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Unless otherwise stated the content of this guideline has been adapted from  
BCCDC Communicable Disease Control Pertussis Guideline (June, 2010)

## 1.0 AUTHORITY

Yukon Public Health and Safety Act (2009). Available at [http://www.hss.gov.yk.ca/ifo\\_professionals.php](http://www.hss.gov.yk.ca/ifo_professionals.php)

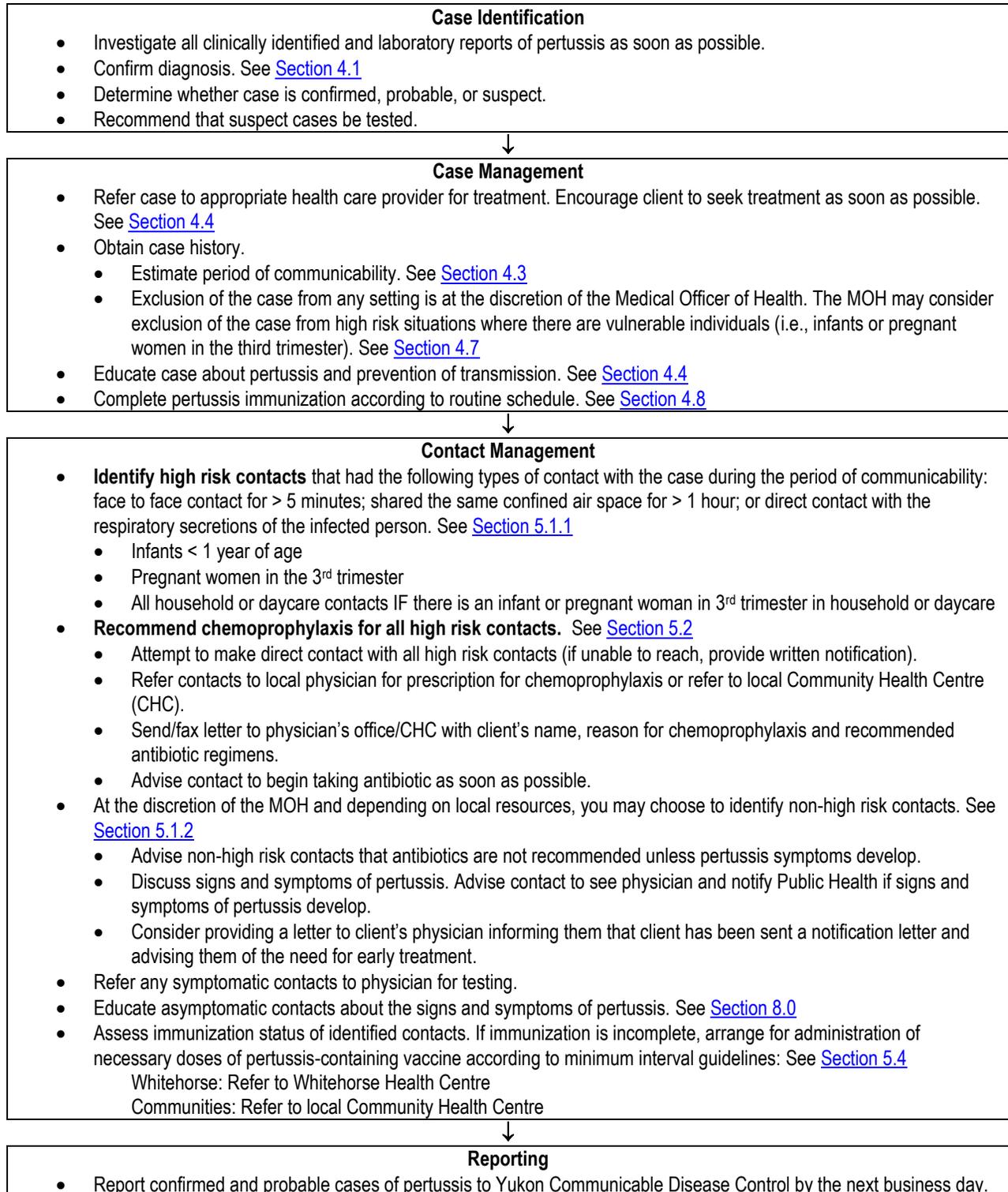
## 2.0 GOAL

The goal of pertussis control in Yukon 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.



