HEPATITIS C
Perinatal
(Not Acute or Chronic)

REPORTING INFORMATION

- **Class B:** Report the case, suspected case and/or a positive laboratory result to the local public health department where the patient resides by the close of the next business day. If patient residence is unknown, report to the local public health department in which the reporting health care provider or laboratory is located.
- Health care providers and laboratories report using the following form(s) and/or mechanisms: Viral Hepatitis Case Report form, Ohio Confidential Reportable Disease form (HEA 3334, rev. 5/2014), Positive Laboratory Findings for Reportable Disease form (HEA 3333, rev. 8/2005), Ohio Disease Reporting System (ODRS), electronic laboratory reporting, or telephone.
- Local public health departments report the case, suspected case and/or a positive laboratory result to the Ohio Department of Health (ODH) via ODRS by the end of the next business day. Information should not be sent to ODH, unless requested.
- Key fields for ODRS reporting include:
    - Patient Demographics
        - First and last name
        - Date of birth or age (including age type),
        - Sex
        - Race
    - Laboratory Information
        - Test name
        - Result (qualitative)
        - Numeric results (quantitative)
        - Reference range for numeric test results
        - Do not enter Organism if the test is anti-HCV, HCV RNA, or ALT, as these tests do not identify the organism.

AGENT

Hepatitis C virus (HCV) is classified in the *Flaviviridae* family and, until recently, was the only member of the *Hepacivirus* genus. Hepatitis C virus is a single-stranded, positive-sense RNA virus, 55-65 nm in diameter. At least seven different genotypes and more than 80 subtypes of hepatitis C virus exist. In the United States, the most common genotype is genotype 1 (about 70%).

TEST NAME ABBREVIATIONS

ALT (SGPT)	Alanine aminotransferase
Anti-HCV	Antibody to hepatitis C virus
HCV RNA	Hepatitis C virus ribonucleic acid
HCV NAT	Nucleic acid test for hepatitis C virus

CASE DEFINITION

Background

Screening recommendations and interpretation of perinatal hepatitis C virus (HCV) laboratory test results for infants born to HCV-infected mothers differ from those for adolescents and adults. There has been a reported increase of HCV infection among women of childbearing age in numerous jurisdictions in the United States, and there would be an expected rise in perinatal transmission as a result. While there are no measures currently

recommended for prevention of HCV transmission by pregnant women to their infants, HCV in pediatric populations can lead to significant illness and it is important for those children to be appropriately assessed and in clinical care for HCV infection. Available curative HCV therapies are not currently recommended for pediatric patients under the age of 12, but that may change as data become available on the use of recently approved medications in younger pediatric populations.

There is no one standard HCV screening recommendation for infants born to HCV infected mothers. Available guidelines consistently recommend against antibody testing for children under 18 months of age due to transient maternal HCV antibody that may not reflect actual infection status of the child. However, there are multiple recommended timelines for HCV ribonucleic acid (RNA) screening of infants born to HCV-infected mothers. These include not testing until at least two months of age and, in some cases, recommending repeat serial testing of infants if an infant tests positive on one test, if done before 12 months of age. There is concern that testing outside of recommended parameters may identify transient HCV RNA in infants that may spontaneously clear the infection following perinatal exposure. Inappropriate testing and loss of follow-up of infants born to HCV-infected mothers has been reported.

There is currently no recommendation for universal HCV screening among pregnant women. Testing is only recommended for women of childbearing age if they are known to be at-risk for HCV infection, regardless of pregnancy status.

Clinical Criteria
Perinatal hepatitis C in in pediatric patients may range from asymptomatic to fulminant hepatitis.

Laboratory Criteria for Diagnosis
- HCV RNA positive test results for infants between two to 36 months of age; OR
- HCV genotype test results for infants between two to 36 months age; OR
- HCV antigen test results for infants between two to 36 months of age

Epidemiological Linkage
Maternal infection with HCV of any duration, if known. Not known to have been exposed to HCV via a mechanism other than perinatal (e.g., not acquired via healthcare).

Criteria to Distinguish a New Case from an Existing Case
Test results prior to two months of age should not be used for classification. Test results after 36 months of age should be reported under the 2016 Acute and Chronic HCV Infection case definition (15-ID-03) and not as perinatal HCV infection. Cases in the specified age range that are known to have been exposed to HCV via healthcare and not perinatally should be reported under the 2015 position statement. Event date should be based on earliest relevant laboratory test date within the two- to 36-month window.

Case Classification
Confirmed
Infant who has a positive test for HCV RNA nucleic acid amplification test (NAAT), HCV antigen, or detectable HCV genotype at ≥2 months and ≤36 months of age AND is not known to have been exposed to HCV via a mechanism other than perinatal.

