Hepatitis D Virus (HDV)

Disease Category: Hepatitis

Timeframe to follow-up: Within 1 working day

Signs and Symptoms (1)	Symptom severity can be different with co-infection or superinfection. Superinfection symptoms can be more rapid and severe. • Dark Urine or clay-colored stools • feeling tired • fever • joint pain • loss of appetite • nausea, stomach pain, and vomiting • jaundice
Incubation (2)	Usually, superinfection is about 2 -8 weeks. As the coinfection has an incubation of 45 to 160 days; average 90 days.
Case Classification (3)	Laboratory Criteria Probable: Total antibody to hepatitis D virus is reactive. Confirmed: Detection of HDV RNA by nucleic acid test (qualitive, quantitative, genotyping).
	Case Classification Probable: meets probable laboratory evidence. Confirmed: meets confirmatory laboratory evidence.
Differential Diagnosis (4)	Viral Hepatitis A, Viral Hepatitis B, Viral Hepatitis C, Viral Hepatitis E, Alcoholic Hepatitis, Autoimmune Hepatitis, Budd Chiari Syndrome, Cholangitis, Acute Cholecystitis, and Liver Abscess.
Treatment (1)	Supportive care
Duration (1)	Symptoms usually persist for 3-7 weeks after infection with HDV.
Exposure (1)	Encountering the blood or body fluids of someone who is infected with HDV, through: sharing needles, syringes, or another equipment used to prepare or inject drugs, Birth to a person infected with the virus, sharing personal items that may have encountered the blood of an infected person.
Laboratory Testing (5)	Testing for HDV is not available at Nevada State Public Health Laboratory (NSPHL). Commercial testing is available for immunoglobulin G against HDV (IgG anti-HDV) and HDV RNA. Work with Office of State Epidemiology if outbreak is suspected.
Control of Contacts (1)	Exclusion of donation of organ, or blood, along with avoiding any contact with blood and serous fluid, by not sharing needles of any kind, and use condoms what having sexual intercourse.
Key areas of focus during investigation	Health authorities would notify any persons whom, the case having hepatitis B, C, or D, has had sexual relations and any person whom if shared any medical equipment such as needles of potential exposure to the disease.

Public Health Actions (6)	Reports on Hepatitis D cases must be made to the Local Health Authority during the regular business hours of the health authority on the first working day following the identification of the case. Local Health Authority to notify Office of State Epidemiology (dpbhepi@health.nv.gov) or call 775-684-5911/775-400-0333 (after hours) if outbreak suspected. For individual confirmed or probable cases: • Confirm diagnosis, if possible • Identify potential exposures • Prepare a case report and submit it to the Chief Medical Officer (through OSE) within 7 days after completing the case investigation • Identify potential outbreaks from common sources • Getting vaccinated for hepatitis B • The health authority shall notify any persons with whom the case having hepatitis B, C or D ("Hepatitis Delta") has had sexual relations and any person with whom the case has shared a needle of their potential exposure to the disease. The notification must inform such people of: (a) The modes of transmission of the disease. (b) Methods to prevent transmission of the disease; and (c) Their potential need for postexposure prophylaxis, immunization and testing for the presence of hepatitis B, C or Delta To the best of the local health authority's ability, each step of the investigation should be completed within one working day or in alignment with NAC 441A.
Key Partner Agencies	• Local Health Authorities (CCHHS, CNHD, NNPH, SNHD) • Nevada State Public Health Lab (NSPHL) • Southern Nevada Public Health Lab (SNPHL)

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HEPATITIS D

I. DISEASE REPORTING

A. Legal Reporting Requirements

A report to the health authority may be made by telephone; telecopy (in the form prescribed by the health authority); or any form of electronic communication identified by the health authority, following the specified format and procedure. (7)

1. Health Care Providers and Health Care Facilities

Health providers and facilities must notify the health authority where provider is located within the first working day after identifying the case. (7) (8) (9)

2. *Laboratories*

Laboratories must notify the health authority within the first working day after identifying the case. (7) If the lab is located outside of Nevada, notify the Nevada Chief Medical Officer through the Office of State Epidemiology (OSE) within the same timeframe. (7) (10)

3. Local Health Authority (LHA)

LHA's must notify the Office of State Epidemiology (OSE) within 7 days after completing the case investigation. (11)

II. THE DISEASE AND ITS EPIDEMIOLOGY

A. Background

Hepatitis D "Hepatitis Delta" is a liver disease caused by the Hepatitis D virus (HDV). However, Hepatitis D is a satellite virus which can be contracted only by people who already have been infected with hepatitis B virus. Hepatitis D virus has two forms of coinfection, with both forms involving Hepatitis B:

