Hepatitis C virus outbreak response plan for healthcare-associated settings

Division of Population Health
Office of Communicable Diseases
hepatitis@utah.gov
801-538-6191

Utah Department of Health & Human Services

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Executive summary

Hepatitis C is a liver infection caused by the hepatitis C virus (HCV). HCV is transmitted from blood-to-blood contact with an infected person. Most people become infected with hepatitis C by sharing needles, syringes, or any other equipment used to prepare and use drugs. It can also be transmitted sexually and during pregnancy and birth (perinatal transmission).

Healthcare-associated infections (HAI) are the most common harmful events experienced by people who are in the hospital. According to the CDC, 1 out of every 31 patients in hospitals and 1 out of every 43 residents in nursing homes develops an HAI. While rare, an HAI of HCV needs a more measured and defined response. In 2016, an outbreak of HCV was identified at an acute care hospital due to an employee who was diverting drugs and inadvertently exposed thousands of patients—ultimately infecting 7 people with HCV. This incident warrants the need for a documented outbreak plan for HCV in healthcare settings, which includes not only medical clinics and hospitals, but also any facility that performs elective medical procedures, such as medspas, rehabilitation centers, and outpatient surgery clinics. This document provides best practices gathered from the experiences of local, state, and federal public health agencies to help public health departments investigate, monitor, and respond to hepatitis C outbreaks in healthcare-associated settings in Utah.

The plan and its supporting documentation outlines suggested outbreak response activities including:

- Outbreak identification
- Outbreak response
- Tiered response activities
- Communication plan

The activities described in this plan are flexible, as every outbreak is unique. Some steps may happen at the same time or in a different order and it is up to the responding jurisdiction to decide which actions should be taken. The local health district (LHD) is the primary responder to outbreaks and has the right of first refusal before DHHS assumes responsibility. This document is intended to serve as a guide for LHDs, DHHS, and any other relevant Utah public health entities.

Outbreak response checklist

- ☐ **Determine whether a hepatitis C outbreak is occurring** by verifying if a healthcare exposure occurred (See Outbreak detection).
- ☐ **Identify internal and external stakeholders** (See Internal partners and External partners).
- ☐ **Determine the type of response and level of response needed** (See Outbreak response activation). Establishing an incident management system (IMS) structure early helps to manage mitigating the spread of the outbreak.
- ☐ **Investigate and respond based on response tier.**
- ☐ **Monitor cases over several weeks post-intervention**.

Outbreak identification

An HCV **outbreak** is defined as an increase in the number of cases grouped in time and space that is greater than expected. Outbreaks are identified through routine surveillance, enhanced surveillance, and/or local and regional reporting. In an outbreak setting, case definitions for acute hepatitis C may be based on laboratory and clinical evidence rather than Council of State and Territorial Epidemiologists (CSTE) surveillance case definitions.

Outbreak detection

While it is common for acute HCV to be identified in a healthcare setting, certain criteria may need further investigation beyond routine surveillance.

A healthcare-associated outbreak of HCV may be considered when **1 or more probable or confirmed acute HCV cases are identified with no other known exposures other than from a healthcare setting.** Cases with no other risk factors besides a healthcare exposure should be verified through thorough medical record review, patient interview, and/or consultation with the physician who made the diagnosis.

It is important to thoroughly investigate cases before determining whether a case is outbreak related or not as people are often unwilling to disclose stigmatized risk behaviors.

Outbreak response

Tiered response plan for HCV cases identified in a healthcare setting

Occasionally, a healthcare associated outbreak may be identified by a single sentinel case, a frequent blood donor or dialysis patient with no identified risk who has had contact with the healthcare system where parenteral exposure to blood or blood-contaminated products may have occurred. Investigation of such outbreaks can be quite complex and require collaboration among involved parties and expert advice. Response levels vary based on the following criteria:

> Tier I. A single probable or confirmed acute HCV case is identified with no identified exposures other than a healthcare setting
>
> Tier II. Two or more confirmed acute HCV cases within 6 months with no other identified exposures within the the same facility
>
> Tier III. Two or more confirmed acute HCV cases with a common source exposure within the same facility

