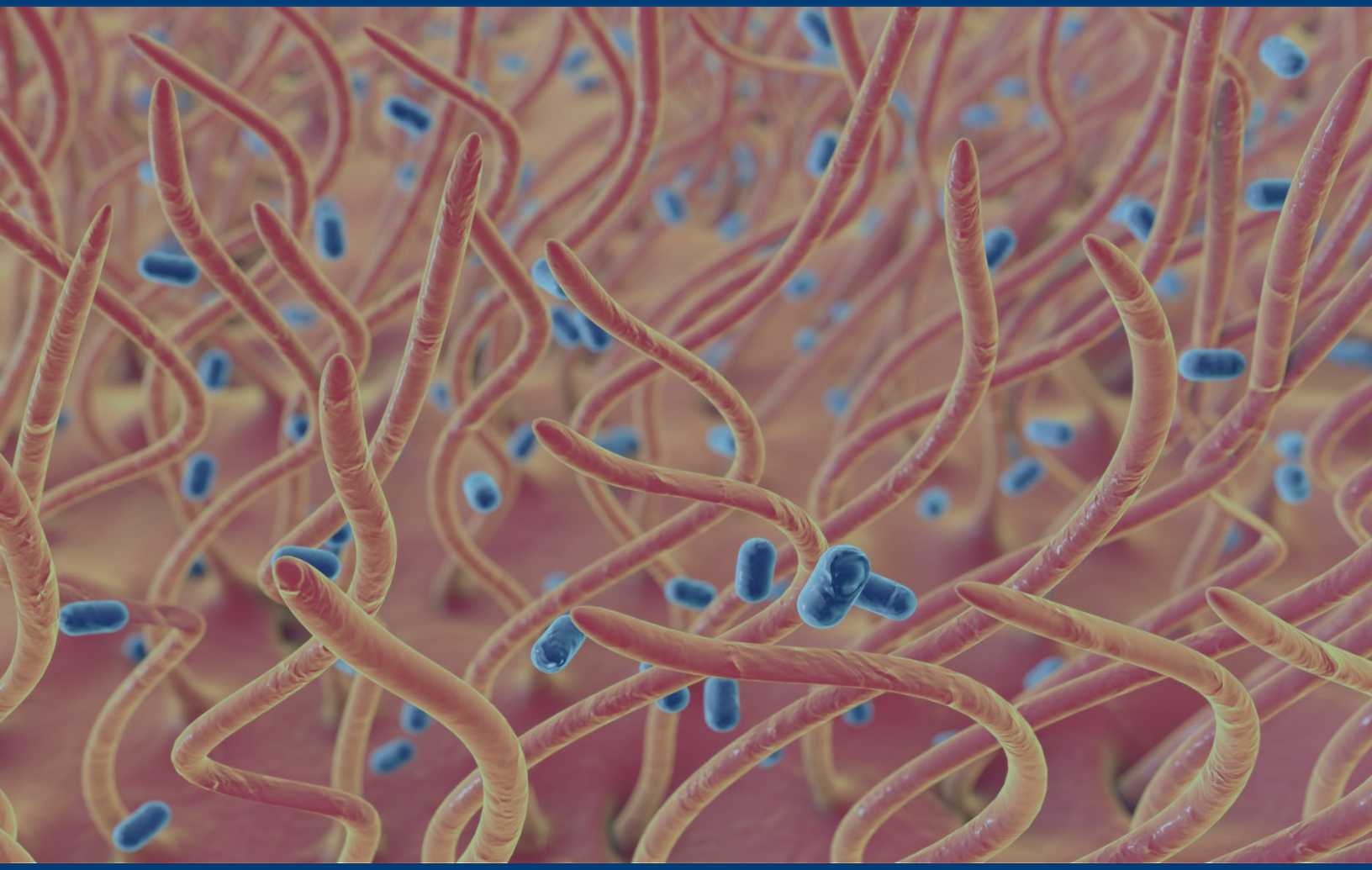

Pertussis (Whooping Cough) Guidelines

Wisconsin Immunization Program
Division of Public Health | Wisconsin Department of Health Services

P-00637 (01/2025)

WISCONSIN DEPARTMENT *of* HEALTH SERVICES

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Etiologic agent

Pertussis is caused by *Bordetella pertussis*, a fastidious, gram-negative, pleomorphic bacillus. Other *Bordetella* species, including *Bordetella parapertussis, Bordetella bronchiseptica* (the cause of canine kennel cough), and *Bordetella holmesii* can cause sporadic prolonged cough illness in people, but these are rare.

Clinical description

Presentation

- The **catarrhal stage** is characterized by the insidious onset of symptoms similar to the common cold: runny nose, sneezing, low-grade fever, and a mild occasional cough. The cough gradually becomes more severe.
- The **paroxysmal stage** is characterized by bursts (paroxysms) of numerous, rapid coughs. At the end of the paroxysm, the patient may breathe in strongly which may be accompanied by a characteristic high-pitched whoop. During such an attack, the patient may turn blue (cyanotic). Children and young infants often appear very ill and distressed. Vomiting and exhaustion commonly follow paroxysmal episodes. The person does not appear ill between attacks. Paroxysmal attacks occur more frequently at night. The paroxysmal stage typically lasts 1–6 weeks but may persist for up to 10 weeks. During the first 1–2 weeks of the paroxysmal stage, the attacks increase in frequency, remain at the same level for 2–3 weeks, and then gradually decrease. Infants under 6 months of age may not have the strength to have a whoop, but they do have paroxysms of coughing.
- The **convalescent stage** is characterized by gradual recovery. The cough becomes less paroxysmal and disappears in 2–3 weeks. However, paroxysms often recur with subsequent respiratory infections for many months after the onset of pertussis.

