NEW MEXICO HEALTH ALERT NETWORK (HAN) ADVISORY

Increase in Whooping Cough

September 5, 2024

The New Mexico Department of Health (NMHealth) is notifying healthcare providers of an increase in cases of whooping cough caused by the bacterium *Bordetella pertussis*. As of September 3, 2024, New Mexico has reported 42 cases, double the number reported at the same time last year. In addition, eight of these cases (nearly 20%) were reported just in the previous two weeks. These trends are consistent with a national increase reported by the Centers for Disease Control and Prevention (CDC).[1] Pertussis is highly contagious and can cause severe illness, complications, and death, with the highest risk in infants younger than 6 months. Confirmation of infection must be done using either polymerase chain reaction (PCR) or culture testing. Commercially-available pertussis serology tests are not recommended for diagnosis, especially in vaccinated persons.

Recommendations for Clinicians:

- Consider PCR testing for *Bordetella* species in patients presenting with acute cough with paroxysmal coughing, whoop, post-tussive vomiting, and/or apnea. PCR results are most reliable when collected within 3 weeks of cough onset, and possibly up to 4 weeks in some patients.
    - Culture is also confirmatory, but most reliable when collected within 2 weeks of cough onset, and time to results is typically longer than PCR.
- As per New Mexico Administrative Code 7.4.3.13, positive results for any *Bordetella* species are immediately reportable to the New Mexico Department of Health, either by calling **1-833-SWNURSE (1-833-796-8773)** or by faxing lab reports to 505-827-0013.
    - Laboratories are also required to submit specimens that are positive for any *Bordetella* species to the Scientific Laboratory Division (SLD).

Background: *Bordetella pertussis* is a bacterium that causes a cough illness that may be accompanied by paroxysmal coughing, an inspiratory “whoop” sound, post-tussive vomiting, and/or apnea. Despite the name, not all patients experience a whoop. Infants can present atypically, with gagging, grunting, eye-bulging, vomiting, or cyanosis, and do not always have a cough. Fever is not typical. The cough can last for several weeks, but is infectious during the first 21 days after cough onset, or until completing five days of appropriate antibiotic therapy, whichever is first. While persons of any age can develop pertussis, it is especially dangerous in infants, who are far more likely to be hospitalized or die than older children or adults. Staying up-to-date on pertussis vaccination is strongly recommended to prevent infection or severe illness with pertussis, and maternal vaccination with Tdap during the third trimester of

pregnancy can help protect infants in their first months of life. However, no vaccine is 100% effective, and vaccination status should not preclude testing or treatment for suspected pertussis.

Although not currently circulating at similar levels as pertussis, clinicians should also be aware of parapertussis, and order PCR or culture testing that can distinguish between the two species. *Bordetella parapertussis* is a bacterium related to pertussis, but it causes a cough that is typically milder and of shorter duration. *B. parapertussis* does not contain pertussis toxin, and DTaP/Tdap vaccines do not target this species. Limited data suggest parapertussis is less susceptible to antibiotics than pertussis, although *in vitro* studies have indicated that the same antibiotics typically used for pertussis also have activity against parapertussis (e.g., azithromycin, erythromycin, clarithromycin, or trimethoprim-sulfamethoxazole). Because data are limited, treatment of parapertussis should be based on clinical judgment, and may be warranted to prevent severe outcomes in populations such as young infants (<6 months of age), the elderly, or immunocompromised persons. Unlike pertussis, antibiotics are not routinely recommended for postexposure prophylaxis of contacts exposed to parapertussis.

Testing Recommendations:

Preferred specimens are swabs of the posterior nasopharynx, or nasopharyngeal aspirate. Throat swabs and anterior nasal swabs both have unacceptably low rates of pertussis DNA recovery and should not be used for pertussis diagnosis.

