



ALAMEDA COUNTY HEALTH CARE SERVICES AGENCY
PUBLIC HEALTH DEPARTMENT

Division of Communicable Disease Control and Prevention

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Health Update

Chronic Hepatitis B Infection

Call for Testing, Vaccinating and Providing Treatment

March 2019

Hepatitis B Background and Call to Action

Hepatitis B virus (HBV) is highly infectious and transmitted via blood or sexual contact. Persons with chronic HBV infection (presence of hepatitis B surface antigen (HBsAg), HBV DNA, or Hepatitis B e antigen (HBeAg) for at least 6 months) require medical care as they are at increased risk for liver cirrhosis, liver cancer, and death. It is estimated that there are over 23,000 cases of chronic hepatitis B infection in Alameda County, yet there are only about 8,000 cases documented in the California Reportable Disease Information Exchange (CalREDIE). Approximately 1 in 12 people born in [countries where hepatitis B is endemic](#) and living in Alameda County is potentially chronically infected. The Alameda County Public Health Department (ACPHD) asks clinicians to:

- **Test patients for hepatitis B infection**
- **Vaccinate those who are susceptible**
- **Provide guideline-driven evaluation, monitoring and treatment for persons with chronic HBV**

Multiple East Bay partners have formed the ***Hep B Free Alameda County Collaborative*** to increase awareness of hepatitis B disease and provide educational opportunities for primary care providers and other clinicians. Clinicians associated with positive HBsAg screening tests will soon receive a letter with an invitation to join a *Hepatitis B Clinician Honor Roll of Alameda County*.

The following pages of this Hepatitis B Infection Health Update include further information regarding testing, vaccinating and providing guideline-driven care. To address the tremendous burden of chronic hepatitis B infection in Alameda County, a collective effort of diligence, education and follow-through is necessary. We thank you for the role that you contribute.

A. Testing Patients for Chronic Hepatitis B Infection

Recommended screening tests are hepatitis B surface antigen (HBsAg), antibody to HBsAg (anti-HBs or HBsAb) and antibody to hepatitis B core antigen (anti-HBc or HBcAb). Anti-Hepatitis B core IgM should not be ordered in patients who do not have symptoms of acute hepatitis.

Routine testing for HBV is recommended for all pregnant women during each pregnancy to prevent perinatal transmission of the disease (for information about Alameda County's Perinatal Hepatitis B Prevention Program see <http://www.acphd.org/perinatal-hepb.aspx>). Pregnant women with positive HBsAg tests should also be tested for HBV DNA.

Hepatitis B testing is also recommended for the following persons:

- Persons born in [countries of high and intermediate HBV endemicity](#) (HBsAg prevalence $\geq 2\%$)
- U.S. born persons not vaccinated as infants whose parents were born in countries with high HBV endemicity ($\geq 8\%$)
- Household, sexual, or needle contacts of HBsAg-positive persons
- HIV-positive persons
- Persons with elevated alanine aminotransferase (ALT) or aspartate aminotransferase (AST) of unknown etiology
- Hemodialysis patients
- Men who have sex with men
- Persons who previously or currently inject drugs
- Persons needing immunosuppressive therapy, including chemotherapy, immunosuppression related to organ transplantation, and immunosuppression for rheumatologic, gastrointestinal or other disorders
- Donors of blood, plasma, organs, tissues, or semen
- Infants born to HBsAg-positive mothers
- Persons who are the source of blood or body fluid exposures that might warrant postexposure prophylaxis (e.g., needlestick injury to a health care worker)

There are multiple aids [and tools to help interpret serologic test results](#) online.

B. Vaccination/Protection from Hepatitis B

Hepatitis B vaccination is the cornerstone for HBV prevention. In the U.S. and in Alameda County, all infants are vaccinated beginning at birth as a safeguard for infants born to HBV-infected mothers who are not identified prenatally. There is also routine vaccination of previously unvaccinated children aged <19 years. The risk of developing chronic HBV infection after acute exposure ranges from 90% in newborns of HBeAg-positive mothers to 25%-30% in infants and children under 5 to less than 5% in adults.

