Pertussis

Surveillance Protocol

Pertussis, also known as whooping cough, is a highly contagious respiratory disease. It is caused by the bacterium *Bordetella pertussis (B. pertussis).* Pertussis is known for uncontrollable, violent coughing which often makes it hard to breathe. After fits of coughing, someone with pertussis often needs to take deep breaths which result in a "whooping" sound. Pertussis can affect people of all ages, but can be very serious, even deadly, for babies less than a year old. The best way to protect against pertussis is by getting vaccinated.

Individual cases of pertussis (suspected and confirmed) are to be reported to the local health department within 24 hours; however, outbreaks of pertussis should be reported immediately.

Healthcare Provider Responsibilities

1. Manage patients with pertussis and their close contacts in accordance with physician's guideline available at: https://oeps.wv.gov/pertussis/documents/hcp/Pertussis_Physician_FAQ.pdf
2. Educate patient about pertussis:
   A. Transmission;
   B. Prevention; and
   C. Treatment.
3. Report suspected and confirmed cases of pertussis to the local health department within 24 hours of diagnosis.
   A. Complete the provider section of WV Electronic Disease Surveillance System (WVEDSS) Pertussis form: https://oeps.wv.gov/pertussis/documents/lhd/Pertussis.pdf.
   B. Fax completed form to patient's local health department and report by phone to the patient's local health department. Timely reporting enables your local health department to follow up on contacts and interrupt the chain of transmission.
4. Obtain laboratory confirmation (nasopharyngeal swab) of suspect cases before starting antibiotics. The organism is most easily recovered from nasopharyngeal mucus in the catarrhal or early paroxysmal stages and is rarely recovered after the fourth week of illness. There are two tests available for pertussis diagnosis: polymerase chain reaction (PCR) and culture. Culture is the gold standard for diagnosis.

   Note: Pertussis serologic testing is not utilized for surveillance and investigation purposes.

After consulting with your local health department or the West Virginia Department of Health and Human Resources (DHHR), Division of Infectious Disease Epidemiology (DIDE), testing is available free of charge at the West Virginia Office of Laboratory Services (OLS). For more

information about testing at OLS or to consult on laboratory diagnosis, please contact OLS at 304-558-3530 and visit https://dhhr.wv.gov/ols/labs/Pages/microbiology.aspx.

Laboratory Responsibilities

1. Notify provider and infection preventionist of a positive laboratory report of pertussis.
2. Notify local health department of a positive report of pertussis within 24 hours of diagnosis. Report positive test result by phone and send test results via ELR or fax a copy of the laboratory result to the patient's local health department.

Local Health Responsibilities

1. Public health investigation of all reports of suspected or confirmed pertussis should be initiated within 24 hours of receiving the initial report.
2. Report all confirmed and probable cases to DIDE within 24 hours of notification:
   A. All confirmed and probable cases of pertussis should be entered in to the WVEDSS within 24 hours of notification. Opening a public health investigation in the WVEDSS constitutes appropriate reporting of confirmed and probable cases of pertussis.
   B. Copies of paper laboratory results should also be faxed to DIDE within 24 hours of receiving the initial report.
3. Prior to investigation of pertussis cases, local health department should:
   A. Identify employees who would conduct case investigations and/or collect nasopharyngeal specimens.
   B. Educate those identified employees concerning the following prevention interventions:
      i. Droplet precautions; and
      ii. One dose of Tdap.
4. Educate the public including parents and guardians of infants and children, adolescents, adults, healthcare providers, and pregnant women about the importance of vaccination according to the Advisory Committee on Immunization Practices (ACIP) recommendation and about the dangers of whooping cough.
5. Educate providers and laboratories to submit pertussis specimens (nasopharyngeal swabs or aspirate) to OLS for PCR and culture confirmation (free of charge). PCR alone is associated with high rates of false positive results; therefore, CDC recommends culture whenever PCR is performed.
   Note: Serologic testing is not recommended for surveillance purposes.
6. Educate healthcare providers and laboratories to report any suspect cases of pertussis to the local health department within 24 hours of diagnosis.
7. Contact medical provider to collect additional information and confirm diagnosis using the current case definition.