The clinical presentation of pertussis varies with age, and the diagnosis can be challenging.
Disease in infants under 6 months of age may be atypical, with a short catarrhal stage and gagging, gasping, or apnea as the prominent early manifestations. Whoop may be absent, and the convalescent stage may be prolonged.

Older children and adults can present with the classic symptoms of pertussis or with an atypical presentation. Among immunized individuals, particularly adolescents and adults, prolonged cough may be the only manifestation of pertussis.

Complications

Pertussis is most severe when it occurs during the first 6 months of life, particularly in preterm and unimmunized infants.

Complications include primary or secondary bacterial pneumonia, seizures, hypoxic encephalopathy, and death. Most pertussis-related deaths occur in infants, particularly among those under 4 months of age.

Conditions that may result from the effects of pressure generated by severe coughing include pneumothorax, epistaxis, subconjunctival hemorrhage, subdural hematoma, hernia, rectal prolapse, urinary incontinence, and rib fracture. Adolescents and adults may also develop complications of pertussis, including problems sleeping, urinary incontinence, pneumonia, and rib fracture.

Differential diagnosis

Health care providers should include pertussis in their differential diagnosis for patients in all age groups who present with a prolonged cough illness. The differential diagnosis for pertussis often includes infections caused by *Mycoplasma pneumoniae, Chlamydia trachomatis, Chlamydia pneumoniae*, respiratory syncytial virus (RSV), adenovirus, other respiratory viruses, and other Bordetella species (for example, *B. parapertussis* and *B. holmseii*).

Despite increasing awareness and recognition of pertussis as a disease that affects adolescents and adults, pertussis is overlooked in the differential diagnosis of cough illness in this population. Also, adolescents and adults often do not seek medical care until several weeks after the onset of their illness. Therefore, in addition to the agents listed above, the differential diagnosis in older age groups may include other causes of chronic cough, such as allergy, asthma, bronchospasm, gastro-esophageal reflux disease, post viral bronchospasm, sinusitis, and chronic lung disease.

Immunity

Neither infection nor immunization against *B. pertussis* provides lifelong immunity. Adolescents, adults, and children who were previously vaccinated may become infected with *B. pertussis* but may have milder disease than infants and young children.

Reservoirs

Humans are the only host of *Bordetella pertussis*.

Modes of transmission

Pertussis is transmitted from person to person through respiratory droplets or contact with airborne droplets. *B. pertussis* is transmitted from person to person by:

- Direct contact with nasopharyngeal secretions of an infected person.

or

- Contact with droplets of nasopharyngeal secretions from an infected person.

Droplets are generated during coughing, sneezing, talking, and during the performance of certain procedures such as bronchoscopy or suctioning.

Examples of direct or droplet contact with nasopharyngeal secretions include a cough or sneeze in the face, sharing food, sharing eating utensils during a meal, kissing, and performing a full medical exam including examination of the nose and throat.

Incubation period

The incubation period is usually 7–10 days, with a range of 5–21 days.

Period of communicability or infectious period

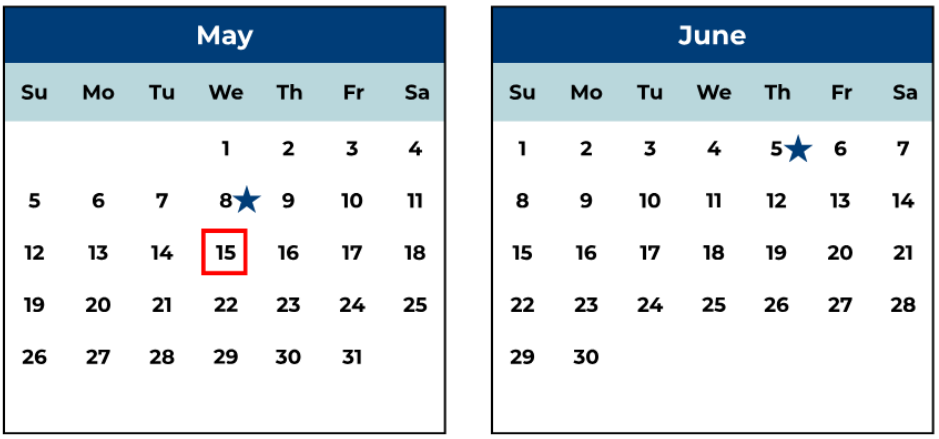
The period of communicability depends on whether the patient has been treated with appropriate antibiotic therapy and the patient's age:

Treated with appropriate antibiotic?	Age of patient	Start of infectious period	End of infectious period
Yes	All ages	7 days before cough onset	After 5th day of treatment
No	1 year or older	7 days before cough onset	21 days after cough onset
No	younger than 1 year	7 days before cough onset	42 days after cough onset

The secondary attack rate for susceptible household contacts is approximately 80%. Secondary attack rates have been demonstrated to be high even when household contacts are up to date with immunizations.

Determining the infectious period: To determine a pertussis case's infectious period, it is helpful to have a calendar. The most important piece of information is the date of cough onset. The day of cough onset is considered day zero and will be used to determine the person's infectious period.

Here is an example of determining the infectious period:



The cough began on May 15.

To determine the infectious period:

- Count back one week (7 days) from the cough onset (day zero). This would be May 8.
- From the cough onset, count forward three weeks (21 days). This would be June 5.

Therefore, the infectious period is from May 8 through June 5. However, if the individual received appropriate antibiotics within that timeframe, the infectious period would end after the first 5 days of full adherence to a recommended course of antibiotic.

