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1.0 AUTHORITY

BC Public Health Act (2008). Available at
http://www.leg.bc.ca/38th4th/3rd_read/gov23-3.htm

2.0 GOAL

The goal of the pertussis control program in BC is to reduce severe morbidity and mortality related to pertussis infection. Control of pertussis will be undertaken by:

- Immunization of all eligible individuals.
- Surveillance of pertussis disease.
- Case and contact management.
- Prompt outbreak management.

3.0 PERTUSSIS FLOW CHART

The flow chart summarizes actions to be taken by Public Health when notified of a case of pertussis.

Case Identification

- Investigate all clinically identified and laboratory reports of pertussis as soon as possible.
- Confirm diagnosis.
  - Determine whether case is confirmed, probable, or suspect.
- Recommend that suspect cases be tested.

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Case Management

- Refer case to physician for treatment. Encourage client to seek treatment as soon as possible.
- Obtain case history.
  - Estimate period of communicability.
  - Exclusion of the case from any setting is at the discretion of the Medical Health Officer (MHO). The MHO may consider exclusion of the case from high risk situations where there are vulnerable individuals (i.e., infants <1 year of age or pregnant women in the 3rd trimester).
- Educate case about pertussis and prevention of transmission.
- Complete pertussis immunization according to routine schedule.

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Contact Management

- **Identify high risk contacts** that had the following types of contact with the case during the period of communicability: face to face contact for > 5 minutes; shared the same confined air space for > 1 hour; or direct contact with the respiratory secretions of the infected person.
  - Infants < 1 year of age
  - Pregnant women in the 3rd trimester
  - All household or family daycare contacts IF there is an infant < 1 year of age or pregnant woman in 3rd trimester in household or daycare
- **Recommend chemoprophylaxis for all high risk contacts.**
  - Attempt to speak with or make other direct contact with all high risk contacts (if unable to reach, provide written notification).
  - Refer contacts to physician for prescription for chemoprophylaxis.
  - Send / fax letter to physician's office with client's name, reason for chemoprophylaxis, and recommended antibiotic regimens.
  - Advise contact to begin taking antibiotic as soon as possible.
- At the discretion of the MHO and depending on local resources, you may choose to identify non-high risk contacts.
  - Advise non-high risk contacts that antibiotics are not recommended unless pertussis symptoms develop.
  - Discuss signs and symptoms of pertussis. Advise contact to see physician and notify Public Health if signs and symptoms of pertussis develop.
  - Consider providing a letter for client's physician informing them that client has been identified as a non-high risk contact and advising them of the need for early treatment.
- Refer any symptomatic contacts to physician for testing.
- Educate asymptomatic contacts about the signs and symptoms of pertussis.
- Assess immunization status of identified contacts.
  - If immunization is incomplete, administer necessary doses of pertussis-containing vaccine according to minimum interval guidelines.

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Reporting

- Report confirmed and probable cases of pertussis in iPHIS or PARIS within 7 business days.

4.0 CASE IDENTIFICATION

4.1 Confirm the Diagnosis

Confirm the diagnosis with attending physician.

Investigate all clinically identified and laboratory reports of pertussis as soon as possible. Assess whether case is confirmed, probable, or suspect. Recommend that suspect cases be tested.

PERTUSSIS SURVEILLANCE	DEFINITION	REPORTABLE

Confirmed case	1. Laboratory confirmation of infection:
	• Isolation of *B. pertussis* from an appropriate clinical specimen❶
	Or
	• Detection of *B. pertussis* DNA❷ from an appropriate clinical specimen AND one or more of the following:
	  • cough lasting 2 weeks or longer
	  • paroxysmal cough of any duration
	  • cough with inspiratory "whoop"
	  • cough ending in vomiting or gagging, or associated with apnea
	
	2. Epidemiological link to a laboratory-confirmed case AND one or more of the following for which there is no other known cause:
	• paroxysmal cough of any duration
	• cough with inspiratory "whoop"
	• cough ending in vomiting or gagging, or associated with apnea
		Yes

Probable case	Cough lasting 2 weeks or longer in the absence of appropriate laboratory tests and not epidemiologically linked to a laboratory-confirmed case **AND** one or more of the following with no other known cause: • paroxysmal cough of any duration • cough with inspiratory "whoop" • cough ending in vomiting or gagging, or associated with apnea	Yes
Suspect case	One or more of the following with no other known cause: • paroxysmal cough of any duration • cough with inspiratory "whoop" • cough ending in vomiting or gagging, or associated with apnea	No

❶ Nasopharyngeal swab or nasopharyngeal wash (see 5.1 Laboratory Testing)
❷ Pertussis DNA is detectable using a polymerase chain reaction (PCR) assay

5.0 CASE MANAGEMENT

The Pertussis Case Follow Up form, HLTH 2375, may be used as a worksheet for pertussis case follow-up. The form is available online at http://www.bccdc.ca/dis-cond/CDSurveillanceForms/default.htm. Refer to Section 11.10 for a copy of the form.

5.1 Laboratory Testing

Collect nasopharyngeal swab sample as per "Pertussis Collection Kit" instructions or nasopharyngeal wash. For information regarding sample collection, refer to the BCCDC Public Health Microbiology and Reference Library's Guide to Programs and Services available at http://www.phsa.ca/NR/rdonlyres/D632D356-8E8F-4917-BC3D-463EB5F8A14B/0/GuidetoProgramServices.pdf#page=26. Follow the link to the "Pertussis Collection Kit Instructions." More information regarding laboratory testing and the appropriate requisition form is available at http://www.bccdc.ca/PHSALaboratories.

When *B. pertussis* is isolated from a clinical specimen or *B. pertussis* DNA is detected by PCR, ensure the sample is forwarded for confirmatory testing to BCCDC, PHSA Laboratory. The molecular assay for *B. pertussis* may cross-react with *B. holmesii*. On rare occasions, a sample that is positive for *B. pertussis* through PCR testing will be confirmed as *B. holmesii* when culture testing is completed.

Public Health follow-up of the case should not be delayed while waiting for results of confirmatory testing especially where there is a compelling clinical presentation consistent with pertussis.

5.2 Case History

Determine the **period of communicability**. The period of communicability extends from the beginning of the catarrhal stage (one to two weeks before the onset of paroxysmal coughing) to three weeks after the onset of the paroxysmal cough. The individual is most infectious during the catarrhal stage and the first two weeks of the paroxysmal stage. Refer to Section 9.0 Clinical Description for detailed description of stages of pertussis illness.

With appropriate antibiotic treatment, the infectious period is reduced to 5 days after the start of antibiotics.

5.3 Case Treatment

Refer client to a physician for treatment. Encourage client to seek treatment as soon as possible.

A macrolide antibiotic (i.e., azithromycin, erythromycin, or clarithromycin) is the preferred antimicrobial for treatment **and** post-exposure prophylaxis of pertussis.

Antimicrobial treatment administered in the catarrhal phase of the illness can decrease the duration and severity of symptoms. After the paroxysmal cough is established, an antimicrobial generally does not alter the severity or duration of illness but it is used to eliminate *B. pertussis* from the nasopharynx of infected individuals and shorten the period of communicability. After 3 weeks of paroxysmal coughing, antimicrobial therapy will not offer any added benefit in terms of reducing the shedding of *B. pertussis* as that will be beyond the period of communicability. However, if a specimen has been collected and the case is still culture positive, there is no outer time limit for the start of antimicrobial treatment.

