HEPATITIS A OUTBREAK

RESPONSE CHECKLIST

☐ Determine whether a hepatitis A outbreak is occurring and what the most likely route of transmission is (person-to-person or common-source) (See Outbreak Detection and Outbreak Investigation).

☐ Determine the type of response and level of response needed based on the Tiered Response Plan

☐ Review criteria for establishing an incident management team (IMT)

☐ Identify internal and external stakeholders (See Internal Partners and External Partners).

☐ Develop a communications plan and develop messages for populations at risk, general public, the media, and health department leadership and local and state government partners (see Communications)

☐ Determine the populations affected

- High-Risk Populations: in person-to-person hepatitis A outbreaks, populations at risk for HAV infection or severe outcomes typically include:
  - o People who use drugs (injection or non-injection)
  - o People experiencing unstable housing or homelessness
  - o People who are currently or were recently incarcerated
  - o Men who have sex with men
  - o People with chronic liver disease, including cirrhosis, hepatitis B, or hepatitis C

☐ Estimate affected populations' size (See Estimating Vaccine Doses).

☐ Define a targeted vaccination strategy (See Postexposure Prophylaxis)

- Procure adequate supplies of HAV vaccine and immune globulin and facilitate distribution
- Identify staff and infrastructure to support pop-up vaccination of high-risk populations
- Ensure a culturally competent and trauma-informed approach to working with high-risk and hard-to-reach populations

☐ Evaluate need for increased sanitation and hygiene measures

☐ Post outbreak activities

- Define the end of the outbreak
- Plan to continue vaccination of high-risk populations
- After action evaluation

Hepatitis A Outbreak
Investigative Guidelines
January 2023

1. BACKGROUND

1.1 Transmission

The hepatitis A virus (HAV) is transmitted via the fecal-oral route, usually through direct person-to-person contact or consumption of contaminated food or water (See Table 1 for quick facts about hepatitis A). HAV infection is clinically indistinguishable from other types of acute viral hepatitis, and the illness is usually mild and self-limited when healthy persons are infected. Disease severity increases in persons who are pregnant, older than 40 years of age, or immunocompromised. Another major risk for complications is chronic liver disease, either related to chronic hepatitis B virus (HBV) and hepatitis C virus (HCV), as well as other conditions such as cirrhosis, fatty liver disease, alcoholic liver disease, and autoimmune hepatitis.

1.2 Vaccination

The Advisory Committee on Immunization Practices (ACIP) first recommended HAV vaccination in 1996 for individuals at high risk of disease and children over 2 years of age living in communities with high rates of HAV transmission; ACIP later widened the recommendations in 1999 to explicitly name 11 western states (including Oregon) with rates of infection twice the national average. It ultimately endorsed universal vaccination of all children starting at one year of age in 2006. Due to these recommendations, HAV transmission decreased 95% between 1996 and 2011. Current indications for use of HAV vaccine are listed in Appendix A.

1.3 Current Rates and Epidemiology

Starting in 2016, rates increased dramatically in the U.S., largely due to person-to-person transmission among persons who use drugs (PWUDs); people experiencing unstable housing or homelessness; men who have sex with men (MSM); people who are currently or recently incarcerated; and people with chronic liver disease such as cirrhosis, HBV, or HCV.

Prevention largely lies in routine use of vaccine, and when cases occur, thorough investigation and prophylaxis of exposed individuals with vaccine or immune globulin. Another key point is that alcohol hand sanitizer is ineffective against HAV. Good hand hygiene requires use of soap and water, and surface disinfection requires use of bleach to clean high touch surfaces.

Table 1. Hepatitis A Quick Facts	
Causative agent	Positive-strand RNA virus in Picornaviridae family
Signs and symptoms	Fever, headache, fatigue, loss of appetite, nausea, vomiting, diarrhea, abdominal pain, dark urine, grey-colored stools, joint pain, jaundice
Symptom duration	Usually less than two months, sometimes up to six months
Transmission	Predominantly fecal-oral
Infectious Period (time from exposure to symptoms)	Two weeks before symptom onset to one week after jaundice onset
Incubation period (time from exposure to symptoms	15–50 days
Laboratory Diagnosis	IgM antibodies to HAV are usually detectable 5–10 days before onset of symptoms
Prevention	1) Safe and effective vaccines are available. Protection begins 14–21 days after a single dose. 2) Immunoglobulin can be provided for individuals who do not typically respond to vaccine: infants <12 months, individuals with immunocompromising conditions or chronic liver disease, and individuals ≥40 years of age 3) Proper sanitation and personal hygiene. See §5.5 Sanitation and Hygiene below.
Treatment	Primarily supportive care. There is no effective antiviral medication for HAV.

2. OUTBREAK DETECTION

2.1 Outbreak Criteria

To determine whether more than routine case investigation and control methods are required, the Oregon Health Authority (OHA) will consider several criteria. The Viral Hepatitis Program (VHP) Medical Director, Hepatitis Epidemiologist, and Viral Hepatitis Prevention Coordinator (VHPC) will review acute cases of HAV on a monthly basis that have been reported to Orpheus, ACDP's surveillance database. The occurrence of a rise in the number of reported cases in a jurisdiction more **than two standard deviations above the monthly average from the previous 3 years** will trigger a more intense response. Additionally, **any cluster of three or more related cases** will be considered an

outbreak and merit more detailed investigation and evaluation of need for more intensive vaccination response (i.e., beyond postexposure prophylaxis of contacts of cases).

2.2 Outbreak Database

Orpheus is linked to Oregon's Outbreak database, a secure database primarily used to track foodborne illnesses in Oregon.

- Acute and Communicable Disease Program (ACDP) staff can enter a cluster into the Outbreak database to create an autogenerated Outbreak ID number.
- When this Outbreak ID is entered for a case in Orpheus, it creates a list of all cases involved in a cluster, allowing ACDP and Local Public Health Authority (LPHA) staff to search for cases in a respective cluster.
- Additionally, if resources are available, the appearance of a single case in a high risk setting such as a homeless shelter may warrant expanded use of vaccine and immune globulin as necessary.

2.3 Outbreak Response

Table 2 provides details of the response needed for three different levels of transmission:

1) Tier 1: Baseline levels of disease transmission
2) Tier 2: Initial response to an identified cluster
3) Tier 3: Large outbreak requiring more extensive resources from partners outside of ACDP and the affected LPHA.