To avoid vaccinating an adult who might already be chronically infected, it is best practice to test and vaccinate simultaneously. Vaccination of adults is recommended for persons in a risk group whose test results indicate that they are susceptible to disease, and for anyone requesting protection from HBV.

Additional risk factors and settings where vaccine should be administered include:

- Developmentally disabled persons in residential long-term-care facilities
- Correctional facilities/prison inmates
- Persons with hepatitis C infection
- Persons with chronic liver disease
- Persons with diabetes
- Travelers to [countries where HBV is endemic](#)

In the United States, there are three licensed formulations of hepatitis B vaccine.

Vaccine Name	Manufacturer	Formulations	Schedule
Heplisav-B®	Dynavax	Adult only -- age 18+, 0.5mL	Two Dose Series -- separated by one month
Engerix-B®	Glaxo Smith Kline	Pediatric – 0.5mL Adult – 1mL	Three Dose Series – separated by 4 then 8 weeks
Recombivax HB®	Merck	Pediatric – 0.5mL Adult – 1mL	Three Dose Series – separated by 4 then 8 weeks

See <http://eziz.org/assets/docs/IMM-1267.pdf> for clinician guide for # of needed doses by vaccine type.

For more information about hepatitis B vaccine, see: Prevention of Hepatitis B Virus Infection in the United States: Recommendations of the Advisory Committee on Immunization Practices *Recommendations and Reports*, January 12, 2018, 67(1);1–31 <https://www.cdc.gov/mmwr/volumes/67/rr/rr6701a1.htm#B3> down

C. Providing Guideline-Driven Evaluation and Treatment

The presence of hepatitis B surface antigen (HBsAg) establishes the diagnosis of hepatitis B. Chronic HBV infection is defined by the presence of HBsAg, HBV DNA, or Hepatitis B e antigen (HBeAg) for at least 6 months. All acute and chronic cases of hepatitis B must be [reported](#) to the ACPHD via the [confidential morbidity report](#) form.

1. Acute Infection

Acute infection incidence in Alameda County is low, not exceeding 11 cases/year since 2008. Acute hepatitis B is an illness with discrete onset of any sign or symptom consistent with 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

Antiviral treatment may or may not be indicated for patients with symptomatic acute hepatitis B. It is recommended that clinicians follow the 2018 Practice Guidance of the American Association for the Study of Liver Diseases (AASLD) at https://www.aasld.org/sites/default/files/HBVGuidance_Terrault_et_al-2018-Hepatology.pdf

2. Chronic Infection

A diagnosis of chronic hepatitis B does not require any symptoms but includes:

- IgM anti-HBc negative **AND** HBsAg **OR** HBeAg **OR** HBV DNA positive; **OR**
- HBsAg, HBeAg or HBV DNA positive test results two times at least 6 months apart. Any combination of these tests performed at least 6 months apart is acceptable.

Patients with chronic HBV should receive an assessment of liver function, disease staging, and consideration for antiviral treatment. Continuous monitoring and potential antiviral therapies may reduce the risk of progression to cirrhosis, liver cancer or premature death. Patients should be counseled regarding lifestyle or behavior modifications to maintain liver health and prevent HBV transmission. Persons with chronic HBV should be tested for hepatitis A IgG and receive the two-dose hepatitis A vaccine series if they are susceptible. Household members and sexual contacts of HBV-infected individuals should be tested for hepatitis B and vaccinated if susceptible. For guidance on counseling and disease management of chronically infected patients, see the 2018 Practice Guidance of the American Association for the Study of Liver Diseases (AASLD) at https://www.aasld.org/sites/default/files/HBVGuidance_Terrault_et_al-2018-Hepatology.pdf.