Antibiotics recommended:

Age of case	Recommended treatment
< 1 month	Azithromycin
≥ 1 month to < 2 months	Azithromycin, erythromycin, or clarithromycin
≥ 2 months	• Azithromycin, erythromycin, or clarithromycin • Trimethoprim-sulfamethoxazole is an acceptable alternative when there is a contraindication to azithromycin, erythromycin, or clarithromycin.

When determining the antimicrobial for treatment or prophylaxis, consider:

- effectiveness (e.g., azithromycin and clarithromycin are as effective as erythromycin for individuals ≥ 6 months)
- safety (i.e., potential for adverse events and drug interactions)
- tolerability (e.g., azithromycin and clarithyromycin are associated with fewer and milder side effects than erythromycin)
- ease of adherence to the prescribed regimen (e.g., azithromycin and clarithryomycin require less frequent administration and shorter treatment regimens than erythromycin)
- cost (e.g., erythromycin is less expensive than azithromycin and clarithromycin).

For further information, refer to:

- 11.1 Pertussis Treatment and Chemoprophylactic Agents – Dosage Summary
- 11.2 Azithromycin for Pertussis Treatment and Chemoprophylaxis
- 11.3 Erythromycin for Pertussis Treatment and Chemoprophylaxis
- 11.4 Clarithromycin for Pertussis Treatment and Chemoprophylaxis
- 11.5 Trimethoprim Sulfamethoxazole for Pertussis Treatment and Chemoprophylaxis

Medication is **not** provided free of charge.
If a case refuses to take antibiotics, discuss situation with the Medical Health Officer.

5.4 Treatment and Chemoprophylaxis of Pregnant Women

Recommend treatment and chemoprophylaxis for a pregnant woman who is in the third trimester at the time of diagnosis or contact. Pregnant women with pertussis near term and other household contacts with pertussis are an important source of pertussis for newborn infants.

Pregnancy is not a contraindication to azithromycin or erythromycin.

Both azithromycin and erythromycin are classified as Category B drugs, meaning either animal-reproduction studies have not demonstrated a fetal risk but there are no controlled studies in pregnant women, or animal-reproduction studies have shown an adverse effect (other than a decrease in fertility) that was not confirmed in controlled studies in women in the first trimester (and there is no evidence of a risk in later trimesters).

Erythromycin may be poorly tolerated during pregnancy related to gastrointestinal side effects.

Clarithromycin is not recommended during pregnancy as it is classified as a Category C drug, meaning either studies in animals have revealed adverse effects on the fetus (teratogenic or embryocidal or other) and there are no controlled studies in women or studies in women and animals are not available. Category C drugs should only be given if the potential benefit justifies the potential risk to the fetus.

Trimethoprim-Sulfamethoxazole is not recommended during pregnancy. It is also classified as a Category C drug.

If chemoprophylaxis is not tolerated or not complete by the time of delivery, ensure appropriate chemoprophylaxis is given post delivery to both mother and newborn.

For pregnant contacts that are allergic to the chemoprophylactic options, discuss chemoprophylaxis with the MHO.

5.5 Treatment and Chemoprophylaxis of Infants

If not treated, infants with pertussis remain culture-positive for longer periods than older children and adults (up to 6 weeks).

Azithromycin is the preferred antimicrobial for infants < 1 month of age:

- Infants aged < 1 month who receive erythromycin are at increased risk of infantile hypertrophic pyloric stenosis (IHPS).
- Abstracts and published case series describing use of azithromycin among infants aged < 1 month report fewer adverse events compared with erythromycin.
- If azithromycin is not available, erythromycin is recommended. In this age group, the risk for acquiring severe pertussis and its life-threatening complications outweighs the potential risk for IHPS that has been associated with erythromycin.

Infants aged <1 month who receive a macrolide antibiotic should be monitored for IHPS and other serious adverse events.

Azithromycin and clarithromycin are the first-line agents for infants aged 1 – 5 months:

- While data on the safety and efficacy of azithromycin and clarithromycin use among infants aged < 6 months are limited, data from subsets of infants aged 1 - 5 months (enrolled in small clinical studies) suggest similar microbiologic effectiveness of azithromycin and clarithromycin against pertussis as with older infants and children.
- Both have a more convenient dosing schedule than erythromycin and demonstrated safety in older children.

5.6 Exclusion of Cases

Exclusion of cases from any setting is at the discretion of the Medical Health Officer. Inform the MHO if the case lives in, works in, or attends child care, preschool, or school in a setting with infants < 1 year of age or pregnant women in the third trimester.

Exclusion is not a proven effective strategy. The Medical Health Officer may consider exclusion of the case from high risk situations where there are vulnerable individuals (i.e., infants < 1 year of age or pregnant women in the third trimester). The period of exclusion should extend to 5 days after the start of antibiotic therapy or, if no treatment is given, until 21 days after the onset of the paroxysmal cough, unless a specimen has been collected and the case was still found to be culture positive. If the case is still culture positive, recommendations regarding exclusion should be made on a case by case basis. Consultation with BCCDC is recommended. Note: there is no expectation that cases be tested before the exclusion is discontinued.

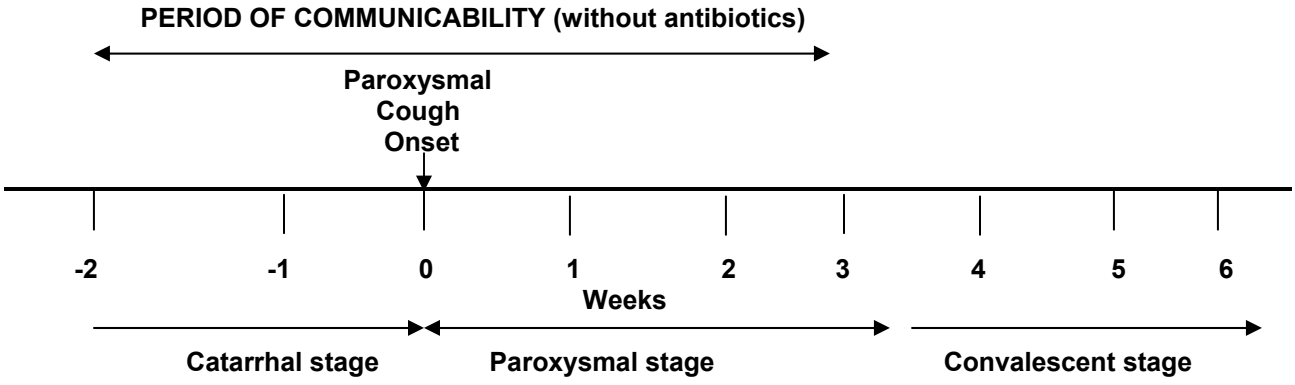
5.7 Immunization of Lab Confirmed Cases

Complete the routine pertussis immunization series for all individuals diagnosed with natural pertussis infection. This practice is recommended because:

- duration of protection induced by pertussis infection is unknown (waning may begin as early as 7 years after infection)
- diagnosis of pertussis can be difficult to confirm, especially with test results other than positive culture for *B. pertussis*
- there are no data to suggest that it is unsafe to administer pertussis vaccine to individuals with a history of pertussis
- infants < 6 months of age may have a suboptimal response to natural pertussis infection and may receive additional protection from pertussis vaccine.

6.0 CONTACT MANAGEMENT

The Pertussis Contact Management Form, HLTH 2376, may be used for contact management. The form can be found online at http://www.bccdc.ca/dis-cond/CDSurveillanceForms/default.htm. Refer to Section 11.11 for a copy of the form.



