

EPI Update for Friday, January 14, 2011
Center for Acute Disease Epidemiology (CADE)
Iowa Department of Public Health (IDPH)

Items for this week's EPI Update include:

- **Whooping cough activity**
- **Parapertussis Q and A**
- **Rapid influenza diagnostic tests**
- **Gambian pouched rats and TB detection**
- **The Iowa Pertussis Update has moved**
- **Meeting announcements and training opportunities**

Whooping cough activity

Over 650 confirmed and probable cases of pertussis (whooping cough) were reported to IDPH in 2010, and activity continues in 2011. There were approximately 66 percent more cases of pertussis reported in 2010 than the average of the past five years. While children ages 5 to 14 years make up the bulk of reported cases, note that adults are important 'spreader's of the disease.

Children receive pertussis-containing vaccines between 2 months of age and school entry, and are recommended to get a booster dose of pertussis-containing vaccine at 11 or 12 years of age. Most adults in Iowa, however, haven't received a pertussis vaccination since childhood, leaving them fully susceptible. When they get the disease, their symptoms are often mistaken for a lingering cold. They spread the disease without even knowing that they have it.

It's especially important that adults receive a pertussis-containing vaccine because they can spread the disease others, particularly to infants who are too young to be immunized. In infants, pertussis can be severe and even deadly. Adults should receive the Tdap immunization (the adult tetanus vaccine that also contains whooping cough vaccine).

The most common symptoms of pertussis in children are fits of coughing, sometimes followed by vomiting, a 'whooping' sound as air is inhaled, and difficulty sleeping. In adults, however, only a lingering cough is often seen. This is why many adults do not realize they have pertussis. Doctors should consider pertussis in adult patients have a cough that lingers or does not respond to antibiotic treatment.

For more information about pertussis, including the Iowa Pertussis Update, visit www.idph.state.ia.us/Cade/default.aspx?group=3 , and click on pertussis.

Parapertussis Q and A

What is parapertussis?

Parapertussis is a bacterial illness that is similar to pertussis (whooping cough), but is typically milder. Parapertussis is caused by the bacterium *Bordetella*

parapertussis. Pertussis is caused by *Bordetella pertussis*. Only *B. pertussis* produces the pertussis toxin.

How do the symptoms of parapertussis differ from pertussis?

The symptoms of parapertussis include a paroxysmal cough of less than one week. A whoop may or may not be present, but usually persists for a shorter time than that seen in patients with pertussis. Post-tussive vomiting and night coughs occur less frequently with parapertussis than with pertussis. Approximately 40 percent of cases may be asymptomatic. Very young infants may have a more severe course of parapertussis than older persons.

Who can contract the illness?

All age groups can be infected by *B. parapertussis* and experience illness.

Are the incubation and transmission periods for parapertussis the same as for pertussis?

Data are lacking, but it is believed that both illnesses have similar incubation and transmission periods.

Can a person be infected with pertussis and parapertussis at the same time?

Yes; however, the signs and symptoms of illness would be more severe due to *B. pertussis*.

Do pertussis vaccines prevent parapertussis?

No; there is no cross-immunity between pertussis and parapertussis.

What is the treatment for parapertussis and how are cases managed?

Antibiotic prophylaxis for contacts is not recommended, except in certain circumstances. Based on limited data, parapertussis appears to be susceptible to erythromycin and trimethoprim-sulfamethoxazole. Because co-infection with both pertussis and parapertussis is possible and because clinical symptoms of both diseases are similar, any person with symptoms consistent with pertussis should be followed up as a possible case of pertussis.

Is parapertussis reportable?

Parapertussis is not a reportable disease. Pertussis is reportable so that public health actions to prevent spread of disease can be initiated.

Rapid influenza diagnostic tests

The CDC has released a document titled *Guidance for Clinicians on the Use of Rapid Influenza Diagnostic Tests for the 2010-2011 Influenza Season*. The section on interpreting rapid test results appears below. The entire document can be accessed at www.cdc.gov/%2fflu%2fprofessionals%2fdiagnosis%2fclinician_guidance_ridt.htm .

Interpretation of rapid test results

The reliability of rapid influenza diagnostic tests (RIDTs) depends largely on the conditions under which they are used. Understanding some basic considerations can minimize being misled by false-positive or false-negative results.

The sensitivity of RIDTs are generally 40 to 70 percent, but a range of 10 to 80 percent has been reported compared to viral culture or RT-PCR. The specificity of RIDTs are approximately 90 to 95 percent (range 85 to 100 percent). Thus, false negative results occur more commonly than false positive results.

- Negative results of RIDTs do not exclude influenza virus infection and influenza should still be considered in a patient if clinical suspicion is high based upon history, signs, symptoms and clinical examination.

False-positive (and true-negative) results are more likely to occur when disease prevalence in the community is low, which is generally at the beginning and end of the influenza season and during the summer.

- The negative predictive value of an RIDT (the proportion of patients with negative results who do not have influenza) is highest when influenza activity is low.
- The positive predictive value of an RIDT (the proportion of patients with positive results who have influenza) is lowest when influenza activity is low.

False-negative (and true-positive) results are more likely to occur when disease prevalence is high in the community.

- The positive predictive value of an RIDT (the proportion of patients with positive results who have influenza) is highest when influenza activity is high.
- The negative predictive value of an RIDT (the proportion of patients with negative results who do not have influenza) is lowest when influenza activity is high.

Minimize false results

- Collect specimens as early in the illness as possible (ideally less than four days from illness onset).
- Follow manufacturer's instructions, including acceptable specimens, and handling.
- Follow-up negative results with confirmatory tests (RT-PCR or viral culture) if a laboratory-confirmed influenza diagnosis is desired.

Gambian pouched rats and TB detection

First it was soccer match predictions by an octopus, now Gambian pouched rats perform laboratory testing. A recent study in the American Journal of Tropical Medicine and Tropical Medicine and Hygiene (www.ajtmh.org/cgi/content/abstract/83/6/1308) described new research that utilized Gambian pouched rats to detect sputum samples that contained *Mycobacterium tuberculosis*.

The rats achieved a sensitivity of 86.6 percent and specificity of 93 percent, which is good when compared to acid fast bacillus smears. Unfortunately, the sniffing rat test cannot replace traditional TB cultures and sensitivity testing. It also compares poorly to the *Mycobacterium tuberculosis* test-direct detection method (MTD) performed at the State Hygienic Laboratory by humans.

The scientific community has expressed some skepticism; however, the Gambian pouched rats appear to have diverse talents. They have also proven their ability to sniff out land mines.

The Iowa Pertussis Update has moved

The weekly pertussis update has moved and is now located under 'Reports' on the CADE homepage. To view the report please visit www.idph.state.ia.us/Cade/default.aspx#CR and click 'Reports' at the top of the page, or scroll to the bottom of the page, then click on Pertussis Update.

Meeting announcements and training opportunities

None.

Have a healthy and happy week!

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