D. Conclusion

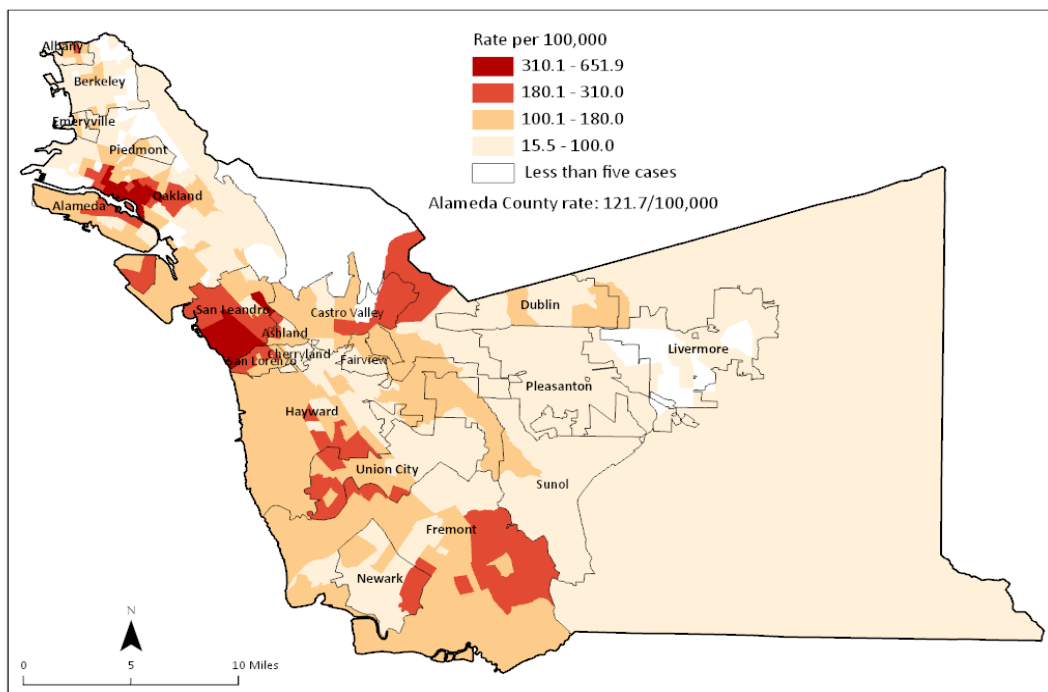
An estimated 2.2 million persons live with chronic hepatitis B in the US and two thirds (67%) are not aware they are infected, contributing to ongoing transmission. Approximately 1.45% of Alameda County's 1.6 million population is chronically infected with HBV.

Addressing the heavy burden of hepatitis B in Alameda County requires innovation, dedication and targeted prevention and control efforts, such as community-based and refugee clinic-based HBV testing initiatives. Universal testing practices, such as those undertaken at Asian Health Services in Alameda County are also valuable for identifying patients and linking them to care that will prevent severe clinical consequences. Please join us in our efforts to increase testing and vaccination, and improve education and treatment for Hepatitis B.