Table 2. Tiered response plan based on surveillance data

Tier	Level of Response	Need for Incident Management Team (IMT)	Communications plan
I. Sporadic cases (baseline)	Routine case investigation and follow-up with exposed contacts	None	Routine posting of surveillance data on OHA website
II. Any cluster of three cases, or appearance of single case in high-risk setting (such as homeless shelter or other residential setting)	Aggressive prophylaxis of exposed contacts, increased hygiene measures, consider offering pre-exposure prophylaxis to affected populations if resources allow	VHP program manager notifies ACDP section manager, Health Security, Preparedness and Response Program (HSPR) and Oregon Immunization Program (OIP)	OHA Public Information Officer (PIO) assigned to the response establishes contact with LPHA PIO, and disseminates plain language information about HAV to cases and contacts in affected settings as applicable
III. High case counts, multiple cases in vulnerable populations	Aggressive follow-up of cases and prophylaxis of exposed contacts, pre-exposure prophylaxis of high-risk populations or affected settings, and increased hygiene measures	VHP program manager consults with ACDP section manager, HSPR, and OIP on need for and scope of IMT response	OHA PIO activates communications plan, prepares press releases, plans social media campaign, and provides updates to OHA leadership and other key stakeholders

3. OUTBREAK INVESTIGATION

3.1 Case Definition

The case definition for HAV (Appendix B) requires both laboratory evidence of HAV and acute onset of symptoms of viral hepatitis or symptoms of acute hepatitis combined with a history of exposure to a confirmed case. In the setting of an outbreak, it is also useful to further specify which cases are considered

part of an outbreak by defining a particular time frame, geographic area, or risk group. For instance, a case identified in an international traveler or an isolated case residing in a county outside the geographic area affected by an outbreak would not be included in cases counts for the outbreak and would not impact whether an outbreak is considered “over.”

3.2 Case Finding

Following investigative guidelines, all electronic laboratory reports (ELRs) consistent with HAV require investigation by the local public health authority (LPHA) within one working day. LPHA staff will complete the standard acute Hepatitis A Case Report Form (see Appendix C) and submit all case data electronically to Orpheus.

During an outbreak investigation, OHA and LPHA staff may also implement more active case finding methods by notifying local clinicians, hospitals, emergency departments, and locations where cases have been identified (i.e., correctional facilities, homeless shelters or camps, agencies providing harm reduction services to persons who use drugs [PWUDs]) to notify the LPHA of suspected cases prior to laboratory confirmation.

3.3 Case Characterization and Interviews

The standard case report form will always be used as a starting point for interviews during outbreaks and includes demographic factors (including collection of REALD), complications of hepatitis such as hospitalization and death, history of vaccination, and risk factors such as international travel, potential food-born transmission, sexual exposures, history of drug use, recent incarceration, and housing status.

Additionally, interviews with the initial cases may suggest risk factors or locations associated with the outbreak that should be incorporated into subsequent interviews. For example, it will be important to collect information about where cases identified as houseless may congregate or shelter, and with whom persons who use drugs share. ACDP informatics or epidemiology staff will add supplemental questions to the HAV disease module in Orpheus, enabling LPHA and OHA staff to immediately ask these questions and enter the data into Orpheus.

3.4 Case Reporting

To improve case ascertainment, OHA will employ such methods as the Health Alert Network (HAN) to notify providers and LPHAs of an HAV outbreak and encourage prompt reporting. Notifications may also be sent through CDC’s Epidemic Information Exchange (Epi-X)if the Oregon outbreak involves cases residing in other states. OHA will also disseminate information and encourage reporting from settings indicated by the epidemiology of the initial cases, such as homeless shelters, syringe service programs (SSPs), substance use disorder (SUD) treatment centers, restaurants, or healthcare settings.

3.5 Contact Tracing

LPHA investigators should identify and arrange for postexposure prophylaxis (see Appendix D and Appendix E) for unvaccinated close contacts within 2 weeks after exposure to prevent illness. Close contacts include household contacts, drug partners, and sexual contacts. If a patient is unwilling or unable to provide the name or contact information for a close contact, consider asking the patient to convey the importance of postexposure prophylaxis and to share the health department's contact information with his/her/their close contacts. LPHA and ACDP epi staff should contact Oregon Immunization Program (OIP) for assistance with procuring vaccines and immune globulin.

3.6 Lab Testing

Serological testing for HAV is available at the Oregon State Public Health Laboratory (OSPHL) but serological testing for IgM and total HAV antibodies is widely available in clinical labs. IgM antibodies are usually detectable from 5–10 days before the onset of symptoms until about 6 months after infection and are the most important test for acute infection. Total HAV antibodies include both IgM and IgG antibodies; the latter indicate immunity and suggest past infection but cannot be used to rule in acute infection.

HAV testing at CDC includes polymerase chain reaction (PCR) testing, genotyping, and sequencing. PCR testing is used to detect HAV RNA virus. The results are quantitative and reported out as "yes" or "no." HAV RNA can be detected shortly after exposure and remains present for approximately 4 weeks after symptom onset. A negative PCR result obtained within 4 weeks of symptoms can rule out a false positive HAV IgM result.

3.7 HAV Genotypes

HAV is classified into six genotypes (I-VI), although only genotypes I-III cause diseases in humans. Although genotyping is sometimes helpful in linking cases, sequencing can be used to identify the actual strain and to compare individual HAV strains down to the nucleotide level.

During the initial phase of the outbreak, it will be important to submit specimens to CDC to determine whether the cases are caused by the same strain and whether they might be related to strains from outbreaks in other states. Once the risk groups in an HAV outbreak have been established, OHA would likely only submit specimens to CDC for patients with no known risk factors or from patients without a known connection to the outbreak to determine if they are part of the ongoing outbreak.

4. OUTBREAK RESPONSE

4.1 Roles

LPHA communicable disease staff and OHA Viral Hepatitis Program (VHP) staff in ACDP will likely be the first public health staff aware of the outbreak. They will take the initial steps in determining whether the criteria for an outbreak have

been met and decide on a preliminary course of action. As needed, additional staffing will be drawn from the list of internal partners listed in Table 3.

