

# Hepatitis B Testing and Serology Interpretation

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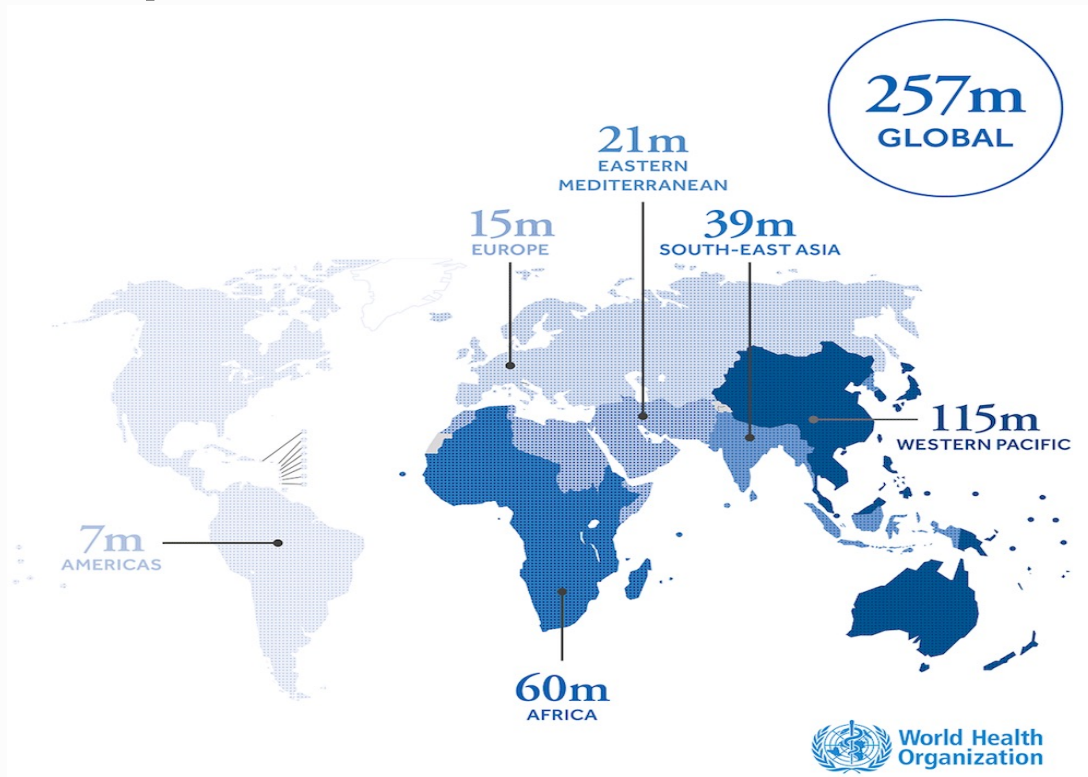
# Conflict of Interest Disclosure Statement

- Speaker has nothing to disclose

# Learning Objectives

- Identify appropriate baseline serologies for HBV
- Correctly interpret serologic tests for HBV

# Hepatitis B: Global Burden



<https://www.hepatitisb.uw.edu/>

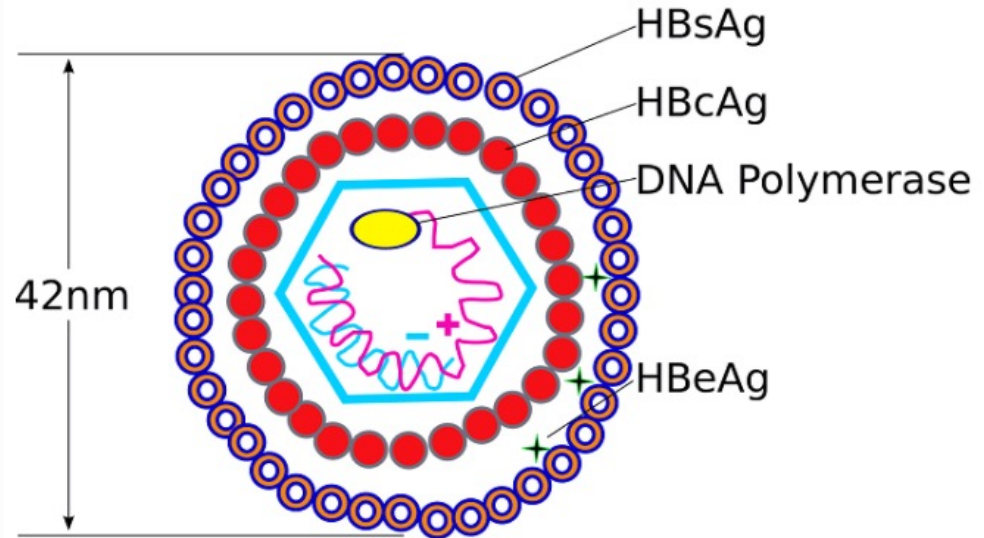
# HBV Awareness

- A minority of persons living with chronic HBV are aware of their status
- NHANES data (2013 through 2016)
  - 33.9% of those with chronic infection were aware of their HBV status.
  - 11.7% of persons with a past exposure to HBV (defined by the presence of HBcAb) were aware they had been exposed to HBV

Kim HS, Yang JD, El-Serag HB, Kanwal F. Awareness of chronic viral hepatitis in the United States: An update from the National Health and Nutrition Examination Survey. *J Viral Hepat.* 2019 May;26(5):596-602. doi: 10.1111/jvh.13060. Epub 2019 Mar 13. PMID: 30629790.