## 4.0 CASE MANAGEMENT

### 4.1 Confirm the Diagnosis

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
<b>Confirmed case</b>	1. Laboratory confirmation of infection: <ul style="list-style-type: none"> <li>• Isolation of <i>B. pertussis</i> from an appropriate clinical specimen <sup>1</sup></li> </ul> <b>Or</b> <ul style="list-style-type: none"> <li>• Detection of <i>B. pertussis</i> DNA <sup>2</sup> from an appropriate clinical specimen AND one or more of the following:               <ul style="list-style-type: none"> <li>• cough lasting two weeks or longer</li> <li>• paroxysmal cough of any duration</li> <li>• cough with inspiratory “whoop”</li> <li>• cough ending in vomiting or gagging, or associated with apnea</li> </ul> </li> </ul> 2. Epidemiological link to a laboratory-confirmed case AND one or more of the following for which there is no other known cause: <ul style="list-style-type: none"> <li>• paroxysmal cough of any duration</li> <li>• cough with inspiratory “whoop”</li> <li>• cough ending in vomiting or gagging, or associated with apnea</li> </ul>	Yes
<b>Probable case</b>	Cough lasting two weeks or longer in the absence of appropriate laboratory tests and not epidemiologically linked to a laboratory-confirmed case <b>AND</b> one or more of the following with no other known cause: <ul style="list-style-type: none"> <li>• paroxysmal cough of any duration</li> <li>• cough with inspiratory “whoop”</li> <li>• cough ending in vomiting or gagging, or associated with apnea</li> </ul>	Yes
<b>Suspect case</b>	One or more of the following with no other known cause: <ul style="list-style-type: none"> <li>• paroxysmal cough of any duration</li> <li>• cough with inspiratory “whoop”</li> <li>• cough ending in vomiting or gagging, or associated with apnea</li> </ul>	No

<sup>1</sup> Nasopharyngeal swab (see [Section 4.2](#) Laboratory Testing)

<sup>2</sup> Pertussis DNA is detectable using a polymerase chain reaction (PCR) assay

### Case Management

The Pertussis Case Follow Up Form (See [Section 10.10](#)) may be used as a worksheet for pertussis case follow-up.

#### 4.2 Laboratory Testing

Collect nasopharyngeal swab samples as per “Pertussis Collection Kit” instructions. For more information regarding laboratory testing and requisition form and to order kits please call Whitehorse General Hospital Laboratory: 867-393-8739.

Pertussis kit includes: BCPHL Amies Charcoal medium, Swab (**wire shaft**), specimen collection information

When *B. pertussis* is isolated from a clinical specimen or *B. pertussis* DNA is detected by PCR, the sample will undergo confirmatory testing at the 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 when there is a compelling clinical presentation consistent with pertussis.

#### 4.3 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. See [Section 8.0](#) Clinical Description for detailed description of stages of pertussis illness.

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

#### 4.4 Case Treatment

Encourage client to seek treatment as soon as possible. Cases should be treated by local physician or community health centre.

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 three 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	<ul style="list-style-type: none"> <li>• Azithromycin, erythromycin or clarithromycin</li> <li>• Trimethoprim-sulfamethoxazole is an acceptable alternative when there is a contraindication to azithromycin, erythromycin, or clarithromycin</li> </ul>

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 clarithromycin are associated with fewer and milder side effects than erythromycin)
- ease of adherence to the prescribed regimen (e.g., azithromycin and clarithromycin 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:

- [10.1 Pertussis Treatment and Chemoprophylactic Agents – Dosage Summary](#)
- [10.2 Azithromycin for Pertussis Treatment and Chemoprophylaxis](#)
- [10.3 Erythromycin for Pertussis Treatment and Chemoprophylaxis](#)
- [10.4 Clarithromycin for Pertussis Treatment and Chemoprophylaxis](#)
- [10.5 Trimethoprim Sulfamethoxazole for Pertussis Treatment and Chemoprophylaxis](#)

If a case refuses to take antibiotics, discuss situation with the Medical Officer of Health.

#### **4.5 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 MOH.

#### **4.6 Treatment and Chemoprophylaxis of Infants**

If not treated, infants with pertussis remain culture-positive for longer periods than older children and adults (up to six 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 one to five 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 one to five 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.

#### **4.7 Exclusion of Cases**

Exclusion of cases from any setting is at the discretion of the Medical Officer of Health. Inform the MOH 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 Officer of Health may consider exclusion of the case from high risk situations where there are vulnerable individuals (i.e., infants < 1 year or pregnant women in the third trimester). The period of exclusion should extend to five 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.