Epidemiology

Pertussis occurs worldwide. It is endemic, with peaks of disease incidence occurring every 2–5 years. Following introduction of pertussis vaccine during the 1940s, pertussis incidence gradually fell in the United States. Since the 1980s, the incidence of reported pertussis has increased in the United States among all age groups.

For up-to-date information on national pertussis trends, see the Centers for Disease Control and Prevention (CDC) pertussis website.

For Information about the incidence of pertussis in Wisconsin, see the pertussis data and statistics page.

Prevention measures and vaccine

The best available methods for the prevention of pertussis include:

- Routine vaccination against pertussis.
- Appropriate and timely use of post-exposure antimicrobial prophylaxis (see Section 4B).
- Good personal hygiene (which consists of proper hand hygiene, disposal of used tissues, and covering your cough).

Vaccine to prevent pertussis is routinely recommended for children, adolescents, and adults. Tdap is also recommended for pregnant people with each pregnancy. The Advisory Committee for Immunization Practices (ACIP) and CDC have recommendations for routine vaccination with DTaP and Tdap vaccines.

What to report to the Wisconsin Division of Public Health (Immunization Program)

Report any of the following:

- An individual with a suspected case of pertussis, as diagnosed by a health care provider.
- Isolation, by culture, of *B. pertussis* from a clinical specimen.
- A positive polymerase chain reaction (PCR) test result for *B. pertussis* nucleic acid.
- Cough illness in a contact of a person with a laboratory-confirmed case of pertussis.

Laboratory testing services available

Only symptomatic persons should have specimens collected for *B. pertussis* testing.

There are two types of diagnostic tests for pertussis acceptable for public health purposes. Please refer to the Wisconsin State Laboratory of Hygiene (WSLH) or your lab on specific collection and handling instructions.

PCR (preferred testing method)

PCR testing is available at WSLH, commercial, and hospital laboratories.

PCR testing of nasopharyngeal (NP) swabs are the recommended specimen for pertussis testing and should be collected as soon as pertussis is suspected (preferably within 21 days of cough onset and prior to the initiation of antibiotic therapy). However, treatment should not be postponed for testing. Beyond this period, false negative results become more likely, though PCR can detect the organism's nucleic acid after antibiotic administration up to four weeks after onset of cough.

A properly obtained NP swab or aspirate is needed for optimal diagnostic results.

Culture

A positive culture for *B. pertussis* in a person with cough illness of any duration confirms the diagnosis of pertussis. However, although bacterial culture is specific for the diagnosis, it is relatively insensitive. Fastidious growth requirements make *B. pertussis* difficult to isolate. Isolation of the organism from a nasopharyngeal (NP) swab is most successful during the catarrhal stage (first 1–2 weeks). Antibiotics decrease the likelihood of recovering the organism. Pertussis is slow growing and may take up to two weeks to grow.

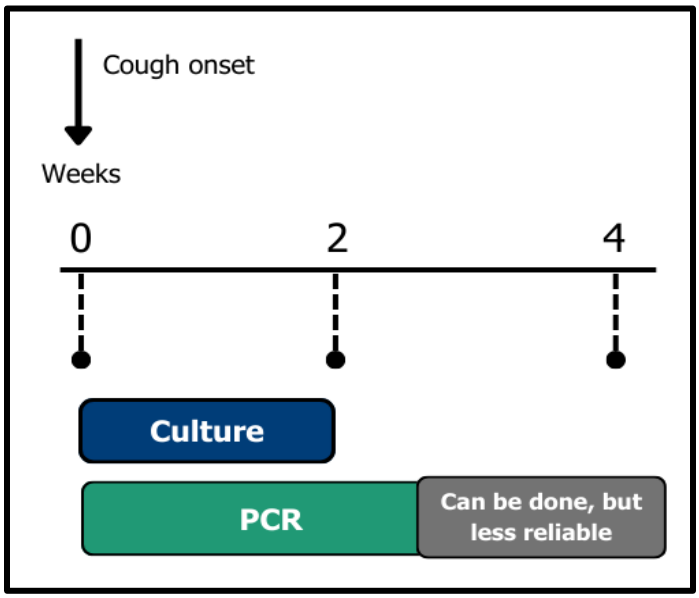
Receipt of antibiotics effective against *B. pertussis* decreases the likelihood of isolating *B. pertussis* in culture. Accordingly, if more than 14 days have elapsed since cough onset or the patient has received antibiotics effective against *B. pertussis*, testing with culture is not recommended.

Serology

CDC and the Food and Drug Administration developed a serologic assay that has been useful for confirming diagnosis, especially during suspected pertussis outbreaks, but it is not widely available. Many of the commercially available serology assays available in the U.S. have variable or unknown clinical accuracy. This test is not performed at the Wisconsin State Laboratory of Hygiene.

Method	Advantages	Disadvantages
PCR	• Most rapid test available • Excellent sensitivity • PCR assays that include multiple target sequences allow for speciation among *Bordetella* species	• Tests can vary in specificity • High sensitivity increases risk of false-positivity, but best practices can reduce risk of inaccurate results
Culture	• Gold standard for pertussis diagnosis • The only 100% specific method for identification • Better specificity than PCR	• Takes up to 7 days to obtain results • Requires special culture medium that is not often routinely available • Testing is not widely available
Serology	• Can be performed much later in the course of disease than culture and PCR	• Some commercially available tests have unproven or unknown clinical accuracy

Optimal timing for testing:



Diagnostic specimen submission

If the patient is suspected of having pertussis, the specimens can be sent to a commercial laboratory that performs pertussis PCR or to the Wisconsin State Laboratory of Hygiene (WSLH).

