PREVENTION AND **T**REATMENT OF **H**EPATITIS **A**

Federal Bureau of Prisons Clinical Guidance

NOVEMBER 2018

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WHAT'S NEW IN THIS DOCUMENT?

Throughout 2017–2018, multiple states have reported outbreaks of hepatitis A associated with the nationwide opioid epidemic, and intertwined with issues of homelessness and transient housing. Outbreaks of hepatitis A have also been reported in correctional systems, requiring large contact investigations and vaccination of contacts.

The following changes have been made since the 2008 version of this guidance:

- **TESTING:** Due to false positive tests in asymptomatic persons, testing for hepatitis A IgM should only be performed if hepatitis A is a suspected diagnosis.
- **VACCINATION:** Specific guidance on hepatitis A vaccination can be found in the BOP *Clinical Guidance on Immunization.*
- **RESPONSE TO COMMUNITY OUTBREAKS:** In facilities located in states that are experiencing community outbreaks of hepatitis A, it is recommended that new inmate intakes be screened for certain hepatitis A risk factors. Screening is recommended for all inmate intakes except those who are arriving via BOP intra-system transfer. Recommendations for facilities to implement intake screening with a hepatitis A screening questionnaire will be made by the BOP Medical Director. A sample screening questionnaire is available at: https://www.bop.gov/resources/health_care_mngmt.jsp.

Inmates who have resided for the previous 60 days in states with community outbreaks of hepatitis A and who have additional hepatitis A risk should be:

- Evaluated for symptoms of hepatitis A.
- Educated about the need to report hepatitis A symptoms to Health Services.
- ► Excluded from food service work for the 60 days following intake.

VACCINATION CONSIDERATIONS: In addition, in the context of a community outbreak of hepatitis A, vaccination for all staff and inmates may be an appropriate strategy for preventing hepatitis A in a BOP facility. In this situation, the highest priority for vaccination are inmates with underlying liver disease and food service workers. A decision regarding mass vaccination will be made only in consultation with a Central Office Infection Prevention and Control Specialist and the BOP Medical Director.

- **POST-EXPOSURE PROPHYLAXIS:** A single adult dose of hepatitis A vaccine (either VAQTA® or HAVRIX®) is recommended to be administered within 2 weeks post-exposure. Those inmates with other risk factors for hepatitis A should be scheduled for a second dose of vaccine in 6 months to complete the series. The use of TWINRIX® (combined hepatitis A and hepatitis B vaccine) is NOT recommended for post-exposure prophylaxis.
- **TIMELINE CALCULATOR:** A *Hepatitis A Timeline Calculator* is now available to calculate the exposure time for the hepatitis A case, the infectious period for the hepatitis A case, and the incubation period for the contacts. The calculator can be accessed at: <u>https://www.bop.gov/resources/health_care_mngmt.jsp</u>.
- **HEPATITIS A CONTACT INVESTIGATION CHECKLIST:** Minor revisions and updates have been made to the two-page checklist (*Appendix 1*).

TABLE OF CONTENTS

1.	PURPOSE1			
2.	BACKGROUND1			
3.	TRANSMISSION1			
	TABLE 1. Persons at Increased Risk for HAV Infection1			
4.	NATURAL HISTORY			
5.	DIAGNOSIS			
	TABLE 2. Interpretation of Serologic Tests for Hepatitis A			
6.	TREATMENT			
7.	PREVENTION			
	TABLE 3. Risk Groups Recommended for Hepatitis A Vaccination			
8.	INFECTION CONTROL4			
	Reporting4			
	Isolation4			
	TABLE 4. Guidance on Hepatitis A Isolation			
	Contact Investigations5			
	Post-Exposure Prophylaxis5			
	TABLE 5. Candidates for Hepatitis A Post-Exposure Prophylaxis			
DE	FINITIONS			
R	REFERENCES			
AF	APPENDIX 1. HEPATITIS A CONTACT INVESTIGATION CHECKLIST			

1. PURPOSE

The Federal Bureau of Prisons (BOP) *Clinical Guidance for the Prevention and Treatment of Hepatitis A* provides recommendations for the medical management of federal inmates with hepatitis A virus (HAV) infection, and for prevention for those who are at risk of HAV infection.

2. BACKGROUND

Throughout 2017–2018, multiple states have reported outbreaks of hepatitis A associated with the nationwide opioid epidemic, and intertwined with issues of homelessness and transient housing. Outbreaks of hepatitis A have also been reported in correctional systems, requiring large contact investigations and vaccination of contacts.