A. Collect all information requested.
B. Ensure that the patient is aware of his/her diagnosis.

8. Conduct case investigation to identify potential source of infection.
9. Conduct contact tracing to locate additional cases and close contacts.
   A. Definition of a close contact:
      i. Anyone who has had direct face-to-face contact for a period (not defined) with a case-patient who is symptomatic during the catarrhal and early paroxysmal stages of infection. This includes ALL residents of the same household; daycare and baby-sitting contacts; and close friends, regardless of immunization status. The disease is spread by direct contact with respiratory secretions or face-to-face exposure.
      ii. Shared confined space in close proximity for a prolonged period of time, such as >1 hour, with a symptomatic case-patient; OR
      iii. Direct contact with respiratory, oral, or nasal secretions from a symptomatic case-patient (e.g., an explosive cough or sneeze in the face, sharing food, sharing eating utensils during a meal, kissing, mouth-to-mouth resuscitation, or performing a full medical examination including examination of the nose and throat).
   B. Management of contacts:
      i. Asymptomatic contacts who are within 3 weeks (21 days) of their last exposure to an infectious case-patient:
         1. Prophylax with a regimen (*Table B,* page 13).
         2. Bring immunizations up to date (*Table A*, page 11).
      ii. Asymptomatic contacts who were last exposed more than 3 weeks (21 days) previously:
         1. Chemoprophylaxis has limited value but should be considered in households that have high risk persons (infants, pregnant women, or persons who have contact with infants).
         2. Bring immunizations up to date (*Table A*).
      iii. Symptomatic contacts:
         1. Evaluate case status;
         2. Obtain culture and PCR; and then
         3. Treat with a regimen in *Table B* (page 13).
         4. Bring immunizations up to date (*Table A*).
         5. Report as a case in the WVEDSS if they meet the case definition (see page 9).

C. Exposures in Child Care:
   i. Exposed children, especially incompletely immunized children, and care providers should be observed for respiratory tract symptoms for 21 days after the last contact with an infectious case-patient.
   ii. Immunization and chemoprophylaxis (see *Tables A* and *B*) should be administered as recommended for household and other close contacts.
   iii. Symptomatic children with probable or confirmed pertussis should be excluded from childcare pending evaluation and completion of 5 days of recommended antibiotic therapy.
   iv. Untreated individuals should be excluded until 21 days have elapsed from cough onset.

10. Initiate control and prevention measures to prevent spread of disease.
11. Record data collected during the investigation in WVEDSS.
12. As appropriate, use the notification letter(s) and the disease fact sheet as a template to notify the case, contacts, and other individuals or groups.
    A. Public Fact Sheet:
       https://oeps.wv.gov/pertussis/documents/community/pertussis_faq_public.pdf
    B. General Information for Providers:
       https://oeps.wv.gov/pertussis/documents/hcp/Pertussis_Physician_FAQ.pdf
    C. Parent Notification Letter:
       https://oeps.wv.gov/pertussis/pages/pertussis_lhd.aspx
13. Document vaccine information in WVEDSS as needed.
    A. Vaccine information should be verified using the West Virginia Statewide Immunization Information System (WVSIIS). Regional epidemiologists and local health department (LHD) epidemiology staff should obtain viewing access to WVSIIS in order to obtain vaccine information for vaccine-preventable disease investigations. Enrollment information can be found here: https://wvimm.org/wvsiis/main.jsp
    B. The patient's provider may also be able to provide vaccine records for a patient. If the vaccine information is not already captured in WVSIIS, please submit a copy of the vaccine record to the Vaccine-Preventable Disease Epidemiologist at DIDE so that the record can be entered in WVSIIS.
       i. The vaccine information should also be entered in to WVEDSS by the LHD or regional epidemiologist.

