



NC DEPARTMENT OF
**HEALTH AND
HUMAN SERVICES**

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To: North Carolina Clinicians, Local Health Directors, Directors of Nursing, Communicable Disease and Immunization Program Staff

From: Emma Doran, MD, MPH, Medical Epidemiologist

Subject: Increase in Pertussis Cases in North Carolina (3 pages)

Date: May 10, 2024

Summary

The North Carolina Division of Public Health is working with local health departments to investigate recently reported cases of pertussis (whooping cough) among several communities in North Carolina, including outbreaks in Henderson, Transylvania, and Ashe counties in western North Carolina. Since March 1, 2024, 109 cases have been identified throughout the state with additional cases under investigation. In the year 2023, only 103 pertussis cases were reported statewide. Approximately 65% of cases have occurred in individuals that are up to date with their age-appropriate pertussis-containing vaccine. This memo is intended as a reminder about reporting, testing and control measures for pertussis.

Background

Pertussis (also known as whooping cough) is a contagious respiratory disease that is highly communicable and spreads through contact with respiratory secretions. Persons with pertussis are infectious from the beginning of respiratory symptoms through the third week after the onset of paroxysms, or until completion of effective antimicrobial treatment. Persons who are suspected to have pertussis (cough with paroxysmal cough, whoop, or post-tussive vomiting) should be isolated until they are no longer infectious.

Pertussis vaccines are effective, but not perfect, and their effectiveness wanes over time. The infection is usually not as bad for people who have gotten vaccinated against pertussis, but people can still get sick.

Pertussis outbreaks can be difficult to manage and control. Preventing severe illness and complications among those at highest risk should be a top priority. Clinicians should focus on reducing the risk of transmission among persons at greatest risk of poor outcomes, including:

- Infants
- Pregnant women in the 3rd trimester
- Persons with a pre-existing condition that may be exacerbated by a pertussis infection

Infants are susceptible to severe complications from pertussis. According to the U.S. Centers for Disease Control, about half of infants with pertussis are hospitalized. Pertussis should be considered in infants with unexplained gagging, gasping, vomiting, bradycardia, apnea, or seizures. If pertussis is suspected in an infant ≤ 3 months of age, treatment with azithromycin should be started immediately and

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hospitalization should be considered. Additional information regarding the management of pertussis in young infants is available from the [Centers for Disease Control and Prevention \(CDC\)](#).

Laboratory Testing

Pertussis culture and PCR testing of nasopharyngeal specimens remain important clinical tools for outbreak confirmation and prompt diagnosis. PCR is strongly preferred over serological testing if specimens are collected within 4 weeks of cough onset. Serological testing can be difficult to interpret in vaccinated individuals and the clinical accuracy of some commercially available tests is unproven or unknown.

Treatment

Early treatment of pertussis is most effective for reducing symptom severity. The earlier a person, especially an infant, starts treatment the better. We recommend antibiotic therapy for all patients with a clinical or laboratory diagnosis of pertussis who present within three weeks of cough onset, because this is the highest risk period of transmission. Antibiotics may not alter the course of the illness if they are given later as cough during this period is thought to be caused by tissue damage rather than active infection.

Clinicians should strongly consider treating prior to test results if any of the following are present:

- Clinical or epidemiologic history is strongly suggestive of pertussis
- The person is at risk for severe or complicated disease (e.g., infants)
- The person has or will soon have routine contact with someone that is considered at high risk of serious disease (e.g., pregnant women)

A reasonable guideline is to treat:

- Persons 1 year of age and older within 3 weeks of cough onset
- Infants younger than 1 year of age and pregnant women (especially if they are near term) within 6 weeks of cough onset

The recommended antimicrobial agents for treatment are azithromycin, clarithromycin, and erythromycin. Clinicians can also use trimethoprim-sulfamethoxazole.

Post-Exposure Prophylaxis

Post-exposure prophylaxis (PEP) is recommended for all household contacts to a pertussis case within 21 days of onset of cough. PEP is also recommended for other close contacts to pertussis cases who are at high risk of developing severe pertussis, and persons who have routine close contact with others at high risk. High risk people include infants, women in their third trimester of pregnancy, and people with pre-existing health conditions that may be exacerbated by a pertussis infection. The recommended antimicrobial agents for PEP are azithromycin, clarithromycin, and erythromycin. Clinicians can also use trimethoprim-sulfamethoxazole. PEP should be given regardless of vaccination status.

Vaccination

Vaccination is the best way to reduce the risk of pertussis. Five doses of DTaP are recommended for children at 2, 4, 6, and 15-18 months and 4-6 years. Children 7 through 10 years of age should receive one dose of Tdap if they were not fully vaccinated with DTaP. Adolescents through age 18 should receive one dose of Tdap; preferably at 11-12 years of age. Adults 19 years of age or older who have not previously received a dose of Tdap should get vaccinated.

To provide the best protection to infants, the CDC recommends that pregnant women receive Tdap during the 27th through 36th week of each pregnancy. Expecting mothers should ask their prenatal care providers about how they can get the vaccine or visit <https://www.cdc.gov/features/tdap-in-pregnancy/index.html> for more information.

Providers can help protect this most vulnerable population by encouraging timely medical evaluation of community members with respiratory symptoms, encouraging prompt antibiotic treatment for those high-risk close contacts, discussing vaccine hesitancy in the context of maternal Tdap and reminding families about cough etiquette/hand hygiene.

Babies can receive indirect protection when everyone who is around them is up to date with their whooping cough vaccine. When a baby's family members and caregivers get a whooping cough vaccine, they are not only protecting their own health, but also helping form a "cocoon" of disease protection around the baby during the first few months of life. Anyone who is around babies should be up to date with their whooping cough vaccine. For more information about maternal Tdap, visit <https://www.cdc.gov/pertussis/pregnant/index.html>.

Additional resources

- Testing Guidance: <https://www.cdc.gov/pertussis/clinical/diagnostic-testing/specimen-collection-diagnosis.html>
- Treatment Guidance: <https://www.cdc.gov/pertussis/clinical/treatment.html>
- PEP Recommendations: <https://www.cdc.gov/pertussis/pep.html>
- Pertussis Vaccine Information: <https://www.immunize.nc.gov/family/vaccines/pertussis.htm>