3. TRANSMISSION

HAV is transmitted fecal-orally and is acquired either by person-to-person contact or by the ingestion of contaminated food or water. Individuals at increased risk of acquiring HAV infection include the groups listed in **TABLE 1** below.

TABLE 1. PERSONS AT INCREASED RISK FOR HAV INFECTION

- Persons with recent travel to countries with high rates of hepatitis A
- Men who have sex with other men
- Users of illicit injection or non-injection drugs
- Persons with clotting disorders who require clotting-factor concentrates
- Individuals who are close personal contacts of HAV-infected persons
- Persons who are homeless or in transient housing, in context of a community HAV outbreak

The INFECTIOUS PERIOD for acute hepatitis A extends from two weeks before hepatitis symptom onset until two weeks after symptom onset.

- Those persons who are newly infected with HAV are most contagious during the two weeks prior to the onset of jaundice.
- The presence of diarrhea increases contagiousness.
- Transmission can readily occur through close personal contact such as sexual exposure or by sharing contaminated communal surfaces such as toilets.
- HAV remains viable in the environment for weeks to months.

The prevalence of PREVIOUSLY ACQUIRED HAV infection is largely associated with the inmate's community of origin or the inmate's own high-risk behaviors. American Indians, Alaskan Natives, and persons from Latin America, Africa, the Middle East, China, and Southeast Asia come from communities with endemic HAV infection, where infection by early adulthood is common. Prior infection confers lifelong immunity.

4. NATURAL HISTORY

The INCUBATION PERIOD is the period of time from infection with HAV until the onset of hepatitis symptoms.

→ The average **INCUBATION PERIOD** for hepatitis A is 28 days (ranging from 15—50 days).

Hepatitis A disease varies in severity from asymptomatic infection to a severe disease lasting several months.

- Initial, prodromal symptoms include fatigue, malaise, nausea, vomiting, anorexia, fever, and right upper quadrant abdominal pain.
- After 3–7 days, patients often develop dark urine, light-colored stools, jaundice, and pruritus.
- The prodromal symptoms usually subside with the onset of jaundice, which typically peaks within 2 weeks.
- In symptomatic patients, laboratory findings are notable for significant elevations of serum direct bilirubin, total bilirubin, and serum ALT and AST.

HAV infection usually leads to an acute, self-limited illness and only rarely to fulminant hepatic failure. The risk of hepatic failure is significantly increased for those with underlying liver disease, particularly for those with chronic hepatitis C infection. Of those with acute hepatitis A, approximately 85% have a full clinical and biochemical recovery within 3 months; nearly all have a complete recovery in 6 months. Natural lifelong immunity develops following resolution of acute hepatitis A.

5. DIAGNOSIS

Individuals who present with symptoms of hepatitis should be tested for ALT, AST, IgM anti-HAV, HBsAg, IgM anti-HBc, and anti-HCV (with follow-up testing for HCV RNA, if positive). Two serologic tests for hepatitis A are commercially available: anti-HAV IgM and Total anti-HAV.

- IgM anti-HAV becomes detectable 5–10 days before the onset of symptoms and can persist for up to six months. IgG anti-HAV appears shortly after IgM in the course of infection. It remains detectable for the person's lifetime and confers lifelong protection against the disease.
- A positive **Total anti-HAV** result in patient serum or plasma alone cannot differentiate acute from prior hepatitis A infection or from prior vaccination. The test can be used to assess immune status in naturally infected and vaccinated individuals. **TABLE 2** below outlines interpretation of serologic tests for hepatitis A.

LABORATOR	Y FINDINGS			
Total anti-HAV	IgM anti-HAV*	INTERPRETATION		
Positive	Positive	Current or recent hepatitis A infection.		
Positive	Not done	Either a previous or current hepatitis A infection; cannot differentiate acute from remote hepatitis A infection or prior vaccination.		
Positive	Negative	Previous hepatitis A infection or prior vaccination. No current or recent infection with HAV		
Negative	Negative	No previous or current hepatitis A infection; susceptible to infection.		
* False positive IgM anti-HAV test results have been reported among persons with no recent history of acute hepatitis or recent exposure to hepatitis A. For this reason, IgM testing is ONLY recommended when a person has symptoms of acute hepatitis A.				

TABLE 2. INTERPRETATION OF SEROLOGIC TESTS FOR HEPATITIS A

6. TREATMENT

No effective antiviral therapies are available for acute hepatitis A. Therefore, treatment efforts are largely supportive. Fulminant, acute hepatitis A may be complicated by protracted nausea and vomiting, dehydration, high fever, impaired consciousness, and liver failure (the latter requiring hospitalization).

Any inmate with acute HAV infection should be evaluated daily by a health care provider for signs and symptoms of liver failure, i.e., changes in mental status, vomiting, and dehydration.

