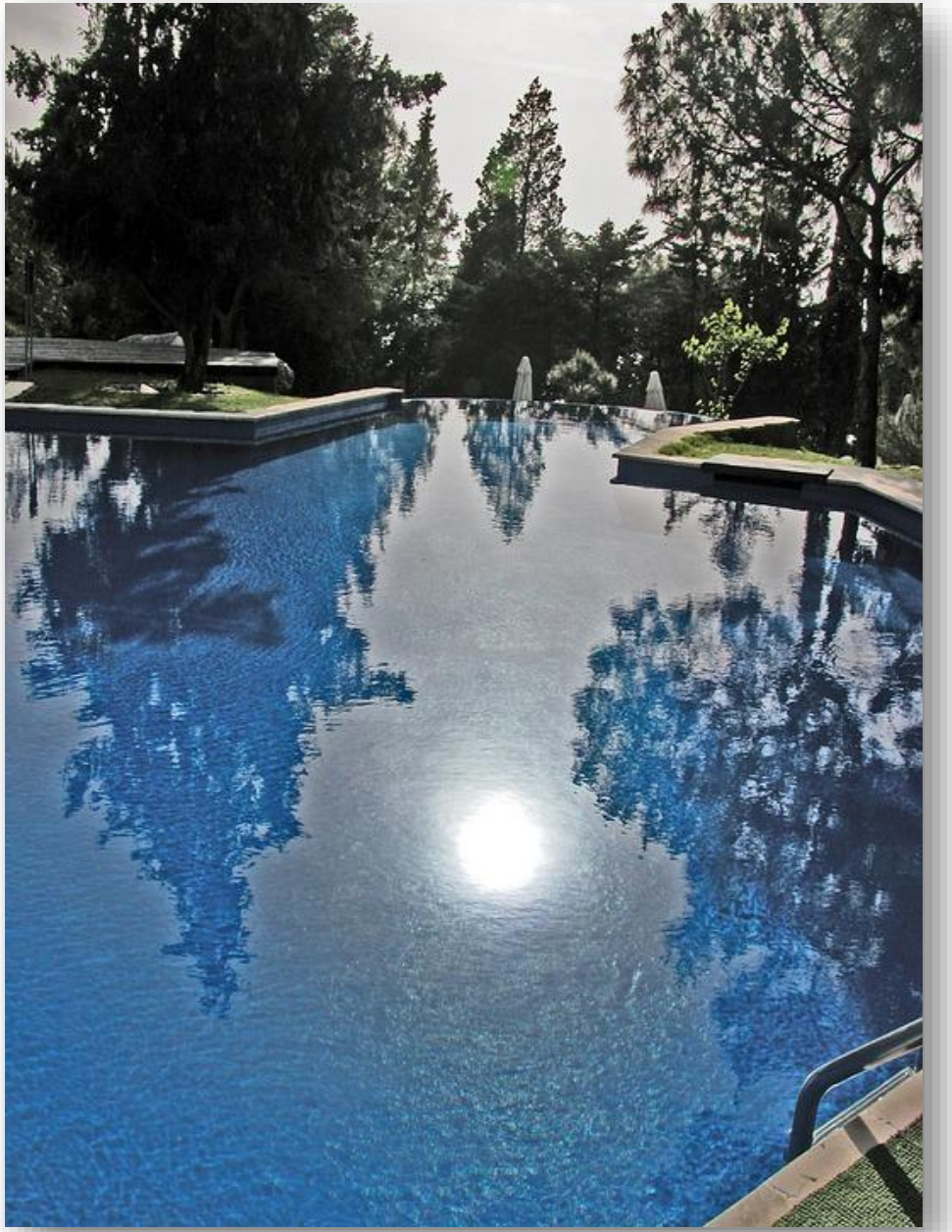

PEP by the Pool: Hepatitis A at Camp for Adults

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May 21, 2025

Immunization & Infectious Disease Conference – Vermont

Session III – 2:45pm – 3:45pm

VERMONT
DEPARTMENT OF HEALTH

Vermont Immunization & Infectious Disease Conference
Hotel Champlain, Burlington, VT
May 21, 2025
Session III – From Viruses to Superbugs: Unraveling Infectious Disease Outbreaks and Investigations
Speakers: Laura Ann Nicolai, MPH, Christine Connor, MSN, MPH, RN, Allison Lafferty, MD, and John Davy, PhD