1. Co-infection (HBV + HDV at the same time)

A person becomes infected with Hepatitis B and Hepatitis D simultaneously. It typically happens through exposure to infected blood or bodily fluids, resulting usually in an acute infection, with symptoms that can be more severe than infection with HBV alone. Most adults can usually clear both viruses, and the risk of developing chronic Hepatitis D is *low.*

2. Superinfection (already diagnosed with chronic HBV + HDV)

This form of superinfection happens when a person who is already chronically infected with Hepatitis B, later becomes infected also with Hepatitis D. This can lead to severe symptoms, with relatively high chances of chronic Hepatitis D (in addition to the chronic HBV) with increasing risk of liver cirrhosis and liver failure and death. (3)

HDV is not a nationally notifiable condition, so the actual burden of disease is unknown. However, coinfection of Hepatitis B and Delta raises the possibility for such patients to be coinfected with HIV. (12)

B. Etiologic Agent

Hepatitis D virus (HDV) is the sole member of the Deltavirus genus. It contains a very small, circular, negative-sense single-stranded RNA genome. HDV is a defective virus that uses hepatitis B surface antigen (HBsAg) to form its viral envelope and produce infectious particles. (2)

C. Description of Illness

Hepatitis D is a coinfection with HBV, which can lead to mild-to-severe hepatitis signs and symptoms. The signs and symptoms would appear 2-8 weeks after the initial infection, which include flu-like symptoms, fatigue, weakness, loss of appetite, nausea, vomiting, dark urine and jaundice. Superinfection is the accelerated progression of HDV that can lead to a more severe disease that affects all ages. Individuals with chronic HDV can have symptoms of severe abdominal swelling, confusion or slurred speech, bleeding, and high fever. Chronic, persistent and progressive HDV can lead to liver cirrhosis with increased risk of hepatocellular carcinoma. (13) (14)

D. Disease Burden in Nevada

According to the CDC, hepatitis D is not a nationally notifiable condition so the burden of disease in the US is unknown. Unlike the other forms of Hepatitis HDV is not an endemic disease,. (15) HDV infections are often underreported because many people with hepatitis B virus (HBV) infection are not routinely tested for HDV. Globally, HDV is estimated to affect about 5% of individuals living with chronic HBV, and is more common in Mongolia, the Republic of Moldova, and countries in western and central Africa. (13)

E. Reservoirs

When it comes to HDV, humans already infected with HBV are the host reservoir. (16)

F. Modes of Transmission

Hepatitis D can be contracted through blood or body fluids of someone who is infected with HDV. Having intercourse with an infected person can lead to transmission, along with sharing needles, syringes or other equipment that is used to inject drugs. Sharing of personal items that have been in contact with blood of a person who is infected. Although it is rare, vertical transmission can also lead to transmission of HDV. (1) Given hepatitis B and D have the same mode of transmission there is a high frequency for such patients of being coinfected with HIV. (12)

G. Incubation Period

The incubation period for the coinfection of HBV and HDV is 45 to 160 days, but on average 90 days. However, for the superinfection of HDV, it takes roughly 2 to 8 weeks. (2)

H. Period of Communicability

Transmission of HDV cannot occur without concurrent HBV infection. Individuals with hepatitis D virus (HDV) infection are considered infectious during any period in which hepatitis B surface antigen (HBsAg) is detectable in their blood. In the coinfection form, infectiousness is limited to the duration of acute HBV infection and usually resolves once it clears. However, in the superinfection form individuals with chronic HBV infection may remain infectious long-term or lifelong due to persistent HBsAg positivity. (1)

I. Testing

Diagnosis of HDV is dependent on a diagnosis of hepatitis B, therefore, HBV markers will also be present. Abnormal aminotransferase concentrations with low or undetectable HBV DNA level in patients with HBV is suspicious for HDV infection. Commercial testing is available for immunoglobulin G antibodies against HDV (IgG anti-HDV). Acute HDV superinfection and chronic HDV infection can be differentiated from acute HBV/HDV by the absence of immunoglobulin M hepatitis B core antibodies (IgM anti-HBc). Current HDV infection can be assessed by testing for circulating HDV RNA. (2)

J. Treatment

Hepatitis D treatment is supportive; currently, there are no approved therapies by the FDA. Cases with chronic hepatitis B and D infection should be encouraged to see provider for antiviral therapy for HBV infection. In severe cases, liver transplantations may be considered. (2)

III. EPIDEMIOLOGIC CASE INVESTIGATION

The public health authority should begin investigating the case of Hepatitis D, step by step, within one working day of notification or in alignment with NAC 441A.