7. PREVENTION

• See the BOP Clinical Guidance on Immunization for detailed information about hepatitis A vaccination.

Hepatitis A vaccine should be considered for certain high-risk inmates, as indicated in **TABLE 3** below. Hepatitis A vaccine is NOT routinely indicated for inmate workers who are plumbers or food service workers.

TABLE 3. RISK GROUPS RECOMMENDED FOR HEPATITIS A VACCINATION

- Men who have sex with other men
- Users of illicit injection or non-injection drugs
- Persons with liver disease or cirrhosis, including chronic hepatitis C (HCV RNA+) and hepatitis B (HBsAg+)
- Persons with clotting disorders who require clotting-factor concentrates
- HIV-infected individuals with any of the above risk factors

PRE-VACCINATION SEROLOGIC TESTING may be indicated, particularly among foreign-born inmates, Alaskan natives, and American Indians who typically have high rates of hepatitis A immunity. Decisions about pre-vaccination testing should be based upon the prevalence of hepatitis A immunity in the population, whether the testing will interfere with vaccination process, and the cost of the testing compared to the cost of vaccination.

PREVENTION IN ASSOCIATION WITH COMMUNITY OUTBREAKS OF HEPATITIS A

Currently there are outbreaks of hepatitis A in multiple states. Facilities located in those states may need to institute additional hepatitis A preventive measures.

In facilities located in states that are experiencing community outbreaks of hepatitis A, it is recommended that new inmate intakes be screened for certain hepatitis A risk factors. Screening is recommended for all inmate intakes except those who are arriving via BOP intra-system transfer. Recommendations for facilities to implement intake screening with a hepatitis A screening questionnaire will be made by the BOP Medical Director. A sample screening questionnaire is available at: <u>https://www.bop.gov/resources/health_care_mngmt.jsp</u>.

Inmates who have resided for the previous 60 days in states with community outbreaks of hepatitis A and who have additional hepatitis A risk should be:

- Evaluated for symptoms of hepatitis A.
- Educated about the need to report hepatitis A symptoms to Health Services.
- Excluded from food service work for the 60 days following intake.

VACCINATION CONSIDERATIONS: In addition, in the context of a community outbreak of hepatitis A, vaccination for all staff and inmates may be an appropriate strategy for preventing hepatitis A in a BOP facility. In this situation, the highest priority for vaccination are inmates with underlying liver disease and food service workers. A decision regarding mass vaccination will be made only in consultation with a Central Office Infection Prevention and Control Specialist, the Chief of Occupational and Employee Health, and the BOP Medical Director.

8. INFECTION CONTROL

REPORTING

Cases of suspected hepatitis A should be reported to the Regional/Central Office and to the local public health authority.

ISOLATION

An inmate diagnosed with acute hepatitis A should be considered contagious and isolated until the end of the infectious period. Any inmate with symptoms suggestive of acute hepatitis A infection should also be isolated. Inmates diagnosed with acute hepatitis A should be managed in accordance with the guidance in **TABLE 4** below.

TABLE 4. GUIDANCE ON HEPATITIS A ISOLATION

- Isolate the inmate in a single cell with a separate sink and toilet.
- Counsel the inmate regarding the importance of hand washing.
- Utilize STANDARD PRECAUTIONS and CONTACT ENTERIC PRECAUTIONS to prevent fecal-oral transmission to others entering the inmate's cell. This includes using gloves, gowns, and other personal protective equipment if contact with the inmate's body fluids is anticipated, e.g., changing soiled linens, cleaning toilets, etc.
- Hand hygiene should be with soap and water, NOT alcohol-based hand rub.
- Regular and terminal cleaning of the cell should include routine cleaning and disinfection with a 1:100 bleach solution or EPA disinfectant effective against norovirus (List G) available at: <u>https://www.epa.gov/sites/production/files/2018-04/documents/list_g_disinfectant_list_3_15_18.pdf</u>
- If jaundice is not present, isolation is continued until two weeks after the onset of symptoms. If jaundice is present, isolation is continued until one week after the onset of jaundice.

CONTACT INVESTIGATIONS

- A contact investigation, in consultation with local or state public health authorities, should be initiated promptly for any inmate with acute hepatitis A who was incarcerated during their infectious period.
 - → To be effective vaccination of contacts must occur within two weeks of exposure.
- For acute hepatitis A, the index case should be assumed to have been communicable for the time period extending from two weeks before symptom onset until two weeks after symptom onset.
- The purpose of the contact investigation is to identify close contacts of the index case during the infectious period and to provide prophylaxis.
- If the inmate was a food handler, consult with the health department and the Regional/Central Office regarding identification and management of contacts.
- → Detailed steps for conducting a hepatitis A contact investigation are delineated in <u>Appendix 1</u>.