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Vermont Immunization & Infectious Disease Conference
Hotel Champlain, Burlington, VT
May 21, 2025

In support of improving patient care, this activity has been planned and implemented by The Robert Larner College of Medicine at the University of Vermont is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME) and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

The University of Vermont designates this live activity for a maximum of 5.0 *AMA PRA Category 1 Credit(s)*™. Physicians should claim only the credit commensurate with the extent of their participation in the activity.

This program has been reviewed and is acceptable for up to 5.0 Nursing Contact Hours.

As a Jointly Accredited Organization, The Robert Larner College of Medicine at the University of Vermont is approved to offer social work continuing education by the Association of Social Work Boards (ASWB) Approved Continuing Education (ACE) program. Organizations, not individual courses, are approved under this program. State and provincial regulatory boards have the final authority to determine whether an individual course may be accepted for continuing education credit. The University of Vermont maintains responsibility for this course. Social workers completing this course receive 5.0 ethics continuing education credits.

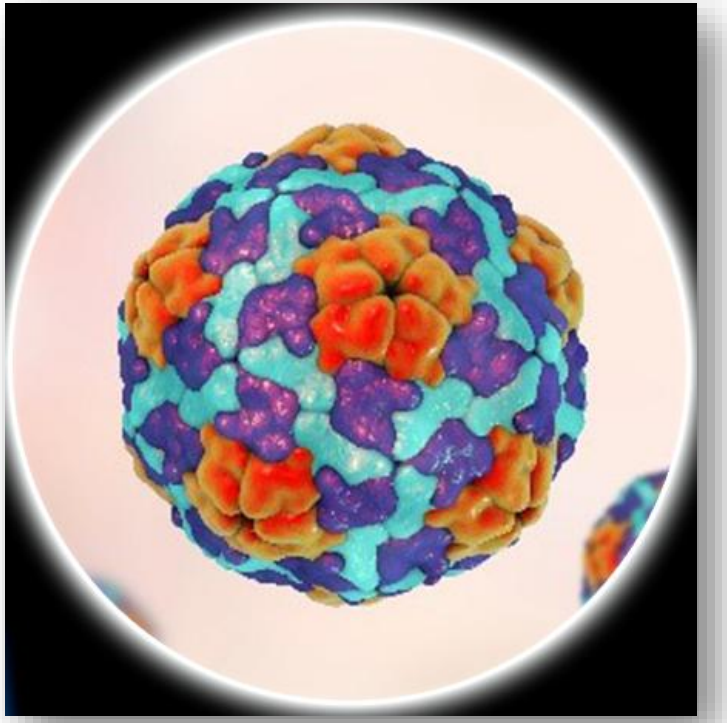
This activity was planned by and for the healthcare team, and learners will receive 5.0 Interprofessional Continuing Education (IPCE) credit for learning and change.

Objectives

Attendees will be able to:

- ❑ Cite hepatitis A case definition
- ❑ Define post-exposure prophylaxis against hepatitis A
- ❑ Describe investigative process and identify partners and resources needed to prevent outbreak.

What is Hepatitis A?



