

Communicable Disease & Immunization Update

For Pierce County Healthcare Providers



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Measles Outbreak

As of March 26, 2019, 74 cases of measles occurred in Washington (73 in the Vancouver area and one in King County). Four cases in Portland, Oregon have also been traced to this outbreak. Several European countries are currently experiencing large measles outbreaks. A traveler from Europe visited Vancouver, Washington in December and developed measles during the visit. A large number of unvaccinated people were exposed, leading to several generations of measles infections.

Measles is highly contagious via airborne droplets. Many cases have been among household members and close contacts of confirmed cases; however, some of the cases were exposed in healthcare settings or other community locations. At this time, cases have slowed; the onset of rash in the last case was in the second week of March. We are hopeful this outbreak is waning.

This outbreak has been the worst in Washington since 1990 when 357 cases were reported. Since the early 1990s, measles has been very rare in the United States. Many healthcare providers have never seen the disease. The measles rash alone is not distinctive—it is a maculopapular rash that resembles other viral exanthem or a drug eruption. However, the characteristics and progression of measles infection are distinctive and predictable:

- Two- to four-day prodrome of significant fever, respiratory symptoms and conjunctivitis.
- A cough is always associated with measles.

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- Koplik spots, an “internal rash,” may occur in the mouth prior to exanthem onset, but this is frequently unrecognized or not be present.
- A maculopapular rash breaks out two to four days after onset of initial symptoms.
- Fever and rash must overlap in time—if the fever stops and the rash begins, the illness is not measles.
- The rash starts on the head or face, and spreads downward to become generalized.
- People with measles are usually very ill.

Unless there is an outbreak going on in the community, measles is always associated with travel to an area where measles is endemic or outbreaks are occurring. Rarely, sporadic cases occurred in the United States where the person did not leave the country, but visited an international airport. This is why it is important to ask about travel or sick contacts when evaluating people with febrile rash illness.

Prevention

Measles vaccine is one of the most effective—99% of people who have been given two doses (with the first dose given on or after their first birthday) show serologic response. Vaccine-induced immunity is likely lifelong in most people. Measles, mumps, rubella (MMR) vaccine should be given at 12 months of age and again at 4 to 6 years of age. Infants age 6 to 12 months who will travel outside of the United States should be given one dose of MMR that does not count toward the two recommended lifetime doses. Infants age 0 to 6 months have maternal antibody that offers some protection.

Post-exposure prophylaxis (PEP) with MMR or measles immune globulin (IG) can be given to susceptible close contacts and may prevent infection if given in time—MMR within three days and IG within six days. The short window of time available for PEP makes timely case identification critical. IG is generally reserved for infants, pregnant women and people who are severely immune compromised.

Diagnosis

The most reliable method of diagnosis is polymerase chain reaction (PCR) on nasopharyngeal swab and/or urine. PCR for measles is performed at Washington State Public Health Lab. You must call the Health Department to facilitate testing. Serology for measles IgM is also diagnostic; however, false positive results are common and false negative results can occur. When evaluating patients for measles, collect nasopharyngeal or throat swab, at least 50 ml urine and serum.

Immediately report suspected measles, 24 hours a day, seven days a week, to (253) 798-6410.

Sources

1. CDC Pink Book: www.cdc.gov/vaccines/pubs/pinkbook/downloads/meas.pdf.
2. Washington Department of Health Surveillance Guidelines: www.doh.wa.gov/Portals/1/Documents/5100/420-063-Guideline-Measles.pdf.

New Perinatal Hepatitis C Effort

By Kim Desmarais, MPH, Viral Hepatitis Coordinator

Background

The number of acute, or newly acquired, hepatitis C virus (HCV) infections has steadily increased nationally and locally. From 2013 to 2018, the number of newly reported acute HCV cases in Pierce County increased from 7 cases in 2013 to 45 cases in 2018 (see chart to the right). Due to the asymptomatic nature of acute HCV, Centers for Disease Control and Prevention (CDC) estimates the actual number of cases is 14 times the number of reported cases.¹

Most cases of acute HCV are tied to the opioid epidemic and the increase in injection drug use; both of which are occurring nationwide.