Incubation period - averages 7 - 10 days (range: 5 - 21 days)

Mode of transmission - *B. pertussis* is a uniquely human pathogen that is transmitted from an infected person to susceptible persons, primarily through aerosolized droplets of respiratory secretions or by direct contact with respiratory secretions from the infected person.

6.1 Contact Identification

Identify contacts that had the following types of contact with the case during the period of communicability:

- face-to-face contact (unless it was only for a short period, e.g.,< 5 minutes)
- sharing of the same confined air space for a prolonged period (e.g., 1 hour)
- direct contact with the respiratory secretions of the infected person (e.g., an explosive cough or sneeze in the face, sharing food or eating utensils, mouth-to-mouth resuscitation, or conducting a medical exam which includes nose and throat examination).

6.1.1 High risk contacts for whom chemoprophylaxis is recommended

Prioritize identification of high risk contacts:

- infants < 1year of age (regardless of immunization status)
- pregnant women in the 3rd trimester (Newborns whose mothers contract pertussis 2-3 weeks prior to their delivery are at high risk for severe pertussis disease and its complications.)
- all household contacts **IF** there is an infant < 1 year of age or a pregnant woman in the 3rd trimester in the household
- all those in a family daycare **IF** there is an infant < 1 year of age or a pregnant woman in the 3rd trimester in the daycare.

Recommend chemoprophylaxis for all high risk contacts. Refer to Section 6.2 Chemoprophylaxis for more information.

Refer **symptomatic** contacts for medical examination and nasopharyngeal swabbing to exclude presence of pertussis organisms. Medical examination and swabbing should be done prior to the start of chemoprophylaxis.

Nasopharyngeal swabs of **asymptomatic** contacts are not recommended. They are not useful for outbreak control or assessing the need for antibiotics.

Educate asymptomatic contacts about the symptoms of pertussis. Advise them to consult their family physician for medical examination and swabbing should symptoms develop.

6.1.2 Contacts for whom chemoprophylaxis is not recommended

At the discretion of the Medical Health Officer and depending on the availability of local resources, Public Health may choose to notify other non-high-risk individuals in the following settings that have been exposed to a case of pertussis:

- other households (that do not have infants < 1 year of age or pregnant women present)
- family and group day care centers that do not have infants < 1 year of age or pregnant women present
- schools
- health care settings
- work places

If contacts are identified and notified, provide the following information:

- notification that a case of pertussis has been diagnosed in the setting
- brief description of pertussis, including symptoms, incubation period, and period of communicability
- advice to seek medical attention if symptoms develop
- request to notify public health if symptoms develop.

See 11.8 Sample Pertussis Contact Notification Letter for a sample letter.

Consider providing a letter for the contact's physician informing them that their patient has been identified as a non-high risk contact to pertussis and advising them of the need for early treatment should their patient develop symptoms suggestive of early pertussis disease (see 11.9 Sample Letter to Physician of a Pertussis Contact for an example). The physician letter could be given to the contact to take to the physician should they develop symptoms or delivered directly to the physician's office.

6.2 Chemoprophylaxis

Recommend chemoprophylaxis for the following high risk contacts regardless of immunization status or age:

- ALL infants < 1 year of age
- ALL pregnant women in the 3rd trimester
- ALL household contacts **IF** there is an infant < 1 year of age or a pregnant woman in the 3rd trimester in the household
- ALL those in a family daycare **IF** there is an infant < 1 year of age or a pregnant woman in the 3rd trimester in the family daycare.

NOTE: Chemoprophylaxis for contacts is not indicated if the case **is** the infant or pregnant woman in the household or daycare setting (and there are no other infants or pregnant women in the 3rd trimester present).

Refer identified high risk contacts to a physician for chemoprophylaxis. Consider providing a letter to client's physician advising them that client is a high risk contact to a case of pertussis and that chemoprophylaxis is recommended. Refer to Section 11.7 Sample Letter to Physician of High Risk Contact to Case of Pertussis.

Chemoprophylaxis for other contacts may be recommended at the discretion of the Medical Health Officer (e.g., staff working with neonates, unimmunized contacts, pregnant women at any stage of pregnancy, those in a group daycare if an infant < 1 year of age or a pregnant woman in the 3rd trimester is present).

Recommend that chemoprophylaxis be started as soon as possible. It may prevent contacts from developing disease when it is given to contacts no later than 21 days after the contact's first exposure to the case during the time the case was infectious. After this incubation period of 21 days, the contact would likely have developed pertussis already if he/she were going to do so. The secondary attack rate has been found to increase from 11% when prophylaxis was initiated within 21 days of cough onset to 29% if prophylaxis was delayed beyond 21 days.

The purpose of chemoprophylaxis is to prevent disease in susceptible high-risk individuals exposed to a case of pertussis and to decrease transmission to high-risk individuals. Chemoprophylaxis with appropriate antibiotics eliminates *B. pertussis* from the nasopharynx of infected individuals.

Chemoprophylactic treatment of all high-risk contacts (regardless of immunization status and whether they have symptoms) is recommended because immunization provides only partial protection and immunized people can still harbour and transmit *B. pertussis*.

The likelihood of controlling transmission through chemoprophylaxis is lower in the following settings: group daycares, physicians' waiting rooms, hospitals, schools, and the general community. For this reason, chemoprophylaxis in these settings is only recommended for high-risk contacts (refer to 6.1 Contact Identification for the definition of high risk contact).

For detailed information regarding the recommended dosages, contraindications, precautions, and other considerations relating to the antibiotics recommended for chemoprophylaxis, refer to:

- 11.1 Pertussis Treatment and Chemoprophylactic Agents – Dosage Summary
- 11.2 Azithromycin for Pertussis Treatment and Chemoprophylaxis
- 11.3 Erythromycin for Pertussis Treatment and Chemoprophylaxis
- 11.4 Clarithromycin for Pertussis Treatment and Chemoprophylaxis
- 11.5 Trimethoprim Sulfamethoxazole for Pertussis Treatment and Chemoprophylaxis

Advise the client to obtain the prescription and begin taking the medication as soon as possible.

Complete the letter "Preventive Antibiotic Recommendations for High Risk Contacts to a Case of Pertussis" (Section 11.6).

In community outbreak circumstances, chemoprophylaxis must be considered for each new episode of close exposure unless the contact is taking chemoprophylaxis at the time.

6.3 Exclusion of Contacts

Exclusion of contacts from any setting is not indicated.

6.4 Immunization of Contacts

Immunization following recent exposure is not effective against infection but will provide protection if subsequent exposure occurs.

Review and update the immunization status of individuals identified as contacts to a case of pertussis. For more information regarding eligibility for pertussis-containing vaccine and recommended pertussis immunization schedules, refer to BC Communicable Disease Manual, Chapter 2, Section VII available at http://www.bccdc.ca/dis-cond/comm-manual/CDManualChap2.htm.

If immunization is incomplete, administer necessary doses of pertussis-containing vaccine according to the recommended minimum intervals guidelines. Refer to BC Communicable Disease Control Manual, Chapter 2, Section IIA, Minimum Intervals Between Vaccine Doses Table at http://www.bccdc.ca/dis-cond/comm-manual/CDManualChap2.htm.

7.0 OUTBREAK MANAGEMENT

An outbreak is defined as an increase in the rate of pertussis infection over that which is normally expected in a defined area or time.

The goals of outbreak management are to limit transmission in closed settings (such as household and family daycare) and to provide protection against disease for those at highest risk of severe disease and its complications.