Your regional epidemiologist, DIDE (phone 800-423-1271) and OLS (phone 304-558-3530) are available to assist with contact tracing, testing, prophylaxis or treatment, and immunization.

State Health Responsibilities

1. Review and evaluate all paper laboratory reports submitted to DIDE.
   A. Notify appropriate local health jurisdiction and/or regional epidemiologist of positive laboratory reports received directly by DIDE.
      i. Provide appropriate local health jurisdiction with copy of all positive paper laboratory reports which are received directly by DIDE.
2. Review and evaluate all electronic laboratory reports (ELR) submitted to DIDE.
   A. Assign possible cases of pertussis to appropriate local health jurisdiction in WVEDSS for investigation within 24 hours of positive ELR notification.
3. Provide support and guidance to regional epidemiologists and local health jurisdictions on surveillance, investigation, control measures, identification of close contacts, post exposure prophylaxis and prevention of pertussis.
4. Ascertain case reports and review case investigations submitted in WVEDSS. Notify CDC through the National Notifiable Disease Surveillance System (NNDSS) in a timely manner.
5. In the event of an outbreak or cluster of cases:
   A. Identify and support local health needs;
   B. Assist public health response; and
   C. Notify appropriate public health partners as needed including local health departments, OLS, and CDC.
6. Update information sheets, surveillance protocol, and toolkits as new information becomes available.
7. Develop and send Health Alerts when necessary.
8. Summarize surveillance data and surveillance indicators periodically.
   A. Share information with public health partners and CDC.

Occupational Health

1. The best way to prevent pertussis (whooping cough) among babies, children, teens, and adults is to get vaccinated.
   A. A single dose of Tdap is recommended for healthcare personnel who have not previously received Tdap and who have direct patient contact, including face-to-face interviewing of the case patient. (See *Table A*)
2. In addition to standard precautions, droplet precautions are recommended for 5 days after initiation of effective therapy. If appropriate antimicrobial therapy is not given, droplet precautions are recommended until 3 weeks have passed after cough onset.
3. Practicing good hygiene is always recommended to prevent the spread of respiratory illnesses. To practice good hygiene, you should:

A. Cover your mouth and nose with a tissue when you cough or sneeze. Cough or sneeze into your upper sleeve or elbow, not your hands, if you don't have a tissue.
B. Put your used tissue in the waste basket.
C. Wash your hands often with soap and water for at least 20 seconds.
D. Use an alcohol-based hand rub if soap and water are not available.

Disease Control Objectives

1. Prevent additional/secondary case(s):
   A. Confirmed and probable cases should be placed in droplet isolation to inhibit further spread of pertussis.
      i. Droplet isolation should be in place for 5 days after starting antimicrobial therapy or 21 days after the onset of cough if the patient does not receive the recommended antimicrobial therapy.
      ii. Information on droplet precautions can be found at: https://www.cdc.gov/infectioncontrol/basics/transmission-based-precautions.html
   B. Recommend post-exposure prophylaxis (PEP) to all household and other close contacts of a probable or confirmed case, regardless of their immunization status. PEP has limited value if 21 days has passed since exposure but is a consideration for high-risk contacts. See treatment section regarding recommended PEP.
      i. Close contacts are defined as person(s) that have had:
         1. Face-to-face exposure within three feet of a symptomatic patient; or
         2. Direct contact with respiratory, nasal, or oral sections of a symptomatic patient; or
         3. Shared confined space in close proximity for one hour or more.
   C. If a contact's pertussis immunization status is not up to date, vaccination should be administered immediately. See *Table A* in the Preventive Intervention section for further immunization details.

Disease Prevention Objectives

1. Prevent pertussis infection through education regarding:
   A. What pertussis is, transmission, prevention, and risks of the disease.
   B. The importance of maintaining up-to-date vaccinations and recommendations as outlined by the Advisory Committee on Immunization Practices (ACIP). Vaccination is the best way to prevent pertussis.