Table 3. Internal Partners
Public Health Division partners involved in hepatitis outbreak responses
• LPHA health officer, administrator, communicable disease staff • ACDP VHP staff and members of Urgent Epi Response Team (UERT) as needed • Immunization Program • HSPR: Health Security, Preparedness and Response Program   ○ Serv-OR volunteers • PIO • Oregon State Public Health Laboratory • Office of Equity and Inclusion • HIV/STI/Tuberculosis Program
Other OHA or Department of Human Services (DHS) divisions or offices
• OHA-DHS COVID-19 Recovery and Response Unit (CRRU) (field operations, pharmacy branch, and vaccine outreach team-equity) • ODHS-SPD-Behavioral Health • OHA Medicaid program • PHD Community Engagement Team • HSPR Regional Emergency Coordinators (RECs)

4.2 Community Partners

In Oregon's Public Health Modernization plan, Oregon recognizes that culturally and linguistically appropriate responses to complex public health problems requires investment in communities, partnership across state agencies, and local and regional strategies to address community priorities. The Oregon Legislature has provided significant support to local public health authorities, tribal agencies, and healthcare partners to fully integrate public health, health care and community-level health improvement efforts. Potential external partners that could be involved in the response to an outbreak of HAV are listed in Table 4.

Table 4. External Partners
• Tribal public health authorities • Community-based organizations serving populations at high risk for HAV • Homeless service providers • Mental or behavioral health service providers • Syringe service programs (SSPs) and other sites providing harm reduction services • Peer Recovery in Medical Establishment (Prime+) partners, and other agencies employing peer support specialists • Coordinated care organizations (CCOs), federally qualified health centers (FQHCs), emergency departments, other community healthcare and academic partners • Serv-OR volunteers • Emergency medical services (EMS) • County-level Office of Emergency Management • Retail pharmacies • Corrections, including state corrections, community-corrections, local/municipal jails and youth detention facilities • Faith-based organizations • Law enforcement • State and local government

4.3 Incident Management Team

Once a cluster of three or more cases has been identified, the VHP Medical Director or VHP Hepatitis Epidemiologist will notify the ACDP section manager and the OIP of the outbreak. The VHP Medical Director, the VHP Hepatitis Epidemiologist, the VHPC and OIP will attend all LPHA cluster response meetings.

The VHP will update the Health Security, Preparedness and Response (HSPR) Program of the current situation. This is generally conveyed to the Public Health Duty Officer or the HSPR manager. The Public Health Duty Officer, in consultation with ACDP and HSPR leadership, may be asked to convene a Health Intelligence Briefing (HIB). Present at this briefing are internal partners and OHA leadership. The status and predicted outcomes and actions will be evaluated. If the outbreak can be managed at the ACDP program and LPHA level, no further action will be taken. If additional resources and oversight are required to manage the outbreak an IMT will be activated. For example, if the threshold for an outbreak (case rates >2 standard deviations above the mean monthly mean incidence rate for a county) is met and the magnitude or

morbidity/mortality associated with the outbreak dictates the need for a large, coordinated response, an IMT will be activated.

Typically, decisions about the need, size, and scope of the IMT will be made by OIP and HSPR in consultation with the VHP Medical Director at the HIB. A PIO will also be assigned to the cluster response and coordinate communication between the LPHA, ACDP, and public health leadership. Multiple staff members in ACDP, along with partners in Immunization, HSPR, and other OHA programs, are trained in incident management and will staff an incident management team. In addition to VHP staff, ACDP's UERT will provide epidemiologic and Information Technology (IT) staff, and the IMT may recruit additional assistance from OIP, HSPR or HST staff as needed. The Incident Manager will take a lead role in coordinating planning and logistics of an IMT.

4.4 Local Public Health Authority (LPHA)

In Oregon, the LPHA is the health authority. Unless the LPHA defers responsibility to OHA or more than one county is involved, the LPHA will be tasked with organizing an incident command team and coordinating the cluster response. OHA staff will work closely with the LPHA Health Officer (HO) and communicable disease staff to provide technical assistance and support the response.

The respective LPHA(s), with the support and guidance of ACDP OHA staff, will be responsible for enlisting the assistance of local stakeholders, organizations, and community groups to aid in a culturally respectful response. If requested, OHA staff will be available to assist LPHA needs with case investigations and contact tracing, media communications, and prevention and control efforts (i.e., vaccination, sanitation, and hygiene).

4.5 Epidemiologic Support

Key responsibilities of OHA epi staff include revising the hepatitis disease module in Orpheus as needed, analyzing and summarizing data, editing investigative guidelines or drafting additional guidance as needed, and providing technical assistance for management of special situations and settings (such as contacts in homeless shelters or encampments, healthcare settings, or outbreaks involving food handlers).

Although case and contact investigations are the primary responsibility of the LPHA, the magnitude of the outbreak or competing priorities may require OHA epi staff to assist with case and contact investigations.

4.6 Communications

A PIO will take the lead in developing a communications plan for keeping key stakeholders informed of developments in the outbreak. The target audiences for a risk communication strategy will include populations at risk, the public, and the media, as well as health department leadership and local and state government partners. The basic list of products includes the following:

- Templates for press releases for OHA, LPHAs or other community partners
- Plain language materials for general public
- Plan for social media campaign

We may also use the following communication tools to inform community and healthcare partners of the outbreak:

- Oregon's HAN
- Dear Colleague letter to clinicians
- PHD Office of LPHA Liaisons for LPHA Communications
- The *CD Summary* – a publication of the OHA, Public Health Division. Its intended audience are licensed health care providers, public health and health care agencies, media representatives, medical laboratories, hospitals, and others with an interest in epidemiology and public health.
- Basecamp for the Viral Hepatitis Collective, a network of stakeholders engaged in viral hepatitis elimination planning

5. PREVENTION AND CONTROL MEASURES

5.1 Postexposure Prophylaxis

The OIP will take the lead role in assuring that both HAV vaccine and immune globulin (IG) are available as both pre- and post-exposure prophylaxis (See Appendix D for guidelines on postexposure prophylaxis and Appendix E for recommended doses and schedules for HAV vaccines). Using CDC's Guidance, OIP and VHP staff will consult on which vaccines to use for different populations and define clear criteria for use of IG (based on age, presence of immunocompromising conditions or chronic liver disease, see Appendix F). In cases where an exposed contact does not have a primary care provider, the LPHA HO or VHP Medical Director may make recommendations as to use of vaccine or IG.

The OIP will ensure IG access by working with local healthcare systems to rapidly acquire IG and work out delivery-to-site logistics (LPHA, CBO, pop-up site, etc.). For vaccines, the initial step will be for the LPHA to assess their current stocks, which would be the first source utilized. Secondly, OHA stores some vaccine in-house for use and can deliver them same day to LPHA or other sites.