Comments
If a child reported as a perinatal case of HCV continues to have positive HCV RNA NAAT, HCV antigen, or detectable HCV genotype when they are older than 36 months, they are

considered a chronic case of HCV. A chronic HCV reportable condition should be created in ODRS for continued positive test results after 36 months of age.

SIGNS AND SYMPTOMS

Most infants infected with HCV at birth have no symptoms and do well during childhood.

DIAGNOSIS

As infants will have maternal antibodies to HCV, they should not be tested using the antibody test until 18 months of age or later. If an earlier diagnosis is desired, the infant can be tested with the HCV RNA test beginning at two months of age.

EPIDEMIOLOGY

Source

Hepatitis C virus (HCV) is found in human blood and blood products. It can be transmitted at the time of birth from mother to infant. There is currently no treatment to prevent vertical transmission from occurring.

Occurrence

Hepatitis C infection is prevalent throughout the world and is the most common chronic bloodborne infection in the United States. Approximately 6 of every 100 infants born to HCV-infected mothers become infected with the virus.

The rate of women of childbearing age (WCBA) testing positive for hepatitis C increased by 22 percent across the United States between 2011 and 2014 (from 139 to 169 per 100,000 WCBA), according to a new report from the Centers for Disease Control and Prevention (CDC). Over the same time period, the national rate of infants born to women living with hepatitis C increased by 68 percent (from 0.19 percent to 0.32 percent). In Ohio, if the perinatal HCV case definition were to be applied to cases reported in 2017, there would have been 33 perinatal HCV cases at a rate of 0.28 per 100,000.

The risk is increased by the presence of maternal HCV viremia at delivery and is two to three times greater if the woman is coinfected with HIV. Most infants infected with HCV at birth have no symptoms and do well during childhood. More research is needed to find out the long-term effects of perinatal HCV infection.

PUBLIC HEALTH MANAGEMENT

There is no vaccine for hepatitis C.

New direct acting antiviral treatments for hepatitis C are not approved for use in those under 12 years of age, including newborns and infants.

For acute hepatitis C virus (HCV) infection, supportive care is the mainstay of treatment. Early initiation of antiviral therapy is not defined. In chronic HCV infection, the goal is to identify complications and suitable candidates for antiviral therapy. The purpose of antiviral therapy is to ameliorate symptoms and reduce the risk of progressive liver disease. Consultation with a gastroenterologist may be indicated. Long-term monitoring is essential because the risk of liver cancer is still high, even in sustained virologic responders. In children, a well-defined interval for monitoring is not known, but every six to 12 months is probably reasonable to assess alanine aminotransferase (ALT) levels and clinical status. Serum ALT levels have no consistent relationship to liver histologic findings. Longitudinal assessment of hepatitis C virus RNA provides a strong correlation with liver histologic results but is a weaker predictor of rate of progression.

Special Information
Questions about reporting, surveillance, and epidemiology for perinatal hepatitis C or requests for data should be directed to the Hepatitis Surveillance Program at 614-387-2722.

Questions about the testing, prevention, and control of perinatal hepatitis C should be directed to the Hepatitis Prevention Program at 614-387-2722.

Many excellent fact sheets and other resources are available at the CDC Website: http://www.cdc.gov/hepatitis.

Should pregnant women be routinely tested for HCV?
No. Since pregnant women have no greater risk of being infected with HCV than non-pregnant women and interventions to prevent mother-to-child transmission are lacking, routine anti-HCV testing of pregnant women is not recommended. Pregnant women should be tested for anti-HCV only if they have risk factors for HCV infection.

When should children born to HCV-infected mothers be tested to see if they were infected at birth?
Children should be tested for anti-HCV no sooner than age 18 months because anti-HCV from the mother might last until this age. If diagnosis is desired before the child turns 18 months, testing for HCV RNA could be performed at or after the infant's first well-child visit at age two months. HCV RNA testing should then be repeated at a subsequent visit, independent of the initial HCV RNA test result.

What is the risk that an HCV-infected mother will spread HCV to her infant during birth?
The risk of transmission from mother is child is 4% to 7%. Transmission occurs at the time of birth, and no prophylaxis is available to prevent it. The risk is increased by the presence of maternal HCV viremia at delivery and is two to three times greater if the woman is coinfected with HIV. Most infants infected with HCV at birth have no symptoms and do well during childhood. More research is needed to find out the long-term effects of perinatal HCV infection.

Should a woman with HCV infection be advised against breastfeeding?
No. There is no evidence that breastfeeding spreads HCV. However, HCV-positive mothers may want to consider abstaining from breastfeeding if their nipples are cracked or bleeding.