C. The recommendation for all pregnant women to have a dose of Tdap during each pregnancy, which will provide protection to the infant until they are old enough to be vaccinated.
D. The importance of keeping anyone who has not been vaccinated for pertussis, including infants, away from anyone who has cold symptoms or a cough.
E. Personal hygiene prevention strategies including proper cough etiquette and hand washing.

Disease Surveillance Objectives

1. Determine the incidence of pertussis in West Virginia.
2. Determine whether cases are due to failure to vaccinate or vaccine failure.
3. Identify sources and sites of transmission.
4. Reduce or prevent spread of disease.

Public Health Significance

Pertussis, more commonly known as whooping cough, is a contagious respiratory disease caused by the bacterium Bordetella pertussis. Outbreaks of pertussis were first described in the 16th century, and the organism was first isolated in 1906. In the 20th century, pertussis was one of the most common childhood diseases and a major cause of childhood mortality in the United States. Before the availability of pertussis vaccine in the 1940s, more than 200,000 cases of pertussis were reported annually. Since widespread use of the vaccine began, incidence has decreased more than 80% compared with the pre-vaccine era. The incidence of reported pertussis began increasing in the 1980s; however, significant peaks in disease have been observed in recent years. Reported cases have decreased since 2012, with 20,762 cases reported during 2015 and levels remain significantly increased compared to those observed during the 1990s and early 2000s. The incidence of pertussis remains highest among young infants. From 2010 through 2015, 80.4% of all pertussis-related deaths reported to CDC were among infants less than 6 months of age who were too young to have received 3 doses of DTaP vaccine. As of 2015, the second highest incidence of pertussis continued to occur among school-aged children and adolescents, and the proportion of cases in this age group appears to be continuing. Multiple factors have likely contributed to the increase, including waning immunity from acellular pertussis vaccines, heightened provider and public awareness, improved diagnostic testing, and possibly molecular changes within the bacterium itself.

Pertussis rarely causes severe complications among healthy, vaccinated persons. Infants, however, are at greatest risk for pertussis-related complications and mortality. Pneumonia is the most common complication in all age groups; seizures and encephalopathy are rare and

generally occur only among very young infants. Death is infrequent and most likely to occur in unvaccinated infants, although fatalities are occasionally reported among older children and adults with serious underlying medical conditions.

Clinical Description

Whooping cough usually starts with cold or flu-like symptoms, such as runny nose, sneezing, fever and a mild cough. These symptoms can last up to two weeks and are followed by increasingly severe coughing spells. Fever, if present, is usually mild. The clinical course is divided into three stages:

Catarrhal Stage: Characterized by insidious onset of coryza (runny nose), sneezing, low grade fever, and a mild, occasional cough, similar to the common cold. The cough gradually becomes more severe, and after 1-2 weeks, the second or paroxysmal stage begins. Patients with pertussis are most infectious from the beginning of the catarrhal stage through the third week after onset of paroxysms.

Paroxysmal Stage: Characterized by bursts, or paroxysms of numerous, rapid coughs, apparently due to difficulty expelling thick mucus from tracheobronchial tree. At the end of the paroxysm, a long inspiratory effort is usually accompanied by a characteristic high-pitched whoop. During such an attack, the patient may become cyanotic (turn blue). Vomiting and exhaustion commonly follow the episode. The patient usually appears normal between attacks. The paroxysms can occur more frequently at night.

Convalescent Stage: Characterized by gradual recovery. Paroxysmal coughing lessens and disappears over 2-3 weeks. However, paroxysms often recur with subsequent viral respiratory infections for many months after the onset of pertussis.

Older persons (i.e., adolescents and adults), and those partially protected by the vaccine, may become infected with B. pertussis but usually have milder disease. Pertussis in these persons may present as a persistent cough and may be indistinguishable from other upper respiratory infections. Those who are infected with milder symptoms can still transmit the disease to others who are susceptible, including infants who haven't been fully immunized.

Etiologic Agent

Bordetella pertussis is a fastidious, gram-negative, pleomorphic bacillus.

