

Acute Hepatitis B v1 **Definition Factsheet & Technical Brief**

Authors: Andzelika Rzucidlo, MPH^{1,2}, Dylan Johns, MS^{1,3}, Lakshmi Radhakrishnan, MPH¹, Anna Frick, MPH⁴, Sara Chronister, MPH⁵, Katharina L. van Santen, MSPH^{1,3}

¹ CDC Office of Public Health Data, Surveillance, and Technology (OPHDST), Immediate Office of the Director (IOD), Integrated Monitoring Branch

² InductiveHealth

³ ICF

⁴ Alaska Division of Public Health

⁵ Washington State Department of Health

Point of contact:

nssp@cdc.gov

Definition Purpose: Created by the CDC National Syndromic Surveillance Program (NSSP) for use with ED data as part of the rapid reportables project, which seeks to create queries for all National Notifiable Diseases defined by the National Notifiable Diseases Surveillance System (NNDSS). This query is intended to be a version 1 and may be further improved upon by the NSSP community of practice in the future. This query is intended to be narrow and capture visits with specific terms to support greater monitoring and actionable public health data. More complex and/or broader queries may exist that more broadly capture symptoms or travel-based terms.

New or Revised Definition: New Definition

Date Added to ESSENCE: July 2024

Definition Description: Designed to capture emergency department visits associated with acute hepatitis B infection. The use of chief complaint free text and discharge diagnoses to identify visits of acute hepatitis B may capture instances where patients present with symptoms or concerns related to hepatitis B but may not be identifying visits where hepatitis B is the main reason for the visit. For example, there are instances in the data for patients seeking several types of vaccines, including hepatitis B, or patients who have had a history of different diseases, including hepatitis B.

Use-Cases for Definition:

- Case-finding
- Trend monitoring
- Early outbreak detection

Justification: No query definition exists for acute hepatitis B infections. CDC wants to use syndromic data to monitor trends.

Data Source During Development: Emergency Department Visits. Chief Complaint Query Validation dataset (CCQV) in ESSENCE.

Development Methods:

1. The CDC team used the NNDSS case definition of acute hepatitis B to identify diagnostic codes (International Classification of Diseases, 9th & 10th Revisions (ICD-9-CM, ICD-10-CM), SNOMED Clinical Terms (CT)) and chief complaint free text for syndrome development.
2. The codes and free text were then categorized as inclusion or exclusion terms. These terms were formatted for querying in ESSENCE.
3. Text analysis was conducted on the initial query to find additional inclusion or exclusion terms.
4. The query was cross-checked internally by NSSP and by CDC subject matter experts as needed.

Validation Methods: This definition is part of the collection of definitions created by CDC NSSP for the rapid reportables project. The rapid reportables project is led by the CDC NSSP team to create definitions for all nationally reportable diseases. These definitions focus on chief complaint text and diagnostic codes of the disease or its causative agents with no mention of symptoms. Select members of the Community of Practice were then asked to review line-level results for their jurisdictions and provide feedback to ensure the intended results of the definitions were met.

Definition Fields and Structure:

The Chief Complaint Discharge Diagnosis (CCDD) parsed field is used to query both the discharge diagnosis codes and chief complaint free text.