Advise suspect cases to be tested and to avoid contact with high-risk persons (i.e., infants < 1 year of age and pregnant women in their third trimester of pregnancy).

Initiate enhanced surveillance for cases and the collection of appropriate epidemiologic and microbiologic information.

Notify microbiologic laboratories, hospital emergency rooms, hospital admission offices, physicians' offices and/or schools about the outbreak. This will also heighten awareness of pertussis as a potential cause of cough illness in the community and promote appropriate laboratory confirmation.

Because disease may be atypical in older children and adults (i.e., no paroxysmal cough or whoop), earlier use of diagnostic nasopharyngeal cultures should be considered in people presenting with respiratory symptoms during pertussis outbreaks.

7.1 Immunization during an Outbreak

In communities where there is evidence of ongoing pertussis transmission or evidence of an outbreak of pertussis, the pertussis immunization schedule may be accelerated at the discretion of the MHO as follows:

- Begin routine immunization with INFANRIXhexa™ or PEDIACEL® as early as 6 weeks of age, with subsequent doses given according to minimum interval guidelines. For more information regarding minimum interval recommendations, refer to BC Communicable Disease Manual, Chapter 2, Section IIA available at http://www.bccdc.ca/dis-cond/comm-manual/CDManualChap2.htm
- For children who have received fewer than three doses, administer their additional dose(s) as quickly as possible according to minimum interval guidelines.
- For children who have had three doses, administer their fourth dose as early as 6 months after the third dose.
- Administer a booster dose of vaccine, usually as QUADRACEL®, to any child < 7 years of age who has had four doses of vaccine unless the most recent dose was given within the past 3 years.

- Offer a booster dose, as ADACEL®, to any child ≥ 7years to ≤ 17 years who is eligible (i.e., children who have not completed their primary series and school entry booster of pertussis-containing vaccine). Refer to BC Communicable Disease Manual, Chapter 2, Section VII, Indications for ADACEL® vaccine at http://www.bccdc.ca/dis-cond/comm-manual/CDManualChap2.htm.

There is currently no evidence to support mass vaccination with Tdap as an effective intervention to control outbreaks in confined settings, such as schools, once they are identified. While individuals may elect to receive a booster dose of Tdap in such situations, vaccine is not currently publicly-funded for this purpose.

8.0 REPORT

Confirmed and probable cases of pertussis are reportable to the MHO under the BC Public Health Act (2008).

Report confirmed and probable cases via iPHIS (Public Health Information System) or PARIS within 7 days.

9.0 CLINICAL DESCRIPTION

Pertussis is an acute and prolonged infectious cough illness caused by *Bordetella pertussis,* a gram-negative bacterium. The duration of pertussis illness is usually 6 to 10 weeks in children. Approximately one half of adolescents with pertussis cough for 10 weeks or longer.

The clinical course of pertussis is divided into 3 stages:

- Catarrhal stage (lasts 1 – 2 weeks)
- Paroxysmal stage (usually lasts 1 – 6 weeks but may persist for up to 10 weeks)
- Convalescent stage (lasts 2 – 6 weeks or longer)

During the **catarrhal stage** symptoms may be indistinguishable from those of minor respiratory tract infections (nasal congestion, runny nose, sore throat, mild dry cough, and minimal or no fever). The cough, which is initially intermittent, becomes paroxysmal.

During the **paroxysmal stage**, the individual has repeated bursts, or paroxysms, of numerous, rapid coughs that follow each other without inspiration. Paroxysms may end in typical cases with an inspiratory "whoop" and can be followed by an expulsion of clear, tenacious mucous and post-tussive vomiting. Although children are often exhausted after a coughing paroxysm, they usually appear relatively well between episodes.

Paroxysms of cough usually increase in frequency and severity as the illness progresses. Paroxysms can occur more frequently at night. The illness can be milder and the characteristic whoop absent in children, adolescents, and adults who were previously vaccinated.

During the **convalescent stage,** recovery is gradual and protracted. The severity of illness wanes, paroxysms subside, and the frequency of coughing bouts decreases. During the recovery period, superimposed viral respiratory infections can trigger a recurrence of paroxysms.

Infants younger than 6 months of age may experience atypical disease: with a short catarrhal stage and gagging, gasping, or apnea as early manifestations; absence of whoop; and prolonged convalescence. Adolescents and adults may also experience atypical manifestations when the cough is not paroxysmal or accompanied by the whoop. Adolescents and adults with unrecognized or untreated pertussis contribute to the reservoir of *B. pertussis* in the community.

The most common complication of pertussis, and the cause of most pertussis – related deaths, is secondary bacterial pneumonia. Unvaccinated or incompletely vaccinated infants aged <12 months have the highest risk for severe and life-threatening complications and death.

Patients with pertussis often have substantial weight loss and sleep disturbance. Conditions resulting from the effects of the pressure generated by severe coughing include pneumothorax, epistaxis, subconjunctival hemorrhage, subdural hematoma, rectal prolapse, and rib fracture. Some infections are complicated by primary or secondary bacterial pneumonia and otitis media. Infrequent neurologic complications include seizures and hypoxic encephalopathy. Transient urinary incontinence, hernias, and lumbar pain may occur in adolescents and adults.

Pertussis is highly infectious; the secondary attack rate exceeds 80% among susceptible persons. Neither vaccination nor natural disease confers complete or lifelong protective immunity against pertussis or re-infection. Immunity wanes after 5 - 10 years from the last pertussis vaccine dose. Older children, adolescents, and adults can become susceptible to pertussis after a complete course of vaccination during childhood.

10.0 EPIDEMIOLOGY

The highest incidence of pertussis generally occurs in infants < one year of age. After the 2000 outbreak in BC, there was a shift in age distribution with pre-adolescents (10-14 years) replacing preschool age children as the age group with the second highest incidence rate; however, in recent years rates in pre-adolescents have diminished.

Pertussis demonstrates cyclical peaks every three to five years. In the early 1990's, overall rates in B.C. rose above 5 per 100,000 followed by substantial peaks in 1996 (25 per 100,000), 2000 (38 per 100,000), and 2003 (21.5 per 100,000). The peaks of 2000 and 2003 were driven primarily by increased rates of pertussis in a cohort of preteen and teen children previously immunized with the less efficacious whole cell pertussis vaccine. Between 2005 and 2009, pertussis rates in BC (3-6 per 100,000) were at their lowest levels since the 1980's. In particular, rates among infants less than one year of age were reduced dramatically compared with 2000 and earlier. In 2008, there was a slight cyclical increase with some regions in B.C. experiencing higher rates than others. In 2009, the rate of pertussis dropped slightly.

One to three pertussis-related deaths occur in Canada each year, particularly in infants too young to have begun their immunization series and in partially immunized infants.

Whole cell pertussis vaccine was introduced in Canada in the 1940's. It was replaced by adsorbed whole cell vaccine in the 1980's and by acellular vaccine in 1997-98. In BC, acellular pertussis vaccine has been administered to infants and preschool age children since mid-1997. In 2004, the routine booster dose of tetanus-diphtheria (Td) vaccine for adolescents in Grade 9 was replaced with an acellular-pertussis containing formulation (Tdap). More recent change to the routine infant immunization program (2, 4, and 6 month doses) in February 2009 included replacement of the pentavalent vaccine (with five acellular pertussis [aP] antigens in addition to tetanus [T], diphtheria [D], polio [P], and haemophilus influenza B [Hib]) with a hexavalent combination including hepatitis B plus D,T,P,aP,Hib but with fewer (three) pertussis antigens.