Note: there is no expectation that cases be tested before the exclusion is discontinued.

#### 4.8 Immunization of Lab-Confirmed Cases

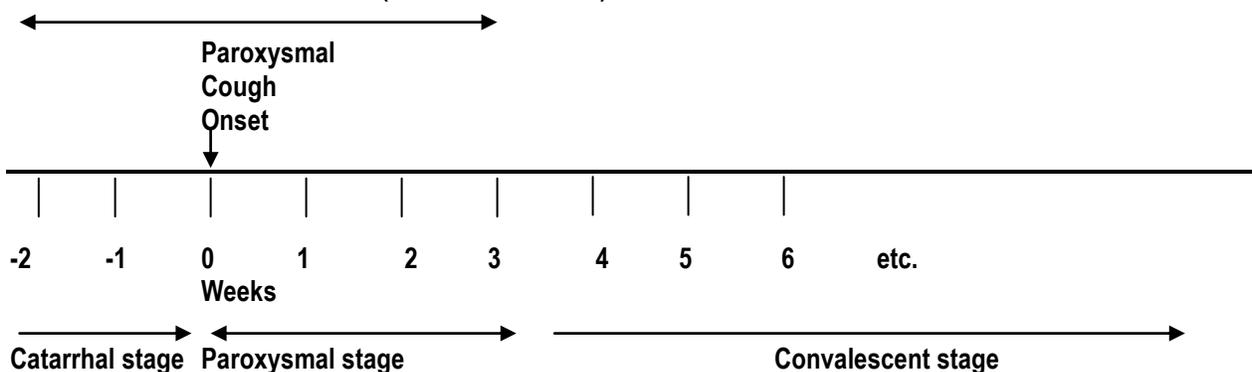
Complete the routine pertussis immunization series for all individuals diagnosed with natural pertussis infection. This practice is recommended because:

- duration of protection induced by pertussis infection is unknown (waning may begin as early as seven 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; and
- infants < 6 months of age may have a suboptimal response to natural pertussis infection and may receive additional protection from pertussis vaccine.

#### 5.0 CONTACT MANAGEMENT

The Pertussis Contact Management Form (See [Section 10.11](#)) may be used for contact management.

##### PERIOD OF COMMUNICABILITY (without antibiotics)



**Incubation period:** averages seven to 10 days (range: five to 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.

## 5.1 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., one hour); or
- 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).

### 5.1.1 High Risk Contacts for whom Chemoprophylaxis is Recommended

Prioritize identification of high risk contacts:

- infants < 1 year of age (regardless of immunization status)
- pregnant women in the 3<sup>rd</sup> trimester (Newborns whose mothers contract pertussis two to three 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 3<sup>rd</sup> trimester in the household
- all those in a daycare IF there is an infant < 1 year of age or a pregnant woman in the 3<sup>rd</sup> trimester in the daycare

Recommend chemoprophylaxis for all high risk contacts. See [Section 5.2](#) 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.

### 5.1.2 Contacts for whom Chemoprophylaxis is Not Recommended

At the discretion of the Medical Officer of Health and depending on the availability of local resources, notification of other non-high-risk individuals may occur 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 centres 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
- Availability of immunization for all eligible individuals

See [Section 10.8](#) Sample Pertussis Contact Notification Letter for a sample letter.

Consider providing a letter to the contact's physician informing them that their patient has been sent a notification letter and advising them of the need for early treatment should their patient develop symptoms suggestive of early pertussis disease (see [Section 10.9](#) Sample Letter to Health Care Provider of a Pertussis Contact for an example).

## 5.2 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 3<sup>rd</sup> trimester
- ALL household contacts **IF** there is an infant < 1 year of age or a pregnant woman in the 3<sup>rd</sup> trimester in the household
- ALL those in a daycare **IF** there is an infant < 1 year of age or a pregnant woman in the 3<sup>rd</sup> 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 3<sup>rd</sup> trimester present).

Refer identified high risk contacts to a physician or local community health centre 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. See [Section 10.7](#) Sample Letter to Health Care Provider of High Risk Contact to Case of Pertussis.

