

EPI Update for Friday, September 17, 2010
Center for Acute Disease Epidemiology (CADE)
Iowa Department of Public Health (IDPH)

Items for this week's EPI Update include:

- **Viral respiratory pathogen activity update**
- **Epidemiology of common respiratory pathogens**
- **Pertussis activity continues**
- **Meeting announcements and training opportunities**

Viral respiratory pathogen activity update

Over the past several weeks, the State Hygienic Laboratory as well as other laboratories, have confirmed parainfluenza 2, rhinovirus, and adenovirus activity. RSV has not been confirmed yet this year. Sporadic cases of influenza continue to be detected including A/H3 and 2009 H1N1. Influenza strains typed by CDC have matched the 2010-2011 influenza vaccine.

Epidemiology of common respiratory pathogens

An overview of this season's strategies for influenza and other respiratory pathogen surveillance was presented in last week's EPI Update. This week's and next week's updates will review the clinical and epidemiological characteristics of the respiratory pathogens included in the surveillance program. This week, human parainfluenza viruses, RSV, and adenoviruses will be discussed. Next week's EPI Update will focus on rhinoviruses, influenza, and human metapneumoviruses.

Human parainfluenza viruses (HPIV)

HPIVs more commonly manifest as upper respiratory infections, but can also cause serious lower respiratory tract illness. In fact, these viruses are second to RSV as a common cause of lower respiratory disease in young children.

There are four HPIVs, and each has different clinical and epidemiologic features. The most distinctive clinical feature of HPIV-1 and HPIV-2 is croup (i.e., laryngotracheobronchitis). HPIV-3 is more often associated with bronchiolitis and pneumonia. HPIV-4 is infrequently detected; likely because it causes less severe disease.

The viruses are spread from respiratory secretions through close contact with infected persons or contact with contaminated surfaces or objects. HPIVs may remain infectious in aerosols for over an hour. The incubation period for HPIVs is generally 1 to 7 days and they can cause repeat infections throughout life.

Serological studies have shown that 90 percent to 100 percent of children aged 5 and older have antibodies to HPIV-3, and about 75 percent to HPIV-1 and -2. The serotypes differ in their seasonality. HPIV-1 causes biennial outbreaks of croup in the fall of odd numbered years in the United States. HPIV-2 causes

annual or biennial fall outbreaks. HPIV-3 activity peaks during spring and early summer months each year, but the virus can be isolated throughout the year.

For more information on HPIV, visit

www.cdc.gov/ncidod/dvrd/revb/respiratory/hpivfeat.htm.

Respiratory syncytial virus (RSV)

RSV causes upper and lower respiratory infections. This virus is the most common cause of bronchiolitis and pneumonia in children under 1 year of age in the United States. It is also recognized as an important cause of respiratory illness in high risk adults (those with chronic heart disease, chronic lung disease, or compromised immune systems) and older adults (those 65 or older especially if they reside in a long-term care facility or participate in other senior day programs).

Almost all children will have had an RSV infection by their second birthday. When infants and children are exposed to RSV for the first time, 25 percent to 40 percent have symptoms of bronchiolitis or pneumonia. Premature infants, very young infants, and those with chronic lung or heart disease or with suppressed immune systems have a greater chance of having a more severe infection. Infants and children infected with RSV usually show symptoms within four to six days of infection. Most will recover in one to two weeks. However, even after recovery, very young infants and children with weakened immune systems can continue to spread the virus for one to three weeks.

Infants with a lower respiratory tract infection typically have a runny nose and a decrease in appetite before any other symptoms appear. Cough usually develops one to three days later. Soon after the cough develops, sneezing, fever, and wheezing may occur. In very young infants, irritability, decreased activity, and apnea may be the only symptoms of infection.

Symptomatic RSV infections may occur in adults, particularly in health care workers or caretakers of small children. Disease usually lasts less than five days. Symptoms are usually consistent with an upper respiratory tract infection and can include rhinorrhea, pharyngitis, cough, headache, fatigue, and fever. However, some high-risk adults, such as those with certain chronic illnesses or immunosuppression, may have more severe symptoms consistent with a lower respiratory tract infection, such as pneumonia.

Epidemiologic data on RSV in Iowa indicates that activity typically starts in early December and extends through the month of April.

For more information on RSV, visit www.cdc.gov/rsv/clinical/description.html.

Adenovirus

Adenoviruses most commonly cause respiratory illness. However, they may also cause other types of illness, such as gastroenteritis, conjunctivitis, cystitis, and rash illness. Symptoms of respiratory illness caused by adenovirus infection range from the common cold to pneumonia, croup, and bronchitis. Young infants and patients with compromised immune systems are more susceptible to developing severe complications.

There are at least 52 immunologically distinct types of adenoviruses that can cause human infections. Adenoviruses are very stable to chemical and physical agents and to adverse pH conditions, thus allowing for prolonged survival outside of the body.

The epidemiology of these viruses varies by type. All types are transmitted by direct contact, fecal-oral transmission, and occasionally waterborne transmission. The typical incubation period for gastroenteritis is three to 10 days; for respiratory tract infections it is between two and 14 days. Outbreaks of adenovirus-associated respiratory disease have been more common in the late winter, spring, and early summer; however, adenovirus infections can occur throughout the year.

For more information on adenovirus infections, visit www.cdc.gov/ncidod/dvrd/revb/respiratory/eadfeat.htm.

Pertussis activity continues

IDPH continues to receive pertussis reports. While the majority of cases have been reported in southern and eastern Iowa, there has been activity in all areas of the state.

So far this year, there has been a 34.47 percent increase in the number of cases reported as compared to the previous five year average.

Pertussis testing is available through the State Hygienic Laboratory. For more information about pertussis, visit www.idph.state.ia.us/adper/pertussis.asp.

Meeting announcements and training opportunities

Registration is open for the 2010 Iowa Environmental Health Association Fall Conference, October 19-20, at Adventureland Inn, Altoona, IA. For more information visit www.ieha.net and follow the links to the conference web page.

We wish everyone a healthy week!

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