For further details on the epidemiology of pertussis in B.C., consult the most recent BCCDC Annual Report.

11.0 CASE AND CONTACT MANAGEMENT FORMS

11.1 Pertussis Treatment and Chemoprophylactic Agents – Dosage Summary

For detailed information, refer to individual information pages for each antibiotic.

AGE	AZITHROMYCIN	ERYTHROMYCIN	CLARITHROMYCIN	TRIMETHOPRIM - SULFAMETHOXAZOLE (alternative agent)
< 1 month	**Recommended agent.** 10 mg/kg per day in a single dose for 5 days	**Not preferred.** Erythromycin is associated with infantile hypertrophic pyloric stenosis. Use if azithromycin is unavailable: 40 mg/kg/day po (maximum 1 gm/day) divided in 3 doses for 7 days	**Not recommended** (safety data unavailable).	**Contraindicated for infants aged < 2 months** (risk for kernicterus).
1 – 5 months	10 mg/kg per day in a single dose for 5 days	40 mg/kg/day po (maximum 1 gm/day) divided in 3 doses for 7 days	15 mg/kg/day po (maximum 1 gm/day) divided in 2 doses for 7 days	**Contraindicated for infants aged < 2 months** (risk for kernicterus) **Children 2 months to ≤ 12 years of age:** Trimethoprim 4 mg/kg and Sulfamethoxazole 20 mg/kg po twice a day for 14 days (maximum Trimethorprim 160mg and Sulfamethoxazole 800mg twice daily)
≥ 6 months to ≤ 12 years	10 mg/kg/day po (maximum 500 mg) once for 1 day, **then** 5 mg/kg/day po (maximum 250 mg/day) once daily for 4 days	40 mg/kg/day po (maximum 1 gm/day) divided in 3 doses for 7 days	15 mg/kg/day po (maximum 1 gm/day) divided in 2 doses for 7 days	**Children 2 months to ≤ 12 years of age:** Trimethoprim 4 mg/kg and Sulfamethoxazole 20 mg/kg po twice a day for 14 days (maximum Trimethoprim 160mg and Sulfamethoxazole 800mg twice daily)
> 12 years	500mg po once for one day **then** 250mg po once daily for 4 days	40 mg/kg/day po (maximum 1 gm/day) divided in 3 doses for 7 days	1 gm/day divided in 2 doses for 7 days **Not recommended in pregnancy**	**Adults and children over 12 years of age:** Trimethoprim 160 mg and Sulfamethoxazole 800 mg po twice a day for 14 days **Not recommended in pregnancy**

11.2 Azithromycin for Pertussis Treatment and Chemoprophylaxis

Azithromycin is a macrolide antibiotic taken orally for the prevention and treatment of pertussis.

Indicated for:

- Individual of any age who has been exposed to or diagnosed with pertussis
    - Preferred antibiotic for **infants < 1month of age**

Dosage Recommendations:

Age group	Dosage
Birth to 5 months	10 mg/kg per day in a single dose for 5 days (only limited safety data available).
≥ 6 months to ≤ 12 years	10 mg/kg/day po (maximum 500 mg) once for 1 day, **then** 5 mg/kg/day po (maximum 250 mg/day) once daily for 4 days
> 12 years	500mg po once for 1 day **then** 250 mg po once daily for 4 days

Contraindications:

- Allergy to azithromycin, erythromycin, or any macrolide or ketolide antibiotic, or to any excipient

Precautions:

- Impaired hepatic function
- Several medications may interact with azithromycin when taken concurrently. When azithromycin is indicated, assess whether client currently takes any other medication.
- **Refer to the product monograph and/or the current version of the CPS before prescribing azithromycin.**

Pregnancy / Breastfeeding:

Azithromycin may be used with caution in pregnant or breastfeeding women.
It is a Pregnancy Risk Category B drug and a Lactation Risk Category L2 drug.

- **Pregnancy Risk Category B Drug:** either animal-reproduction studies have not demonstrated a fetal risk but there are no controlled studies in pregnant women or animal-reproduction studies have shown an adverse effect (other than a decrease in fertility) that was not confirmed in controlled studies in women in the first trimester (and there is no evidence of a risk in later trimesters).

- **Lactation Risk Category L2 Drug:** drug which has been studied in a limited number of breastfeeding women without an increase in adverse events in the infant. And/or the evidence of a demonstrated risk which is likely to follow use of this medication in a breastfeeding woman is remote.

Common side effects:

- diarrhea
- nausea
- abdominal pain.

Other considerations:

- Tablets or suspension may be taken with or without food.
- Discard any unused portion of suspension after 10 days.
- Counsel women taking a hormonal form of birth control to use an additional method of birth control until current cycle is completed.

11.3 Erythromycin for Pertussis Treatment and Chemoprophylaxis

Erythromycin is a macrolide antibiotic taken orally for the prevention and treatment of pertussis.

Indicated for:

- Individuals **≥ 1 month of age** exposed to or diagnosed with pertussis

Dosage Recommendations:

Age group	Dosage
< 1 month	**Not preferred.** Use only if azithromycin is not available. 40 mg/kg/day po (maximum 1 gm/day) divided in 3 doses for 7 days.
≥ 1 month to ≤ 12 years	40 mg/kg/day po (maximum 1 gm/day) divided in 3 doses for 7 days
> 12 years	1 gm/day divided in 3 doses for 7 days Erythromycin tablets are available as: • 250mg given QID • 500mg given BID • Eryc 333 given TID Erythromycin estolate is preferred **except** in pregnant women

Contraindications:

- Allergy to erythromycin or any macrolide antibiotic
- Erythromycin **Estolate** is contraindicated in pregnancy and in those with pre-existing liver disease or dysfunction
- Concurrent therapy with cisapride or pimozide

Precautions:

- Use with caution in those with impaired hepatic function
- Avoid estolate salt in those with hepatic dysfunction
- Several medications may interact with erythromycin when taken concurrently. When erythromycin is indicated, assess whether client currently takes any other medication.
- **Refer to the product monograph and/or the current version of the CPS before prescribing erythromycin**.

Pregnancy / Breastfeeding:
Erythromycin may be used with caution in pregnant or breastfeeding women. It is a Pregnancy Risk Category B drug and a Lactation Risk L1 drug.

- **Pregnancy Risk Category B Drug: (excluding erythromycin estolate)** either animal-reproduction studies have not demonstrated a fetal risk but there are no controlled studies in pregnant women or animal-reproduction studies have shown an adverse effect (other than a decrease in fertility) that was not confirmed in controlled studies in women in the first trimester (and there is no evidence of a risk in later trimesters).
- **Lactation Risk L1 Drug:** drug which has been taken by a large number of breastfeeding mothers without any observed increase in adverse effects in the infant. Controlled studies in breastfeeding women fail to demonstrate a risk to the infant and the possibility of harm to the breastfeeding infant is remote, or the product is not orally bioavailable in an infant.
- **Lactation Risk L3 Drug when taken early postnatally.** There are no controlled studies in breastfeeding women, however the risk of untoward effects to a breastfed infant is possible; or, controlled studies show only minimal non-threatening effects. Drugs should be given only if the potential benefit justifies the potential risk to the infant. **There have been reports of an association between the use of erythromycin in breastfeeding mothers and infantile hypertrophic pyloric stenosis (IHPS) in newborns.**

Common side effects:
- nausea, vomiting
- diarrhea
- abdominal pain, cramping

Other considerations:
- The liquid form of erythromycin is available as erythromycin estolate or ethylsuccinate.
- Enteric coated erythromycin base and erythromycin estolate may be taken with or without food. Erythromycin ethylsuccinate is best absorbed when taken immediately following meals.
- If GI upset occurs when taking erythromycin, advise client to take erythromycin with food.
- Advise client to discontinue drinking grapefruit juice during erythromycin treatment.
- Counsel women taking a hormonal form of birth control to use an additional method of birth control until current cycle is completed.

