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Unless otherwise stated the content of this guideline has been adapted from BCCDC Communicable Disease Control Rubella Guideline June 2014

1.0 AUTHORITY

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

2.0 GOAL

The goals of rubella control are:

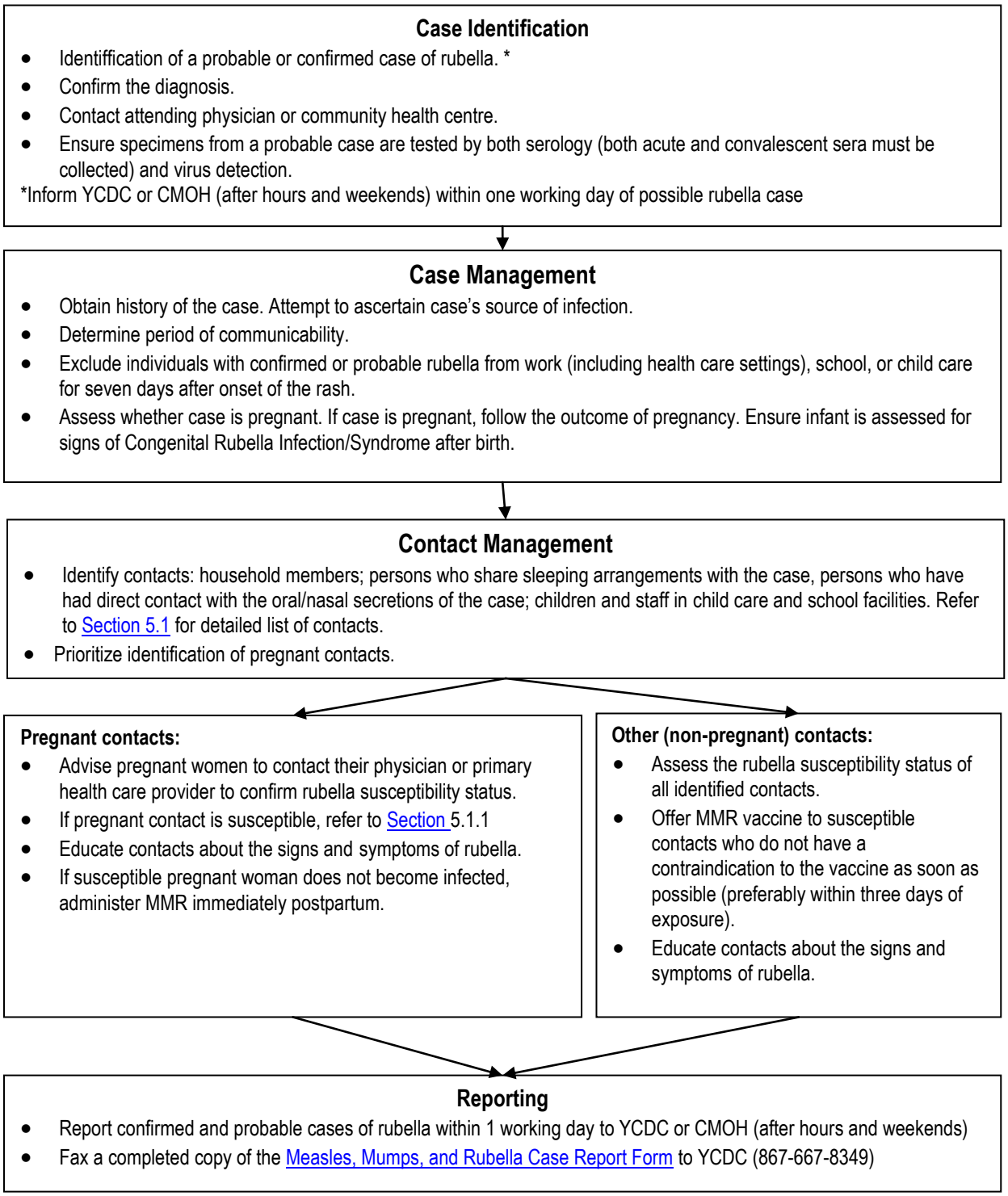
- To prevent rubella infection, congenital rubella infection (CRI), and congenital rubella syndrome (CRS)
- To support the national goal to eliminate cases of indigenously transmitted rubella and CRS from Canada by 2010
- To decrease the proportion of rubella-seronegative primigravida women to < four per cent by 2010

This will be accomplished by:

- Delivery of on-time immunization to children at 12 months and 4-6 years of age
- Immunization of previously unimmunized children and adults at opportune health encounters
- Postpartum immunization of rubella susceptible women
- Case management and contact follow-up
- Reporting of confirmed and probable cases of rubella

3.0 RUBELLA FLOW CHART

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



4.0 CASE MANAGEMENT

4.1 Confirm the Diagnosis

Investigate all clinically identified and laboratory reported cases of rubella as soon as possible. Inform YCDC or CMOH (after hours and weekends) of all confirmed or suspect cases of rubella within 1 working day.