Chemoprophylaxis for other contacts may be recommended at the discretion of the Medical Officer of Health (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 3<sup>rd</sup> 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 per cent when prophylaxis was initiated within 21 days of cough onset to 29 per cent 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 (See [Section 5.1](#) 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:

[10.1 Pertussis Treatment and Chemoprophylactic Agents–Dosage Summary](#)

[10.2 Azithromycin for Pertussis Treatment and Chemoprophylaxis](#)

[10.3 Erythromycin for Pertussis Treatment and Chemoprophylaxis](#)

[10.4 Clarithromycin for Pertussis Treatment and Chemoprophylaxis](#)

[10.5 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" (See [Section 10.6](#)).

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

### **5.3 Exclusion of Contacts**

Exclusion of contacts from any setting is not indicated.

### **5.4 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 the Yukon Immunization Program Manual, [www.hss.gov.yk.ca/yipm.php](http://www.hss.gov.yk.ca/yipm.php)

If immunization is incomplete, administer necessary doses of pertussis-containing vaccine according to the recommended minimum intervals guidelines.

## 6.0 OUTBREAK MANAGEMENT – COORDINATED BY YCDC

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 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 3<sup>rd</sup> 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, community health centres, 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.

### 6.1 Immunization during an Outbreak

Where there is evidence of ongoing pertussis transmission or evidence of an outbreak of pertussis, the pertussis immunization schedule may be accelerated or an interim pertussis immunization strategy put in place at the discretion of the CMOH.

Those at highest risk of complication as well as those at highest risk of contact with cases should be specifically targeted for immunization. This includes pregnant women, infants less than 1 year of age, all individuals living in households that have an infant less than one year of age, school aged children, and health care workers (YCDC, Yukon Immunization Program, CMOH, 2012).

## 7.0 REPORT

Confirmed and probable cases of pertussis are reportable to the MOH under the *Yukon Public Health and Safety Act* (2009).

Report confirmed and probable cases to Yukon Communicable Disease Control by the next business day.

## 8.0 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 six 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 three stages:

- Catarrhal stage (lasts one to two weeks)
- Paroxysmal stage (usually lasts one to six weeks but may persist for up to 10 weeks)
- Convalescent stage (lasts two to six 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 six 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 per cent among susceptible persons. Neither vaccination nor natural disease confers complete or lifelong protective immunity against pertussis or re-infection. Immunity wanes after five to 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.

## 9.0 EPIDEMIOLOGY

### Canada

One to three deaths occur each year in Canada, particularly in infants too young to have begun their immunization and in partially immunized infants (e.g., one or two doses). The number of affected adolescents and adults has

steadily increased and the morbidity in these cases is not insignificant. The goal of pertussis control is to decrease the morbidity and mortality of pertussis across the entire lifespan. Protection of adolescents and adults is a worthy goal for the benefit of these individuals themselves, notwithstanding the added indirect protection that it may provide to infants.

Pertussis has been partially controlled in Canada through immunization and during the last 50 years its incidence has decreased by > 90 per cent, although outbreaks continue to occur. The whole-cell pertussis vaccine was introduced in Canada in the 1940s. It was replaced by the adsorbed whole-cell vaccine in the 1980s and by acellular vaccine in 1997-98.

Since the introduction of pertussis vaccination, the number of reported cases has dropped dramatically, from 160 cases per 100,000 just before the introduction of the vaccine to < 20 cases per 100,000 in the 1980s. The incidence of pertussis in Canada was low during the 1980s but has increased since 1990. Between 1990 and 2004, the annual number of reported cases has ranged from 2,165 to 10,151, although this likely under-represents the true burden because of incomplete diagnosis and reporting.

The resurgence of pertussis was likely due to a combination of factors, including the low efficacy of the combined adsorbed diphtheria-tetanus-pertussis whole-cell vaccine used in children in Canada between 1980 and 1997, waning immunity among adolescents and adults, as well as increased physician awareness and improved diagnosis and reporting of pertussis disease. A cohort of children immunized solely with the vaccine used between 1980 and 1997 was poorly protected and constitutes the population that has been most affected by pertussis since 1990. The increasing age of cases parallels that of children belonging to the vulnerable cohort.

The proportion of pertussis cases in adolescents ( $\geq 15$  years) and adults increased from 9.6 per cent in 1995 to 16.4 per cent, 21.2 per cent, and 31.3 per cent in 1998, 2001 and 2004 respectively. In addition to a greater incidence, part of this increase may be attributable to better recognition, diagnosis and reporting of pertussis in adolescents and adults, as well as waning immunity.