11.4 Clarithromycin for Pertussis Treatment and Chemoprophylaxis

Clarithromycin is an antibiotic taken by mouth for the prevention and treatment of pertussis.

Indicated for:

- Individuals **≥ 1 month of age** exposed to or diagnosed with pertussis

Dosage Recommendations:

Age group	Dosage
< 1 month of age	**Not recommended** (safety data not available)
≥ 1 month to ≤ 12 years	15 mg/kg/day po (maximum 1 gm/day) divided in 2 doses for 7 days
> 12 years	1 gm / day in 2 divided doses for 7 days

Contraindications:

- Hypersensitivity to clarithromycin, erythromycin, or other macrolide antibiotics
- Concurrent treatment with astemizole, terfenadine, cisapride, pimozide (Orap®), ergotamine or dihydroergotamine
- Pregnancy

Precautions:

- Hepatic and renal impairment
- Several medications may interact with clarithromycin when taken concurrently. When clarithromycin is indicated, assess whether client currently takes any other medication.
- **Refer to the product monograph and/or the current version of the CPS before prescribing clarithromycin**.

Pregnancy / Breastfeeding:

Clarithromycin should **not** be used in pregnancy except when no other therapy is appropriate, particularly during the first 3 months of pregnancy. It may be used with caution during breastfeeding. It is a Pregnancy Risk Category C drug and Lactation Risk Category L2 drug.

- **Pregnancy Risk Category C Drug:** Either studies in animals have revealed adverse effects on the fetus (teratogenic or embryocidal, or other) and there are no controlled studies in women, or studies in women and animals are not available. Drugs should be given only if the potential benefit justifies the potential risk to the fetus.

- **Lactation Risk Category L2 Drug:** drug which has been studied in a limited number of breastfeeding women without an increase in adverse events in the infant. And/or the evidence of a demonstrated risk which is likely to follow use of this medication in a breastfeeding woman is remote.

Common side effects:

- nausea and vomiting
- diarrhea
- abdominal pain
- headache
- taste perversion

Other considerations:

- Clarithromycin suspension is available in two formulations: 125mg/5ml or 250mg/5ml.
- Clarithromycin may be taken with or without food.
- Counsel women taking a hormonal form of birth control to use an additional method of birth control until current cycle is completed.

11.5 Trimethoprim-Sulfamethoxazole for Pertussis Treatment and Chemoprophylaxis

Trimethoprim-Sulfamethoxazole is an antibiotic taken by mouth for the prevention and treatment of pertussis. It is an acceptable alternative to a macrolide antibiotic when there is a contraindication to or intolerance of the recommended macrolide antibiotics.

Indications:

- Individuals ≥ 2 months of age who have a contraindication to or cannot tolerate macrolide antibiotics, or who are infected with a macrolide-resistant strain of *B. pertussis*. (Macrolide-resistant *B. pertussis* is rare.)

Dosage Recommendations:

Age group	Dosage
< 2 months of age	**Contraindicated**
≥ 2 months to ≤ 12 years	Trimethoprim 4 mg/kg and Sulfamethoxazole 20 mg/kg po twice a day for 14 days (maximum Trimethoprim 160mg and Sulfamethoxazole 800mg twice daily)
> 12 years of age	Trimethoprim 160 mg and Sulfamethoxazole 800 mg po twice a day for 14 days(i.e., Septra® DS one tablet twice daily for 14 days)

Contraindications:

- < 2 months of age
- Pregnancy
- Lactation
- Hypersensitivity to trimethoprim or sulfanomides
- Megaloblastic anemia due to folate deficiency
- Liver impairment
- Renal impairment
- Blood dyscrasia

Precautions:

- Several medications may interact with trimethoprim - sulfamethoxazole when taken concurrently. When trimethoprim-sulfamethoxazole is indicated, assess whether client currently takes any other medication.
- **Refer to the product monograph and/or the current version of the CPS before prescribing** trimethoprim-sulfamethoxazole.

Pregnancy / Breastfeeding:

Trimethoprim-sulfamethoxazole should not be used in pregnancy. It may be used with caution while breastfeeding. It is Pregnancy Risk Category C drug and a Lactation Risk Category L3 drug.

- **Pregnancy Risk Category C drug:** Either studies in animals have revealed adverse effects on the fetus (teratogenic or embryocidal, or other) and there are no controlled studies in women, or studies in women and animals are not available. Drugs should be given only if the potential benefit justifies the potential risk to the fetus.

- **Lactation Risk Category L3 drug:** There are no controlled studies in breastfeeding women, however the risk of untoward effects to a breastfed infant is possible; or, controlled studies show only minimal non-threatening effects. Drugs should be given only if the potential benefit justifies the potential risk to the infant.

Common side effects:

- nausea
- vomiting
- loss or appetite
- allergic skin reactions (e.g., rash and urticaria)

Other considerations:

Advise client to:

- Contact their health care provider immediately if a skin rash develops.
- Maintain an adequate fluid intake to prevent crystalluria and stone formation.
- Avoid alcohol due to possible disulfiram-like reaction (flushing, palpitations, tachycardia, nausea, and vomiting).

11.6 Sample Letter – Preventive Antibiotic Recommendations for High Risk Contacts to a Case of Pertussis

Dear _____,

You (or your child) have been identified as being in contact with someone with whooping cough. It is recommended that you (or your child) receive a course of antibiotics.

Antibiotics are recommended for certain close contacts, especially infants less than one year of age, pregnant women in their third trimester of pregnancy, and other contacts within their households. Antibiotics are taken to protect you (or your child) and to decrease the chance of spreading the whooping cough bacteria to others.

See a physician promptly and obtain a prescription for an appropriate antibiotic. Start taking the antibiotic immediately, as directed. Unless taken soon after the exposure to the case of whooping cough, the antibiotic may not prevent you from developing whooping cough. You must take the full course of antibiotics for your body to completely eliminate the whooping cough bacteria.

If you have any problems or experience any side effects when taking the antibiotic, please contact your Public Health Nurse or physician promptly.

If you (or your child) develop any symptoms of whooping cough (e.g., increasingly severe cough, runny nose, or fever) during the next 3 weeks, please contact your physician or Public Health Nurse.

More information about whooping cough is available at:

- Healthlink BC:
    - Phone 8-1-1
    - Website http://www.healthlinkbc.ca
- BC Centre for Disease Control at http://www.bccdc.ca/dis-cond/a-z/_w/WhoopingCough/default.htm

Please take the opportunity to review your (your child's) immunization status. Immunization will not protect your child from pertussis illness due to this contact but will protect your child if they are exposed to pertussis again in the future. For more information about immunization schedules, refer to the ImmunizeBC website at http://www.immunizebc.ca/VaccSched/Vaccine+Schedules.htm or contact your local health unit.

If you have any questions about whooping cough or this letter, please contact the Public Health Nurse at your local health unit.