Additional resources, such as staffing and infrastructure for on-the-ground pop-up vaccination, may be requested as needed from external partners listed above, as well through collaboration with the DHS-OHA CRRU field operations division.

5.2 Defining High Risk Populations for Preexposure Prophylaxis

In addition to providing vaccination or IG to exposed contacts of cases, preexposure vaccination of high-risk groups identified by the epidemiology of the

outbreak will be critical to prevention of further transmission. Recent outbreaks in the US have occurred in the following high-risk groups:

- People who use drugs (injection or non-injection)
- People experiencing unstable housing or homelessness
- People who are currently or were recently incarcerated
- Men who have sex with men

Additionally, people with chronic liver disease do not have an increased risk of HAV infection. However, this population is at increased risk of severe morbidity and mortality should they become infected, and therefore people with chronic liver disease are an important risk group for preexposure prophylaxis vaccination.

5.3 Estimating Vaccine Doses

Estimating the number of high-risk individuals is helpful to plan vaccination needs and to monitor the effectiveness of public health interventions. There is limited evidence for the level of vaccine coverage needed to control a community HAV outbreak; evidence from prior outbreaks and mathematical modeling suggests that 70–80% coverage in the affected population might be necessary.

For estimating the numbers of persons who use illicit drugs, CDC relies on data from the National Survey on Drug Use and Health (NSDUH) in 2016–2017, which estimated in that 3.32% of Oregonians suffered from an illicit use disorder in the previous year. Estimates of numbers of houseless individuals in the areas affected by the outbreak can be extrapolated from the US Interagency County on Homelessness estimate of 14,655 houseless individuals as of January 2020 or OHA's county-specific estimates.

5.4 Hard-to-Reach Populations

The populations at highest risk for HAV infection during these ongoing outbreaks can be difficult to reach with traditional vaccination and education efforts due to a variety of factors including behavioral health issues, lack of engagement with the healthcare system and other institutions, and lack of transportation. LPHAs and healthcare providers will need to employ additional measures to reach these populations.

Potential measures include:

- Involve partners in the outbreak response who regularly already interact with the at-risk population, including syringe service programs, corrections, hospitals, community clinics, homeless providers, substance use programs, faith organizations, law enforcement, local governments, professional associations, and others.
- Plan field vaccination events in areas frequented by individuals most at risk for HAV infection. To identify these areas, collaborate with partners who can provide expertise in the following:

- Local epidemiology (i.e., identify areas where cases have been found to prioritize location of vaccination events)
- People who actively use drugs (i.e., identify areas where PWUDs access services)
- People who are homeless (i.e., identify areas where homeless individuals congregate for shelter, and gain trust of people living there)

Potential partners and sites that can host vaccination events include syringe service programs, correctional facilities, emergency departments, substance use disorder treatment providers, homeless services providers, mental health programs that serve people who use drugs or are homeless, faith-based organizations, facilities or businesses frequented by people who are homeless or use drugs, parks, libraries, facilities that issue social service benefits, and facilities serving veterans.

5.5 Sanitation and Hygiene

Given the high risk of transmission in congregate outdoor settings with limited access to bathrooms and running water, providing adequate bathrooms and handwashing supplies will be a top priority, especially because alcohol-based hand sanitizers are not effective against HAV. LPHA or OHA's IMT logistics branch may need to initiate contracts with sanitation companies for portable toilets and hand washing stations with mounted automated dispensing units for use in camps, traveler-sites, drop-in facilities, or other sites providing services to homeless individuals. LPHAs, other local government agencies, CBOs, and volunteers will likely be needed to dispense hygiene kits to individuals without access to bathrooms, soap, or running water.

Outbreaks in healthcare settings, long term care facilities, or other congregate residential facilities will require education about ineffectiveness of alcohol-based hand sanitizers and increased adherence to handwashing protocols by staff, patients, and residents.

Given that HAV is resistant to most disinfectants, bleach is the most used cleaner available to eradicate HAV from surfaces. To determine if a product is effective against HAV, read the label. Public Health Seattle-King County has created a helpful Infogram (Appendix G) describing methods for safely using bleach.

5.6. Other Settings

Management strategies for the settings listed below are already well described in OHA's Hepatitis A investigative guidelines; we refer readers to those sections and provide a brief overview below.

5.7 Restaurants and Food Handlers

Although food handlers are not at higher risk of HAV than the general population, they have the potential to transmit HAV to numerous unfortunate diners if they do not adhere to strict handwashing and hygiene protocols. Given that restaurant-associated outbreaks in Oregon have been rare, we do not

automatically notify the public if a food handler is diagnosed with HAV. The most important steps are to assess whether the individual worked during the infectious period, whether the individual handled uncooked food items or exhibited poor hygiene practices, and whether exposed patrons can be identified and treated less than 2 weeks after they were exposed. Typically, these assessments will be made by LPHA staff. Decisions should be made by the local HO in consultation with the VHP medical director or epidemiologist before alerting the media.

5.8 Daycare

Since HAV infections in children can often be asymptomatic, cases in adult staff members or adult household contacts of children in daycare may be the first sign of transmission in a daycare. In general, if an individual with HAV attends or works in a daycare, postexposure prophylaxis should be offered to all staff or classmates who have not been vaccinated or who have not been previously infected. Additionally, if no one at the daycare is symptomatic but cases occur in two different households of kids who attend the same daycare, give prophylaxis to the staff and kids in that class.

5.9 Healthcare Setting

Healthcare-associated HAV infection occurs infrequently (CDC). Transmission to healthcare personnel usually occurs when the source patient has unrecognized hepatitis and has fecal incontinence or has diarrhea. Other risk factors for HAV transmission that increase the risk of fecal-oral contamination are eating or drinking in patient care areas, not washing hands after handling an infected infant, and sharing food, beverages, or cigarettes with patients, their families, or staff members. As with food handlers, a case in a healthcare worker should prompt consultation with the individual's supervisor regarding adherence to handwashing and routine infection control precautions, which should serve as barriers to further spread.

6. POST OUTBREAK ACTIVITIES

6.1 Define the End of the Outbreak

Decisions about de-escalating the response will be based on declining case rates in affected populations and meeting vaccination targets in high-risk populations identified during the outbreak.

6.2 Plan for Continued Vaccination of At-Risk Populations

- Continue to promote vaccination of high-risk populations among community providers, including retail pharmacists
- Leverage resources for vaccination by CRRU, regional response teams that provide both COVID-19 and other adult vaccines (influenza, hepatitis A and B, pertussis, tetanus) to high-risk populations, and other non-traditional vaccine providers (i.e., opioid treatment programs, naturopaths).