RUBELLA CASE DEFINITION

Surveillance	Definition	Reportable to YCDC
Confirmed Case	Rubella compatible illness[1] and laboratory diagnosis of infection in the absence of recent (i.e., in the previous 28 days) immunization with rubella-containing vaccine: • isolation of rubella virus from an appropriate clinical specimen OR • detection of rubella virus RNA OR • seroconversion or a significant (i.e., fourfold or greater) rise in rubella IgG titre by any standard serologic assay between acute and convalescent sera OR • detection of rubella IgM antibody using a recommended assay in a person with an epidemiologic link to a laboratory-confirmed case or who has recently travelled to an area of known rubella activity OR • Clinical illness[1] in a person with an epidemiologic link to a laboratory confirmed case	Yes
Probable case	Clinical illness[1] • in the absence of appropriate laboratory tests OR • in the absence of an epidemiologic link to a laboratory-confirmed case OR • in a person who has recently travelled to an area of known rubella activity	Yes

[1] Clinical illness is characterized by fever and rash, and at least one of the following:
- arthralgia/arthritis
- lymphadenopathy

- conjunctivitis

A sporadic case is defined as a confirmed case with no epidemiologic link to a laboratory-confirmed case or with no travel history to an area with known rubella activity.

Clinical diagnosis of rubella is challenging and often inaccurate. Laboratory confirmation of infection is recommended for all sporadic cases. Confirming the diagnosis is particularly important in pregnant women, cases who have contact with pregnant women, suspected cases of CRS, and during outbreaks.

Primary care providers should follow the outcome of pregnancy for all pregnant women with confirmed or probable rubella infection during pregnancy. Refer to Section 10.0 Congenital Rubella Infection and Congenital Rubella Syndrome.

4.2 Laboratory Testing

Many rash illnesses can mimic rubella infection and up to 50 per cent of rubella infections can be subclinical. The only reliable evidence of rubella infection is:

- presence of rubella-specific IgM antibody; or
- demonstration of a significant rise in IgG antibody from paired acute and convalescent sera; or
- detection of rubella virus by isolation in cell culture; or
- detection of rubella virus by RT-PCR.

Probable cases of rubella should be tested ***by both serology and virus detection*** (by isolation in cell culture and RT-PCR testing). Specimens should be submitted to the Whitehorse General Lab which will then ship to BC CDC PHSA Laboratory for processing.

For more information regarding testing and requisition forms, refer to the Whitehorse General Hospital Lab.

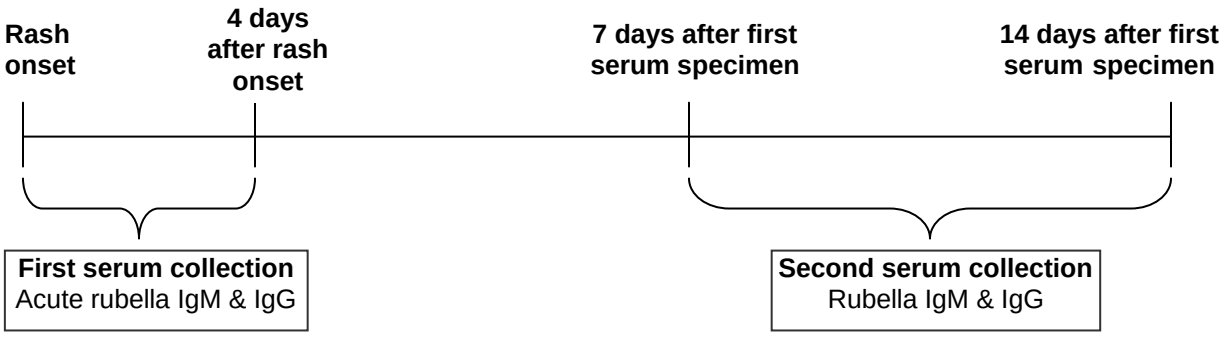
4.2.1 Serology

Seroconversion (change in IgG antibody concentration between acute and convalescent sera) is a commonly used method of confirming the diagnosis of rubella. Rubella serology also includes testing for rubella-specific IgM antibodies. The presence of rubella specific IgM antibodies or IgG seroconversion in the absence of recent MMR immunization strongly suggests recent rubella infection.

The first (acute) blood sample should be taken as early as possible (not later than four days) after onset of rash.