Reservoir

Humans are the only known hosts of *B. pertussis*. Adolescents and adults are an important reservoir for *B. pertussis* and are often the source of infection for infants and young children.

Mode of Transmission

Transmission most commonly occurs via contact with respiratory droplets, or by contact with airborne droplets of respiratory secretions. Transmission occurs less frequently by contact with freshly contaminated surfaces or articles of an infected person. Cases occur year-round, typically with a late summer-autumn peak.

Incubation Period

The average incubation period is 7 to 10 days, with a range of 5 to 21 days.

Period of Communicability

Pertussis is highly communicable, as evidenced by a secondary attack rate of 80% among susceptible household contacts. Persons with pertussis are most infectious during the catarrhal period and the first 2 weeks after cough onset (i.e., approximately 21 days). Antibiotic treatment initiated during the paroxysmal stage will not alter the course of illness; however, it will limit the spread of the organism.

Outbreak Recognition

An outbreak of pertussis is defined as 2 or more epi-linked cases from different households with symptom onsets within 42 days of one another.

Case Definition (Pertussis/Whooping Cough, 2020 Case Definition)

The most current CDC Case Definition should always be used for case classification and may not be reflected in the protocol. This information is located at https://wwwn.cdc.gov/nndss/conditions/pertussis/.

Clinical Criteria:

In the absence of a more likely diagnosis, a cough illness lasting ≥2 weeks, with at least one of the following signs or symptoms:

1. Paroxysms of coughing; OR
2. Inspiratory whoop; OR
3. Post-tussive vomiting; OR
4. Apnea (with or without cyanosis).

Confirmatory Laboratory Criteria:

1. Isolation of *B. pertussis* from a clinical specimen.
2. Positive Polymerase Chain Reaction (PCR) for *B. pertussis.*

Note: Although PCR meets confirmatory laboratory criteria, culture is still the gold standard and should be obtained whenever possible.

Epidemiologic Linkage:

1. Contact with a laboratory-confirmed case of pertussis.

Case Classification

Probable:

1. In the absence of a more likely diagnosis, illness meeting the clinical criteria.
   OR
2. Illness with cough of any duration, with at least one of the following signs or symptoms:
   A. Paroxysms of coughing; OR
   B. Inspiratory "whoop"; OR
   C. Post-tussive vomiting; OR
   D. Apnea (with or without cyanosis).
   AND
   A. Contact with a laboratory-confirmed case of pertussis (epidemiologic linkage).

Confirmed

1. Acute cough illness of any duration, with:
   A. Isolation of *B. pertussis* from a clinical specimen; **OR**
   B. PCR positive for *B. pertussis.*

Preventive Interventions

1. Educate the public regarding the potential severity of pertussis and when vaccination is recommended. See *Table A* regarding pertussis immunization.
2. Encourage everyone to obtain up-to-date pertussis vaccination per the most recent ACIP guidelines. See *Table A* for details.
   A. In addition, vaccination of pregnant patients in the third trimester of **each** pregnancy is of high importance.
3. Educate the public about proper cough etiquette and respiratory hygiene. Emphasize why they are important for pertussis and other diseases that are spread by respiratory droplets.
4. Washing hands helps stop the spread of infection; therefore, continue to educate about proper hand hygiene and washing hands frequently.

5. Contacts with inadequate immunization status should be vaccinated immediately. See *Table A* below for details.
6. Post-Exposure Prophylaxis (PEP) should be administered to close contacts of a probable or confirmed case. See *Table B* in the Treatment section regarding recommended PEP therapy.
7. Isolate symptomatic individuals until they have completed 5 days of appropriate treatment or for 21 days after cough onset if they do not complete 5 days of appropriate treatment.