[Hepatitis A Basics | Hepatitis A | CDC]

[Hepatitis A - General Fact Sheet]

- A picornavirus that causes an acute, self-limiting infection in susceptible individuals;
- The virus can be detected in the blood or stool of a person who is infected with the hepatitis A virus (HAV);
- Highly contagious and primarily spread by the fecal-oral route via:
  - Person to person contact
  - Eating contaminated food or drink

Hepatitis A Symptoms and Treatment

- Fever
- Lethargy
- Loss of appetite
- Nausea or vomiting
- Abdominal pain
- Diarrhea
- Dark urine
- Clay-color stools
- Jaundice (yellowing of the skin or eyes)
- Joint pain

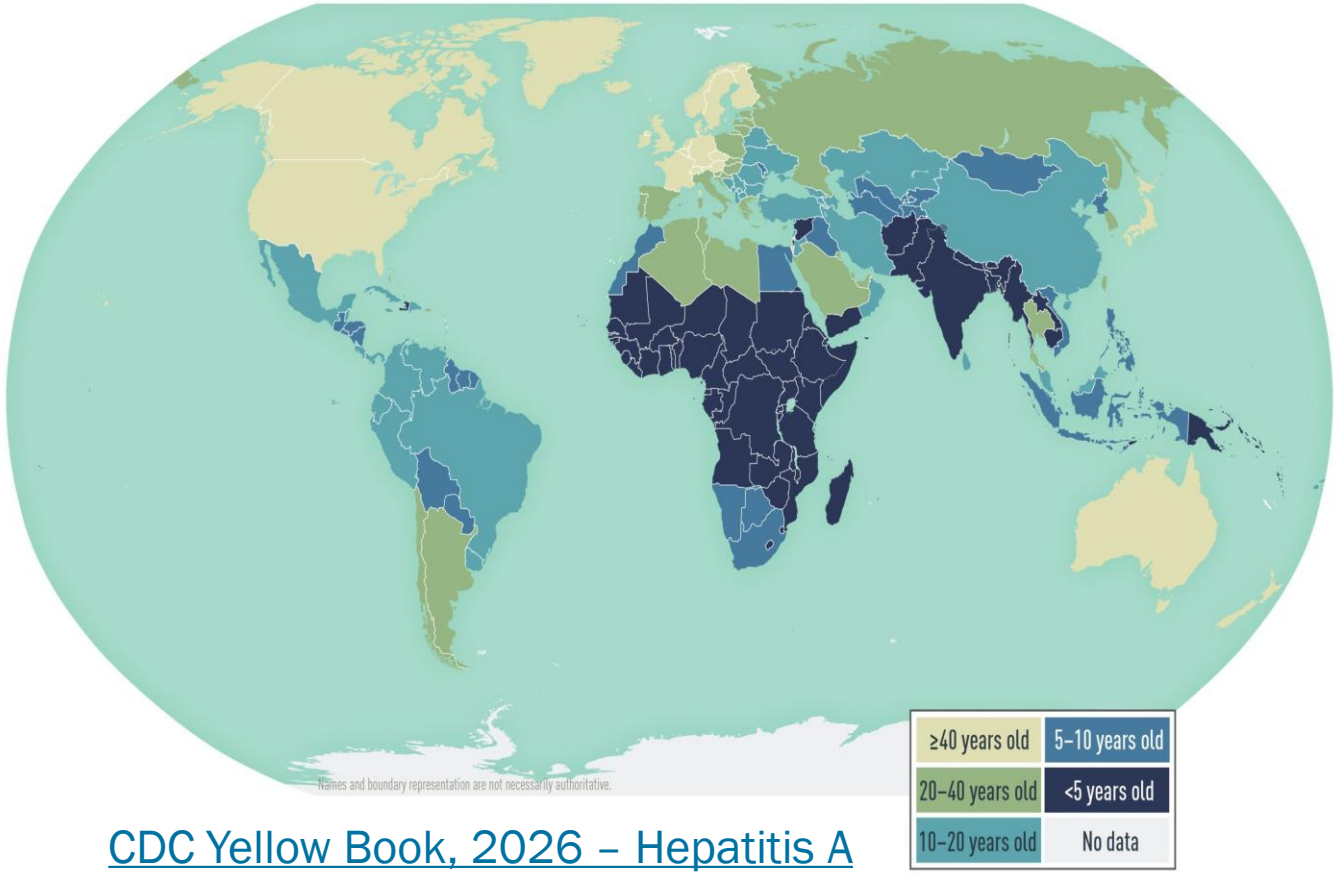
Diagnosis by clinical presentation and serology testing.