For the WSLH:

- PCR (Bordetella pertussis/parapertussis PCR Test code 3224)
- Culture (Bordetella Culture Test code 623C)

Request kit #30 and the accompanying form "CDD Requisition Form (A)" from the WSLH by calling 800-862-1088 or 608-265-2966. If you have questions about the testing process or specimen collection, please contact the WSLH Customer Service at 800-862-1013.

- Kit #30 contains, among other things, 2 Dacron/polyester nasopharyngeal swabs, WSLH Regan-Lowe culture (charcoal transport) medium, and sterile tube for transport of the PCR test portion.
- The swab applicators use a flexible wire, which is the only device that should be inserted into the nasopharynx for the collection of the specimen.
- Wrap absorbent material around each tube. Place the transport tubes in the pressure bag provided and seal.
- If submitting a PCR specimen, you must also place a frozen cold pack into the Styrofoam mailer. If specimens are not shipped immediately, they should be kept at room temperature or incubated at 35°C (95°F).
- Optimally, the WSLH would like to receive specimens for culture within 24 hours of collection. The dry swab specimen for PCR is relatively stable and therefore time is less critical.

WSLH uses a Bordetella PCR test that differentiates between *B. pertussis*, *B. parapertussis*, and *B. holmesii*. Positive and negative results are reported for each of these three species. *B. holmesii* has been detected rarely in respiratory specimens from patients with pertussis-like symptoms. Its role in respiratory illness is not well defined at this time. At this time, no public health follow-up is needed for individuals who test positive for *B. holmesii*.

Please refer to the WSLH website for additional information on specimen collection, handling, and shipping.

Interpretation of PCR results

The full clinical and epidemiologic picture must be taken into consideration when interpreting test results.

Positive

Detection of the presence of *B. pertussis.*

Negative

No significant level of detectable *B. pertussis.* Negative results alone may not rule out infection due to:

- The amount of bacteria at the time of sample collection being too low.
- Inaccuracy of time interval from cough onset.
- Inadequate specimen collection.
- Error in specimen processing, shipping, or storage.

Equivocal/indeterminate

- Need to factor in clinical presentation, epidemiology, and timing of sample collection relative to cough onset.
- Repeat testing may be helpful, depending on the situation.
- This result is not considered a positive or laboratory confirmation of disease.

Section 3 - Reporting Responsibilities and Case Investigation

Purpose of surveillance and reporting

- To identify sources of infection, sites of transmission, and additional cases.
- To identify exposed persons at high risk of severe pertussis to assure timely administration of appropriate antimicrobial prophylaxis, and to prevent further spread of infection.
- To monitor the effectiveness of outbreak control strategies.

Laboratory and health care provider reporting requirements

Pertussis is a Category I Reportable Disease according to the Wisconsin Division of Public Health (DPH) Immunization Program regulations (DHS 145.04). Within 24 hours, health care providers should report all suspected or confirmed cases of pertussis by submitting a case report online through the Wisconsin Electronic Disease Surveillance System (WEDSS) or by fax using an Acute and Communicable Disease Case Report (F44151).

Laboratories that test specimens from Wisconsin residents that yield evidence of *Bordetella pertussis* infection should report the case to the local or Tribal health department (LTHD) online through WEDSS or by fax using an Acute and Communicable Disease Case Report (F44151).

DHS provides a list of LTHD contact information.

Local and Tribal health department reporting and case investigation

Reporting requirements

Each LTHD must report any suspected case of pertussis, as defined by the reporting criteria in Section 2A, to DPH Immunization Program through either of the following methods:

- By telephone or secure email to the Regional Immunization Representative or Immunization Program
- Filling out the pertussis case report form in WEDSS.

Case investigation

LTHDs should conduct case investigations for all suspected cases of pertussis.

At the time a suspected case is reported to the public health, gather the following information:

- Clinical presentation, including date of onset of symptoms, particularly cough, paroxysmal cough, whoop, post-tussive vomiting, apnea, duration of cough, and complications (for example, pneumonia, hospitalization).
- Pertussis immunization history.
- Whether there was any recent contact with anyone with similar symptoms.
- Possible transmission setting (for example, childcare, school, health care setting).
- Laboratory testing information, including PCR and culture results.

All information should be entered in WEDSS, using the data fields, radio buttons, and date fields whenever possible.

Out-of-state cases and contacts

Any cases or contacts of a case identified among non-Wisconsin residents should be reported to the DPH Immunization Program. The Immunization Program will notify the state of residence.

Cases who traveled by air during infectious period

If a confirmed case of pertussis traveled, the DPH Immunization Program should be notified and will, in turn, notify CDC.

Section 4 - Controlling Further Spread

This section provides detailed guidelines regarding how to control disease in a patient with pertussis and protect contacts of the patient from becoming infected. The LTHD will take the lead on implementing control measures, in collaboration with the DPH/Immunization Program.

Control of disease

Case patient

For public health control purposes, cases are considered infectious from 7 days prior to the cough onset to whichever time is the earlier of:

- 21 days after the onset of any cough (or 42 days after onset of cough for infants less than one year of age), or
- when they have completed 5days of a course of an appropriate antibiotic.

Of note, some individuals may still test positive by PCR or cough well beyond the period of infectivity. The above timeframes for the infectious period should be used regardless of when the PCR specimen was collected, is reported positive, or if the individual is still coughing.

Algorithm I (Appendix B) provides a guideline for how people suspected of having pertussis should be managed depending on the person's symptoms and whether the person had known pertussis contact.