# HBV Terminology

- Three proteins expressed by HBV
- Surface antigen – hallmark of infection
  - HBsAg
- Core antigen
  - HBcAg
- Envelope antigen
  - HBeAg



<https://microbiologyinfo.com/hepatitis-b-virus-structure-epidemiology-symptoms-pathogenesis-diagnosis-treatment-and-vaccines/> Accessed 2\_4\_22

# HBV Terminology

Name	Abbreviation	Interpretation
<b>Hepatitis B Surface Antigen</b>	<b>HBsAg</b>	<b>Indicates active infection. Indicates chronic infection if persistent &gt;6 mos.</b>
<b>Hepatitis B Surface Antibody</b>	<b>anti-HBs</b>	<b>Indicates immunity in persons without HBV exposure.</b>
<i>Hepatitis B Core Antigen</i>	<i>HBcAg</i>	<i>The core protein is inner structure of the virus and encloses the DNA. Cannot be measured in serum.</i>
<b>Hepatitis B Core Antibody</b>	<b>anti-HBc</b>	<b>Indicates exposure. NOT seen in those immune because of vaccine.</b>
Hepatitis B e Antigen	HBeAg	Ongoing replication, higher infectivity.
Hepatitis B e Antibody	anti-HBe	Infection resolving.

<b>HBsAg</b>	<b>Anti-HBs</b>	<b>Anti-HBc</b>	<b>Interpretation</b>
–	–	–	<b>Susceptible. Vaccinate!</b>
+	-/+	+	<b>Chronic infection</b>
–	+	–	<b>Immune from prior vaccination</b>
–	+	+	<b>Exposure with immune control, low risk of reactivation *</b>
–	–	+	<b>Exposure with minimal or no immune control, higher risk of reactivation *</b>

\* No need for HBV vaccination



# Hepatitis B Management: Guidance for the Primary Care Provider

Last updated February 24, 2020

The purpose of this document is to provide simplified, up-to-date, and readily accessible guidance for primary care medical providers related to the prevention, diagnosis, and management of hepatitis B virus (HBV) infection, including hepatocellular carcinoma surveillance.

## About the HBV Primary Care Workgroup

This guidance was developed by the Hepatitis B Primary Care Workgroup, a multidisciplinary panel of national experts in the field of viral hepatitis B, including representation from hepatology, infectious diseases, pharmacy, primary care, public health, and other national organizations. The workgroup was organized by the National Taskforce on Hepatitis B in partnership with the San Francisco Hep B Free — Bay Area and Project ECHO™ and did not receive any outside funding.

## Collaboration with University of Washington

This guidance was produced in collaboration with the University of Washington's National Hepatitis Training Center (HTC). The UW HTC will host and feature the most current version of these guidelines on the free *Hepatitis B Online* website ([www.xxxxxx](http://www.xxxxxx)). The UW HTC is funded by the Centers for Disease Control and Prevention (CDC).

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## Hepatitis B Virus (HBV) Serology Interpretation and Management

HBsAg	Anti-HBc (Total or IgG)	Anti-HBs	Interpretation	Management
+	+	-/+	Current infection	<ul style="list-style-type: none"> <li>&gt; See <i>Evaluation, Counseling, Management, Treatment, and HCC Surveillance</i> (pages 4, 5, 6, 7)</li> <li>&gt; Refer household and sexual contacts for HBV screening; if susceptible, vaccinate</li> </ul>
-	+	+	Prior infection with immune control	<ul style="list-style-type: none"> <li>&gt; No transmission risk; HBV dormant in liver</li> <li>&gt; Reactivation risk if on immunosuppressive medications</li> </ul>
-	+	-	Prior infection or occult infection <sup>1</sup>	<ul style="list-style-type: none"> <li>&gt; If immunocompetent<sup>2</sup>, counsel as prior infection above</li> <li>&gt; Reactivation risk if on immunosuppressive medications</li> <li>&gt; If immunocompromised, check HBV DNA for occult infection<sup>1</sup></li> </ul>
-	-	+	Immune from prior vaccination	Protected for life. No need for booster vaccine
-	-	-	Susceptible	VACCINATE <sup>3</sup>

# Question # 1

Which is the best test to screen for chronic HBV infection?

- A. Antibody against hepatitis B core antigen (anti-HBc)
- B. Hepatitis B e antigen (HBeAg)
- C. Antibody against hepatitis B surface antigen (anti-HBs)
- D. Hepatitis B surface antigen (HBsAg)

# Question # 2

A patient has the following labs:

Anti-HBs -

Anti-HBc -

HBsAg -

Should this patient be vaccinated?

A. Yes

B. No

# Question # 3

A patient has the following labs:

Anti-HBs –

Anti-HBc +

HBsAg -

Should this patient be vaccinated?

A. Yes

B. No

# Key Points

- HBV is a major global health problem
- Most people living with chronic HBV are not aware of their status
- HBsAg indicates active HBV infection
- HBcAb indicates exposure to HBV
- HBV can be prevented by vaccination

# Resources and Slide Sources

- <https://www.cdc.gov/hepatitis/>
- <https://www.cdc.gov/hepatitis/resources/professionals/training/serology/training.htm>
- <https://www.hepatitisb.uw.edu/>
- [Hepatitis B Management: Guidance for the Primary Care Provider - HBV Primary Care Workgroup - Hepatitis B Online \(uw.edu\)](#)