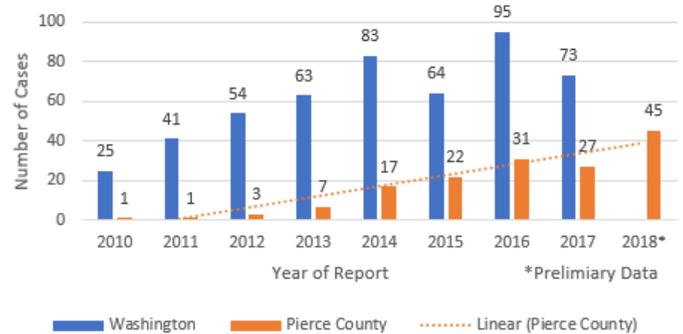
The cure rate for HCV using direct-acting antivirals (DAAs) is well above 90%. Treatment is recommended for almost everyone; two exceptions are pregnant women and children under age 12 years. CDC reports the greatest increases in acute HCV infections from 2005 to 2016 were among people age 20 to 39 years.² Women comprise approximately half of these new cases. This is concerning, as these are the main childbearing years.

HCV and Pregnancy

The risk of transmission from mother to infant can vary depending on human immunodeficiency virus (HIV) coinfection and HCV viral load; but overall transmission is estimated to be 5%. Based on the 2003 to 2010 National Health and Nutrition Examination Survey, an estimated 31,000 children age 6 to 11 years and 101,000 adolescents age 12 to 19 years were chronically infected with HCV.³ Given the increase in HCV since then, the number of chronically infected children and adolescents will likely increase.

HCV screening is currently only recommended in pregnant women with known or suspected HCV infection risk—most commonly, those who have used injection drugs or received a blood transfusion prior to 1990. However, American

Acute Hepatitis C Cases in Washington and Pierce County, 2010-2018



Source: Washington Department of Health communicable disease surveillance data and Tacoma-Pierce County Health Department Viral Hepatitis Program⁹

Association for the Study of Liver Diseases (AASLD) and Infectious Diseases Society of America recently recommended universal screening for all pregnant women, regardless of risk.⁸ A practice's decision to use risk-based or universal screening will depend on patient population, financial considerations and referral coordination.

The standard screening test is serum antibody to HCV. Positive antibody tests should be followed by HCV ribonucleic acid (RNA) testing. Approximately 20% of people will spontaneously clear HCV after initial infection and RNA will be negative. People with negative RNA do not have active HCV infection and no further follow up is needed—unless risk factors, like injection drug use, are ongoing. People who use injection drugs need regular screening.

New Perinatal Hepatitis C Program

Recognizing the vulnerability of mothers and babies, the Health Department created a Perinatal Hepatitis C Program. Although we routinely monitor immunization and serostatus of infants born to hepatitis B positive mothers, tracking perinatal HCV is relatively new for public health. We expect this topic to become more mainstream given the increase of acute HCV in women of childbearing age.

The goals of this effort are:

- Recommend timely testing for infants born to mothers with lab-confirmed HCV infection.
- Improve surveillance by tracking the number of pregnant women with positive HCV test results.
- Encourage treatment for non-pregnant women with HCV before their next pregnancy.

Timely Testing for Infants

Unfortunately, studies have found most exposed infants are not tested for HCV. Reported reasons include lack of routine pediatric care, no coordination between obstetric providers and pediatric providers, mothers not knowing their infants need testing, or foster care placement.^{5,6,7}

To date, neither CDC nor AASLD provide one standard recommendation for screening infants born to women with HCV.^{4,8} We recommend testing perinatally exposed infants with an HCV RNA test between 2 to 6 months of age. Infants who test negative should be tested again six months after the initial test to rule out a false-negative result, as viral quantity can fluctuate in a newly infected person. If the initial HCV RNA result is positive, the infant should be referred to a pediatric infectious disease specialist.

Testing for HCV antibody earlier than 18 months can detect maternal HCV antibodies rather than the infant's own antibodies. The use of an HCV antibody test (HCV Ab) is recommended in infants and children over the age of 18 months to determine disease transmission.

Recommended test sequence for infants born to women with lab-confirmed HCV

Test	Optimal Age	Subsequent Test
HCV RNA	2 to 6 months	Regardless of results, test again six months after initial test
HCV Ab	18 months	If positive, RNA test

Perinatal HCV materials and tools are available on our website at www.tpchd.org/healthy-people/diseases/hepatitis/hepatitis-information-for-providers.

Pierce County Testing Data

For the first three quarters of 2018, 146 women of childbearing age (15 to 44 years) with a positive HCV test were reported. Thirty (20.5%) were also pregnant at the time of their positive test result. Not all the pregnant women were actively infected with HCV. Some had already been treated or the infection cleared spontaneously. The data do not include the number of pregnant women previously diagnosed with HCV.

