

HEPATITIS B VIRUS

Applicable Independently to Cases of Acute and Chronic Infection

Background

This case definition was developed by the Armed Forces Health Surveillance Division (AFHSD) for the purpose of epidemiological surveillance of acute and chronic hepatitis B virus (HBV).¹ In the U.S. military, potential applicants are considered medically ineligible for service if they have any of following conditions: current acute or chronic HBV infection, HBV carrier state, clinically apparent hepatitis within the preceding six months, persistent symptoms of hepatitis, or evidence of liver function impairment.² New service members are screened for HBV immunity based on serological evidence of immunity or documentation of HBV immunization. Immunization is required for all service members without documented evidence of immunity.

Clinical Description

Hepatitis B virus causes acute and chronic inflammation of the liver in affected individuals. The virus is transmitted by percutaneous or mucous membrane exposure to infected blood or body fluids. Risk factors include illegal injection drug use, poor infection control practices, (e.g., needle stick injuries), high-risk sexual activity and birth to an infected mother. Most adults who become infected with HBV develop an acute infection and then recover completely. A small proportion of infected individuals may develop chronic liver disease, including cirrhosis, hepatocellular carcinoma, and liver failure.³

Case Definition and Incidence Rules

For surveillance purposes, a case of *acute* or *chronic* HBV is defined as:

- *One hospitalization* with a case defining diagnosis of acute or chronic HBV (see ICD9 and ICD10 code lists below) in *any* diagnostic position; or
- *Two outpatient or Theater Medical Data Store (TMDS) medical encounters*, occurring *within 90 days* of each other, with a case defining diagnosis of acute or chronic HBV (see ICD9 and ICD10 code lists below) in *any* diagnostic position; or
- One record of a reportable medical event of a *confirmed* case of HBV; per the *Armed Forces Reportable Medical Events Guidelines and Case Definitions*, confirmatory evidence of HBV infection includes one or more of the following:⁵
 - Negative IgM antibody to hepatitis B core antigen (HBc-IgM) *and* a hepatitis B positive result in any of the following tests: serum hepatitis B surface antigen (HBsAg), serum hepatitis B e antigen (HBeAg) or hepatitis B nucleic acid (DNA) detected via PCR, sequencing, or NAAT.

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¹ Armed Forces Health Surveillance Branch. Viral Hepatitis B, Active Component, U.S. Armed Forces, 2007-2016. *MSMR*. 2017; 24(5): 6-11.

² Memorandum for the Assistant Secretaries of the Army, Navy and Air Force, Chairman, Joint Chiefs of Staff, and Executive Director, TRICARE Management Activity. Vaccination of new recruits against hepatitis B. Washington, DC: The Assistant Secretary of Defense, 29 April 2002.

³ Kuper H, Ye W, Broome U, et al. The risk of liver and bile duct cancer in patients with chronic viral hepatitis, alcoholism, or cirrhosis. *Hepatology*. 2001; 34:714-718.



Case Definition and Incidence Rules *(continued)*

- Any combination of the following tests performed twice and separated by *at least 6 months*: serum HBsAg, serum HBeAg or hepatitis B nucleic acid (DNA) detected via PCR, sequencing, or NAAT.
- Individuals who have met the case definition of an acute case of HBV may be considered a subsequent chronic case after a single inpatient or outpatient diagnosis of chronic HBV.
- For individuals with a diagnosis of both acute and chronic HBV recorded on the same day, all encounters on that day are considered chronic HBV.

Incidence rules:

For individuals who meet the case definition:

- The incidence date is considered the date of the first reportable medical event, hospitalization or outpatient medical encounter that includes a case defining diagnosis of acute or chronic HBV.
- For acute and chronic HBV, an individual is considered an incidence case *once per lifetime*.

Exclusions:

- Outpatient medical encounters with evidence of HBV immunization *within one week before or after* the case defining encounter. The following vaccine administered codes are used to identify instances of HBV immunization: CVX codes: 008, 030, 042, 043, 044, 045, 051, 102, 104, 110; CPT code: 90746.
- Individuals who met the case definition for *chronic* HBV prior to the surveillance period are excluded from being counted as cases of either acute or chronic HBV during the surveillance period.
- Individuals who met the case definition for *acute* HBV prior to the start of the surveillance period are excluded from being counted as cases of *acute* HBV during the surveillance period; they may be counted as cases of *chronic* HBV during the surveillance period.