The ideal time to collect a specimen for PCR testing is within 3 to 4 weeks after cough onset. Detectable bacterial DNA rapidly diminishes after this window, and will also diminish after pertussis-effective antimicrobial treatment. (Some patients will still test positive early in the course of treatment, but it is unclear for how long.) Only people with symptoms of pertussis should be tested, to reduce the chance of false positive results. PCR testing for pertussis is widely available, but ensure the test will be able to distinguish between *B. pertussis* and related species such as *B. parapertussis*, which also circulates in New Mexico.

Some pertussis vaccines[2] have been found to contain PCR-detectable *B. pertussis* DNA. While DNA in the vaccines does not impact safety or immunogenicity, accidental transfer of the DNA from clinic environmental surfaces to a clinical specimen can cause false-positive results. In addition, the use of liquid transport media may contribute to contamination, by accidentally washing contaminants from the swab shaft into the liquid medium, which is later extracted to obtain DNA for PCR testing.

Best practices to prevent cross-contamination include:

- Preparing and administering vaccines in areas separate from pertussis specimen collection.
- Wearing clean gloves immediately before and during specimen collection, with immediate disposal of gloves after the procedure.
- Cleaning clinic surfaces with a 10% bleach solution to reduce the amount of nucleic acids in the clinic environment.

- If accepted by your preferred laboratory, using a semisolid or non-liquid transport media, or a "dry" swab without media.

Treatment and Post-Exposure Prophylaxis

The earlier treatment starts, the better, whether for reducing symptoms in the patient or reducing spread to contacts. However, unless treatment begins very early in the course of illness (i.e., in the first one to two weeks of cough before coughing paroxysms begin), antibiotics are unlikely to ease symptoms or reduce the duration of cough. Antibiotic treatment of pertussis eliminates the bacteria that can be transmitted to other people, and reduces the infectious period from 21 days after cough onset, to 5 days after beginning appropriate antibiotic therapy. Recommended antibiotics are azithromycin, clarithromycin, erythromycin, or trimethoprim-sulfamethoxazole.

Clinicians should consider treating before test results are ready in any of the following situations:

- The clinical history is strongly suggestive of pertussis
- The person is at high risk for severe or complicated disease
- The person has, or will have, contact with someone at high risk for severe disease. (See below for people considered at high risk.)

To prevent or mitigate disease after exposure to a person with pertussis, post-exposure prophylaxis (PEP) with the same antibiotic options listed above is recommended, **regardless of immunization status**, for the following groups:

- All household contacts
- Close contacts at high risk of developing severe pertussis:
    - Infants under 12 months of age.
    - People with health conditions that may be exacerbated by a pertussis infection.
        - Includes, but is not limited to, immunocompromising conditions or moderate to severe medically treated asthma.
- Close contacts who will have contact with people at high risk of developing severe pertussis:
    - Persons in the third trimester of pregnancy (i.e., may become a source of pertussis to their newborn infant).
    - People in high-risk settings.
        - Includes, but is not limited to, neonatal intensive care units, childcare settings, and maternity wards.

Additional Resources:

- CDC Pertussis Testing Overview
- CDC Postexposure Antimicrobial Prophylaxis Guidelines

- NMHealth Pertussis Fact Sheet (English) (Spanish)

Sources Cited:

1. Centers for Disease Control and Prevention. "Whooping Cough Is on the Rise, Returning to Pre-Pandemic Trends." 22 July 2024. https://www.cdc.gov/ncird/whats-new/cases-of-whooping-cough-on-the-rise.html.
2. Leber A et al. Detection of *Bordetella pertussis* DNA in Acellular Vaccines and in Environmental Samples from Pediatric Physician Offices, in 2010 Interscience Conference on Antimicrobial Agents and Chemotherapy (ICAAC): Boston, USA.

New Mexico Health Alert Network: To register for the NM Health Alert Network, please visit the following site **https://nm.readyop.com/fs/4cjZ/10b2** Please fill out the registration form completely and click Submit at the bottom of the page, to begin receiving Important health alerts, advisories, and updates.

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