- Test: Obtain lab samples for *B. pertussis* according to the guidance.

- Treatment: A patient with pertussis should be treated with appropriate antibiotic therapy (see Appendix A) if the patient has been coughing 21 days or less (or 42 days or less if an infant aged less one year). If the patient has been coughing for more than 21 days (or more than 42 days if an infant aged less than 12 months), antibiotic treatment is not necessary.

- Isolation/Exclusion: All suspected pertussis patients requiring treatment should be isolated and excluded from activities until five days of appropriate antibiotic therapy have been completed. If the patient has been coughing for more than 21 days (or more than 42 days in an infant aged less than 12 months), isolation and exclusion are not necessary.

If the health care provider has a high index of suspicion of pertussis, then regardless of contact with an identified case of pertussis, the health care provider should test, treat, and isolate the patient.

Contacts of a case

The overall goal of follow-up is to prevent continued transmission of pertussis to individuals at high risk for severe outcomes from pertussis infection.

This is done by identifying those individuals who were exposed to the case during their infectious period. Individuals will either be identified as close contacts or individuals who may have come into contact with the index case. Within those individuals, **the focus is on the close and high-risk contacts**.

Algorithm II (Appendix C) depicts how individuals who have had close contact with a patient with pertussis should be managed.

Step 1: Identify close contacts

Work with the case patient (or parent/guardian) to identify individuals who had close contact with the case while the patient was infectious. Close contact includes:

- Household contacts.
- Direct face-to-face contact.
- Shared confined space in close proximity for a prolonged period of time.
- Direct contact with respiratory, oral, or nasal secretions (for example, an explosive cough or sneeze in the face).

See Appendix D for examples of close contacts.

Step 2: Notify close contacts and identify those at high risk

- Notify close contacts of their exposure to a pertussis case.
- Screen close contacts for symptoms of pertussis.
- Identify close contacts who are included in a high-risk category which includes:
    - Infants less than 12 months of age.
    - Pregnant people in their third trimester.
    - Individuals with pre-existing health conditions who may be exacerbated by pertussis infections. Including, but not limited to, people who are immunocompromised, patients with moderate to severe medically treated asthma, and people who are medically fragile.
    - Anyone who will have significant contact with individuals identified above (such as a health care provider, childcare provider, or household contact of a pregnant person).

Step 3: Manage household close contacts

- Recommended post-exposure prophylaxis (PEP) with appropriate antibiotics (see Appendix A) if last exposure to the pertussis case was within 21 days.
- All household contacts should self-monitor for symptoms.
- Asymptomatic contacts do not need to be isolated or excluded.
- Individuals who have or develop symptoms should be managed as having a suspected case of pertussis.

Step 4: Manage non-household close contacts

- Notify of the exposure, provide education on pertussis, including signs and symptoms and high-risk categories, as well as instructions to self-monitor for symptoms.
- Asymptomatic contacts do not need to be isolated or excluded.
- Individuals who have or develop symptoms should be managed as having a suspected case of pertussis.

- Individuals in a high-risk category: PEP with appropriate antibiotics (see Appendix A) **is recommended** if last exposure to the pertussis case was within 21 days.
- Individuals not in a high-risk category: PEP is not recommended for this group.

Note: For close contacts who are non-residents of Wisconsin, please notify the DPH Immunization Program, who will notify the other state's health department for follow up.

Special settings

School and childcare settings

The LTHD, family, and school should work together to identify close contacts (including staff members and students or childcare attendees) of the case with pertussis.

For close contacts identified as **high-risk**:

- Provide notification about the exposure, the symptoms to watch for, testing information, and the need for PEP.
- If the individual has a cough illness, medical evaluation for pertussis should be sought and the individual should be excluded if pertussis is suspected.
- If the individual does not have a cough, they can continue to attend school and activities without restrictions.
- Note that in childcare settings, high-risk settings, such as a classroom with infants aged less than 12 months, are recommended to receive PEP.

For close contacts identified who are **not** at high-risk:

- Provide notification about the exposure, the symptoms to watch for, as well as information for what to do if they become symptomatic.
- While this group is **not** recommended to receive PEP, it is important to note the high-risk indications where PEP may be needed (in case the school or LTHD is unaware that the individual is in a high-risk category).
- If the individual has a cough illness consistent with pertussis, medical evaluation for pertussis should be sought and the individual excluded if pertussis is still suspected.
- If the individual does not have a cough, they can continue to attend school and activities without restrictions.

The school, working with the LTHD, may choose to notify others in the school that there is pertussis in the school for situational awareness, depending on the circumstances. Template letters are available from DPH Immunization Program.

Settings with infants or pregnant people

If a case of pertussis is identified in a setting that includes infants or pregnant people in their third trimester (for example, but not limited to, childcare settings, NICUs, maternity wards), please contact DPH Immunization Program for consultation.

In this situation, DPH Immunization Program may advise that all close contacts be recommended PEP to limit the possibility of transmission of *B. pertussis* to infants.

Note that the preferred antibiotic for infants is azithromycin.

Limited, closed settings

If a small number of pertussis cases occurs in a closed setting (such as a prison) and a community-wide outbreak is not ongoing, a broader use of PEP may be warranted to interrupt *B. pertussis* transmission in that closed setting. If continued transmission occurs in that setting, multiple rounds of PEP are not recommended. Instead, contacts should be monitored for signs and symptoms for 21 days. Please contact DPH Immunization Program (DHSImmProgram@dhs.wisconsin.gov) for consultation if such an outbreak occurs in your jurisdiction.