11.7 Sample Letter to Physician of High Risk Contact to a Case of Pertussis

Dear Dr. _____,

Re: Your patient: _____
Date of Birth: _____
(yyyy/mm/dd)

The above-named patient has been exposed to a case of pertussis. Chemoprophylaxis is recommended for this patient because he/she is:

- ☐ an infant under one year of age
- ☐ a pregnant women in the 3rd trimester
- ☐ a member of a household and/or family daycare **AND** there is an infant < 1 year of age or a pregnant woman in the 3rd trimester in the household or daycare
- ☐ other (MHO's recommendation)_____.

Please consider prescribing prophylactic antibiotics for this patient. A macrolide antibiotic (i.e., azithromycin, erythromycin, or clarithromycin) is the preferred antimicrobial for treatment **and** post-exposure prophylaxis of pertussis. See attached chart for recommended antibiotic regimens.

Please consider the following recommendations should this patient develop symptoms of pertussis:

- Consider pertussis in the differential diagnosis should they develop symptoms of early pertussis (coryza, mild cough, sneeze, and other cold-like symptoms). Later symptoms of pertussis include prolonged cough or cough with paroxysms, whoop, or post-tussive gagging/vomiting.
- Perform a nasopharyngeal swab and submit it for culture or PCR test for pertussis.

All confirmed and probable cases of pertussis are reportable. If this patient is diagnosed with pertussis, please notify the local Public Health Unit.

Please take this opportunity to review your patient's immunization status. Immunization will not protect your patient from pertussis illness due to this exposure but will provide protection if subsequent exposure occurs. For more information about immunization schedules, refer to the ImmunizeBC website at http://www.immunizebc.ca/VaccSched/Vaccine+Schedules.htm or contact your local health unit.

Please contact me should you wish to discuss these recommendations.

Thank you.

Pertussis Treatment and Chemoprophylactic Agents – Dosage Summary

AGE	AZITHROMYCIN	ERYTHROMYCIN	CLARITHROMYCIN	TRIMETHOPRIM - SULFAMETHOXAZOLE (alternative agent)
< 1 month	**Recommended agent.** 10 mg/kg per day in a single dose for 5 days	**Not preferred.** Erythromycin is associated with infantile hypertrophic pyloric stenosis. Use if azithromycin is unavailable: 40 mg/kg/day po (maximum 1 gm/day) divided in 3 doses for 7 days	**Not recommended** (safety data unavailable).	**Contraindicated for infants aged < 2 months** (risk for kernicterus).
1 – 5 months	10 mg/kg per day in a single dose for 5 days	40 mg/kg/day po (maximum 1 gm/day) divided in 3 doses for 7 days	15 mg/kg/day po (maximum 1 gm/day) divided in 2 doses for 7 days	**Contraindicated for infants aged < 2 months** (risk for kernicterus) **Children 2 months to ≤ 12 years of age:** Trimethoprim 4 mg/kg and Sulfamethoxazole 20 mg/kg po twice a day for 14 days (maximum Trimethorprim 160 mg and Sulfamethoxazole 800 mg twice daily)
≥ 6 months to ≤ 12 years	10 mg/kg/day po (maximum 500 mg) once for 1 day, **then** 5 mg/kg/day po (maximum 250 mg/day) once daily for 4 days	40 mg/kg/day po (maximum 1 gm/day) divided in 3 doses for 7 days	15 mg/kg/day po (maximum 1 gm/day) divided in 2 doses for 7 days	**Children 2 months to ≤ 12 years of age:** Trimethoprim 4 mg/kg and Sulfamethoxazole 20 mg/kg po twice a day for 14 days (maximum Trimethoprim 160 mg and Sulfamethoxazole 800 mg twice daily)
> 12 years	500 mg po once for one day **then** 250 mg po once daily for 4 days	40 mg/kg/day po (maximum 1 gm/day) divided in 3 doses for 7 days	1 gm/day divided in 2 doses for 7 days **Not recommended in pregnancy.**	**Adults and children over 12 years of age:** Trimethoprim 160 mg and Sulfamethoxazole 800 mg po twice a day for 14 days **Not recommended in pregnancy.**

11.8 Sample Pertussis Contact Notification Letter

Dear_____,

This is to inform you that you, or your child, has been exposed to a case of whooping cough (pertussis) in the following setting: _____.

The health unit does not recommend antibiotics because of this exposure. Antibiotics are only recommended for exposed people who are at highest risk from whooping cough. These are infants less than one year of age, and pregnant women in the last 3 months of pregnancy and other contacts within their households.

However, because of the exposure and the chance that you, or your child, may get whooping cough, please note the following information:

- Whooping cough is a very contagious disease of the lungs and throat. It is caused by a bacteria (germ) found in the mouth, nose and throat of an infected person. Whooping cough is spread when the sick person coughs or sneezes the germ into the air, where other people can breathe it in.
- If exposed people become infected, it takes about 7 to 10 days for them to develop symptoms of whooping cough.
- **Early** symptoms are like those of a cold (sneezing, runny nose, a low fever and a mild cough). But over the next week or two, the cough gets worse leading to longer spells of coughing that often end with a whoop or crowing sound when the person breathes in. The coughing may be so bad that it makes a person gag or throw up. Sometimes a thick, clear mucous is spit out. This cough can last up to a month or two, and happens more at night.
- If you, or your child, develop **early** symptoms of whooping cough, it is very important to get tested and treated. Early diagnosis will get you on antibiotics right away, and will help prevent you from spreading whooping cough to those that are at the most risk from the disease (infants less than one year of age, and pregnant women in the last 3 months of pregnancy).
- A person who has pertussis and does not get it treated can spread the germs to others for up to 3 weeks after the coughing spells start.

For more information about whooping cough, please contact the local Public Health Nurse or:

- Healthlink BC: Phone 8-1-1 or website http://www.healthlinkbc.ca
- BC Centre for Disease Control at http://www.bccdc.ca/dis-cond/a-z/_w/WhoopingCough/default.htm

Please take the opportunity to review your (your child's) immunization status. Immunization will not protect your child from pertussis illness due to this contact but will protect your child if they are exposed to pertussis again in the future.For more information about immunization schedules, refer to the ImmunizeBC website at http://www.immunizebc.ca/VaccSched/Vaccine+Schedules.htm or contact your local health unit.

11.9 Sample Letter to Physician of a Pertussis Contact

Dear Dr. _____,

Re: Your patient: _____
Date of Birth: _____
(yyyy/mm/dd)

The above-named patient has been exposed to a case of pertussis. Chemoprophylaxis is recommended only for:

- Infants under one year of age
- Pregnant women in the 3rd trimester
- All household and/or family daycare contacts IF there is an infant < 1 year of age or a pregnant woman in the 3rd trimester in the household or daycare

As your patient is not in a high-risk group for which the health unit recommends chemoprophylaxis, they been notified that they have been exposed to a case of pertussis, informed of the early symptoms of pertussis, and advised to seek medical attention if symptoms develop.

Please consider the following recommendations should this patient develop symptoms of pertussis:

- Consider pertussis in the differential diagnosis should they develop symptoms of early pertussis (coryza, mild cough, sneeze, and other cold-like symptoms). Later symptoms of pertussis include prolonged cough or cough with paroxysms, whoop, or post-tussive gagging/vomiting.
- Perform a nasopharyngeal swab and submit it for culture or PCR test for pertussis.
- Provide early treatment based on symptoms suggestive of **early** pertussis. For recommended antibiotic regimens, please refer to the next page.

All confirmed and probable cases of pertussis are reportable. If this patient is diagnosed with pertussis, please notify the local Public Health Unit.

Please take this opportunity to review your patient's immunization status. Immunization will not protect your patient from pertussis illness due to this exposure but will provide protection if subsequent exposure occurs. For more information about immunization schedules, refer to the ImmunizeBC website at http://www.immunizebc.ca/VaccSched/Vaccine+Schedules.htm or contact your local health unit.