Initial data suggest most infants born to women with active infection were not tested for HCV at 2 to 6 months of age (see

Testing Outcome for Pierce County Infants Exposed to HCV, Jan.1-Sept. 30, 2018

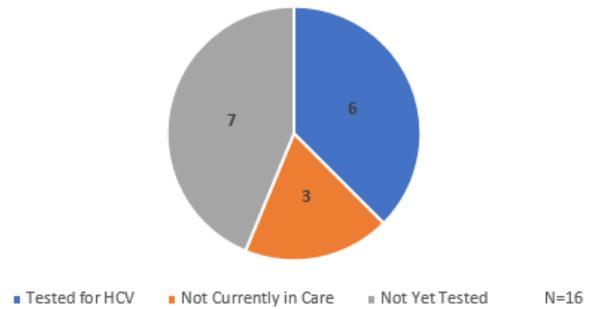


chart above). The data only capture the infants who were born to women actively infected with HCV. We monitored 16 exposed infants for the first three quarters of 2018:

- Six were tested (with no differentiation between type of HCV test used or timeliness of the test).
- Three had fallen out of care.
- Seven appeared to be in care but had not yet been tested for HCV. In some of cases, providers are waiting to perform HCV Ab testing at 18 months of age.

Conclusion

Most local health jurisdictions are still in the early stages of perinatal HCV monitoring. However, there is movement on a national level to increase follow-up of exposed infants. With the assistance of obstetric and pediatric providers, Pierce County could become a leader in this effort.

Call us at (253) 798-6410 to ask questions or report cases of perinatal HCV.

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4. www.cdc.gov/nndss/conditions/hepatitis-c-perinatal-infection/case-definition/2018.
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8. www.hcvguidelines.org/unique-populations/pregnancy.
9. www.doh.wa.gov/Portals/1/Documents/5100/420-004-CDAnnualReportIncidenceRates.pdf.

Acute Flaccid Myelitis

By Matthew Rollosso, MPH&TM, RN, Nurse Epidemiologist

Acute flaccid myelitis (AFM) is a neurological disorder characterized by rapid onset of weakness in one or more limbs. AFM is a subtype of acute flaccid paralysis (AFP). AFP is an umbrella term that includes, but is not limited to, Guillain-Barre syndrome, transverse myelitis, poliomyelitis, spinal cord injury and neuromuscular disorders. AFM is differentiated from other forms of AFP by spinal cord lesions largely restricted to gray matter that span one or more vertebral segments on magnetic resonance imaging (MRI).

AFM is a lower motor neuron disorder (affecting nerve cells in the spinal cord and brain stem). The absence of spasticity differentiates flaccid paralysis from upper motor neuron disorders (affecting nerve cells in the brain). Weakness ranges from mild to total paralysis and can affect all four limbs. Lesions may also occur in the brain stem. Cranial nerve deficits have been reported. Deep tendon reflexes may be normal, diminished or absent. Sensation is usually unaffected. Most AFM cases report febrile illness, upper respiratory illness and/or gastrointestinal illness within the four weeks preceding the onset of limb weakness.

AFM most frequently affects children. Between 2012 and 2015, the median age of reported AFM cases was 7.1 years (range 5 months to 73 years). Of the cases reported between Jan. 1 and Nov. 2, 2018, the median age is 4 years (range 7 months to 32 years).

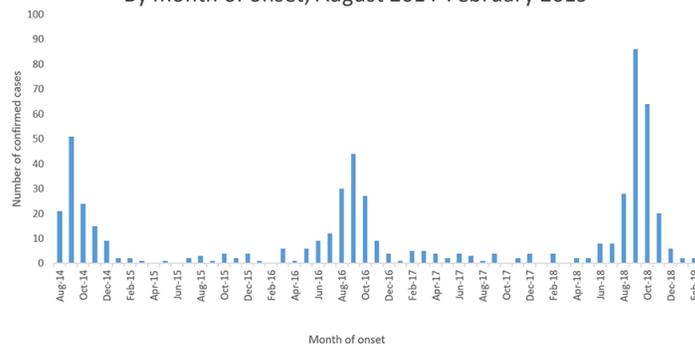
While a definitive cause is unknown, evidence suggests AFM may result from enterovirus infection. In August 2014, CDC noted an increase in AFM cases coinciding with a nationwide outbreak of severe respiratory disease caused by enterovirus D68. In temperate regions, enterovirus infection peaks in the summer and fall months. Similar peaks are seen with AFM, and enteroviruses have been detected in clinical specimens from AFM cases. AFM cases have increased every two years since 2014 (see chart to the right).