Tiered response plan for HCV cases identified in a healthcare setting			
Tier	**Level of response**	**Need for incident command system (ICS)**	**Communications plan**
Tier I: **A confirmed or probable acute HCV case with no other identified exposures other than a healthcare setting**	• Investigation should verify the lack of exposures/risk behaviors through medical records and case-patient interview. • Conduct a thorough review of acute cases at the same facility within a reasonable time frame to identify any	None	Notify Utah DHHS Viral Hepatitis Program (VHP) and coordinate assistance with acute case review, if needed.

	common exposures.		
Tier II: **Two or more confirmed acute HCV cases within 6 months with no other identified exposures within the same healthcare setting**	In addition to the steps above: ● Notify HAI/AR team ● Work with facility to ascertain any underlying exposures/risk factors through clinical notes or direct communication. ● Assess whether testing to peripheral patients within the same time period should be recommended. ● Provide HCV and bloodborne pathogen (BBP) education to both patients and staff. ● Recommend enrolling all confirmed cases into treatment.	VHP manager notifies DHHS leadership. Together, they consider the need for an ICS response.	LHD, Utah DHHS VHP and HAI/AR team coordinate with PIO to determine the need for a public notification; as well as, disseminate plain language information about HCV to cases and contacts associated with the facility.
Tier III: **Two or more confirmed acute HCV cases within 6 months with a common source exposure within the same healthcare setting**	● Notify HAI/AR team. ● Notify Division of Professional Licensing (DOPL) and file a report if necessary. ● Work with healthcare facility to identify common source and implement appropriate intervention.	VHP manager consults with DHHS leadership on scope of ICS response.	Utah DHHS VHP, HAI/AR team, and PIO activate communications plan, prepares press releases, plans, provides updates to DHHS leadership and other key stakeholders.

	• Broaden testing for all peripheral patients associated with common exposure. • Recommend enrolling all confirmed cases into treatment.		

Outbreak follow-up

Follow these steps if index case exposure is determined to be healthcare-associated. Depending on the outbreak or tiered level of response, some steps may be left out or may happen at the same time:

Tier 1 steps:

1. Work with the case or the medical notes to:
    a. Generate a list of all healthcare-associated encounters during the index patient's exposure period.
    b. Determine the nature and types of procedures performed during each healthcare-associated encounter, especially those involving percutaneous exposures.
2. Monitor surveillance data for additional cases from the same facility.
3. Determine the source of infection.

Tier 2 steps:

4. Create an outbreak code in Epitrax following the standard naming convention YYMM Jurisdiction condition_name (example: 2308SLHCV_Salt Lake County Jail).
5. Contact the facility to let them know about the investigation and determine if they were aware of the current case(s) under investigation.
6. If violations of infection control practices are suspected in the facility, contact the DHHS Division of Licensing and Background Checks (DLBC).

Tier 3 steps:

7. File a report with DOPL if ongoing risk to patients is suspected due to a specific provider.

8. File a report with DLBC to conduct a site visit to identify any violations if ongoing risk to patients is suspected.
    a. Obtain a patient list of patients seen on the same day or in a reasonable time period before and after the index patient to identify any additional cases or contacts of the index case.*
    b. Cross-match patient list obtained from the facility with surveillance data of acute and chronic HCV cases.
9. If the facility investigation is not possible, health departments, at a minimum, should consider the following:
    1. Send a follow-up letter to all facilities and/or providers identified during the investigation to remind them to review infection prevention practices.
    2. Continue to monitor surveillance data for several months to make sure no additional cases are identified/reported that are linked to the facilities/providers in question.

*Identification of case-contacts for an HCV case should focus on people who may have been exposed to the case patient's blood (patients receiving similar procedures, patients of the same provider, syringe sharing contacts, household contacts, sexual contacts). In past healthcare-associated infection (HAI) outbreaks, a variety of transmission routes have been identified. Almost all of them involved the misuse of equipment that had contact with the blood of multiple patients. Some examples include:

- Pain management clinic: Use of fingerstick devices for >1 patients without disinfecting.
- Alternative medicine practice: IV infusions using non-sterile glassware and tubing between patients.
- Hospital: Narcotics tampering/drug diversion by facility staff.
- Hemodialysis facility: patients dialyzed in close proximity and cared for by same staff with lapses in proper hygiene.
- Surgical center: Improper handling of multidose anesthetic vials.