- Inclusion based on hepatitis B-related chief complaint free-text terms:
 - The visit is included if it contains:
 1. Chief complaints related to the disease name - (“hepatitis b”, “hep b”)
- Inclusion based on ICD-10 discharge diagnosis codes related to acute hepatitis B:
 - The visit is included if it contains:
 1. A discharge diagnosis code of acute hepatitis B (B16.0, B16.1, B16.2, B16.9) **OR**
 2. A discharge diagnosis code of acute delta-(super) infection of hepatitis B carrier (B17.0) **OR**
 3. A discharge diagnosis code of unspecified viral hepatitis B (B19.1) **OR**
- Inclusion based on ICD-9 discharge diagnosis codes related to acute hepatitis B:
 - The visit is included if it contains:
 1. A discharge diagnosis code of viral hepatitis B with hepatic coma, acute or unspecified, without mention of hepatitis delta (070.20) **OR**
 2. A discharge diagnosis code of viral hepatitis B with hepatic coma, acute or unspecified, with hepatitis delta (070.21) **OR**
 3. A discharge diagnosis code of viral hepatitis B without mention of hepatic coma, acute or unspecified, without mention of hepatitis delta (070.30) **OR**
 4. A discharge diagnosis code of viral hepatitis B without mention of hepatic coma, acute or unspecified, with hepatitis delta (070.31) **OR**
- Inclusion based on SNOMED CT discharge diagnosis codes related to acute hepatitis B:
 - The visit is included if it contains:
 1. A discharge diagnosis code of acute type B viral hepatitis (76795007) **OR**
 2. A discharge diagnosis code of hepatic coma due to acute hepatitis B (424099008) **OR**
 3. A discharge diagnosis code of hepatic coma due to acute hepatitis B with delta agent (186624004) **OR**
 4. A discharge diagnosis code of acute hepatitis B with delta-agent (coinfection) without hepatic coma (186626002) **ANDNOT**
- All of the above must exclude:
 - Chief complaint free-text terms related to chronic Hepatitis B - (“chronic hepatitis b”, “chronic hep b”, “chronic viral hepatitis b”, “hepatitis b chronic”) **OR**
 - Chief complaint free-text terms related to history of Hepatitis B - (“history of hepatitis b”, “history hepatitis b”) **OR**
 - Chief complaint free-text terms related to Hepatitis B vaccinations - (“hepatitis b booster”, “first hepatitis b”, “second hepatitis b”, “third hepatitis b”) **OR**
 - Chief complaint free text terms related to wellness exams - (“annual exam”, “annual wellness”, “wcc”, “well child”) **OR**
 - Chief complaint free-text terms related to Hepatitis B (“hepatitis b”) **AND**
 1. In combination with chief complaint free text related to vaccinations - (“vac”, “vax”, “shot”, “immun”, “dose”, “injection”) **OR**
 - ICD-10 discharge diagnosis codes related to chronic hepatitis B or pre-employment screening:
 1. A discharge diagnosis code of Chronic viral hepatitis B (B18) **OR**
 2. A discharge diagnosis code of Chronic Hepatitis (K73) **OR**
 3. A discharge diagnosis code of Encounter for pre-employment screening (Z02.1) **OR**

- ICD-9 discharge diagnosis codes related to chronic hepatitis B:
 1. A discharge diagnosis code of Chronic viral hepatitis B (070.32) **OR**
 2. A discharge diagnosis code of Chronic Hepatitis (070.33) **OR**
- SNOMED discharge diagnosis codes related to chronic hepatitis B:
 1. A discharge diagnosis code of Chronic type B viral hepatitis, not elsewhere classified (61977001) **OR**
 2. A discharge diagnosis code of Chronic hepatitis B during pregnancy (16859701000119100) **OR**
 3. A discharge diagnosis code of Chronic persistent type B viral hepatitis (38662009) **OR**
 4. A discharge diagnosis code of Chronic active type B viral hepatitis (50167007) **OR**
 5. A discharge diagnosis code of Hepatic coma due to chronic hepatitis B (424340000) **OR**
 6. A discharge diagnosis code of Occult chronic type B viral hepatitis (713966008) **OR**
 7. A discharge diagnosis code of Chronic aggressive type B viral hepatitis (1116000) **OR**
 8. A discharge diagnosis code of Chronic viral hepatitis B with hepatitis D (235869004) **OR**
 9. A discharge diagnosis code of Chronic viral hepatitis B without delta-agent (186626002)

Detailed Definition Components

Table 1. Inclusion and exclusion terms using hepatitis B discharge diagnosis codes and related chief complaint free text.