POST-EXPOSURE PROPHYLAXIS

TABLE 5 below lists susceptible contacts of an index case of hepatitis A who are candidates for post-exposure prophylaxis.

TABLE 5. CANDIDATES FOR HEPATITIS A POST-EXPOSURE PROPHYLAXIS

- Cellmate(s) and others with close contact
- Sexual contacts
- Persons sharing toilet facilities
- Persons who shared injection drugs

- **Food Handlers:** Broader post-exposure prophylaxis of inmates and correctional staff may be indicated (in consultation with local and state public health authorities and the Central Office) if the index case was a food handler.
- Eligibility: Of the candidates listed in TABLE 5, persons eligible for post-exposure prophylaxis are those who have been exposed to HAV, and who have not been vaccinated previously nor had a history of hepatitis A nor had a history of a positive total anti-HAV test.
- Prophylaxis with hepatitis A vaccine should be administered as soon as possible, and within the two weeks following the exposure. Testing of exposed contacts for immunity is not routinely indicated if they have not previously been tested with total anti-HAV.
- Vaccination: A single adult dose of hepatitis A vaccine (either VAQTA® or HAVRIX®) is recommended to be administered within 2 weeks post-exposure. Those inmates with other risk factors for hepatitis A should be scheduled for a second dose of vaccine in 6 months in order to complete the series. TWINRIX® (combined hepatitis A and hepatitis B vaccine) is not recommended for post-exposure vaccination.

DEFINITIONS

CONTACT ENTERIC PRECAUTIONS are implemented to prevent transmission of infectious agents that are spread by direct or indirect contact with the patient or the patient's environment when a person has acute gastrointestinal illness. Gloves and gown are worn when contact with body fluids is anticipated. Hand hygiene should be with soap and water, not alcohol-based hand rub. Disinfection of surfaces generally requires a bleach solution or EPA disinfectant effective against Norovirus, noted on List G at:

https://www.epa.gov/sites/production/files/2018-04/documents/list g disinfectant list 3 15 18.pdf

HEPATITIS A is an acute viral hepatitis caused by a highly infectious RNA virus, and transmitted primarily by the fecal-oral route and close personal contact. Acute hepatitis A has a mild to fulminant clinical presentation that resolves without progression to chronic infection or chronic hepatitis.

HAV is the hepatitis A virus.

IgG ANTI-HAV are antibodies to HAV that confer immunity.

IgM ANTI-HAV is the antibody subclass to HAV that develops with acute symptomatic and subclinical infection. False-positive IgM anti-HAV serologies can occur particularly in persons who are asymptomatic.

INCUBATION PERIOD is the period of time between infection and the onset of symptoms. For acute hepatitis A, the average incubation period is 28 days (range: 15–50 days).

INDEX CASE is the first case of a contagious disease in a group or population that serves to call attention to the presence of the disease.

INFECTIOUS PERIOD is the period of time when infection can be transmitted. For acute hepatitis A, individuals should be assumed to have been communicable starting two weeks before symptom onset, and continuing to be communicable until two weeks after symptom onset.

STANDARD PRECAUTIONS are protective measures to be used for all patient/inmate contacts and situations in which infections can be transmitted by contaminated blood and body fluids. Standard Precautions include all of the following:

- The wearing of gloves and other personal protective equipment that provide an impervious barrier when soiling is likely.
- Procedures for protective handling (i.e., using puncture-resistant devices and leak-proof protection) of contaminated materials and equipment.
- Routine cleaning of all contaminated surfaces and equipment.

TOTAL ANTI-HAV are total antibodies to HAV, including both the IgG and the IgM antibody subclasses.

REFERENCES

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APPENDIX 1. HEPATITIS A CONTACT INVESTIGATION CHECKLIST

Below is a TWO-PAGE list of tasks involved in conducting a contact investigation related to a case of hepatitis A. These tasks may overlap in time and in order of implementation.

- → Any inmate identified with suspected hepatitis A should be ISOLATED PROMPTLY.
- → A Hepatitis A Timeline Calculator to determine the exposure, infectious, and incubation periods is available at: <u>https://www.bop.gov/resources/health_care_mngmt.jsp</u>.