The second (convalescent) sample should be taken approximately seven to 14 days later. Both samples should be tested for both rubella-specific IgG and rubella-specific IgM antibodies.

Serum Collection for Rubella



Typically the anti-rubella IgM will be present at the time of clinical presentation. If the specimen is taken early in the clinical course (i.e., < four to five days after rash onset), IgM serology may initially be negative but rubella-specific IgM should be apparent in the convalescent serum of a case of acute rubella.

IgM serology is not a reliable test to diagnose sporadic cases of rubella. As rubella incidence decreases, the predictive value of rubella IgM decreases. False positive and false negative results may occur. IgM tests typically display a false positive test result in approximately 0.8 per cent of samples. As a result, when testing a low prevalence population, the number of false positive IgMs may equal the number of true positive IgMs. For sporadic cases it is important that additional tests be done to confirm the IgM finding (i.e., acute/convalescent rubella IgG serology, RT-PCR, and/or virus isolation).

4.2.2 Virus identification

Nasopharyngeal or throat swab samples and/or urine should be taken for virus isolation. Virus may be isolated one week before to two weeks after rash onset. However, maximum viral shedding occurs up to day four after rash onset.

An RT-PCR assay can be performed on individuals suspected of having rubella. Collect nasopharyngeal or throat swab or urine preferably within six days of rash onset. Rubella virus RNA can be detected one week before to two weeks after rash onset.

Specimens should be shipped to the Whitehorse General Hospital Lab. If immediate transport is not feasible, place the specimen(s) in a refrigerator (not a freezer) and transport to the laboratory as soon as possible.

Genotyping of rubella virus at the National Microbiology Laboratory allows for linkage of cases in outbreaks and assessment of the global origin of a rubella infection.

4.3 Interpretation of Test Results

For interpretation of serial acute and convalescent IgG results which are provided in International Units (IU) a four-fold rise in the reported IgG IU/mL value is consistent with a rubella seroconversion and is suggestive of a recent infection or MMR vaccination.

Interpretation of IgM results is more complex especially in sporadic cases with no epidemiological link. IgM positivity should be accompanied by IgG seroconversion if truly reflective of an acute rubella infection.

Test Result	Interpretation
Reactive rubella IgM antibody	Possible acute rubella infection. The sensitivity of commercial rubella IgM enzyme immunoassays has been found to be approximately 50 per cent for samples collected ≤ five days after rash onset and > 90 per cent for samples collected one week to four weeks after rash onset.
Rubella IgG seroconversion [defined as a significant rise in rubella IgG antibody signal (four fold or greater) between samples obtained during the acute phase and the convalescent phase of illness]	Confirms acute rubella infection
Presence of rubella IgG (assesses immunity to rubella)	Reactive: > 10 IU/ml • rubella IgG antibodies present Equivocal: 6-10 IU/ml • rubella IgG antibody level is indeterminate Non-reactive: 0-5 IU/ml • rubella IgG antibodies not present at a significant level
Rubella RNA detection by RT-PCR (nasopharyngeal or throat swab, or urine)	Confirms acute rubella infection
Rubella virus isolation	Confirms acute rubella infection

Note: Receipt of rubella-containing vaccine will result in a seroconversion that is indistinguishable from acute infection.

4.4 Case History

In order to properly interpret laboratory results, consider both clinical and epidemiologic information along with the laboratory information. Prior vaccination history, travel history, and timing of sample collection relative to disease onset are all factors that must be considered in the interpretation of lab results for the purpose of confirming rubella cases. Attempt to ascertain the case's source of infection.

Determine the case's **period of communicability.** Rubella is most contagious when the rash first appears. Virus may be shed for up to seven days before to seven days or more after rash onset. Infants with CRS may shed the virus for up to one year in their pharyngeal secretions and urine.

A Measles, Mumps, and Rubella Case Report Form is available to assist with data collection and recording. See Section13.0 Measles, Mumps, and Rubella Case Report Form.

4.5 Case Treatment

There is no specific treatment for rubella. All confirmed and probable cases of rubella should be offered supportive care. Encourage cases to practise good hand hygiene, avoid sharing drinking glasses or utensils, and cover coughs and sneezes with a tissue or forearm.

Cases in health care facilities should be managed with droplet precautions for seven days after onset of the rash.

Contact isolation is indicated for children with confirmed or suspected congenital rubella syndrome until they are at least one year of age, unless two nasopharyngeal and urine culture results after three months of age are negative consecutively for rubella virus.

4.6 Exclusion of Cases

4.6.1 Exclusion of health care workers

Health care workers (HCWs) include: nurses; physicians; HCW students; volunteers; home care workers; emergency responders; and support staff in acute care, long-term care and home care settings.