E. Linked Resources and Citations

1. Prevention of Hepatitis B Virus Infection in the United States: Recommendations of the Advisory Committee on Immunization Practices – Centers for Disease Control and Prevention, MMWR, Recommendations and Reports / Vol. 67 / No 1 January 12, 2018 -- <https://www.cdc.gov/mmwr/volumes/67/rr/rr6701a1.htm>
2. Update on Prevention, Diagnosis and Treatment of Chronic Hepatitis B: American Association for the Study of Liver Disease (AASLD) 2018 Hepatitis B Guidance -- Terrault et al, 2018. *Hepatology*, VOL. 67, No 4, 2018 pages 1560 – 1599 -- https://www.aasld.org/sites/default/files/HBVGuidance_Terrault_et_al-2018-Hepatology.pdf
3. California Department of Public Health Hepatitis B Quicksheet, October 2017 -- <https://www.cdph.ca.gov/Programs/CID/DCDC/CDPH%20Document%20Library/Immunization/HepatitisB-Quicksheet.pdf>
4. National Foundation of Infectious Diseases Call to Action, Preventing Hepatitis B in US Adults through Increased Vaccination Rates among At-Risk Groups, October 2018 - <http://www.nfid.org/hep-b-cta>
5. Racial/ethnic-and county-specific prevalence of chronic hepatitis B and its burden in California. Toy et al, 2018. *Hepatology, Medicine and Policy* 2018 – 3:6 <https://hmap.biomedcentral.com/track/pdf/10.1186/s41124-018-0034-7>
6. Centers for Disease Control and Prevention (CDC) Interpretation of Hepatitis B Serologic Test Results table <https://www.cdc.gov/hepatitis/hbv/pdfs/serologicchartv8.pdf>

Reported Chronic Hepatitis B Cases - Alameda County



Source: CAPE, with data from ACPHD DCDCP and Berkeley PHD, 2015-3Q2018.

Global Prevalence of Chronic Hepatitis B Virus Infection, by Country*

High (≥8% prevalence): Angola, Benin, Burkina Faso, Burundi, Cameroon, Central African Republic, Congo, Côte d'Ivoire, Djibouti, Equatorial Guinea, Gabon, Gambia, Ghana, Guinea, Haiti, Kiribati, Kyrgyzstan, Laos, Liberia, Malawi, Mali, Mauritania, Mongolia, Mozambique, Namibia, Nauru, Niger, Nigeria, Niue, Papua New Guinea, Senegal, Sierra Leone, Solomon Islands, Somalia, South Sudan, Sudan, Swaziland, Togo, Tonga, Uganda, Vanuatu, Vietnam, Yemen, and Zimbabwe.

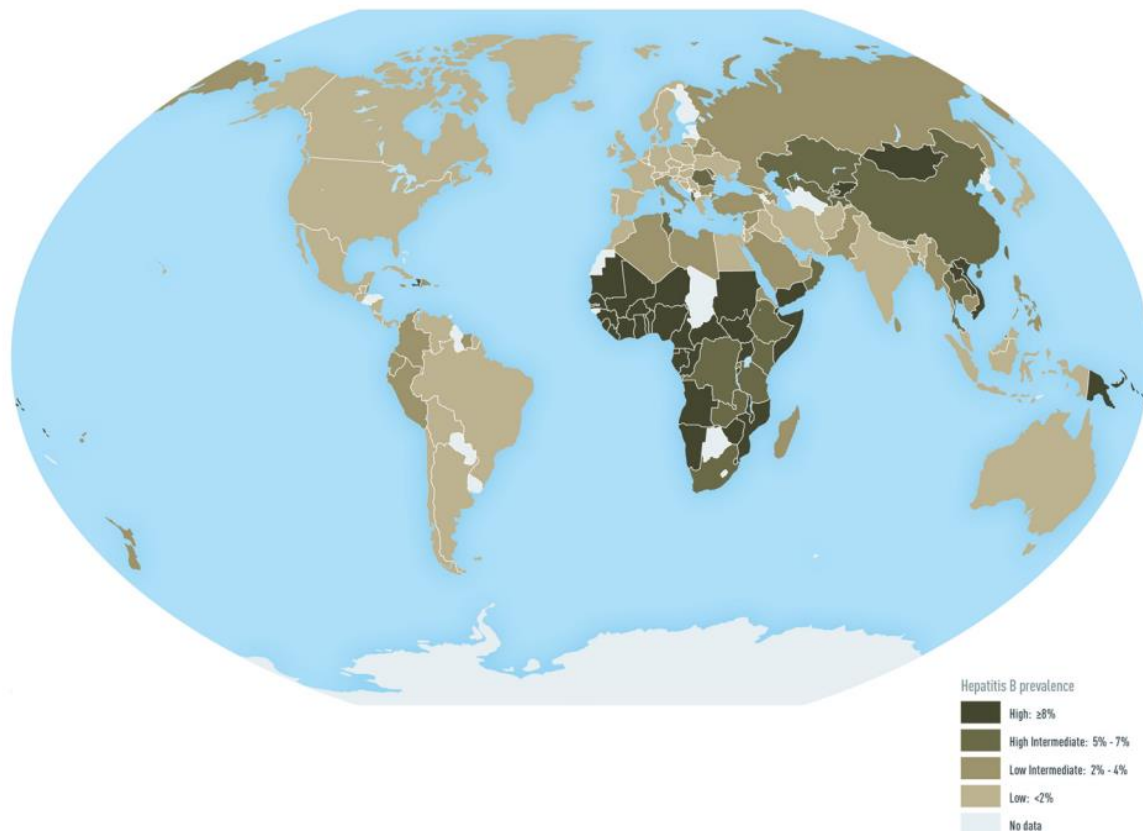
Intermediate (5%–7.9% prevalence): Albania, Bhutan, Cape Verde, China, Democratic Republic of the Congo, Ethiopia, Kazakhstan, Kenya, Marshall Islands, Moldova, Oman, Romania, Rwanda, Samoa, South Africa, Tajikistan, Tanzania, Thailand, Tunisia, Tuvalu, Uzbekistan, and Zambia.