Settings with continued transmission

When continued transmission of *B. pertussis* is evident, multiple rounds of antibiotics are not recommended. Rather than repeating a course of antibiotics, contacts should monitor for onset of signs and symptoms of pertussis for 21 days. However, in some situations (for example, re-exposure of an infant less than6 months of age) re-prophylaxis may be warranted and therefore, high risk individuals should be referred to their health care provider regarding decisions about re-prophylaxis.

Health care settings

In the health care setting, the control of disease in a patient and management of close contacts should generally follow the guidelines described above. However, see below for additional guidance for controlling disease among health care personnel and patients.

In addition to the definition of a close contact outlined above, in health care settings the definition of a close contact also includes the following:

- Having face-to-face contact within three feet of the patient with pertussis without wearing a surgical mask or other protection of the face and respiratory tract; this includes performing a medical examination, obtaining a NP swab specimen, suctioning, intubating or, performing bronchoscopy or a similar procedure without wearing a mask.
- Conducting any procedure that induces coughing of the patient without wearing a surgical mask or other protection of the face and respiratory tract, even if farther from the patient than three feet.
- Coming into direct mucosal contact with respiratory, oral, or nasal secretions of the patient or via fomites.
- Sharing a room with the patient; the degree of contact and risk of infection in such situations should be evaluated on a case-by-case basis.
- Having any other close contact with a patient, as defined above.

In general, individuals who were in waiting rooms or other care areas at the same time as a patient with pertussis should not be considered close contacts.

Note: If a surgical mask was worn by the patient and/or the contact during the entire exam, including specimen collection, there is no need for prophylaxis of the contact. However, this guidance is only for assessing exposures that have already occurred and does not allow a health care provider who is infectious with pertussis to continue working, even if wearing a mask.

Management in high-risk settings

In high-risk settings, such as NICUs, maternity wards, or other settings with infants, pregnant people in their third trimester of pregnancy, or people who are immunocompromised, DPH Immunization Program may recommend PEP for all individuals in the setting to limit spread of *B. pertussis* to those at high risk of severe pertussis. Contact DPH Immunization Program for consultation.

Management of health care personnel who had close contact with a case

- Data regarding the need for PEP among health care personnel who have received Tdap is inconclusive. Vaccinated health care personnel are still at risk for *B. pertussis* and Tdap receipt does not preclude the need for PEP.
- Therefore, PEP is recommended if the health care personnel had unprotected exposure to pertussis and is likely to expose a patient at high risk for severe pertussis (for example, hospitalized neonates, pregnant people in their third trimester, individuals with pre-existing conditions that will be exacerbated by infection with *B. pertussis*).
- Other health care personnel should either (a) receive PEP or (b) be monitored daily for 21 days after pertussis exposure and treated at the time of onset of signs and symptoms of pertussis (and be excluded through day five of a regimen of appropriate antibiotics if they become symptomatic).

Management of inpatients with pertussis

If it has been 21 days or less (42 days or less in an infant aged less than 12 months) from the patient's cough onset, isolate the inpatient with confirmed or suspect pertussis. The patient should be placed on droplet precautions until completion of five days of treatment with an appropriate antibiotic.

Notification

- Within the health care setting, providers, department heads, infection prevention personnel, employee health, and other relevant personnel/departments should be notified of confirmed and suspect cases.
- The LTHD should be notified of any suspected pertussis cases in a health care setting.

Conduct active surveillance

Continue cough surveillance for two incubation periods (42 days) after the date of cough onset in the last case. This is of utmost importance in settings and situations involving high-risk individuals.

Section 5 – Case Definitions

This section provides detailed guidelines regarding the pertussis case definition. The case definition is a set of uniform criteria used to define a disease for public health surveillance set by CDC through the CSTE (Council of State and Territorial Epidemiologists) Position Statement.

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:

- Paroxysms of coughing; **or**
- Inspiratory whoop; **or**
- Post-tussive vomiting; **or**
- Apnea (with or without cyanosis)

Laboratory criteria

Confirmatory laboratory evidence:

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

Epidemiologic linkage

Contact with a laboratory-confirmed case of pertussis.

Note: When creating an epi-link, it is important to confirm there was appropriate contact with a laboratory-confirmed case of pertussis, and that the contact was in the appropriate time frame for disease transmission (for example, within 21 days of onset).

Case classification

Probable

In the absence of a more likely diagnosis, illness meeting the clinical criteria.

OR

Illness with cough of any duration, with:

At least one of the following signs or symptoms:

- Paroxysms of coughing; or
- Inspiratory whoop; or
- Post-tussive vomiting; or
- Apnea (with or without cyanosis)

AND

Contact with a laboratory confirmed case (epidemiologic linkage)

Confirmed

Acute cough illness of any duration, with:

- Isolation of *B. pertussis* from a clinical specimen **or**
- PCR positive for *B. pertussis*

Cases that do not meet either the confirmed or probable case classification are considered "Not a Case". There is no suspect case classification for pertussis.

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Appendix A – Recommended Antibiotic Treatment and Prophylaxis of Pertussis

Recommended antimicrobial treatment and post-exposure prophylaxis for pertussis, by age group.