Advise the case to immediately notify Occupational Health and/or Infection Control and/or Manager for the facility in which they work.

Exclude an individual with confirmed or probable rubella from work in a health care setting for seven days after onset of the rash.

4.6.2 Exclusion from workplace, school or child care

Exclude individuals with confirmed or probable rubella from work, school, or child care for seven days after onset of the rash.

4.7 Airline Travel of a Case

If the case travelled by air during the infectious period, inform the YCDC and/or CMOH. Contact tracing through a passenger manifest is not necessary. YCDC will notify other provincial/territorial jurisdictions to assist in rubella investigations should the exposure result in a recognized case of rubella.

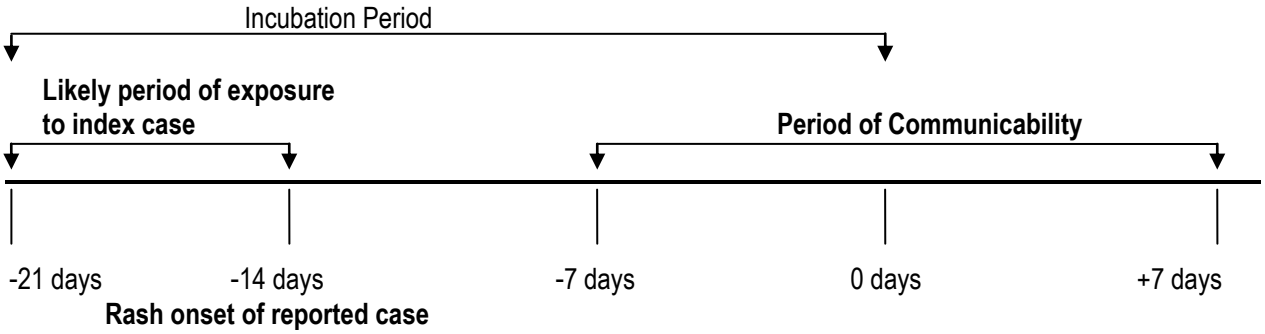
5.0 CONTACT MANAGEMENT

5.1 Contact Identification

Identify all individuals who had direct contact with the case during the period of communicability (i.e., seven days before to seven days after onset of the rash). This includes:

- household members
- persons who share sleeping arrangements with the case, including shared rooms (e.g., dormitories)
- persons that have had direct contact with the oral/nasal secretions of an infectious case (e.g., close contact within a distance of two metres; sharing cigarettes, drinking glasses, food, cosmetics like lip gloss; kissing on the mouth)
- children and staff in child care and school facilities (as deemed necessary by the epidemiology of the outbreak)

The Measles, Mumps, and Rubella Case Report Form (Section 13.0) should be used for data collection.



Incubation period ranges from 14 to 21 days and is usually 14 to 17 days.

Mode of transmission - Rubella is spread through droplet transmission or direct contact with nasopharyngeal secretions of an infected person. Infants with CRS shed large quantities of virus in their pharyngeal secretions and urine.

Prioritize identification of pregnant contacts.

Assess whether contacts are **immune** or **susceptible** to rubella. A **rubella-immune** individual is defined as having:

- documented receipt of one dose of live rubella virus vaccine (most often given as MMR) **or**
- laboratory evidence of rubella immunity (IgG antibody >10 IU)* **or**
- laboratory-confirmed acute infection.

*A contact is deemed immune if they have any prior history of laboratory evidence of rubella immunity, even when the most recent result is equivocal or non-reactive.

5.1.1 Pregnant contacts

Advise pregnant women to contact their physician or primary health care provider to confirm rubella susceptibility status. The following is a guide to the interpretation of rubella susceptibility status tests:

- Reactive (>10 IU/mL) rubella IgG antibodies present (immune).
- Equivocal (6-10 IU/mL) rubella IgG antibody level is indeterminate. Repeat testing may be considered.
- Non-reactive (0-5 IU/mL) rubella IgG antibodies not present at a significant level (susceptible).

Pregnant women who **are susceptible** to rubella and are exposed, (including those whose immunity to rubella has not been documented in past or current pregnancy) should be referred for assessment to determine whether they have been infected with rubella for further management of the pregnancy.

Pregnant contacts who are susceptible and do not become infected should be immunized in the immediate post-partum period.

Immune globulin (Ig) given soon after exposure to rubella may modify or suppress symptoms but is not certain to prevent infection, including congenital infection. Therefore, the routine use of Ig in susceptible women exposed to rubella early in pregnancy is not recommended.