The increased incidence among adolescents has also been observed in the United States, France and other countries. Waning of vaccine-induced protection is a universal phenomenon affecting adolescents and adults worldwide. These persons constitute a major reservoir of the disease and are an important source of transmission to infants.

*(obtained from PHAC website <http://www.phac-aspc.gc.ca/im/vpd-mev/pertussis-eng.php>)*

### **Yukon**

In Yukon, acellular pertussis vaccine has been administered to infants and preschool age children since 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). *(Obtained from Yukon Immunization Program Manual, December 2014).*

Pertussis has demonstrated cyclical peaks at irregular intervals in Yukon. Yukon has seen increased incidence rates in 1989, 1996, 2000, 2002 and 2012. In 1989 and 1996, highest pertussis rates were seen in age groups < 1, and 1-9. The peaks of 2000 and 2002 showed an increased incidence in infants, preteens and teens. The peak in 2012 showed an increased incidence in preteens and teens. These trends are consistent with an expected low-level cyclical nature of pertussis.

A significant pertussis outbreak occurred in Yukon in 2012. A total of 59 confirmed cases were reported between

April 11, 2012 and December 10, 2012 with cases in multiple rural communities and Whitehorse with the majority of disease occurring in those 10 to 19 years of age (Yukon Communicable Disease Report: A Summary of Reportable Diseases, 2014). This outbreak was epidemiologically linked to exposures at a hockey tournament in Whitehorse, where the index case was a youth from a Canadian province where a pertussis outbreak was occurring. An interim immunization strategy was developed and implemented throughout Yukon to help mitigate the spread of disease. This involved an additional booster of pertussis containing vaccine for pregnant women, households that have an infant less than one year of age, and school aged children who had not had a dose of pertussis containing vaccine within the past 5 years. This interim strategy was in place from May 2012 to end of April, 2013.

## 10.0 CASE AND CONTACT MANAGEMENT FORMS

- [10.1 Pertussis Treatment and Chemoprophylactic Agents – Dosage Summary](#)
- [10.2 Azithromycin for Pertussis Treatment and Chemoprophylaxis](#)
- [10.3 Erythromycin for Pertussis Prevention and Chemoprophylaxis](#)
- [10.4 Clarithromycin for Pertussis Prevention and Chemoprophylaxis](#)
- [10.5 Trimethoprim-Sulfamethoxazole for Pertussis Treatment and Chemoprophylaxis](#)
- [10.6 Sample Letter – Preventive Antibiotic Recommendations for High Risk Contacts to a Case of Pertussis](#)
- [10.7 Sample Letter to Physician of High Risk Contact to a Case of Pertussis](#)
- [10.8 Sample Pertussis Contact Notification Letter](#)
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- [10.10 Pertussis Case Management Form](#)
- [10.11 Pertussis Contact Management Form](#)

### 10.1 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	<b>Recommended agent.</b> 10 mg/kg per day in a single dose for five days	<b>Not preferred.</b> Erythromycin is associated with infantile hypertrophic pyloric stenosis. Use if azithromycin is unavailable: 40 mg/kg/day po (maximum 1 gm/day) divided in three doses for seven days	<b>Not recommended</b> (safety data unavailable)	<b>Contraindicated for infants aged &lt; 2 months</b> (risk for kernicterus)
<b>1 – 5 months</b>	10 mg/kg per day in a single dose for five days	40 mg/kg/day po (maximum 1 gm/day) divided in three doses for seven days	15 mg/kg/day po (maximum 1 gm/day) divided in two doses for seven days	<b>Contraindicated for infants aged &lt; 2 months</b> (risk for kernicterus)  <b>Children 2 months to ≤ 12 years of age:</b> Trimethoprim 4 mg/kg and Sulfamethoxazole 20 mg/kg po twice a day for 14 days (maximum Trimethoprim 160mg and Sulfamethoxazole 800mg twice daily)
<b>≥ 6 months to ≤ 12 years</b>	10 mg/kg/day po (maximum 500 mg) once for 1 day, <b>then</b> 5 mg/kg/day po (maximum 250 mg/day) once daily for four days	40 mg/kg/day po (maximum 1 gm/day) divided in three doses for seven days	15 mg/kg/day po (maximum 1 gm/day) divided in two doses for seven days	<b>Children 2 months to ≤ 12 years of age:</b> Trimethoprim 4 mg/kg and Sulfamethoxazole 20 mg/kg po twice a day for 14 days (maximum Trimethoprim 160mg and Sulfamethoxazole 800mg twice daily)