Age group	Azithromycin (recommended)	Erythromycin	Clarithromycin	TMP-SMX (Alternative)
less than 1 month	10 mg/kg/day as a single dose daily for 5 days[3,4]	40 mg/kg/day in 4 divided doses for 14 days	Not recommended	Contraindicated for infants younger than 2 months
1–5 months	10 mg/kg/day in a single dose for 5 days[3]	40 mg/kg/day in 4 divided doses for 14 days	15 mg/kg/day in 2 divided doses for 7 days	2 months or older: TMP 8 mg/kg/day, SMX 40 mg/kg/day in 2 doses for 14 days
6 months or older and children	10 mg/kg as a single dose on day 1 (max: 500 mg) then 5 mg/kg/day as a single dose on days 2–5 (max: 250 mg)[3,5]	40 mg/kg/day in 4 divided doses for 7-14 days (max: 2 g/day)	15 mg/kg/ day in 2 divided doses for 7 days (max: 1 g/day)	TMP 8 mg/kg/day, SMX 40 mg/kg/day in 2 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[3,5]	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]CDC. Recommended antimicrobial agents for the treatment and postexposure prophylaxis of pertussis: 2005 CDC guidelines. MMWR 2005. *MMWR Recomm Rep*. 2005;54(RR-14):1-16

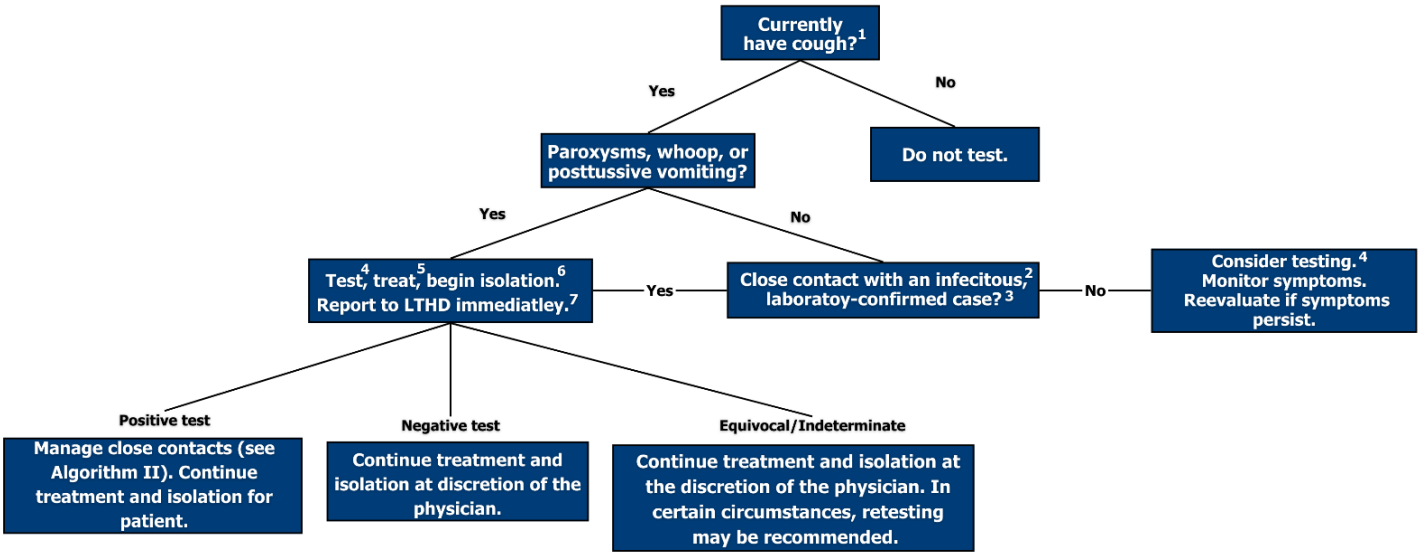
[2]Committee on Infectious Diseases, American Academy of Pediatrics. David W. Kimberlin, MD, FAAP, ed. 2024. Red Book: 2024-2027 Report of the Committee on Infectious Diseases - 33rd Ed. American Academy of Pediatrics. ISBN 978-1-61002-734-2. eISBN 978-1-61002-735-9. ISSN 1080-0131.

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

[4]Preferred macrolide for this age because of risk of idiopathic hypertrophic pyloric stenosis associated with erythromycin.

[5]A 3-day course of azithromycin for PEP or treatment has not been validated and is not recommended.

Appendix B – Algorithm I: Clinical Evaluation and Management of Persons in Whom Pertussis is Being Considered



[1]Infants aged less than 12 months might present only with apnea. Proceed to "Test, treat, begin isolation and report to LTHD immediately" if pertussis is strongly suspected.

[2]The infectious period is defined as 1 week before cough onset to 21 days after cough onset if untreated or 5 days after initiation of appropriate antibiotic therapy. Infants aged less than 12 months with pertussis remain infectious for longer periods (up to 42 days from cough onset) if untreated.

[3]The person being evaluated must have had illness onset within 5–21 days after this close contact.