Enterovirus is a large family of viruses that includes polioviruses, coxsackieviruses, echoviruses and numbered viruses. Most enterovirus infections are asymptomatic or cause only minor illness. Consequently, the true incidence of enterovirus infections is unknown. Illnesses attributable to enteroviruses include aseptic meningitis, encephalitis, upper respiratory infection, gastrointestinal illness and acute hemorrhagic conjunctivitis.

Although poliomyelitis has been eliminated from the western hemisphere, patient history should include travel to a polio-endemic region, receipt of oral polio vaccine (OPV) or exposure to a person who traveled to an endemic region or who recently received OPV. Immediately report suspected cases of poliomyelitis to the Health Department.

Viruses are more likely to be identified when specimens are collected as soon as possible after the onset of limb weakness. Upon Health Department approval, submit to

Confirmed United States AFM Cases Reported to CDC
By month of onset, August 2014-February 2019



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Hepatitis A: Outbreaks & New Recommendations

Since March 2017, several large outbreaks of hepatitis A virus (HAV) have occurred in 15 states across the United States. More than 11,000 cases have occurred in these states. In some states, outbreaks are ongoing.¹ Transmission has been primarily person-to-person; people who are homeless and/or using drugs are most at risk.

These outbreaks are notable for high hospitalization rates and more deaths than expected. As of December 2018, 66% of cases across the country have been hospitalized and 110 people died—compared to 7% of hepatitis A cases hospitalized in 1999. Increased hospitalization and mortality in current outbreaks are likely due to preexisting illnesses (like chronic hepatitis B and hepatitis C), age and risk behaviors common among people reporting drug use and homelessness (like heavy alcohol use).

Trends Prior To Outbreak

Prior to routine childhood hepatitis A immunization, infants and young children (who are usually asymptomatic when infected with HAV) were the main drivers of outbreaks in the United States. After the introduction of hepatitis A vaccine in 1996, the incidence of reported HAV infection steadily decreased in the United States until 2011—and then stabilized at an annual average of approximately 1,600 reported cases. Most cases were international travelers returning from countries where hepatitis A is common (most of the developing world) or foodborne outbreaks.

During the mid-1980s, people using drugs accounted for more than 20% of all HAV cases reported to CDC, and outbreaks in this population were common. However, large community outbreaks within this population rarely occurred after 1996, when hepatitis A vaccine was first recommended for people who use drugs. Large outbreaks of hepatitis A among people who are homeless have not been previously described in the United States.

Why are outbreaks occurring now?

Transmission of HAV between people who are homeless and/or using drugs result from crowded, unsanitary living conditions, inability to maintain personal hygiene and possibly specific sexual contact and practices. Contaminated injection equipment and other drug paraphernalia can spread HAV as well. People who are homeless are also in poverty and have limited access to

healthcare. They may distrust public officials and public messages, making this a difficult population to reach.

Once cases occur in this population, outbreak control is extremely difficult. People are contagious with HAV up to two weeks prior to onset of symptoms, giving the virus a big head start to spread before a person is aware or seeks medical care. Also, contact tracing to give PEP to close contacts is problematic in this population and not very effective.

An increasing proportion of adults in the United States are susceptible to HAV because of reduced exposure to the virus early in life and low vaccination coverage in the general population and in high-risk groups. Immunity from vaccine or disease varies by age group. Data from the National Health and Nutritional Examination Survey 2009 to 2010 show 47% of children age 6 to 11 years are immune; only 13.5% of people age 30 to 49 years have serologic immunity. Overall population immunity is 26.5%.²

New Vaccine Recommendations

On Oct. 24, 2018, CDC's Advisory Committee on Immunization Practice voted to recommend routine hepatitis A immunization for all people older than one year who are homeless. Experts presented information about ongoing outbreaks and higher risk of severe outcomes for this population. The presentation also included evidence of probable cost effectiveness, when taking into account hospitalizations, sequelae of fulminant liver failure and costs and effectiveness of public health outbreak control.