Low Intermediate (2%–4.9% prevalence): Algeria, Azerbaijan, Bangladesh, Belarus, Belize, Brunei Darussalam, Bulgaria, Cambodia, Colombia, Cyprus, Dominican Republic, Ecuador, Eritrea, Federated States of Micronesia, Fiji, Georgia, Italy, Jamaica, Kosovo, Libya, Madagascar, Myanmar, New Zealand, Pakistan, Palau, Philippines, Peru, Russia, Saudi Arabia, Singapore, South Korea, Sri Lanka, Suriname, Syria, Tahiti, and Turkey.

Low (≤1.9% prevalence): Afghanistan, Argentina, Australia, Austria, Bahrain, Barbados, Belgium, Bolivia, Bosnia and Herzegovina, Brazil, Canada, Chile, Costa Rica, Croatia, Cuba, Czech Republic, Denmark, Egypt, France, Germany, Greece, Guatemala, Hungary, Iceland, India, Indonesia, Iran, Iraq, Ireland, Israel, Japan, Jordan, Kuwait, Lebanon, Lithuania, Malaysia, Mexico, Morocco, Nepal, Netherlands, Nicaragua, Norway, Palestine, Panama, Poland, Portugal, Qatar, Serbia, Seychelles, Slovakia, Slovenia, Spain, Sweden, Switzerland, Ukraine, UK, United Arab Emirates, United States of America, and Venezuela.

No data: Andorra, Antigua and Barbuda, Armenia, The Bahamas, Botswana, Chad, Comoros, Cook Islands, Dominica, El Salvador, Finland, Grenada, Guinea-Bissau, Guyana, Honduras, Latvia, Lesotho, Lithuania, Luxembourg, Macedonia, Maldives, Malta, Mauritius, Monaco, Montenegro, North Korea, Paraguay, Saint Kitts and Nevis, Saint Lucia, Saint Vincent and the Grenadines, San Marino, Sao Tome and Principe, Timor-Leste, Trinidad and Tobago, Turkmenistan, and Uruguay.

* **Source:** CDC. Travelers health: infectious diseases related to travel. Atlanta, GA: US Department of Health and Human Services, CDC; 2017.



MAP 3-4. Prevalence of hepatitis B virus infection

¹ Disease data source: Schweitzer A, Horn J, Mikolajczyk R, Krause G, Ott J. Estimations of worldwide prevalence of chronic hepatitis B virus infection: a systematic review of data published between 1965 and 2013. *www.thelancet.com*. 2015.Vol 386.