Sequencing HCV RNA from hepatitis C cases may be useful to confirm or investigate an outbreak in some circumstances if additional funding becomes available. Global Outbreak Surveillance Technology (GHOST) has been used to support outbreak investigations in the past.

Outbreak reporting

Once an outbreak is identified, the Division of Viral Hepatitis (DVH) at the Centers for Disease Control and Prevention (CDC) should be notified by emailing viralhepatitisoutbreak@cdc.gov within 4 days. The local and state public health departments may consider issuing a health alert to providers, patients, and partners. The alert can be used to inform providers of the hepatitis C outbreak, to remind providers of hepatitis C reporting requirements (including reporting time frame and key risk factors), to solicit testing for individuals who may have been exposed to HCV, and to inform providers of groups for whom testing and prevention outreach is recommended.

Communications plan

Clear and consistent communication among Utah public health with key stakeholders, local providers, the media, and the public may enhance the effectiveness of the response, minimize rumors and mistrust, strengthen partnerships, and reduce stigmatization of affected communities. Communication strategies will vary based on the outbreak and situation. The following guidelines can be used to help create a communications plan when an outbreak is identified.

- Involve the Utah DHHS Healthcare-associated Infections/Antimicrobial Resistance (HAI/AR) and viral hepatitis teams as soon as an outbreak is identified by emailing hai@utah.gov and hepatitis@utah.gov.
- Involve the Division of Professional Licensing (DOPL) by either submitting a complaint or emailing dopl@utah.gov.
- Identify key personnel as a point-of-contact in the impacted facility
- Work with Utah DHHS and local health department communications personnel to help craft both public and facility-wide messages.
- Contact CDC for support by emailing viralhepatitisoutbreak@cdc.gov.

Proactive development of communication approaches for facilities may help to explain complex scientific knowledge in a clear and understandable manner and facilitate better cooperation.

Utah DHHS partners

Consider involving the following partners:

- Utah DHHS syndromic surveillance team

- Utah Immunization program
- Office of Licensing and Background Checks (DLBC)
- Utah DHHS HAI/AR program
- Public health preparedness
- Utah Public Health Laboratory (UPHL)
- Office of Public Affairs and Education
- Legal counsel

Additional staffing and resource capacity

During an outbreak response there may be a need for additional case investigation, data entry, epidemiologic analyses, laboratory staff, as well as the need for staff who can implement outbreak specific responsibilities. For example, disease intervention specialists (DIS) are essential for contact tracing investigations and partner services, but DIS capacity within the jurisdiction can be quickly overrun during a large outbreak or multiple competing responses. Developing memoranda of understanding (MOUs) and procedures to move staff within sections of a health department or between jurisdictions can be done in advance of an outbreak response. It is important to connect with your agency's emergency response/outbreak response office or division to understand what type of staffing, resources, and support they may be able to provide during future outbreaks. They may have preparedness tools, including other outbreak response plans, standard meeting schedules, and staff available to help manage a response.

External partners

Consider involving the following external partners in outbreak response efforts:

- Substance use/addiction service providers
- Division of Professional Licensing
- Department of Corrections
- Emergency departments and urgent care facilities
- Federally qualified health centers, community health centers, and free/low cost clinics
- Healthcare providers
- Infection preventionists
- Hospitals and healthcare systems
- Mental or behavioral health service providers
- Nursing associations

- Medical Reserve Corps
- Volunteer medical service organizations
- Peer mentors or peer health advocates
- First responders (EMS)
- State and local emergency management agencies

Post-outbreak activities

Defining the end of an outbreak

Typically, outbreaks are determined by an elevation in the number of cases compared to a baseline. However, cases in a healthcare-associated setting should be continuously monitored. Once an intervention has been implemented, cases should be monitored for up to one month to make sure no additional cases arise.

After action report

An after action report can be helpful to document successes and challenges of the outbreak response. This can be beneficial for other jurisdictions and can be used to document costs associated with the outbreak and anticipate investments needed to prevent future outbreaks. The document should include a summary of events, final case counts and data, successes and challenges, and any changes that will be made to this document in response to lessons learned from the outbreak.