No direct treatment for hepatitis A, supportive measures only.

Symptomatic treatment typically includes rest, adequate nutrition, and fluids.

People who develop severe infection will need medical care in the hospital.

Hepatitis Endemicity and AMPI



CDC Yellow Book, 2026 – Hepatitis A

- **High endemicity:** parts of Africa and Asia
- **Intermediate endemicity:** parts of Asia, Central and South America, and eastern Europe
- **Low endemicity:** Western Europe, United States

Risk Factors

People in the U.S. at increased risk for hepatitis A

- International travelers to countries with high endemicity
- Men who have sex with men
- People who use or inject drugs
- People experiencing homelessness

People at increased risk for severe disease from hepatitis A infection

- People with chronic liver disease, including hepatitis B and hepatitis C
- People living with HIV

Hepatitis A Prevention

Vaccination is the best way to prevent hepatitis A. In the U.S., the hepatitis A vaccine has been a routine childhood vaccine since 2005.

Practicing good hand hygiene—including thoroughly washing hands with soap and warm water after using the bathroom, changing diapers, and before preparing or eating food

Improve sanitation and access to potable water

Hepatitis A Case Definition

Clinical Definition:

An acute illness with a discrete onset of any sign or symptom consistent with acute viral hepatitis,

AND

Jaundice or elevated total bilirubin levels ≥ 3.0 mg/dL, **OR** elevated serum alanine aminotransferase (ALT) levels >200 IU/L,

AND

The absence of a more likely diagnosis

Lab Criteria for Diagnosis:

Positive Immunoglobulin M (IgM) antibody to hepatitis A virus (anti-HAV)

OR

Positive nucleic acid amplification test for hepatitis A virus RNA

Post-Exposure Prophylaxis (PEP)

Persons exposed to hepatitis A are recommended to receive one dose of hepatitis A vaccine within 2 weeks of exposure.

Those aged over 40 years are recommended to receive both the vaccine and immunoglobulin. These should be administered simultaneously.

Case Review

June 25, 2024: Hospital laboratory reported a positive hepatitis A (HAV) IgM result to the Vermont Department of Health (VDH). Consulted with hospital's Infection Preventionist and identified the following:

- Arrived in U.S. from Zambia one week prior
- Living and working at a summer camp for people with disabilities
- Symptoms include:
  - 5 day onset of nausea, vomiting, and abdominal pain after eating a meal
  - 1 day onset of jaundice and dark urine
- Duties at camp unknown
- Recent vaccination unknown
- Liver enzymes are elevated: ALT 2709, AST 1576 and total bilirubin 15.7

What did the initial investigation find ?

Case reports they are in the U.S. for the summer to work at a camp for adults with disabilities.

June 16: Arrival to U.S (and Vermont) from a country with high endemicity

June 20: Onset of symptoms: nausea, vomiting, and stomach pain

No diarrhea

June 24: Onset of jaundice, dark urine

Presented to ER and was admitted

Incubation period of HAV is 15 to 50 days

- Infected with HAV prior to arrival in the U.S.