Table A. Recommended Immunization Schedule

Age/Status	Recommendations
2 months–6 years	The primary series (3 doses) of DTaP is routinely recommended at 2, 4, and 6 months. The 1st booster is recommended at 15–18 months. The 2nd booster is recommended at 4–6 years.
7–10 years	Tdap is recommended for children ages 7–10 years who are not fully vaccinated (see Note 1) against pertussis. Single dose of Tdap for those not fully vaccinated (see Note 1), or if additional doses of tetanus and diphtheria toxoid-containing vaccines are needed, then children aged 7–10 years should be vaccinated according to the catch-up schedule, with Tdap preferred as the first dose.
11–18 years	Tdap is routinely recommended as a single dose for those 11–18 years of age with preferred administration at 11–12 years of age. If adolescents (13–18 years) missed getting Tdap at 11–12 years of age, administer at the next patient encounter or sooner if adolescent will have close contact with infants. If adolescent was not fully vaccinated (see Note 1) as a child, check the ACIP recommendations and catch-up schedule to determine what is indicated.
19 years or older	Any adult 19 years of age or older who has never received a dose of Tdap should get one as soon as feasible to protect themselves and infants. This Tdap booster dose can replace one of the 10-year Td booster doses. Tdap can be administered regardless of interval since the previous Td dose. Shorter intervals between Tdap and the last Td may increase the risk of mild local reactogenicity but may be appropriate if your patient is at high-risk for contracting pertussis, such as during an outbreak, or has close contact with infants.
Pregnant women	Pregnant women should get a dose of Tdap during each pregnancy, preferably at 27–36 weeks gestation. By getting Tdap during pregnancy, maternal pertussis antibodies transfer to the newborn, likely providing protection against pertussis in early life, before the baby starts getting DTaP vaccines. Tdap will also help protect the mother at time of delivery, making her less likely to transmit pertussis to her infant. It is important that all family members and caregivers of the infant are up to date with their pertussis vaccines before coming into close contact with the infant. Tdap is recommended in the immediate postpartum period before discharge from the hospital or birthing center for new mothers who did not receive Tdap during pregnancy or whose vaccination status is unknown.
Health care personnel - see Note 2	A single dose of Tdap is recommended for healthcare personnel who have not previously received Tdap and who have direct patient contact. Tdap vaccination can protect healthcare personnel against pertussis and help prevent them from spreading it to their patients. Priority should be given to vaccinating those who have direct contact with babies younger than 12 months of age. Tdap can be administered regardless of interval since the previous Td dose. However, shorter intervals between Tdap and last Td may increase the risk of mild local reactogenicity.

	For additional guidance, see Evaluating Revaccination of Healthcare Personnel.

Catch-up Schedules - https://www.cdc.gov/vaccines/schedules/hcp/child-adolescent.html
ACIP Recommendations - https://www.cdc.gov/mmwr/volumes/67/rr/rr6702a1.htm
Evaluating Revaccination of Healthcare Personnel - https://www.cdc.gov/vaccines/vpd/pertussis/tdap-revac-hcp.html

Note 1: Fully vaccinated is defined as 5 doses of DTaP or 4 doses of DTaP if the fourth dose was administered on or after the fourth birthday.
Note 2: Healthcare personnel include but are not limited to physicians, other primary care providers, nurses, aides, respiratory therapists, radiology technicians, students (e.g., medical, nursing, and pharmaceutical), dentists, social workers, chaplains, volunteers, and dietary and clerical workers.
For more detailed information, see Immunization of Healthcare Workers: Recommendations of the advisory Committee for Immunization Practices (ACIP) and the Hospital Infection Control Practices Advisory Committee (HICPAC) - https://www.cdc.gov/mmwr/preview/mmwrhtml/00050577.htm

Treatment

The earlier the treatment can be initiated for pertussis, the better. If treatment is started during the first 1–2 weeks before coughing paroxysms occur, symptoms may be lessened. Clinicians should not wait for test results to initiate treatment. If the diagnosis is late (usually through the third week after the onset of paroxysms) antibiotics will not alter the course of the illness. Even without antibiotics, patients should no longer be spreading pertussis at this point. It is appropriate to treat persons older than 1 year of age within 3 weeks of cough onset and infants younger than 1 year of age and pregnant women within 6 weeks of cough onset.