<b>&gt; 12 years</b>	500mg po once for one day <b>then</b> 250mg po once daily for four days	40 mg/kg/day po (maximum 1 gm/day) divided in three doses for seven days	1 gm/day divided in two doses for seven days <b>Not recommended in pregnancy</b>	<b>Adults and children over 12 years of age:</b> Trimethoprim 160 mg and Sulfamethoxazole 800 mg po twice a day for 14 days <b>Not recommended in pregnancy</b>
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## 10.2 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 < 1 month of age**

### Dosage Recommendations:

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

**10.3 Erythromycin for Pertussis Treatment and Chemoprophylaxis**

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

**Indicated for:**

- Individuals  $\geq 1$  month of age exposed to or diagnosed with pertussis

**Dosage Recommendations:**

Age group	Dosage
< 1 month	<b>Not preferred.</b> Use only if azithromycin is not available. 40 mg/kg/day po (maximum 1 gm/day) divided in three doses for seven days.
$\geq 1$ month to $\leq 12$ years	40 mg/kg/day po (maximum 1 gm/day) divided in three doses for seven days
> 12 years	1 gm/day divided in three doses for seven days Erythromycin tablets are available as: <ul style="list-style-type: none"> <li>• 250mg given QID</li> <li>• 500mg given BID</li> <li>• Eryc 333 given TID</li> </ul> Erythromycin estolate is preferred <b>except</b> 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 pimozone

**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.

**10.4 Clarithromycin for Pertussis Treatment and Chemoprophylaxis**

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

**Indicated for:**

- Individuals  $\geq$  1 month of age exposed to or diagnosed with pertussis

**Dosage Recommendations:**

Age group	Dosage
< 1 month of age	<b>Not recommended</b> (safety data not available)
$\geq$ 1 month to $\leq$ 12 years	15 mg/kg/day po (maximum 1 gm/day) divided in two doses for seven days
> 12 years	1 gm / day in two divided doses for seven days

**Contraindications:**

- Hypersensitivity to clarithromycin, erythromycin or other macrolide antibiotics
- Concurrent treatment with astemizole, terfenadine, cisapride, pimozone (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 three 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.

## 10.5 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  $\geq$  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	<b>Contraindicated</b>
$\geq$ 2 months to $\leq$ 12 years	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 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 of 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).

## 10.6 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/community health nurse promptly and obtain 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 local community 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 two weeks, please contact your physician or local community health nurse.

More information about whooping cough is available at:

- Yukon Health Guide: [http://www.ykhealthguide.org/downloads/whooping\\_cough.pdf](http://www.ykhealthguide.org/downloads/whooping_cough.pdf)
- Yukon HealthLine: Phone 8-1-1 or
- HealthLink BC website <http://www.healthlinkbc.ca>

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 Yukon Health and Social Services website at [http://www.hss.gov.yk.ca/pdf/immunization\\_schedule\\_en.pdf](http://www.hss.gov.yk.ca/pdf/immunization_schedule_en.pdf) or contact your local Community Health Centre.

If you have any questions about whooping cough or this letter, please contact Yukon Communicable Disease Control at 667-8323 in the Whitehorse area, or 1-800-661-0408, ext. 8323, if calling from the communities.

**10.7 Sample Letter to Health Care Provider 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 3<sup>rd</sup> trimester
- a member of a household and/or daycare **AND** there is an infant < 1 year of age or a pregnant woman in the 3<sup>rd</sup> trimester in the household or daycare
- other (MOH'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 Yukon Communicable Disease Control.

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 Yukon immunization schedules, refer to website:

[http://www.hss.gov.yk.ca/pdf/immunization\\_schedule\\_en.pdf](http://www.hss.gov.yk.ca/pdf/immunization_schedule_en.pdf) or contact your local Community Health Centre.

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

## 10.8 Sample Pertussis Contact Notification Letter

Dear \_\_\_\_\_,

This is to inform you that \_\_\_\_\_ may have been exposed to a case of whooping cough (pertussis) at \_\_\_\_\_.

Yukon Communicable Disease Control 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 three months of pregnancy and other contacts within their households.