Hepatitis A vaccination is also routinely recommended for:

- Children age 12 months or older.
- Travelers to countries where hepatitis A is common—basically anywhere except the United States, Canada, Japan, New Zealand, Australia and some Western European countries.
- Men who have sex with men.
- People who use illegal drugs.
- People with chronic liver disease, like hepatitis B or hepatitis C.
- People being treated with clotting-factor concentrates.
- Workers who may be exposed to hepatitis A-infected animals, like in a research lab.

- Adoptive families or others who expect to have close contact with an international adoptee from a country where hepatitis A is common.

Hepatitis A vaccine is given in two doses, six months apart. Protective anti-HAV antibody levels after a single dose of vaccine is up to 95% effective and offer protection for up to 11 years. Additionally, a single dose of vaccine has been shown to successfully control Hepatitis A outbreaks.

Babies age 6 to 12 months who will travel to an endemic country should have a dose of hepatitis A vaccine, along with a dose of MMR vaccine. These vaccines, given prior to age 12 months, cannot be counted toward recommended lifetime doses.

Post-Exposure Prophylaxis Recommendations

Close contacts of a case of hepatitis A should receive PEP as soon as possible, unless they have previously been vaccinated or are known to be immune. Hepatitis A vaccine is now routinely recommended for PEP for all people age 12 months and older.³

IG should be given for PEP for infants younger than 12 months. IG, if available, may also be given in addition to vaccine to people 40 years and older. People older than 12

months who are immune-compromised or who have chronic liver disease should receive both vaccine and IG simultaneously in different anatomic sites. IG, if given, should be given within two weeks of exposure. The dose of IG for hepatitis A PEP is 0.1 mg/kg.

Diagnosis and Reporting

The symptoms of hepatitis A include nausea, vomiting, abdominal pain, fatigue, pale stool and dark urine. Jaundice usually occurs a few days after onset of symptoms. Transaminitis is usually severe, with ALT (SGPT) usually thousands U/L. Collect serum for an acute hepatitis panel; in confirmed cases, hepatitis A IgM will be positive. Report suspected and confirmed cases to (253) 798-6410.

Sources

1. 2017 Outbreaks of hepatitis A in multiple states among persons who use drugs and/or people who are homeless. CDC webpage accessed Jan 8, 2019. www.cdc.gov/hepatitis/outbreaks/2017March-HepatitisA.htm.
2. Progress toward eliminating hepatitis A disease in the United States. MMWR Supplement/Feb. 12, 2016/65(1);29-41. www.cdc.gov/mmwr/volumes/65/su/su6501a6.htm#T4_down.
3. 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, Nov. 2, 2018/67(43); 1216-20.

Selected Notifiable Conditions Data

Condition	2018*	2017	Change
Brucellosis	1	0	↑ NC
<i>Campylobacter</i>	258	275	↓ 6%
Carbapenemase-producing CRE	2	3	↓ NC
<i>Chlamydia</i>	5,921	5,435	↑ 9%
Coccidiomycosis	10	10	---
Cryptosporidium	22	20	↑ 10%
Enterohemorrhagic <i>E. coli</i>	51	36	↑ 42%
<i>Giardia lamblia</i>	37	44	↓ 16%
Gonorrhea	1,922	1,771	↑ 9%
<i>Haemophilus influenzae</i>	3	3	---
Hepatitis A, acute	2	1	↑ NC
Hepatitis B, acute	6	4	↑ NC
Hepatitis B, chronic	179	186	↓ 4%
Hepatitis C, acute	45	26	↑ 73%
Hepatitis C, chronic	1,479	1,408	↑ 5%
Hepatitis E, acute	1	0	↑ NC

Condition	2018*	2017	Change
Herpes, initial infection	481	377	↑ 28%
<i>Listeria monocytogenes</i>	0	1	↓ NC
Measles	0	0	---
Meningococcal	7	3	↑ NC
Mumps	2	52	↓ 96%
Pertussis	73	115	↓ 37%
<i>Salmonella</i>	75	115	↓ 35%
<i>Shigella</i>	19	24	↓ 21%
Syphilis, congenital	1	0	↑ NC
Syphilis, early latent	51	53	↓ 4%
Syphilis, late & late latent	70	62	↑ 13%
Syphilis, primary & secondary	63	62	↑ 2%
Tuberculosis	19	18	↑ 6%
Yersiniosis	6	5	↑ NC

* Preliminary
 NC Not calculated, as numbers are too small for valid comparison