Variable Type	Terms	Description	
Inclusions			
Discharge Diagnosis: ICD-10-CM	B16.0, B16.1, B16.2, B16.9	Acute hepatitis B	
	B17.0	Acute delta-(super) infection of hepatitis B carrier	
	B19.1	Unspecified viral hepatitis B	
Discharge Diagnosis: ICD-9-CM	070.20	Viral hepatitis B with hepatic coma, acute or unspecified, without mention of hepatitis delta	
	070.21	Viral hepatitis B with hepatic coma, acute or unspecified, with hepatitis delta	
	070.30	Viral hepatitis B without mention of hepatic coma, acute or unspecified, without mention of hepatitis delta	
	070.31	Viral hepatitis B without mention of hepatic coma, acute or unspecified, with hepatitis delta	
Discharge Diagnosis: SNOMED CT	76795007	Acute type B viral hepatitis	
	424099008	Hepatic coma due to acute hepatitis B	
	186624004	Hepatic coma due to acute hepatitis B with delta agent	
	186626002	Acute hepatitis B with delta-agent (coinfection) without hepatic coma	
Chief Complaint Terms	hepatitis b	hep b	
Exclusions			
Discharge Diagnosis: ICD-10-CM	B18	Chronic viral hepatitis B	
	K73	Chronic Hepatitis	
	Z02.1	Encounter for pre-employment screening	
Discharge Diagnosis: ICD-9-CM	070.32	Chronic viral hepatitis B without mention of hepatic coma without mention of hepatitis delta	
	070.33	Chronic viral hepatitis B without mention of hepatic coma with hepatitis delta	
Discharge Diagnosis: SNOMED CT	61977001	Chronic type B viral hepatitis, not elsewhere classified	
	16859701000119100	Chronic hepatitis B during pregnancy	
	38662009	Chronic persistent type B viral hepatitis	
	50167007	Chronic active type B viral hepatitis	
	424340000	Hepatic coma due to chronic hepatitis B	
	713966008	Occult chronic type B viral hepatitis	
	1116000	Chronic aggressive type B viral hepatitis	
	235869004	Chronic viral hepatitis B with hepatitis D	
186639003	Chronic viral hepatitis B without delta-agent		
Chief Complaint Terms	chronic hepatitis b	chronic hep b	chronic viral hepatitis b
	hepatitis b chronic	history of hepatitis b	history hepatitis b
	hepatitis b booster	first hepatitis b	second hepatitis b

	third hepatitis b	annual exam	annual wellness
	wcc	well child	
Chief Complaint term for hepatitis b* in combination with references to vaccinations**	hepatitis b*	vac**	vax**
	shot**	immun**	dose**
	injection**		

Table 2. ESSENCE syntax

```
(,^hepatitis b^,or,^hep
b^,or,^;B16^,OR,^;B170^,OR,^;B191^,or,^;070[23][01];^,or,^;76795007;^,or,^;424099008;^,or,^;1866240
04;^,or,^;186626002;^,^),andnot,(,^chronic hepatitis b^,or,^chronic hep b^,or,^chronic viral hepatitis
b^,or,^hepatitis b chronic^,or,^history of hepatitis b^,or,^history hepatitis
b^,or,^;B18^,or,^;0703[23];^,or,^;K73^,or,^hepatitis b
booster^,or,^;Z021^,or,^;61977001;^,or,^;16859701000119100;^,or,^;38662009;^,or,^;50167007;^,or,^;4
24340000;^,or,^;713966008;^,or,^;1116000;^,or,^;235869004;^,or,^;186639003;^,or,^first hepatitis
b^,or,^second hepatitis b^,or,^third hepatitis b^,or,(,^hepatitis
b^,and,(,^va[cx]^,or,^shot^,or,^immun^,or,^dose^,or,^injection^,^,^),or,^annual exam^,or,^annual
wellness^,or,^wcc^,or,^well child^,)
```