5.2 Immunoprophylaxis of Susceptible Contacts

Offer MMR vaccine to non-pregnant susceptible contacts that do not have a contraindication to the vaccine. There is no indication for antibody testing prior to immunization. Administer MMR vaccine as soon as possible and preferably within three days of the exposure. Although live-virus rubella

vaccine given after exposure has not been demonstrated to prevent infection, vaccine theoretically could prevent illness if administered within three days of exposure. Immunization of exposed non-pregnant people is indicated because if the exposure did not result in infection, immunization will protect these people from future infection. Immunization of a person who is incubating natural rubella or who already is immune is not associated with an increased risk of adverse effects.

Vaccine is contraindicated in a pregnant woman. However, no congenital defects attributable to rubella vaccine have ever been documented in the infants of mothers who received rubella vaccine during their pregnancy.

Immune globulin is not recommended for rubella for post-exposure prophylaxis.

5.3 Exclusion of Susceptible Contacts

5.3.1 Health Care Settings

Exclude from work any susceptible exposed HCW from seven days after the first exposure to rubella until 21 days after the last exposure.

Post-exposure vaccination is not proven to prevent rubella infection and does not allow for return to work prior to the maximum incubation period being expired. Vaccination will protect against rubella infection in future exposures.

Exclude any susceptible health care worker who is newly immunized from direct patient care for 21 days (i.e., the longest incubation period) after the last exposure to rubella.

HCWs who develop a rubella-like illness following exposure should be tested (including by culture/ RT-PCR) to confirm the diagnosis, and should not return to work until no longer infectious (i.e., seven days after rash appeared).

5.3.2 School, Child Care or Post-Secondary Educational Settings

Exclude all susceptible contacts from seven days after the first exposure until 21 days after the last exposure. In an outbreak, continue exclusion until three weeks after the onset of rash in the last reported case. Exclusion of individuals without valid evidence of immunity may limit disease transmission and help to raise the immunization level in the target population.

5.4 Contact Education

Advise susceptible contacts:

- about the signs and symptoms of rubella, how it is transmitted, and to isolate themselves at home immediately if any symptoms of rubella develop until an assessment has been done to confirm a diagnosis of rubella;
- to avoid other rubella susceptible people, pregnant women, and immunocompromised person 14 to 21 days after exposure to a case.
- to observe for signs and symptoms of rubella beginning 14 to 21 days after the first contact with a case;
- to rapidly report any symptoms compatible with rubella to their doctor/health care provider. Advise them to call ahead before going to any health care facility, including laboratories, to inform the staff of rubella symptoms so that they can be isolated on arrival to avoid exposing any susceptible persons.
- to inform their local public health unit should they develop rubella.

6.0 REPORTING

Notify YCDC or CMOH (after hours and weekends) about cases of rubella that meet the probable or confirmed case definitions.

Fax a completed Measles, Mumps, and Rubella Case Report Form to YCDC (867-667-8349) See Section 13.0 Measles Mumps, and Rubella Case Report Form.

7.0 OUTBREAK MANAGEMENT

Consider a single case of rubella as a potential outbreak. Outbreak management is coordinated by YCDC.

The main strategies in a rubella outbreak are to:

- Define at-risk (susceptible) populations;
- Ensure susceptible individuals are rapidly immunized or excluded from exposure if a contraindication to immunization exists; and
- Maintain active surveillance and establish surveillance for CRS.

7.1 Intensify Surveillance

When a case of rubella occurs, a process of case finding to identify the source of infection and all subsequent cases should be undertaken. Institute surveillance measures to identify cases prospectively and retrospectively.

Investigate cases and identify contacts for all confirmed and probable cases of rubella. Assess whether contacts are immune or susceptible to rubella.

During an outbreak, from each generation of cases, test a small number of suspected cases (see Section 4.1 for definition of suspect case) to confirm that illness is due to rubella.

7.2 Immunization During an Outbreak

Identify and vaccinate all susceptible individuals in the identified population that do not have any contraindications to rubella vaccine. Immunize all non-pregnant, rubella-susceptible women with rubella-containing vaccine at opportune encounters.

Yukon Immunization Program will be notified of the outbreak by YCDC to coordinate services and vaccine supply if expanded immunization clinics are being planned.

7.3 Communication During an Outbreak

Communication during an outbreak is the responsibility of YCDC and CMOH. During an outbreak the following measures will be undertaken:

- Ensure the medical community and the public are aware of a rubella outbreak.
- Notify local health care providers about the outbreak, diagnostic testing requirements and reporting responsibilities.
- Inform the public of the signs and symptoms and mode of transmission of rubella.
- Consider notifying other settings of the outbreak (e.g., child care centres).