However, because of the exposure, there is a chance the exposed person 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 seven to ten 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 **early** symptoms of whooping cough develop, it is very important to see a health care provider to get tested and treated with antibiotics. It is important to tell the health care provider that you were exposed to someone who has whooping cough.
- By receiving antibiotics early in the disease process, the risk of spreading whooping cough to others is decreased; however, until the antibiotics are finished, whooping cough can still be spread to others.
- 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.

Please take the opportunity to review you and your family's immunization status by contacting your local health centre. **Immunization remains the best way to protect against pertussis.**

For more information about immunization schedules, refer to Yukon Health and Social Services website: [www.hss.gov.yk.ca/pdf/immunization\\_schedule\\_en.pdf](http://www.hss.gov.yk.ca/pdf/immunization_schedule_en.pdf) or contact your local Community Health Centre.

The public fact sheet for the pertussis containing vaccine (Tdap) can be found at: [http://www.hss.gov.yk.ca/pdf/immunization\\_tdap\\_en.pdf](http://www.hss.gov.yk.ca/pdf/immunization_tdap_en.pdf)

For more information about whooping cough disease, please contact nurses at Whitehorse Health Centre 667-8864, Yukon Communicable Disease Control 667-8323, your local Community Health Centre, the Yukon HealthLine by dialing 811 or go to Yukon Health Guide at: [http://www.ykhealthguide.org/downloads/whooping\\_cough.pdf](http://www.ykhealthguide.org/downloads/whooping_cough.pdf)

## 10.9 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 3<sup>rd</sup> trimester
- All household and/or family daycare contacts IF there is an infant < 1 year of age or a pregnant woman in the 3<sup>rd</sup> trimester in the household or daycare

As your patient is not in a high-risk group for which YCDC recommends chemoprophylaxis, they have 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 Yukon Communicable Disease Control.

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 refer to Yukon Health and Social Services website: [http://www.hss.gov.yk.ca/pdf/immunization\\_schedule\\_en.pdf](http://www.hss.gov.yk.ca/pdf/immunization_schedule_en.pdf) or contact your local Community Health Centre.

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	<b>Recommended agent.</b> 10 mg/kg per day in a single dose for five days	<b>Not preferred.</b> Erythromycin is associated with infantile hypertrophic pyloric stenosis. Use if azithromycin is unavailable: 40 mg/kg/day po (maximum 1 gm/day) divided in three doses for seven days	<b>Not recommended</b> (safety data unavailable)	<b>Contraindicated for infants aged &lt; 2 months</b> (risk for kernicterus)
1 – 5 months	10 mg/kg per day in a single dose for five days	40 mg/kg/day po (maximum 1 gm/day) divided in three doses for seven days	15 mg/kg/day po (maximum 1 gm/day) divided in two doses for seven days	<b>Contraindicated for infants aged &lt; 2 months</b> (risk for kernicterus)  <b>Children 2 months to ≤ 12 years of age:</b> 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)
≥ 6 months to ≤ 12 years	10 mg/kg/day po (maximum 500 mg) once for one day, <b>then</b> 5 mg/kg/day po (maximum 250 mg/day) once daily for four days	40 mg/kg/day po (maximum 1 gm/day) divided in three doses for seven days	15 mg/kg/day po (maximum 1 gm/day) divided in two doses for seven days	<b>Children 2 months to ≤ 12 years of age:</b> 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 <b>then</b> 250 mg po once daily for four days	40 mg/kg/day po (maximum 1 gm/day) divided in three doses for seven days	1 gm/day divided in two doses for seven days <b>Not recommended in pregnancy</b>	<b>Adults and children over 12 years of age:</b> Trimethoprim 160 mg <b>and</b> Sulfamethoxazole 800 mg po twice a day for 14 days <b>Not recommended in pregnancy</b>

### 10.10 Pertussis Case Management Form

#### PERSON REPORTING

Reporting facility: \_\_\_\_\_ Date of report: \_\_\_\_/\_\_\_\_/\_\_\_\_  
(yy/mm/dd)

Name of health care provider reporting: \_\_\_\_\_  
First name Last name

Phone number: (\_\_\_\_) \_\_\_\_\_

#### DEMOGRAPHIC INFORMATION

Personal Health #: \_\_\_\_\_ Patient name: \_\_\_\_\_  
First name Last name

Date of birth: \_\_\_\_/\_\_\_\_/\_\_\_\_ Sex:  Male  Female  
(yy/mm/dd)