6.3 After-Action Evaluation and Report (Tier 3 outbreaks only)

VHP staff will survey local and community partners who assisted in the response regarding:

- The structure of the response
- Communication between the LPHA(s), community partners and HST IMT
- What went right?
- What could have gone better?
- What service gaps exist?
- Did we accomplish what we set out to do?

VHP and HSPR will convene a meeting (a hotwash) with key partners to solicit feedback around the strengths and challenges of response related to:

- Components of the cluster investigation that yielded the most useful information
- Data sources that were the most useful
- Staffing/resource needs for the investigation and intervention activities
- Partnerships that were the most effective, and which could benefit from additional development
    - Costs associated with cluster investigation
    - Costs associated with interventions

Findings from the partner survey and hotwash meeting will be used to compile an after-action report. This report will include a list of recommendations outlining areas of improvement in our response planning and execution, the impact of any short-term changes to policies or protocols during the response and if those changes should be adopted as standard practice.

7. RESOURCES

Oregon Health Authority

- Hepatitis A Investigative Guidelines, 2019
- Hepatitis A Case Report Form, 2016
- Model Immunization Protocol ("standing orders") for Hepatitis A, 2021
- Pharmacy Protocol for Hepatitis A
- Hepatitis A Vaccine Information Statement (VIS)

CDC resources

- CDC. Prevention of hepatitis A virus infection in the US: recommendations of the Advisory Committee on Immunization Practices. MMWR, 2020
- Outbreak-specific considerations for hepatitis A vaccine administration, 2020.
- CDC. Recommendations of the Advisory Committee on Immunization Practices for use of hepatitis A vaccine for persons experiencing homelessness. MMWR, 2019
- CDC. Update: recommendations of the Advisory Committee on Immunization Practices for use of hepatitis A vaccine for postexposure prophylaxis and for preexposure prophylaxis for international travel. MMWR, 2018

- CDC. Updated dosing instructions for immune globulin (Human) GamaSTAN S/D for hepatitis A virus prophylaxis. MMWR, 2017

Public Health Modernization

- Public Health Resilience, Response and Recovery, 2021.
- Public Health Modernization Manual: Foundational capabilities and programs for public health in Oregon, 2017.

UPDATE LOG

November 2022 Created (Thomas)

ACRONYMS

ACDP: Acute and Communicable Disease Program
ACIP: Advisory Committee on Immunization Practices
CRRU: Covid-19 Recovery and Response Unit
ELR: Electronic laboratory report
HAN: Health Alert Network
HAV: Hepatitis A Virus
HBV: Hepatitis B Virus
HCV: Hepatitis C Virus
HIB: Health Intelligence Briefing
HO: Health Officer
HSPR: Health Security, Preparedness and Response Program
IG: Immune Globulin
IgG: Immunoglobulin G
IgM: Immunoglobulin M
IMT: Incident Management Team
IT: Information Technology
LPHA: Local Public Health Authority
OHA: Oregon Health Authority
OIP: Oregon Immunization Program
OSPHL: Oregon State Public Health Laboratory
PCR: Polymerase Chain Reaction
PIO: Public Information Officer
PRIME+: Peer Recovery in Medical Establishment
PWUD: People Who Use Drugs
MSM: Men Who Have Sex with Men
REALD: Race, Ethnicity, Language, Disability
REC: Regional Emergency Coordinator
RNA: Ribonucleic Acid

UERT: Urgent Epi Response Team
VHP- Viral Hepatitis Program
VHPC-Viral Hepatitis Program Coordinator

APPENDICES

Appendix A. Categories of persons with increased risk for HAV infection or severe disease from HAV infection, from 2020 ACIP guidelines for prevention of HAV infection

Type of risk	Risk category	Examples
Increased risk for HAV infection	Close personal contacts of persons with HAV infection†	Household contacts
		Caretakers
		Sexual contacts
		Persons who anticipate close personal contact with an international adoptee
	Occupational risk	Persons working with nonhuman primates
		Persons working with clinical or nonclinical material containing HAV in a research laboratory
	Persons who use drugs	Persons who use injection or noninjection drugs (i.e., all those who use illegal drugs)
	Persons in settings where services to adults are provided	Group settings for persons with developmental disabilities
		Homeless shelters
		Syringe services programs
		Correctional facilities during outbreaks
	International travelers	Persons traveling to or working in countries with high or intermediate HAV endemicity
Increased risk for severe disease from HAV infection	Immunocompromised persons	Congenital or acquired immunodeficiency
		HIV infection
		Chronic renal failure, undergoing dialysis
		Solid organ, bone marrow, or stem cell transplant recipients

Appendix A. Categories of persons with increased risk for HAV infection or severe disease from HAV infection, from 2020 ACIP guidelines for prevention of HAV infection

Type of risk	Risk category	Examples
		Persons with diseases requiring treatment with immunosuppressive drugs/biologics (e.g., tumor necrosis alpha inhibitors), long-term systemic corticosteroids, radiation therapy
	Persons with chronic liver disease	Hepatitis B virus infection
		Hepatitis C virus infection
		Cirrhosis (any etiology)
		Fatty liver disease (hepatic steatosis)
		Alcoholic liver disease
		Autoimmune hepatitis
		Alanine aminotransferase or aspartate amino transferase level more than twice the upper limit of normal or persistently elevated for 6 months
	Age	Adults aged >40 years

Appendix B. Hepatitis A case definition, from OHA Investigative Guidelines

Confirmed Case Definition

- An individual with:
  1) discrete onset of symptoms (e.g., fever, headache, malaise, anorexia, nausea, vomiting, diarrhea, abdominal pain, or dark urine), AND
  2) jaundice or elevated total bilirubin levels ≥3.0 mg/dL, OR
  3) elevated serum alanine aminotransferase (ALT) levels >200 IU/L, AND
  4) the absence of a more likely diagnosis, AND
  5) IgM anti-HAV positive or detection of hepatitis A RNA by NAAT (e.g., PCR or genotyping)

  OR

- An individual with:
  1) discrete onset of symptoms (e.g., fever, headache, malaise, anorexia, nausea, vomiting, diarrhea, abdominal pain, or dark urine), AND
  2) jaundice or elevated total bilirubin levels ≥3.0 mg/dL, OR
  3) elevated serum alanine aminotransferase (ALT) levels >200 IU/L, AND
  4) the absence of a more likely diagnosis, AND
  5) an epidemiologic link with a person who has confirmed hepatitis A (e.g., household or sexual contact with an infected person during the 15–50 days before the onset of symptoms).