Encourage pregnant women to discuss their rubella susceptibility status with their physician or primary health care provider. Ensure rubella vaccine is administered immediately postpartum to all rubella susceptible women.

Counsel all pregnant, rubella-susceptible women regarding the risk of CRS. This may include advising the pregnant, rubella-susceptible women to avoid activities where they might be exposed to rubella for six weeks (two incubation periods) after the onset of symptoms of rubella in the last person for whom rubella cannot be ruled out (to minimize their chances of coming into contact with persons with symptomatic or asymptomatic rubella infection).

7.4 Analyze the Outbreak

Review the effectiveness of the local control measures and revise local protocols as necessary.

Following an outbreak, an epidemiological analysis of events provides a useful local reference.

8.0 CLINICAL DESCRIPTION

Rubella is a relatively mild viral illness characterized by a generalized erythematous maculopapular rash, lymphadenopathy and low fever. The rash usually begins on the face and becomes generalized in 24 hours. It lasts about three days and is occasionally pruritic. The rash and other non-specific symptoms may be indistinguishable from infections caused by measles, parvovirus, adenoviruses or enteroviruses. Up to 50 per cent of infections are subclinical.

In children, the rash is often the first symptom of illness. Adults often experience a one- to five-day prodrome of low-grade fever, headache, malaise, mild coryza and conjunctivitis. Postauricular, occipital and posterior cervical lymphadenopathy may begin five to 10 days before the rash and last several weeks. Arthralgia or arthritis may occur in up to 70 per cent of adult women with rubella but are rare in children and males. Joint symptoms usually occur about the same time as the rash and may last for up to one month.

Rare complications of rubella include encephalitis (1:5000 cases), thrombocytopenia (1:3000 cases), orchitis, neuritis and a late syndrome of progressive panencephalitis.

Rubella in pregnancy is well recognized to produce anomalies in the developing fetus. The occurrence of congenital defects is up to 85 per cent if infection associated with maternal rash occurs during the first 12 weeks of gestation, 54 per cent during the first 13 to 16 weeks of gestation, and 25 percent during the end of the second trimester. Defects occur rarely when infection occurs after the 20th week of gestation. The overall risk of defects during the third trimester is probably no greater than that associated with uncomplicated pregnancies.

Congenital anomalies associated with Congenital Rubella Syndrome (CRS) include:

- Ophthalmologic: cataracts, retinopathy, microphthalmos, glaucoma
- Cardiac: patent ductus arteriosus, peripheral pulmonary artery stenosis, atrial or ventricular septal defects
- Auditory: sensorineural hearing impairment (deafness is often the only manifestation of CRS, especially when infection occurs after the fourth month of gestation)
- Neurologic: behavioural disorders, microcephaly, meningo-encephalitis, mental retardation

Neonatal manifestations of CRS include:

- Growth retardation
- Interstitial pneumonitis
- Radiolucent bone disease
- Hepatosplenomegaly
- Thrombocytopenia
- Dermal erythropoiesis (“blueberry muffin” lesions)

Moderate and severe CRS is usually recognizable at birth; mild CRS with only slight cardiac involvement or hearing impairment may not be detected for months or even years after birth. Insulin-dependent diabetes mellitus is recognized as a frequent late manifestation of CRS. In addition, progressive encephalopathy resembling subacute sclerosing panencephalitis has been observed in some older children. Children with CRS have higher than expected rates of autism.

Prompt identification of suspected, probable, or confirmed cases of rubella is important to avoid transmission to susceptible pregnant women. Because many rashes are similar to rubella and up to 50 per cent of rubella infections may be subclinical, the only way to confirm a rubella diagnosis is laboratory testing.

9.0 EPIDEMIOLOGY

In Canada, the average number of rubella cases decreased significantly after the introduction of the MMR program for all infants in April 1983. The average number of rubella cases reported each year between 1971 and 1982 was 5,300. Between 1998 and 2004, the average number of cases reported annually dropped to less than 30.

In the years following the introduction of routine infant immunization, epidemics of rubella continued to occur every three to 10 years with incidence peaking both in the spring and winter months.

In 2005, an outbreak of rubella occurred in an unimmunized southwestern Ontario community which was opposed to immunization on religious grounds. Over 300 cases occurred in the community, primarily in unimmunized children <19 years of age (median age 11 years; range 0.3-34 years). Ten cases involved pregnant women but no cases of CRS were reported.

As a result of immunization rates in excess of 95 per cent in the general population, the outbreak did not spread to the surrounding community.

The outbreak in Ontario along with a handful of isolated cases demonstrate that limited rubella virus transmission will continue due to importation, secondary spread and gaps in immunization coverage (e.g., unimmunized men or populations declining to participate in immunization programs).