Street address: \_\_\_\_\_ City: \_\_\_\_\_

Province: \_\_\_\_\_ Postal code: \_\_\_\_\_

Phone numbers: \_\_\_\_\_  
home office cell

Physician/CHN name: \_\_\_\_\_  
Physician/CHN address: \_\_\_\_\_  
Physician/CHN phone number (include area code): \_\_\_\_\_

YCDC/MOH discussed with  
physician/CHN:  Yes  No  
If yes, date discussed:  
\_\_\_\_\_  
(yy/mm/dd)

#### CLINICAL AND LABORATORY INFORMATION

Onset of symptoms (catarrhal stage):  
\_\_\_\_\_  
(yy/mm/dd)

Onset of paroxysmal cough:  
\_\_\_\_\_  
(yy/mm/dd)

**INFECTIOUS PERIOD:**  
From: \_\_\_\_/\_\_\_\_/\_\_\_\_  
(yy/mm/dd)  
To: \_\_\_\_/\_\_\_\_/\_\_\_\_  
(yy/mm/dd)

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

Seen by physician/CHN?  
 Yes  
 No

Is case:  
 Confirmed  
 Probable

If case is confirmed, is it lab confirmed?  Yes  No  
Culture date: \_\_\_\_/\_\_\_\_/\_\_\_\_  
(yy/mm/dd)

<p>Treated with antibiotics?  <input type="checkbox"/> Yes  <input type="checkbox"/> No</p> <p>If yes, name of antibiotic:          _____ X ___ days</p> <p>If yes, date started: _____          (yy/mm/dd)</p>	<p>PCR date: _____ / _____ / _____          (yy/mm/dd)</p> <p>Is case epidemiologically linked to another case? <input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>If yes, name of other case: _____          First name Last name</p> <p>If yes, date of last contact: _____ / _____ / _____          (yy/mm/dd)</p>
---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------

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

Does case have any high risk contacts:

Less than one year old:  Yes  No    Pregnant and in their 3<sup>rd</sup> trimester:  Yes  No

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

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

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

### NOTES

Information is collected under the authority of the *Health Act* and the *Public Health Act* for purposes of providing health services and public health services. Queries should be directed to the Manager of Yukon Communicable Disease Control, at (867) 667-8323 or toll free at 1-800-661-0408 ext. 8323

### 10.11 Pertussis Contact Management Form

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 #					
Is contact high risk? <sup>1</sup>	<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, indicate reason:	<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, indicate reason:	<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, indicate reason:	<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, indicate reason:	<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, indicate reason:
Date of contact with case					
Occupation					
Signs and symptoms					

<sup>1</sup> High Risk Contacts:

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

<b>Swab done?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, date:				
<b>Prophylaxis recommended?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No				
<b>Antibiotic started?</b>	<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, antibiotic:  Date started:	<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, antibiotic:  Date started:	<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, antibiotic:  Date started:	<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, antibiotic:  Date started:	<input type="checkbox"/> Yes <input type="checkbox"/> No If yes, antibiotic:  Date started:
<b>Immunization status</b>					

## 11.0 PARAPERTUSSIS

Parapertussis is an uncommon bacterial illness similar to pertussis, caused by the bacterium *Bordetella parapertussis*. The signs and symptoms are similar to pertussis but typically milder and of shorter duration; however parapertussis can occasionally cause severe symptoms in young infants. Pertussis immunization provides no protection against parapertussis. Parapertussis is not a reportable disease and there are no guidelines for the treatment or public health management of parapertussis. Person to person spread is limited. During Yukon's 2012 pertussis outbreak there were two cases of parapertussis and in 2013 there was one case.

A similar approach as pertussis is recommended for cases of parapertussis. The following sections from this guideline can be applied to lab confirmed parapertussis:

- Incubation period
- Transmission period
- Treatment, with special concentration on infants less than 6 months old and pregnant women.
- Exclusion criteria

Close household or high risk contacts should be counselled on potential signs and symptoms to watch for and to consult a physician if these develop. Chemoprophylaxis of contacts is generally not recommended, however the CMOH should be consulted when high risk groups are involved. Formal contact tracing will be managed on a case by case basis.

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### 13.0 CONTACT INFORMATION

**Yukon Communicable Disease Control**  
**Hours: Monday- Friday (08:30 to 16:30)**  
#4 Hospital Road, Whitehorse, YT Y1A 3H8  
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**WGH Laboratory telephone:** (867) 393-8739