Codes

The following ICD9 and ICD10 codes are included in the case definition:

Condition	ICD-10-CM Codes	ICD-9-CM Codes
Hepatitis B (acute)	<i>B16 (acute hepatitis B)</i>	<i>070.2 (viral hepatitis B with hepatic coma)</i> <i>070.3 (viral hepatitis B without hepatic coma)</i> <i>(continued on next page)</i>



	B16.0 (acute hepatitis B with delta-agent with hepatic coma)	- 070.21 (acute viral hepatitis B with hepatic coma, with hepatitis delta)
	B16.1 (acute hepatitis B with delta-agent without hepatic coma)	- 070.31 (acute viral hepatitis B without mention of hepatic coma, with hepatitis delta)
	B16.2 (acute hepatitis B without delta-agent with hepatic coma)	- 070.20 (acute viral hepatitis B with hepatic coma, without mention of hepatitis delta)
	B16.9 (acute hepatitis B without delta-agent and without hepatic coma)	- 070.30 (acute viral hepatitis B without mention of hepatic coma, without mention of hepatitis delta)
	B19.1 (unspecified viral hepatitis B...)	- 070.20 (above)
	- B19.10 (without hepatic coma)	- 070.30 (above)
	- B19.11 (with hepatic coma)	
Hepatitis B (chronic)	<i>B18 (chronic viral hepatitis)</i>	--
	B18.0 (chronic viral hepatitis B with delta-agent)	- 070.23 (chronic viral hepatitis B with hepatic coma, with hepatitis delta) - 070.33 (chronic viral hepatitis B without mention of hepatic coma, with hepatitis delta)
	B18.1 (chronic viral hepatitis B without delta-agent)	- 070.22 (chronic viral hepatitis B with hepatic coma, without mention of hepatitis delta) - 070.32 (chronic viral hepatitis B without mention of hepatic coma, without mention of hepatitis delta)
	Z22.51 (carrier of viral hepatitis B)	- V02.61 (hepatitis B carrier)

Development and Revisions

- In June of 2014 the case definition was updated to include ICD10 codes.
- This case definition was developed in August 2011 by the Armed Forces Health Surveillance Center (AFHSC) *Medical Surveillance Monthly Report (MSMR)* staff for an article on viral hepatitis B.⁴ The case definition was developed based on reviews of the ICD9 codes, the scientific literature, and previous AFHSC analyses.

Case Definition and Incidence Rule Rationale

- Case finding for this definition prioritizes reportable medical events over hospitalizations over outpatient medical encounters.

⁴ Armed Forces Health Surveillance Center. Viral Hepatitis B, Active Component, U.S. Armed Forces, 2000-2010. *MSMR*. 2011; 18(8): 5-11.



- A 90-day interval between the two outpatient visits is used because HBV can take 1 to 3 months to resolve. Individuals who present with acute illness are likely to have follow-up visits to monitor clinical and laboratory indicators of disease within that time frame. Further, the time interval permits medical providers to distinguish prolonged courses of acute HBV from chronic HBV.
- Outpatient medical encounters with evidence of HBV immunization *within one week, before or after* the case defining encounter are excluded from contributing to the two outpatient encounters required to define a case; these encounters may represent screening or “rule out” visits.

Code Set Determination and Rationale

- ICD9 code 070.59 (other specified viral hepatitis without mention of hepatic coma) / ICD10 B18.9 (chronic viral hepatitis, unspecified) is not included in the code set. The code includes HBV and hepatitis C virus (HCV) but is not specific to either.

Reports

The AFHSD reports on HBV in the following reports:

- Periodic *MSMR* articles

Review

Jul 2023	Case definition reviewed and updated by the AFHSD Surveillance Methods and Standards (SMS) working group
Nov 2018	Case definition reviewed and updated by the Armed Forces Health Surveillance Branch (AFHSB) SMS working group.
Jun 2014	Case definition reviewed and updated by the AFHSC SMS working group.
Oct 2011	Case definition developed by AFHSC <i>MSMR</i> staff (Aug 2011); reviewed and adopted by the AFHSC SMS working group.

Comments

- Hepatitis B virus is a reportable medical event in the *Armed Forces Reportable Medical Events* surveillance system.⁵

⁵ Armed Forces Reportable Medical Events Guidelines and Case Definitions. Armed Forces Health Surveillance Branch, Defense Health Agency, October 2022. <https://www.health.mil/Military-Health-Topics/Health-Readiness/AFHSD/Reports-and-Publications>; Accessed July 2023.