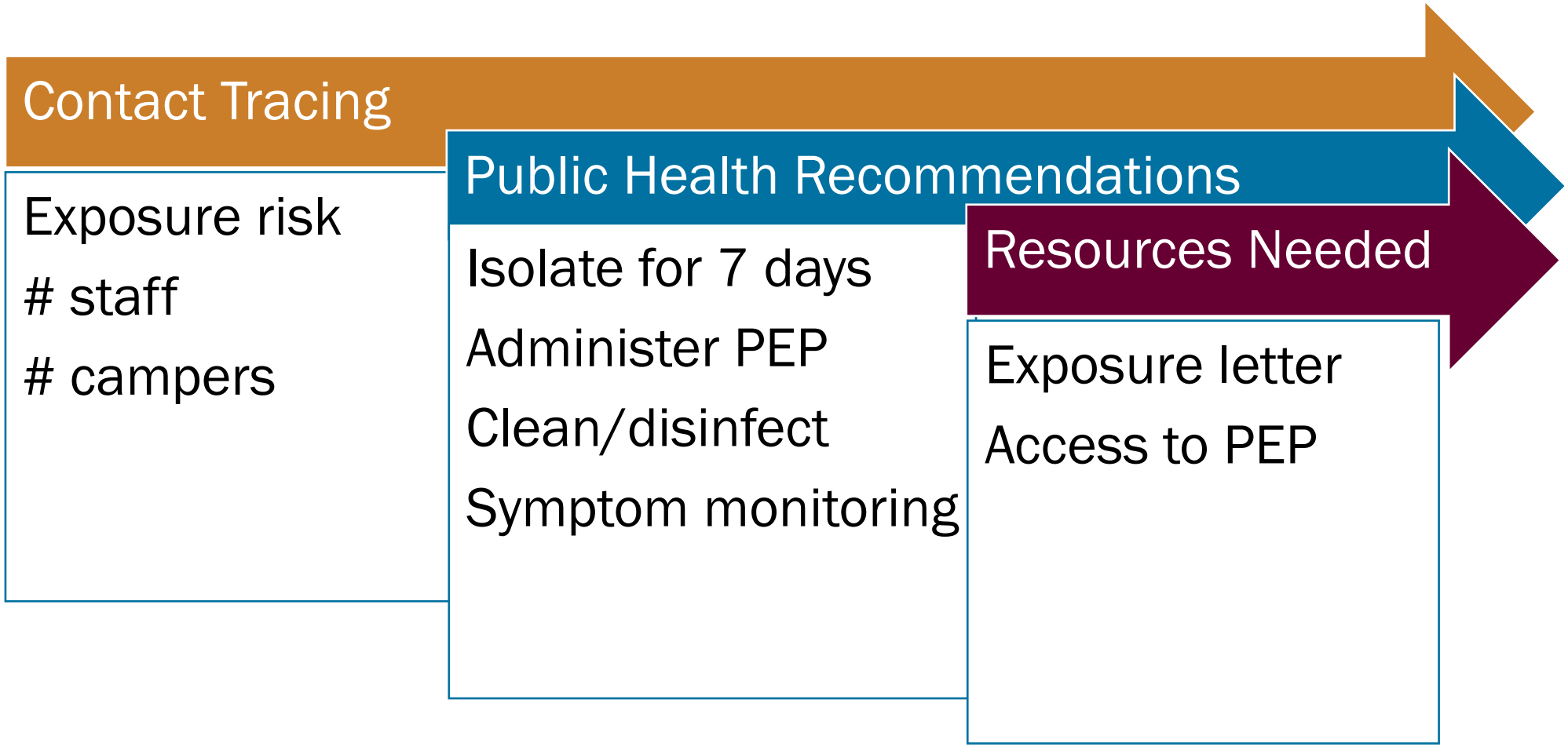
Infectious period 1-2 weeks prior to onset of symptoms until 1 week after onset of jaundice

- June 10th through July 1st
- Infectious upon arrival

PEP to be provided within 14 days of exposure

- PEP window: June 16th through July 6th

Next steps for investigation and response



Health Department Response

Contact Tracing

- ✓ Line List:
  - 39 staff
  - 29 male campers
  - 25 female campers
- ✓ Case was a camp counselor
- ✓ Case did not prepare food or serve food
- ✓ Buffet style meals
- ✓ Counselors spent significant amount of time in shared space during week prior to camper arrival
- ✓ Case shared dorm and restroom with male campers