Rubella occurs worldwide and is endemic in countries where rubella vaccine has not been introduced. It is estimated that at least 100,000 cases of CRS occur each year in developing countries. Nevertheless the number of imported cases into our setting remains low.

9.1 Rubella Immunization in Yukon

The first rubella vaccine available was a rubella live attenuated vaccine introduced in 1970. In 1974 the measles, mumps and rubella containing vaccine was introduced for children at 12 months of age and older. In 1985 and 1986 a second dose of rubella vaccine was provided for girls aged 10-11 years. In 1996 a second dose of MMR vaccine was introduced at age 18 months as part of the routine schedule. In 2012, the second dose of MMR vaccine was moved to 4-6 years of age (school entry) as part of the routine schedule (Yukon Immunization Program Manual, 2014)

10.0 CONGENITAL RUBELLA SYNDROME

Congenital Rubella Syndrome (CRS)	Definition	Reportable to YCDC
Confirmed Case (Live Birth)	Two clinically compatible manifestations (any combination from Table 1.0, Columns A and B) with laboratory confirmation of infection: • isolation of rubella virus from an appropriate clinical specimen OR • detection of rubella virus RNA OR • Detection of rubella specific IgM antibody in the serum in the absence of recent immunization with rubella-containing vaccine OR • rubella IgG persisting for longer than would be expected (approximately six months following birth) from passive transfer of maternal antibody, or in the absence of recent immunization	Yes
Confirmed Case (Stillbirth)	Two clinically compatible manifestations with detection of rubella virus from an appropriate post mortem specimen.	Yes
Probable Case	In the absence of appropriate laboratory tests, a case that has at least • any two clinically compatible manifestations listed in Table 1.0, Column A OR • one manifestation listed in Table 1.0, column A, plus one listed in Table 1.0, Column B	No

Table 1.0 Congenital Rubella Syndrome: Clinically Compatible Manifestations

Column A	Column B
Cataract or congenital glaucoma (either one or both count as one)	Purpura
Congenital heart defect	Hepatosplenomegaly
Sensorineural hearing loss	Microcephaly
Pigmentary retinopathy	Micro-ophthalmia
	Mental retardation
	Meningoencephalitis
	Radiolucent bone disease
	Developmental or late onset conditions, such as diabetes and progressive panencephalitis and any other conditions possibly caused by the rubella virus

11.0 CONGENITAL RUBELLA INFECTION

Congenital Rubella Infection (CRI)	Definition	Reportable to YCDC
Confirmed Case	Laboratory confirmation of infection but with no clinically compatible manifestations: • isolation of rubella virus from an appropriate clinical specimen OR • detection of rubella virus RNA OR • Detection of rubella specific IgM antibody in the serum in the absence of recent immunization with rubella-containing vaccine OR • rubella IgG persisting for longer than would be expected (approximately six months following birth) from passive transfer of maternal antibody, or in the absence of recent immunization.	Yes

12.0 CONGENITAL RUBELLA SYNDROME AND CONGENITAL RUBELLA INFECTION

12.1 Case Management

When Congenital Rubella Syndrome (CRS) or Congenital Rubella Infection (CRI) is suspected, a laboratory diagnosis of rubella is essential. Congenital infection can be confirmed in infants by detection of the virus by isolation or RT-PCR, in neonatal urine or nasopharyngeal secretions, detection of IgM antibody to rubella virus in blood, and in an older infant, the persistence of IgG antibody to rubella virus beyond the age of six months.

12.2 Laboratory diagnosis of Congenital Rubella Infection and Congenital Rubella Syndrome

Testing done on the baby includes virus isolation and identification from nasopharyngeal swab, throat swab, CSF, blood or urine. Virus serology, including rubella specific IgM is done on the infant blood specimen.

Virus serology testing must also be performed on the mother.

The following test results can be used to rule out CRS:
- rubella antibody absent in the infant
- rubella antibody absent in the mother
- rubella antibody levels declining in the infant consistent with the normal decline after birth of passively transferred maternal antibody

Transplacental IgG is expected to disappear at six to 12 months.

12.3 Contact management

Consider children with CRS or CRI to be infectious for one year unless two consecutive nasopharyngeal and urine culture results are negative for rubella virus.

Ensure only individuals who are immune to rubella care for the infant.

Educate caregivers regarding the potential danger for susceptible pregnant contacts.

12.4 Reporting

Report all confirmed cases of Congenital Rubella Syndrome and Congenital Rubella Infection to YCDC/CMOH.

Complete Congenital Rubella Syndrome / Congenital Rubella Infection Case Report Form (Subsection 14.0).