Please contact me should you wish to discuss these recommendations.

Thank you.

Pertussis Treatment And Chemoprophylactic Agents – Dosage Summary

AGE	AZITHROMYCIN	ERYTHROMYCIN	CLARITHROMYCIN	TRIMETHOPRIM - SULFAMETHOXAZOLE (alternative agent)
< 1 month	**Recommended agent.** 10 mg/kg per day in a single dose for 5 days	**Not preferred.** Erythromycin is associated with infantile hypertrophic pyloric stenosis. Use if azithromycin is unavailable: 40 mg/kg/day po (maximum 1 gm/day) divided in 3 doses for 7 days	**Not recommended** (safety data unavailable).	**Contraindicated for infants aged < 2 months** (risk for kernicterus).
1 – 5 months	10 mg/kg per day in a single dose for 5 days	40 mg/kg/day po (maximum 1 gm/day) divided in 3 doses for 7 days	15 mg/kg/day po (maximum 1 gm/day) divided in 2 doses for 7 days	**Contraindicated for infants aged < 2 months** (risk for kernicterus) **Children 2 months to ≤ 12 years of age:** Trimethoprim 4 mg/kg and Sulfamethoxazole 20 mg/kg po twice a day for 14 days (maximum Trimethorprim 160 mg and Sulfamethoxazole 800 mg twice daily)
≥ 6 months to ≤ 12 years	10 mg/kg/day po (maximum 500 mg) once for 1 day, **then** 5 mg/kg/day po (maximum 250 mg/day) once daily for 4 days	40 mg/kg/day po (maximum 1 gm/day) divided in 3 doses for 7 days	15 mg/kg/day po (maximum 1 gm/day) divided in 2 doses for 7 days	**Children 2 months to ≤ 12 years of age:** Trimethoprim 4 mg/kg and Sulfamethoxazole 20 mg/kg po twice a day for 14 days (maximum Trimethoprim 160 mg and Sulfamethoxazole 800 mg twice daily)
> 12 years	500 mg po once for one day **then** 250 mg po once daily for 4 days	40 mg/kg/day po (maximum 1 gm/day) divided in 3 doses for 7 days	1 gm/day divided in 2 doses for 7 days **Not recommended in pregnancy**	**Adults and children over 12 years of age:** Trimethoprim 160 mg and Sulfamethoxazole 800 mg po twice a day for 14 days **Not recommended in pregnancy**

11.10 Pertussis Case Management Form

This form may be used to facilitate data collection. Please do not submit to BCCDC.

PERSON REPORTING

Health Authority: ☐ FHA ☐ IHA ☐ VIHA ☐ NHA ☐ VCH Date of report: _____/____/_____
YYYY MM DD

Name of PHN/HCW reporting: _____ _____ Phone number: (____) _____
First name Last name

DEMOGRAPHIC INFORMATION

Personal Health #: _____ Patient name: _____ _____
First name Last name

Date of birth: _____/_____/_____ Sex: ☐ Male ☐ Female
YYYY MM DD

Street address: _____ City: _____ Province: _____

Postal code: _____ Phone numbers (home/office/cell):_____

Physician Name:_____

Physician Address:_____

Physician Phone Number (include area code):_____

PHN discussed with Physician:
☐ Yes ☐ No
If yes, date discussed:
(YYYY / MM / DD)

CLINICAL AND LABORATORY INFORMATION

Onset of symptoms (Catarrhal stage):
(YYYY / MM / DD)

Onset of paroxysmal cough:
(YYYY / MM / DD)

INFECTIOUS PERIOD:

From: _____ / _____ / _____
YYYY MM DD

To:_____ / _____ / _____
YYYY MM DD

Type of symptoms (check all that apply):
- ☐ Cough lasting ≥ 2 weeks
- ☐ Paroxysmal cough
- ☐ Cough ending with inspiratory whoop
- ☐ Cough ending in vomiting or gagging, or associated with apnea

Seen by physician?
- ☐ Yes
- ☐ No

Is case:
- ☐ Confirmed
- ☐ Probable

Treated with antibiotics?
- ☐ Yes
- ☐ No

If yes, name of antibiotic:

_____ X _____days

If yes, date started:

_____
YYYY / MM / DD

If case is confirmed, is it lab confirmed? ☐ Yes ☐ No

Culture date:_____ / _____ / _____ PCR date:_____ / _____ / _____
YYYY MM DD YYYY MM DD

Is case epidemiologically linked to another case? ☐ Yes ☐ No

If yes, name of other case:_____, _____
Surname First name

If yes, date of last contact:_____ / _____ / _____
YYYY MM DD

IMMUNIZATION HISTORY

Has client received appropriate number of doses of pertussis-containing vaccine for age?

☐ Yes ☐ No

Vaccine	Date received	Age	Province/Territory or Country	Lot number (if known)

CONTACTS

High Risk contacts include:

- infants < 1year of age (regardless of immunization status)
- pregnant women in the 3rd trimester
- all household contacts **IF** there is an infant < 1 year of age or a pregnant woman in the 3rd trimester in the household
- all those in a family daycare **IF** there is an infant < 1 year of age or a pregnant woman in the 3rd trimester in the daycare

Does case have any high risk contacts:

Less than one year old ☐ Yes ☐ No

Pregnant and in their 3rd trimester ☐ Yes ☐ No

Household contacts if there is an infant < 1 year of age or a pregnant woman in the 3rd trimester in the household ☐ Yes ☐ No

Family daycare contacts if there is an infant <1 year of age or a pregnant woman in the 3rd trimester in the daycare ☐ Yes ☐ No

If yes to any of the above, list on Contact Management Form and complete appropriate follow-up.

NOTES

11.11 Pertussis Contact Management Form

This form may be used to facilitate data collection. Please do not submit to BCCDC.

Name of Index Case:					
	Contact	**Contact**	**Contact**	**Contact**	**Contact**
Name					
Personal Health Number					
DOB / Age					
Gender					
Parent's names (if < 18 years)					
Phone					
Doctor's name and phone number					
Is contact high risk?❶	☐ Yes ☐ No If yes, indicate reason:	☐ Yes ☐ No If yes, indicate reason:	☐ Yes ☐ No If yes, indicate reason:	☐ Yes ☐ No If yes, indicate reason:	☐ Yes ☐ No If yes, indicate reason:
Date of contact with case					
Occupation					
Signs and symptoms					
Swab done?	☐ Yes ☐ No If yes, date:	☐ Yes ☐ No If yes, date:	☐ Yes ☐ No If yes, date:	☐ Yes ☐ No If yes, date:	☐ Yes ☐ No If yes, date:
Prophylaxis recommended?	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No	☐ Yes ☐ No
Antibiotic started?	☐ Yes ☐ No If yes, antibiotic: Date started:	☐ Yes ☐ No If yes, antibiotic: Date started:	☐ Yes ☐ No If yes, antibiotic: Date started:	☐ Yes ☐ No If yes, antibiotic: Date started:	☐ Yes ☐ No If yes, antibiotic: Date started:
Immunization status					

❶High Risk Contacts:

- infants < 1year of age (regardless of immunization status)
- pregnant women in the 3rd trimester
- all household contacts **IF** there is an infant < 1 year of age or a pregnant woman in the 3rd trimester in the household
- all those in a family daycare **IF** there is an infant < 1 year of age or a pregnant woman in the 3rd trimester in the daycare

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