Suspect Case (not reportable to OHA)

- Anyone with a compatible illness or elevated liver enzymes of unknown etiology and with no epidemiologic association with confirmed cases. Serologic testing for IgM anti-HAV antibodies is indicated.

  OR

- Anyone with a positive IgM anti-HAV antibody titer without compatible illness or elevated ALT or AST levels.

Appendix C

Hepatitis A

ORPHEUS ID

☐ confirmed
☐ presumptive
☐ suspect
☐ no case

Name _____ County_____
LAST, first, initials (a.k.a.)

Address _____
Street City

Phone number _____ / _____
home (H), work (W), cell (C), message (M) home (H), work (W), cell (C), message (M)

E-mail _____

ALTERNATE CONTACT

Name _____ Phone(s)_____
LAST, first, initials home (H), work (W), cell (C), mes-

Special housing
☐ Nursing home/ Asst Living
☐ Homeless
☐ Prison/jail
☐ Foster home
☐ Hospital
☐ Nursing home
☐ Other institution
☐ Drug treatment/ shelter
☐ Women's shelter
☐ YES house
☐ Homeless shelter
☐ Job Corps
☐ Treatment center
☐ Chemawa Indian School
☐ Pacific Univ.
☐ No address on file

DEMOGRAPHICS

DOB ___/___/___ if DOB unknown, AGE _____ Sex ☐ Female ☐ Male Preg ☐ Y ☐ N ☐ unk

Language _____ Country of birth _____ ☐ refugee

Worksites/school/day care center _____ Occupation/grade_____

Alaska Native
☐ American Indian
☐ Alaska Native
☐ Canadian Inuit, Metis First Nation
☐ Indigenous Mexican Central American South American

HISPANIC or Latino/a
☐ Hispanic or Latino/a Central American
☐ Hispanic or Latino/a Mexican
☐ Hispanic or Latino/a

☐ Asian Indian
☐ Chinese
☐ Filipino/a
☐ Hmong
☐ Japanese
☐ Korean
☐ Laotian
☐ South Asian
☐ Vietnamese
☐ Other Asian

Native Hawaiian/ Pacific Islander
☐ Guamanian or Chamorro
☐ Micronesian
☐ Native Hawaiian
☐ Samoan
☐ Tongan
☐ Other Pacific Islander

Black or African American
☐ African American
☐ African (Black)
☐ Caribbean (Black)
☐ Other Black

Middle Eastern Northern African
☐ Northern African
☐ Middle Eastern

White
☐ Eastern European
☐ Slavic
☐ Western European
☐ Other White

Other Categories
☐ Other (please list)
_____
☐ Don't know/Unknown
☐ Don't want to answer/

PROVIDERS, FACILITIES AND LABS

Reporter Type (circle one)
PMD Lab ELR
MDx Lab Fax
UC Lab Phn
ER Lab Other
HCP 2nd Prov
ICP

Reporter Name/Phone
_____
_____
_____
_____
_____

Reporter Type (circle one)
PMD Lab ELR
MDx Lab Fax
UC Lab Phn
ER Lab Other
HCP 2nd Prov
ICP

Reporter Name/Phone
_____
_____
_____
_____
_____

☐ Ok to contact patient (only list once)
Local epi_name_____
Date report received by LHD ____/____/____LHD completion date ____/____/____

Basis of diagnosis next page

CASE'S NAME

BASIS OF DIAGNOSIS

CLINICAL DATA

Dlagnosis date ____/____/____

Symptomatic? ☐ yes ☐ no ☐ unk

if yes, ONSET DATE (first s/s) ____/____/____

Jaundiced ☐ yes ☐ no ____/____/____

Pregnant ☐ yes ☐ no ____/____/____ due date

Hospital Name:_____

Hospitalized from hepatitis ☐ yes ☐ no ____/____/____ admit date

Died from hepatitis ☐ yes ☐ no ____/____/____ admit date

REASON FOR TESTING (check all that apply)

- ☐ Symptoms of acute hepatitis
- ☐ Screening of asymptomatic patient with reported risk factors
- ☐ Screening of asymptomatic patient with no risk factors (e.g., patient requested)
- ☐ Prenatal screening
- ☐ Evaluation of elevated liver enzymes
- ☐ Blood/organ donor screening
- ☐ Followup testing for previous marker of viral hepatitis
- ☐ Born between 1945-1965
- ☐ Unknown ☐ Other _____

LABORATORY TESTS

Lab Name:_____ Date of blood draw ____/____/____

		pos.	neg.	not. done	unk
A	IgM anti-HAV	☐	☐	☐	☐
	total anti-HAV	☐	☐	☐	☐
B	HBsAg	☐	☐	☐	☐
	IgM anti-HBc	☐	☐	☐	☐
	total anti-HBc	☐	☐	☐	☐
	anti-HBs	☐	☐	☐	☐
	HBV DNA (PCR)	☐	☐	☐	☐
	HBeAg	☐	☐	☐	☐
C	anti-HCV	☐	☐	☐	☐

Anti-HCV signal-to-cutoff ratio _____

HCV RNA (PCR) ☐ ☐ ☐ ☐

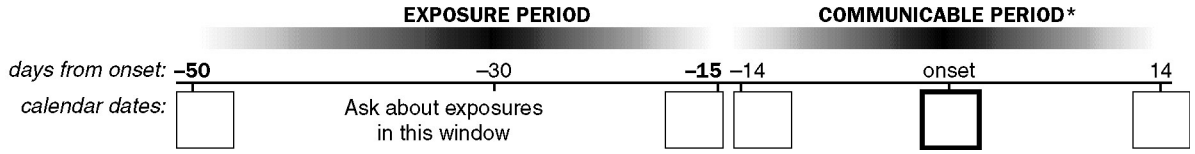
HCV genotype _____

	Upper limit normal *(list reference value from lab slips)*	
ALT (SGPT)	_____	_____
AST (SGOT)	_____	_____
Bilirubin	_____	_____

CASE'S NAME _____

INFECTION TIMELINE

Enter onset date in heavy box. Count back to figure the probable exposure period. Ask about risk questions in this time period.