✓	CONTACT INVESTIGATION TASKS (PAGE 1 OF 2)				
	1.	Clinically assess the inmate with possible hepatitis A to confirm the diagnosis. Assess for signs and symptoms of hepatitis A. (Symptoms often include: fever, malaise, anorexia, nausea, and abdominal discomfort, followed within a few days by jaundice)			
		Symptoms: Date of symptom onset://			
		Lab confirmation: IgM anti-HAV =			
	2.a.	Establish the need for a hepatitis A contact investigation:			
		FIRST, determine WHEN the inmate with hepatitis A was infectious.			
		The infectious period was from// to//			
		(Infectious period = 2 weeks <u>before</u> the onset of hepatitis symptoms until 2 weeks <u>after</u> the onset of symptoms.)			
		THEN, determine whether the person was in a BOP facility during the infectious period.			
		\Box No (The investigation is the responsibility of the health department).			
		Yes (A BOP investigation is necessary.)			
	2.b.	Attempt to identify the source of the inmate's hepatitis A infection:			
		FIRST, determine the time period when the inmate could have been infected.			
		The exposure period was from// to//			
		(Exposure period = 50 days <u>before</u> onset of hepatitis symptoms until 15 days <u>before</u> symptom onset.)			
		THEN, identify possible ways the inmate with hepatitis A (index case) may have become infected during the incubation period.			
		□ Had close contact with a person with confirmed or suspected acute hepatitis A?			
		□ No □ YES: The contact was a: □ sexual partner □ cell-mate □ dorm-mate			
		 □ Shared injection or non-injection drugs? □ No □ YES □ Had sexual partners? □ No □ YES (#) 			
		□ History of homelessness or transient housing? \Box No \Box Yes			
		Had the following work assignments:			
	3.	Determine the incubation period for contacts to the person with hepatitis A			
		(time period between exposure and potential development of symptoms): The incubation period is from// to/_/			
		(Incubation period = 10 days <u>after</u> exposure began until 50 days <u>after</u> exposure ended.)			
	4.	Communicate with appropriate officials:			
		 Notify facility administration about need to conduct a hepatitis A contact investigation. 			
		Report the hepatitis A case to local health authorities per state law.			
		Report the hepatitis A case to the Regional Office & Central Office HSD.			

✓		CONTACT INVESTIGATION TASKS (PAGE 2 OF 2)		
	5.	Convene a team to conduct the hepatitis A contact investigation. The team should consist of health services and correctional staff in consultation with Regional/Central office Infection prevention and control staff.		
		 Identify a team leader, and the roles and responsibilities of the team members. 		
		• Develop investigational priorities. Plan for the isolation of the case(s), the clinical management of the case(s), and the identification and follow-up of exposed contacts.		
	6. Investigate the possibility of a food-borne outbreak:			
		a. Was the inmate diagnosed with hepatitis A employed in food services? No YES (If YES, consult the local health department regarding the need for a food-borne outbreak investigation.)		
		b. Was the inmate part of a recognized food-borne outbreak? No YES 		
		c. Interview food handlers (employees and inmates) regarding their history of hepatitis symptoms (15—50 days preceding symptom onset for the hepatitis A case).		
		d. Obtain IgM-anti-HAV for any food-handlers who report hepatitis symptoms.		
		e. If food-borne transmission of hepatitis A is suspected, then promptly involve the local health department in planning the investigation.		
	7.	Identify contacts who were exposed to the person with hepatitis A during the infectious period. "Contacts" include cellmates, close personal contacts, injection drug use contacts, and sexual contacts.		
		a. Obtain the following information about the index case during the infectious period: housing, work, school and recreation locations.		
		b. Start and maintain a line list of contacts.		
		c. Tour exposure sites where the hepatitis A (index) case was housed, worked, or went to school during the infectious period.		
		Determine the number of inmates that were housed together; characterize the housing arrangements and the toilet facilities for the likelihood of transmission; and determine the availability of data regarding the inmates who were in contact with the hepatitis A case.		
	8.	Evaluate contacts for their need for post-exposure prophylaxis:		
		 Identified close contacts, who have NOT been vaccinated previously AND who do NOT have a history of hepatitis A or a prior positive total anti-HAV lab result, should be offered post- exposure prophylaxis. They should be administered a dose of single-antigen hepatitis A vaccine. (The use of TWINRIX®, combined hepatitis A and hepatitis B vaccine, is NOT recommended post-exposure). Post-exposure hepatitis A vaccine should be administered as soon as possible and within two weeks after the exposure. Inmates with additional risk factors for hepatitis A should be scheduled for a second dose of vaccine in 6 months to complete the series. 		
	9.	Continue to observe for more cases for two full (51-day) incubation periods. If more cases are identified, the entire process begins again. Clinicians should maintain a high index of suspicion for hepatitis A during this time period. Staff and inmates should be educated to report hepatitis A symptoms.		