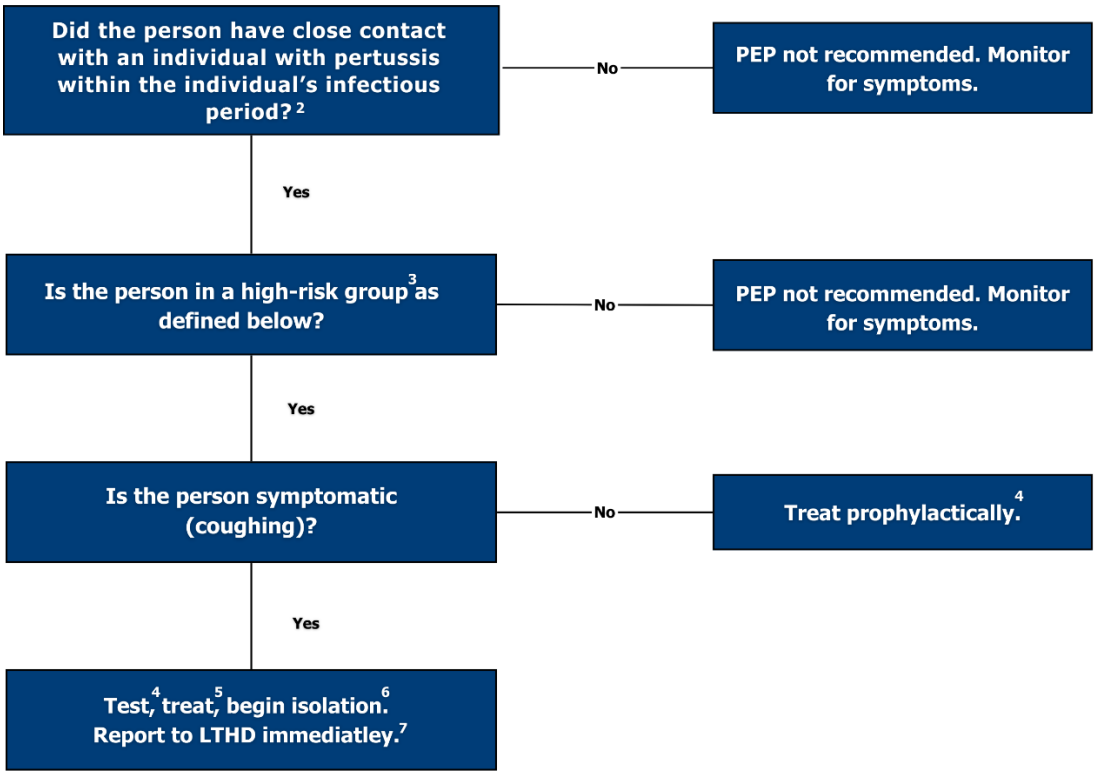
[4]Testing should only be conducted on symptomatic persons. Polymerase chain reaction (PCR) is most sensitive if the specimen is obtained within the first 21 days after cough onset. Culture is most sensitive if the specimen is obtained within the first 14 days after cough onset. If feasible, specimens should be collected for both PCR and culture. If specimens for both tests cannot be collected, PCR testing is preferred.

[5]Treat the patient within 21 days of cough onset (or within 42 days of cough onset for infants aged less than 12 months) with an appropriate antibiotic. A macrolide is the antibiotic of choice for treatment and prophylaxis of pertussis. Treat regardless of vaccination status.

[6]Exclude patients from work, school, or other public contact until at least 5 days of appropriate antibiotic treatment have been completed or until 21 days after onset of cough if appropriate antibiotic treatment is not taken.

[7]Your LTHD will assist with isolation and contact management. Note that pertussis is a Category 1 reportable disease.

Appendix C – Algorithm II: Clinical Guidelines for Management of Contacts of an Individual with Pertussis



[1]**Close contact** includes:

- Direct face-to-face contact for a period of time (duration not defined).
- Shared confined space in close proximity.
- Direct contact with respiratory, oral, or nasal secretions (for example, an explosive cough or sneeze in the face).
- Contact in a setting with known pertussis transmission.

[2]The infectious period is defined as 1 week before cough onset to 21 days after cough onset if untreated or 5 days after initiation of appropriate antibiotic therapy. Infants aged less than 12 months with pertussis remain infectious for longer periods (up to 42 days from cough onset) if untreated.

[3]**High-risk groups** include:

A. Household contacts.
B. Infants less than 1 year.
C. Pregnant people in their third trimester of pregnancy.
D. Individuals with pre-existing health conditions that may be exacerbated by a pertussis infection (immunocompromised individuals).
E. Individuals who have close contact with anyone in groups B, C, or D above.

[4]Prophylactically treat patient with an appropriate antibiotic if within 21 days of last contact with a case. If the person is symptomatic, treat with an appropriate antibiotic if within 21 days of cough onset or within 42 days

of cough onset for infants less than 1 year of age. A macrolide is the antibiotic of choice for treatment and prophylaxis of pertussis. Treat regardless of vaccination status.

[5]Testing should only be conducted on symptomatic persons. Polymerase chain reaction (PCR) is most sensitive if the specimen is obtained within the first 21 days after cough onset. Culture is most sensitive if the specimen is obtained within the first 14 days after cough onset. If feasible, specimens should be collected for both PCR and culture. If specimens for both tests cannot be collected, PCR testing is preferred.

[6]Exclude patients from work, school, or other public contact until at least 5 days of appropriate antibiotic treatment have been completed or until 21 days after onset of cough if appropriate antibiotic treatment is not taken.

[7]Your LTHD will assist with isolation and contact management. Note that pertussis is a Category 1 reportable disease.

Appendix D- Examples of Contacts

Situation	Close Contacts	Not Contacts
Household		
Home	All household members, significant other, overnight guests, babysitter/caretaker, overnight shelters, roommates	Neighbors, home delivery
Non-Household		
Workplace	Cube mate, carpool, routinely eat lunch together, coworkers or clients who worked 1:1 or small group project	Entire building, public interaction
School	Close friend(s), significant other, carpool, lab/project partner, band/choir close contact, teacher, or aide in some situations	Entire school, entire school event
Childcare	Staff and children in the same classroom as the case.	Entire facility
Sports team	Close friend(s), carpool, teammates (depending on sport)	Opposing teams, all teams in a tournament, spectators
Extracurricular activities	Close friend(s), partner(s) for activities, cohort/group, cabin at camp	Entire event
Public	Unlikely	Restaurants Cashiers General public

Not all inclusive and there may be differences depending on the situation.
It is important to think about *who* the person spent time with rather than everything they did or everywhere they went