Interviewed ☐ yes ☐ no Interview date(s) _____ Interviewed by _____

Who ☐ patient ☐ provider ☐ parent ☐ other

Reason not interviewed (choose one)
☐ not indicated ☐ unable to reach ☐ out of jurisdiction ☐ deceased
☐ refused ☐ physician interview ☐ medical record review

RISKS

Check all that apply. Provide relevant details (nature of contact names, dates, places, etc.). Name suspect or reported cases, even if reported in another county or state.

yes no ref unk

☐ ☐ ☐ ☐ foreign travel in 3 months prior to symptom onset
if yes, where_____

☐ ☐ ☐ ☐ household member with foreign travel in 3 months prior to symptom onset
if yes, where_____

☐ ☐ ☐ ☐ daycare attendee or employee

☐ ☐ ☐ ☐ household member attends/works at daycare center

☐ ☐ ☐ ☐ employed as a food handler during **2 weeks** prior to symptom onset or while ill

☐ ☐ ☐ ☐ ate at public gatherings

☐ ☐ ☐ ☐ ate raw/uncooked shellfish

☐ ☐ ☐ ☐ ate any frozen berries or frozen pomegranate seeds?
if yes, provide product info and where purchased
_____

☐ ☐ ☐ ☐ consumed any smoothies?
if yes, provide details on if smoothies were homemade or store bought
_____

yes no ref unk

☐ ☐ ☐ ☐ close contact of infectious confirmed or presumptive case
if yes, nature of contact
☐ household ☐ sexual
☐ child cared for by this patient
☐ baby sitter of this patient
☐ playmate ☐ other _____

☐ ☐ ☐ ☐ any sexual contact
if yes, number of male sexual partners
☐ 0 ☐ 2-5 ☐>5 ☐ unk
if yes, number of female sexual partners
☐ 0 ☐ 2-5 ☐>5 ☐ unk

☐ ☐ ☐ ☐ uses street drugs, but does not inject

☐ ☐ ☐ ☐ injects drugs not prescribed by a doctor

CONTACT MANAGEMENT

HOUSEHOLD ROSTER

Name	DOB/Age	Sex	Relation to case	Occupation	Education provided	Last exposure	Onset date	Interview date	Sick
		☐ M ☐ F	☐ daycare ☐ friend ☐ household ☐ sexual			___/___/___	___/___/___	___/___/___	☐Y ☐N
		☐ M ☐ F	☐ daycare ☐ friend ☐ household ☐ sexual			___/___/___	___/___/___	___/___/___	☐Y ☐N
		☐ M ☐ F	☐ daycare ☐ friend ☐ household ☐ sexual			___/___/___	___/___/___	___/___/___	☐ Y ☐N

CASE'S NAME

FOLLOW-UP

Case education provided? ☐ yes ☐ no ☐ unk if yes, date ___/___/___

Is the case aware of anyone with signs or symptoms of hepatitis? ☐ yes ☐ no ☐ unk

if yes, give names contact information and other details

_____

_____

Has the case previously been immunized against the disease? ☐ yes ☐ no ☐ unk

if yes,

Vaccine Type	*No. Doses*	*Date* (m/d/y)	*Provider/Phone*	*Verified* Y	N
_____	_____	___/___/___	_____	☐	☐
_____	_____	___/___/___	_____	☐	☐
_____	_____	___/___/___	_____	☐	☐

Did the case ever receive immuglobulin (IG)? ☐ yes ☐ no ☐ unk

During the 2 weeks prior to onset of symptoms or while ill, did the patient prepare food for any public or private gatherings? ☐ yes ☐ no ☐ unk

If the case was a food handler, works/attends daycare or is a HCW with direct patient contact, provide job description, dates worked during communicable period, supervisor's name and phone number etc.

Site or job description	Dates worked while communicable	Supervisor's name and phone number
_____	_____	_____
_____	_____	_____
_____	_____	_____
_____	_____	_____

Environmental inspection needed? ☐ yes ☐ no

Prophy recommended to non-household contact? ☐ yes ☐ no

ADMINISTRATION

OrpheusMarch 2023

Remember to copy patient's name to the top of this page.

Case report sent to OHA on ____/____/____

Completed by _____ Date _____ Phone _____

Investigation sent to OHA on ____/____/____

Appendix D. Recommendations for postexposure immunoprophylaxis of HAV, from 2020 ACIP guidelines for prevention of HAV infection		
Time since exposure	**Characteristics of Patient**	**Recommended prophylaxis**
2 weeks or less	**Age** < 12 months 12 months through 40 years ≥41 years	 IGIM[1], 0.02 mL/kg[2] HAV vaccine[3] IGIM, 0.02 mL/kg, but HAV vaccine can be used if IGIM is unavailable
	People of any age who are immunocompromised, have chronic liver disease, or contraindication to vaccination	IGIM, 0.02 mL/kg
More than 2 weeks	<12 months ≥12 months or older	No prophylaxis No prophylaxis, but HAV vaccine may be given for ongoing exposure

1. IGIM indicates Immune Globulin, Intramuscular.
2. IGIM should be administered deep into a large muscle mass. Ordinarily, no more than 5 mL should be administered in one site in an adult or large child; lesser amounts (maximum 3mL in one site) should be administered to small children and infants.
3. See Appendix E for dosage and schedule of HAV vaccine. Monovalent HAV vaccine (Havrix or Vaqta) are preferred for postexposure prophylaxis.

Appendix E. Recommended doses and schedules for inactivated HAV vaccines, from 2020 ACIP guidelines for prevention of HAV infection.					
Age	Vaccine	HAV antigen dose	Volume per dose, mL	Number of doses	Schedule
12 months – 18 years	Havrix GlaxoSmithKline)	720 ELU[1]	0.5	2	Initial and 6–12 months later
12 months– 18 years	Vaqta (Merck)	25 U[2]	0.5	2	Initial and 6–12 months later
≥19 years	Havrix GlaxoSmithKline)	1440 ELU	1.0	2	Initial and 6–12 months later
≥19 years	Vaqta (Merck)	50 U	1.0	2	Initial and 6–12 months later
≥18 years	Twinrix[3] GlaxoSmithKline)	720 ELU	1.0	3 or 4	Initial and 6–12 months later **OR** Initial, 7 days, and 21–30 days, followed by a dose at 12 months

1. ELU indicates enzyme-linked immunosorbent assay units.
2. U indicates antigen units (each unit is equivalent to approximately 1 µg of viral protein
3. A combination of hepatitis B (Engerix-B, 20 µg, and hepatitis A (Havrix) vaccine licensed only for adults.