Public Health

- ✓ Define isolation period
- ✓ Define contacts at risk
- ✓ Work with camp director and nurses to identify staff and campers exposed
- ✓ Identify contacts with prior immunization
- ✓ Define PEP window
- ✓ Define symptom monitoring period
- ✓ Identify access to PEP administration
- ✓ Provide education (HAV, PEP) and communicate recommendations

Resources

- ✓ Safe space for case to isolate after hospital discharge
- ✓ Adult doses of HAV vaccine
- ✓ Immunoglobulin for intermuscular injection (IGIM)
- ✓ Contact information for contact, PCP, guardian and caregiver
- ✓ Tools to standardize communication and data collection
- ✓ Informed consent process and notification of confidentiality
- ✓ Staff

Health Department Response

Contact Tracing

Public health guidance recommends PEP to unvaccinated persons who are identified as having close contact with a laboratory-confirmed case within 15-50 days prior to onset of symptoms.

- ✓ Non-healthcare work setting exposures generally do not pose risk of infection
- ✓ Low risk of transient exposure to HAV
- ✓ High risk of large outbreak if transmission occurred

Contact identification using small concentric circles vs broad-based administration of PEP.

- ✓ Case had direct contact with only one camper prior to hospitalization without risk of transmission
- ✓ Female campers did not have any contact with case prior to hospitalization
- ✓ All male campers present before case was hospitalized identified as potential contacts due to shared living space and restrooms
- ✓ Staff counselors who shared common space prior to camper arrival identified as potential contacts

Health Department Response

Public Health

- ✓ **Isolation period from June 24th through July 1st .**
- ✓ **Exposure period from June 16th through June 24th.**
  - ➢ Administer PEP within 14 days of exposure: Staff by June 29th and Campers by July 6th
  - ➢ Self-monitor for symptoms from July 1st through August 13th, 2024
- ✓ **Reviewed situation with CDC's Division of Global Migration Health (DGMH).**
  - ➢ No contact tracing or broad communication recommended to air travelers or other countries exposed during infectious period.
- ✓ **Due to number of people recommended for PEP, the health department would provide it onsite.**
  - ➢ Most staff and campers did not have prior vaccination against HAV, or vaccination history was unknown, with some at the age recommended for IGIM (40 years or older)
  - ➢ Many campers had complex medical diagnoses requiring provider consultation regarding PEP administration

Health Department Response

Resources

Due to large number of potential contacts that include vulnerable persons, situation communicated to subject matter experts and leadership within the Vermont Department of Health, federal, state and community partners to identify action items and resources.

- Division leadership
- Epidemiology
- Immunization & Depot
- Communications & Health Equity
- Legal Counsel
- Chief Nursing Officer
- Office of Local Health (OLH)
- CDC
- University of Vermont Medical Center (UVMMC) Care Team
- Vermont Developmental Disabilities Council
- Green Mountain Self Advocates (GMSA)
- Camp Director and Nurse
- Community providers

Health Department Response

Resources

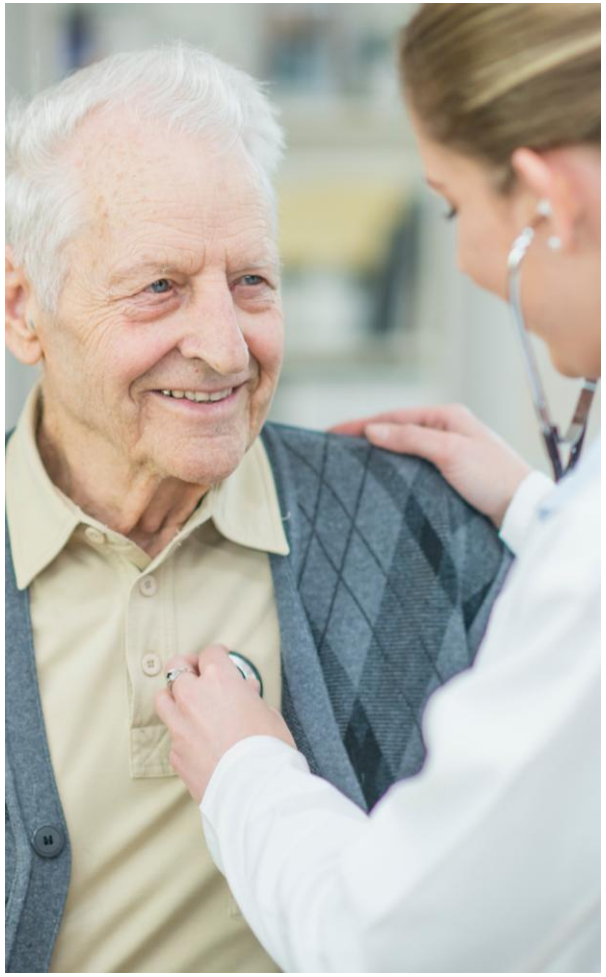
Several tasks needed to be completed in a short time to assure PEP was administered to contacts within 14 days of exposure:

- ✓ Exposure to HAV letters for contacts
- ✓ Adapt communication for accessibility
- ✓ Develop the informed consent and notice of confidentiality process
- ✓ Verify PEP administration protocol, orders, procedure
- ✓ HAV vaccine and GamaSTAN availability and procurement
- ✓ Pop-Up Clinic to administer PEP
- ✓ Food and lodging for remaining isolation period
- ✓ **Staff:** Local health nurses and Medical Reserve Corps (MRC) volunteers

Challenges

- Food and lodging needed for 4 days of isolation
- Delay in receiving and finalizing line list, requiring site visit
- Large number of contacts to receive PEP
- Limited time to complete all tasks
- Campers enrolled in camp for 1-2 week sessions at a time
- Pop-up clinic needed during holiday weekend
- Process to provide notification of exposure, education and obtain consent for PEP involved many people and steps (e.g. calls to guardians/caregivers, follow-up emails, etc.)
- Guardians/caregivers on vacation

Challenges & the 5 Rights



- Process to obtain clinical guidance and orders from PCP for each camper was complex:
  - ✓ inform them of exposure
  - ✓ Provide PEP recommendations
  - ✓ Obtain PEP administration orders
  - ✓ Verify weight for IGIM dosing
- PEP with GamaSTAN dose is 0.1mL/kg IM:
  - ✓ Large order placed as not sufficient stock for number of eligible contacts
  - ✓ Total # doses needed to be calculated prior to order placement
  - ✓ Holiday midweek delayed shipment
  - ✓ Discrepancy noted in package insert for dose
  - ✓ Delivery not expected before Saturday, July 6th
- State supplied adult HAV vaccine doses collected from community providers

Timeline of events

June 16, 2024 – July 6, 2024

Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
June 16	17	18	19	20	21	22
Arrival at Camp from international airport				Onset of nausea, vomiting, and abdominal pain		
23	24	25	26	27	28	29
Arrival of campers	Onset of jaundice Presented to ER	Hep A case reported to VDH	Elevated investigation to outbreak prevention response	Tasks assigned, tools developed and under review PEP administered by OLH to staff onsite	PEP administered by OLH to staff onsite	*End PEP window for staff*
30	July 01	02	03	State Holiday 04	05	06
		Completed consents Obtained PEP orders Order placed for GamaSTAN		**IGIM received from distributor**	PEP administered by OLH to campers onsite	*End PEP window for campers*

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This was not an outbreak!

Total number of persons diagnosed with hepatis A: 1 case

Total number of contacts who received PEP: 58 contacts

HAV Vaccine:

- 34 Staff
- 14 Campers

HAV Vaccine co-administered with IGIM:

- 10 Campers

4 Staff with prior immunization to hepatitis A
5 Campers with prior immunization or referred to PCP

Thank you!

Let’s stay in touch.

Email: Christine.Connor@vermont.gov

Web: https://www.healthvermont.gov/disease-control/hepatitis/hepatitis

Social: @HealthVermont.gov

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