A. Step 1: Review relevant information about the disease.

1. Review scientific information in Control of Communicable Diseases Manual, most recent edition.

2. Review Hepatitis D most recent case definition (2025, CDC).

B. Step 2: Begin investigating the case.

1. Contact Reporting Source and/or Reported Case

Upon receiving an initial case report, review lab test results and available clinical details and epidemiologic factors. Please make three attempts to contact the case (text and phone calls) on separate days, at different times of the day (morning, afternoon, late afternoon). Document all attempts to contact a reporting source and/or reported case, preferably in the

"Encounters" tab of EpiTrax. Please use case report forms (CRF) to gather accurate information about the case. Focus on the key data listed above. Filling out an electronic version of the CRF in EpiTrax (called a Confidential Morbidity Report (CMR) in EpiTrax) is preferred. If used, the completed PDF version should be attached to the CMR in EpiTrax. The CRF should be completed within 7 days of completing the investigation of the case. (11)

C. Step 3: Identify potential sources of infection

The investigation focuses on exposures in the 2-8 weeks before onset of symptoms, including any contacts (e.g., household member, sex partners, IVD partners) with similar symptoms. Ask about any risk factors of injecting drugs, having a sex with someone who is infected HBV and HDV. Along with having household contact with someone with HDV, health care or public safety worker that may have been exposed to blood or blood contaminated body fluids. (1)

D. Step 4: Initiate control measures for case and/or for contacts (see Section IV – Section VI below).

E. Step 5: Provide Education and Prevention messaging to the case and/or contacts (see Section IX below).

IV. CONTROL OF CASE (17)

Any newly diagnosed acute and chronic hepatitis D patients should be advised on how to prevent transmission to others.

1. Healthcare Worker

If the case is a healthcare worker has the potential for exposing patients by blood or other body fluids, work with infection control and ask case not work until acute symptoms have resolved. Once the case returns to work, encourage that special precautions are set in place: wearing gloves for all procedures when hands are in contact with mucosal surfaces or broken skin; avoid situations involving sharps that could expose susceptible patients to blood or objects contaminated with case's blood; and proper and frequent hand washing.

2. Case is Pregnant

Follow perinatal hepatitis B recommendations if case with HDV is pregnant. HDV cannot infect the infant without HBV, so preventing HBV prevents HDV transmission as well.

Infants born to mothers with HBV (with or without HDV) should receive HBIG (0.5 mL IM) and Hepatitis B vaccine (first dose) *within 12 hours of birth.* This combination is *>90% effective* at preventing HBV transmission.

HDV cannot infect the infant without HBV, so preventing HBV prevents HDV transmission as well.

3. Recent Blood Donor or Recipient

The blood bank should be notified so that any unused product can be recalled.

4. General Population

Standard precautions should be taken for any cases that are hospitalized. Any susceptible cases should be encouraged to get vaccinated against hepatitis A and B.

V. CONTROL OF CONTACTS (11) (17)

Identify contacts exposed to the case's blood or sexual fluids during the case investigation process. Close contacts include household members, sexual contacts, and needle sharing contacts. Evaluate symptoms, provide education and prevention of HDV, and inform contacts that hepatitis may be infectious without any symptoms. Refer any symptomatic contacts to a healthcare provider for testing. Investigate symptomatic contacts in the same manner as a case. Recommend hepatitis B vaccination for all susceptible household and other close contacts of case.

VI. CONTROL OF CARRIERS (11; 17)

Individuals can develop chronic HDV, most associated with an existing chronic hepatitis B infection. Carriers are at higher risk developing severe liver damage. Provide education and prevention to reduce risk of transmission to others.

VII. MANAGEMENT OF SPECIAL SITUATIONS/OUTBREAK CONTROL

Coordinate with senior epidemiology staff to determine if an outbreak is occurring. If so, notify DPBH Environmental Health, local health authorities, or infection control, as appropriate.

VIII. PREVENTION (18)

The investigator should reference the most recent disease, specific public educational materials from CDC. The Nevada OSE website also provides information about Hepatitis D.

- The best way to prevent hepatitis D is by getting the hepatitis B and A vaccine. The hepatitis A and B vaccine is an effective and safe way to fight against the different forms of hepatitis. To be fully protected, you will need to receive all shots.
- Use condoms with sexual partners.
- Avoid and wash hands thoroughly when encountering blood and bodily fluids.
- Avoid sharing any sharp items such as razors, nail clippers, toothbrushes and body jewelry.
- Avoid sharing any illegal street drugs that may include, injecting, inhaling, snorting or popping any pills.
- Make sure to use new, sterile needles when used for body piercing, tattoos and acupuncture.
- If pregnant and you may be infected with hepatitis, please seek medical attention.

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- Oregon Health Authority Investigative Guidelines
- Washington State Department of Health Reporting and Surveillance Guidelines
- Washoe County Health District Epidemiology and Communicable Disease Program Investigation of Communicable Disease Manual

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XI. UPDATE LOG

12/02/2025

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Chief Medical Officer Approval Date