is recommended)
- Infants born to HBV-infected mothers (HBsAg and anti-HBs are only recommended)

**Screening Pregnant Women for HBV**

All pregnant women should be screened for HBV. Screening should be done at every pregnancy regardless of the fact a woman may have had a negative result in

previous pregnancies. The hepatitis B surface antigen (HBsAg) seromarker is part of prenatal panels available through LabCorp, Quest, and ARUP laboratories. See table below.

<b>ARUP Laboratories</b>	Panel-Prenatal Reflexive Panel (Test Code-0095044)
	Standalone-HBV Surface Antigen with Reflex to Confirmation, Perinatal (Test Code-2007573)
<b>LabCorp</b>	Panel-Prenatal Profile I with Hepatitis B Surface Antigen (Test Code-202945)
	Panel-Hepatitis Profile XIII (HBV Prenatal Profile) (Test Code 265397)
<b>Quest Diagnostics</b>	Obstetric Panel (Test Code-20210)

Also, the Nevada Administrative Code (NAC) 441A.570 requires that *a pregnant woman shall be screened by her health care provider for the presence of hepatitis B surface antigen. The health care provider shall refer a pregnant woman who is positive for hepatitis B surface antigen to the health authority for counseling and recommendations on testing and immunizing contacts.*

For HBsAg positive pregnant women, testing for HBV DNA should be completed. Antiviral therapy may be recommended for those with HBV DNA > 200,000 IU/mL.

All HBV positive pregnant women are followed by the Washoe County Health District's Perinatal Hepatitis B Prevention Program. The program works with the health care provider, the patient, and delivery hospital to ensure the infant receives timely post-exposure prophylaxis within 12 hours of birth. Additional follow-up is done to ensure the infant completes additional scheduled doses of HBV vaccine and completes testing to make sure they did not acquire the HBV infection from their mother.

### HBV Prevention

Routine vaccinations for HBV are available for both children and adults. The following individuals should receive the HBV vaccination series based on the Advisory Committee on Immunization Practices (ACIP) guidelines<sup>5</sup>.

- All infants
- Unvaccinated children aged <19 years
- People at risk for infection by sexual exposure
- People at risk for infection by percutaneous or mucosal exposure to blood
- International travelers to countries with high or intermediate levels of endemic hepatitis B virus (HBV) infection (HBsAg prevalence of ≥2%)
- People with hepatitis C virus infection
- People with chronic liver disease
- People with HIV infection
- People who are incarcerated
- All other people seeking protection from HBV infection

### Interpretation of HBV Serologic Test Results<sup>3</sup>

<b>HBsAg</b> <b>anti-HBc</b> <b>anti-HBs</b>	negative negative negative	Susceptible
<b>HBsAg</b> <b>anti-HBc</b> <b>anti-HBs</b>	negative positive positive	Immune due to natural infection
<b>HBsAg</b> <b>anti-HBc</b> <b>anti-HBs</b>	negative negative positive	Immune due to hepatitis B vaccination
<b>HBsAg</b> <b>anti-HBc</b> <b>IgM anti-HBc</b> <b>anti-HBs</b>	positive positive positive negative	Acutely infected
<b>HBsAg</b> <b>anti-HBc</b> <b>IgM anti-HBc</b> <b>anti-HBs</b>	positive positive negative negative	Chronically infected
<b>HBsAg</b> <b>anti-HBc</b> <b>anti-HBs</b>	negative positive negative	Interpretation unclear; four possibilities: 1. Resolved infection (most common) 2. False-positive anti-HBc, thus susceptible 3. "Low level" chronic infection 4. Resolving acute infection

Adapted from: A Comprehensive Immunization Strategy to Eliminate Transmission of Hepatitis B Virus Infection in the United States: Recommendations of the Advisory Committee on Immunization Practices. Part I: Immunization of Infants, Children, and Adolescents. MMWR 2005;54(No. RR-16).

### Reporting Acute and Chronic HBV Cases

All cases of acute and chronic HBV must be reported to the Washoe County Health District. Patient demographic information and lab results should be faxed to (775) 328-3764. This is a confidential fax line.

### Provider Resources and Training

The CDC offers professional resources for health care providers, including MMWR published guidelines for management of chronic HBV and HBV prevention, <https://www.cdc.gov/hepatitis/hbv/profresourcesb.htm>. There is also an online training available for hepatitis serology, <https://www.cdc.gov/hepatitis/resources/professionals/training/serology/training.htm>.

### Questions

For questions regarding acute, chronic, or perinatal HBV infections and testing, please contact the Washoe County Communicable Disease Program at (775) 328-2447.

### References

1. WCHD Annual Communicable Disease Summary 2017 [https://www.washoecounty.us/health/files/ephp/communicable-diseases/annual-summary/CD\\_Annual\\_2017\\_FINAL.pdf](https://www.washoecounty.us/health/files/ephp/communicable-diseases/annual-summary/CD_Annual_2017_FINAL.pdf)
2. <https://www.cdc.gov/hepatitis/hbv/hbvfaq.htm#ref01>
3. <https://www.cdc.gov/hepatitis/statistics/DiseaseBurden.htm>
4. Chart modified from: <https://www.cdc.gov/hepatitis/hbv/pdfs/SerologicChartv8.pdf>
5. <https://www.cdc.gov/hepatitis/hbv/hbvfaq.htm#vaccFAQ>