The treatment and the post-exposure prophylaxis (PEP) does not differ; therefore, the same microbial treatment should be initiated for contacts and cases. PEP should be given to contacts who are within 3 weeks of exposure. The recommended antimicrobial agents are azithromycin, erythromycin and clarithromycin. Trimethoprim-sulfamethoxazole can also be used. It is noteworthy to mention that three-day treatment of azithromycin has not been validated or recommended for treatment or PEP. See *Table B* for the recommended antimicrobial treatment based on age.

Table B. Recommended Antimicrobial Therapy and Postexposure Prophylaxis for Pertussis in Infants, Children, Adolescents, and Adults

Age	Recommended Drugs			Alternative
	Azithromycin[1,2]	Erythromycin	Clarithromycin[1]	TMP-SMX[3,4]
< 1 month	10 mg/kg/day as a single dose daily for 5 days	40 mg/kg/day in 4 divided doses for 14 days	Not recommended	Contraindicated at younger than 2 months of age
1–5 months	10 mg/kg/day as a single dose daily for 5 days	40 mg/kg/day in 4 divided doses for 14 days	15 mg/kg/day in 2 divided doses for 7 days	≥ 2 mo of age: TMP, 8 mg/kg/day; SMX, 40 mg/kg/day in 2 divided doses for 14 days
≥ 6 months and children	10 mg/kg as a single dose on day 1 (maximum 500 mg), then 5 mg/kg/day as a single dose on days 2–5 (maximum 250 mg/day)	40 mg/kg/day in 4 divided doses for 7–14 days (maximum 1–2 g/day)	15 mg/kg/day in 2 divided doses for 7 days (maximum 1 g/day)	≥ 2 mo of age: TMP, 8 mg/kg/day; SMX, 40 mg/kg/day in 2 divided doses for 14 days
Adolescents and Adults	500 mg as a single dose on day 1, then 250 mg as a single dose on days 2–5	2 g/day in 4 divided doses for 7–14 days	1 g/day in 2 divided doses for 7 days	TMP, 320 mg/day; SMX, 1600 mg/day in 2 divided doses for 14 days

[1] Azithromycin and clarithromycin is not approved by the Food and Drug Administration (FDA) for infants younger than six-months. An association between azithromycin and clarithromycin with idiopathic hypertrophic pyloric stenosis (IHPS) has been reported in infants younger than one month. Although, the drug of choice for infants younger than one month is azithromycin because the risks of pertussis outweigh the risks of IHPS.

[2] Azithromycin should be used with caution in patients with prolonged QT interval and certain proarrhythmic conditions.

[3] TMP indicates trimethoprim; SMX indicates sulfamethoxazole.

[4] TMP-SMX is classified as a pregnancy category D, and therefore should be avoided during pregnancy.

Surveillance Indicators

1. Proportion of investigations with complete demographic information (name, date of birth, address, gender, race, ethnicity).
2. Proportion of investigations with complete information (clinical, case definition, complications,* antibiotic treatment, laboratory testing, vaccination history, and epidemiologic data**).
3. Interval (median time) between date of symptom onset and date of public health notification.
4. Proportion of cases reported to public health in a timely manner (within 24 hours).

5. Proportion of confirmed cases that are laboratory confirmed (clinical specimens obtained, PCR or culture performed).
6. Proportion of probable and confirmed cases meeting the clinical case definition that are laboratory confirmed.
7. Proportion of probable and confirmed cases reported with complete vaccine history.
8. Proportion of cases for which control measures were initiated within the appropriate timeframe.
9. Proportion of cases with contacts identified.
   A. Mean/median contacts per case.

*Complications include information on hospitalization, presence of whoop, post-tussive vomiting, and paroxysmal cough, apnea, chest x-rays for pneumonia, seizures and encephalopathy.
**Epidemiologic data includes indicating if a case is part of an outbreak, if a case is epi-linked to another case, and if contact tracing was completed.

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