Appendix F. Considerations for which HAV vaccine to use in an outbreak setting. (CDC)

https://www.cdc.gov/hepatitis/outbreaks/InterimOutbreakGuidance-HAV-VaccineAdmin.htm

One dose of hepatitis A vaccine

One dose of single-antigen hepatitis A vaccine has been shown to successfully control outbreaks of hepatitis A, since 94% develop immunity after the first dose (the second dose does improve duration of immunity and individuals should be strongly encouraged to obtain a second dose).

TWINRIX® for pre-exposure prophylaxis

Twinrix® is licensed for use in persons aged >18 years and is a combined hepatitis A (HAVRIX) and hepatitis B vaccine (ENGERIX-B®). ACIP recommends the hepatitis A and hepatitis B vaccine for some of the affected populations (e.g., persons at risk for both hepatitis A and B infection and likely to complete the 3-dose vaccine series).

After 3 doses of TWINRIX®, antibody responses to both antigens are equivalent to receiving both vaccines separately (given as two doses for Hep A and 3 doses of hep B vaccine). After a single dose, 94% of individuals develop immunity to hepatitis A but only 31% to hepatitis B.
If TWINRIX® is given during an outbreak, vaccinators should ensure everyone receiving TWINRIX® knows the importance of receiving all three doses to get maximum protection from hepatitis A and hepatitis B.

TWINRIX® for post-exposure prophylaxis

Twinrix is not recommended for post-exposure prophylaxis. TWINRIX® contains 720 EL.U. of hepatitis A antigen, which is half of the HAVRIX® adult dose. No data are available for use of TWINRIX® for post-exposure prophylaxis, and therefore is not recommended for post-exposure prophylaxis.

Pre-vaccination serological testing

Pre-vaccination serological testing is not required to administer hepatitis A vaccine. Vaccination of a person who is immune because of previous infection does not increase the risk for adverse events from vaccination. Vaccinations should not be postponed if vaccination history cannot be obtained, or records are unavailable.

In populations that are expected to have high rates of previous HAV infection, vaccination history should be obtained where feasible. Pre-vaccination testing may be considered to reduce costs by not vaccinating persons who are already immune.

Appendix G

CLEANING TO KILL HEPATITIS A

Public Health
Seattle & King County

Washington State Department of Health

- **ATTENTION: Hep A is very contagious**
- **Special cleaning and disinfecting is important to prevent hep A from spreading**

DISINFECT SURFACES THAT PEOPLE TOUCH A LOT

All bathroom surfaces

All kitchen surfaces

Anything else people touch a lot

USE BLEACH + WATER TO KILL HEPATITIS A

Most cleaning products don't kill hep A

Bleach kills hep A. Always mix bleach with water

To check if a different product kills hep A, read the label. The product label should say "effective against hepatitis A" or "effective against feline calicivirus." Follow instructions on the label.

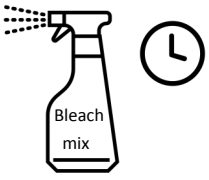
HOW TO USE BLEACH TO DISINFECT FOR HEPATITIS A

1. Protect yourself from the bleach: Wear gloves and a mask

2. Get air flowing: Open windows or use a fan

3. Clean surfaces: Use soapy water

4. Disinfect surfaces:
<u>If using 8.25% bleach:</u> mix 1 cup bleach with 1 gallon water.
<u>If using 5.25% bleach:</u> mix 1.5 cups bleach with 1 gallon water.



5. Let it sit:
Apply bleach mix, leave for 1-2 minutes

6. Rinse with water.
Dry with paper towel or air dry

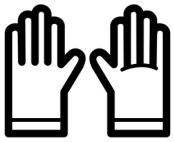
Don't save your bleach + water mix. It stops working after 24 hours.

For more information: www.doh.wa.gov/hepatitisA2019

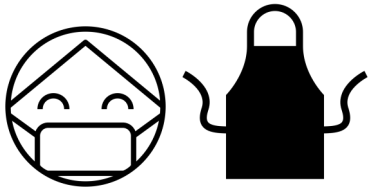
Adapted from Public Health – Seattle & King County.

HOW TO CLEAN UP VOMIT, DIARRHEA & BLOOD

1. PROTECT YOURSELF



Wear disposable plastic or rubber gloves.

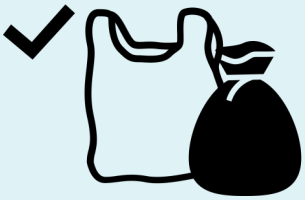


Wear a disposable mask and an apron if available.

Use paper towels.

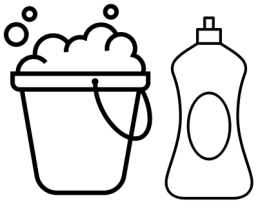
Wash hands with soap and warm water after cleaning.

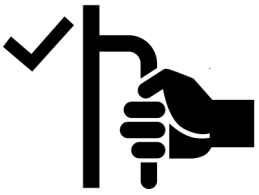
2. REMOVE VOMIT OR DIARRHEA RIGHT AWAY



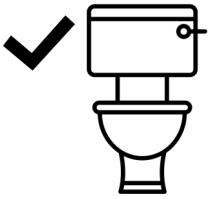
Use an absorbent material like kitty litter or baking soda on upholstery and carpets. Dispose of contaminated materials in plastic bag. Do not vacuum.

3. CLEAN ALL SOILED & NEARBY SURFACES WITH <u>SOAPY WATER</u>





Door knobs



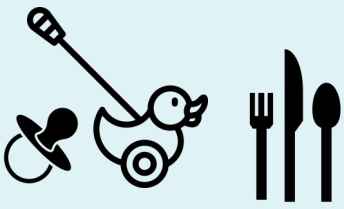
Toilet handles

Machine-wash clothing

4. DISINFECT SURFACES WITH BLEACH SOLUTION

<u>If using 8.25% bleach:</u> mix 1 cup bleach with 1 gallon water.
<u>If using 5.25% bleach:</u> mix 1.5 cups bleach with 1 gallon water.

Apply bleach mix, leave for 1-2 minutes



After applying bleach, rinse all surfaces with water.

For more information:
www.doh.wa.gov/hepatitisA2019

Washington State Department of Health
DOH 348-731 July 2019 English

For people with disabilities, this document is available on request in other formats. To submit a request, please call 1-800-525-0127 (TDD/TTY call 711).