Kentucky Public Health
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KENTUCKY HEALTH ALERT

Increase in Pertussis in Kentucky
Recommendations for Identification and Prevention

June 4, 2024

The Kentucky Department for Public Health (KDPH) has identified an increase in pertussis, also known as "whooping cough", in the Commonwealth. Since mid-April, the Lexington-Fayette County Health Department has identified 21 confirmed pertussis cases; they declared a pertussis outbreak on May 20, 2024. An additional 20 confirmed cases have been identified in the following counties since mid-April: Boone, Boyd, Caldwell, Clark, Clay, Estill, Floyd, Grant, Greenup, Jefferson, Jessamine, Johnson, Logan, Pulaski, Warren, and Woodford.

The majority of identified cases have occurred in school-aged children, many of whom were up to date on pertussis vaccination. Additional cases have been identified in infants/toddlers and adults. Immunity from vaccination or natural infection wanes over time so infections can occur in people who are fully vaccinated. However, the vaccine is known to reduce disease severity, and hospitalization among vaccinated individuals is rare.

Because of the likelihood of community spread, we are alerting healthcare providers to do the following:

- **Consider pertussis in children with respiratory infections and adults with persistent or violent coughs.** Collect nasopharyngeal (NP) swab or nasal wash for pertussis testing via PCR or culture.
- **Report suspected or confirmed pertussis cases** within 1 business day to the local health department of the county in which the patient resides.
- **Ensure patients are up-to-date with** routine pertussis vaccinations, particularly pregnant women and infants starting at 2 months of age.

Background

Pertussis is a highly contagious, respiratory illness caused by the bacterium *Bordetella pertussis*. People of any age can get pertussis, however children who are too young to be fully vaccinated and those who have not received all vaccinations are at highest risk for severe illness and death. Sporadic pertussis cases occur regularly in Kentucky, however an increase beyond the expected background rate has been reported in recent weeks. Though pertussis vaccination (DTaP or Tdap) is available and widely implemented, *B. pertussis* continues to spread in the United States due to lack of vaccination or timely boosters, the lack of lifelong immunity from vaccination or natural infection, and the long duration of infectiousness in untreated cases.

Symptoms of pertussis usually begin with a runny or congested nose, a low-grade fever, and mild coughing; apnea/stopping breathing can also occur in infants. After 1-2 weeks, the cough can progress to rapid, violent (paroxysmal) coughing fits that can cause the "whooping" sound, vomiting, and labored breathing. Most teens and adults will have mild symptoms; young children are the most severely affected.

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Testing for Pertussis:
Pertussis testing is usually performed with nasal pharyngeal (NP) swab or nasal wash via PCR testing or culture. PCR has optimal sensitivity during the first 3 weeks of cough, is widely available at commercial laboratories, and has a fast turnaround time. Culture is considered the gold standard due to excellent specificity but may take longer to complete. Serology for antibodies to *B. pertussis* is available at many commercial laboratories; however, variability and unknown clinical accuracy make serology less useful and not generally recommended for primary diagnostics. The most promising serologic assays are those that measure IgG antibodies against pertussis toxin only and are collected 2-8 weeks following cough onset.

Prevention of Pertussis:
Prevention of pertussis is primarily achieved through routine vaccination with DTaP (ages 0-6 years) and Tdap (ages 7+ years), followed by appropriate booster doses. Vaccination of pregnant people between 27-36 weeks gestation, as well as prompt initiation of the 3-dose primary vaccine series starting at 2 months of age, is most critical for preventing severe pertussis in infants.

There is little evidence demonstrating the effectiveness of contact tracing and post-exposure prophylaxis of all close contacts with antibiotics. However, CDC recommends antimicrobial prophylaxis for:

1) All household contacts of a known case, regardless of vaccination status, within 21 days of onset of coughing in the index case, and
2) Contacts of any case who are at high risk of developing severe pertussis, and those who will have close contact with others at high risk of developing severe pertussis, including infants <1 year of age, pregnant women, and caregivers or household contacts of infants (https://www.cdc.gov/pertussis/php/postexposure-prophylaxis/).

Other contacts of known cases not described above should monitor for symptoms during the 21 days after exposure. If symptoms develop, they should isolate and inquire with their provider about testing.

Treatment of patients with pertussis (https://www.cdc.gov/pertussis/hcp/clinical-care/):
CDC recommends that healthcare providers strongly consider initiating antimicrobial treatment prior to receipt of test results if any of the following are present:

- A clinical history strongly suggestive of pertussis and patient is within 3 weeks of cough onset (or within 6 weeks of cough onset if an infant <1 year of age or a pregnant woman)
- Patient is at risk for severe or complicated disease (e.g., infants)
- Patient has routine contact with people considered at high risk of serious disease (e.g., pregnant woman in 3rd trimester or caregiver of infants)

Bordetella parapertussis
B. parapertussis is a bacterium that is similar to *B. pertussis* and can cause pertussis-like illness but does not produce pertussis toxin. Symptoms of parapertussis are typically milder and infection may be asymptomatic. There is no vaccine for *B. parapertussis* and post-exposure prophylaxis is not recommended, however treatment recommendations for symptomatic patients are the same as those for *B. pertussis*. *B. parapertussis* is not reportable in Kentucky.

Thank you for your attention to this alert and guidance. If you have questions regarding reporting, testing, or prevention of pertussis or other infectious diseases, please contact the Kentucky Immunization Branch at (502) 564-4478 or after hours by calling the KDPH Epidemiology On-call Line at 888-9-REPORT (888-973-7678).