13.0 MEASLES, MUMPS, AND RUBELLA CASE REPORT FORM

Complete and fax the "Measles, Mumps and Rubella Case Report Form" to YCDC (867-667-8369).

13.1 Instructions for Completing the Form

A. PERSON REPORTING

Record name and phone number of person completing the form.

B. CASE INFORMATION

Complete identifying information about the case. Include name of the case's regular physician. If the case doesn't have a physician but did see a health care provider regarding the current illness, record that health care provider's name. Record whether the case is a health care worker or attends child care, school or university.

C. CLINICAL AND LABORATORY INFORMATION

Laboratory tests: refer to individual disease guidelines for information regarding appropriate lab testing to confirm the case.

Symptoms/Signs/Complications: check all experienced in the course of this illness.

D. CASE HISTORY

MMR Immunization History: Ascertain immunization history of every case.

Incubation period: the incubation period is the time interval from contact with an infectious person until first symptoms appear. By using the average incubation period time intervals, it is possible to determine the period of time when the case was exposed to an infectious person who was their source of infection. Determine the likely exposure period by referring back from date of symptom onset in case. Calculate the likely dates of the exposure period by counting back from the date of onset using the range (min and max) of specified incubation periods.

Determining the likely exposure period is important in assessing where the case was infected and whether there may be other unidentified cases developing from the same exposure.

Prodrome: The prodrome is an early non-specific sign or symptom that indicates the start of the illness before disease-specific symptoms (such as cough, coryza or conjunctivitis for measles) occur. Infectiousness can begin prior to onset of prodromal illness (e.g., for measles the period of communicability usually starts one to two days before the onset of prodromal symptoms).

Period of communicability: The period of communicability is the time interval when the case can transmit the infection to others. Determining the case's period of communicability is essential to contact management. Determine the dates during which the case was communicable by referring back to dates of prodrome or illness onset, and reviewing the specified period of communicability before/after onset of symptoms.

E. CONTACT MANAGEMENT

The contact tracing worksheet is intended to facilitate follow up of contacts. Its completion is optional.

Refer to the guidelines for each disease (i.e., measles, mumps and rubella) for the definition of a "contact" before conducting contact tracing and follow up.

Submit the completed MMR Case Report Form by fax to YCDC at (867-667-8349)

13.2 Measles, Mumps, Rubella Case Report Form

Disease: ☐ Measles ☐ Mumps ☐ Rubella

REPORT CASES OF MEASLES, MUMPS AND/OR RUBELLA TO YCDC OR MOH (AFTER HOURS AND WEEKENDS) THAT MEET SUSPECT, PROBABLE/CLINICAL OR CONFIRMED CASE DEFINITIONS. **FAX THIS FORM TO YCDC AT 867-667-8349**. 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.

A. PERSON REPORTING

Location: Health Centre/Clinic/ER _____ Date of report: _____/____/_____ (YYYY MM DD)

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

E-mail: _____ Fax: (____) _____

B. CASE INFORMATION

Personal Health #: _____ Name: _____ (First name) _____ (Last name) Sex: ☐ Male ☐ Female

Date of birth: _____/_____/_____ (YYYY MM DD) Country of birth: ☐ Canada ☐ Other (Specify) _____

Street address: _____ City: _____ Province: _____

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

Attending Physician: _____

☐ Health Care Worker[1] ☐ Attends child care, school, or university; specify where: _____

Is the case pregnant? ☐ Yes ☐ No ☐ Unknown

Is the case Aboriginal?[2] ☐ Yes ☐ No ☐ Unknown

C. CLINICAL INFORMATION

Case status: ☐ Confirmed ☐ Probable/Clinical ☐ Suspect **** For case definitions see attached appendix***

Did the case visit a physician? ☐ Yes ☐ No ☐ Unknown Did the case visit an ER? ☐ Yes ☐ No ☐ Unknown

Was the Case Hospitalized (>24 hours)? ☐ Yes (_____ days) ☐ No ☐ Unknown

Name of Hospital:_____ Reason for hospitalization: _____

If yes, was case admitted to an Intensive Care Unit? : ☐ Yes ☐ No ☐ Unknown

Outcome at the time of reporting: ☐ Recovered ☐ Sick ☐ Died ☐ Unknown If died, date of death: _____/_____/_____ (YYYY MM DD)

SIGNS/SYMPTOMS:

☐ Conjunctivitis	☐ Maculopapular rash	☐ Post-auricular, occipital and posterior cervical lymphadenopathy	☐ Encephalitis
☐ Coryza (runny nose)	☐ Arthralgia (painful joints)	☐ Bilateral parotitis (Sublingual/ submaxillary glands)	☐ Hearing loss
☐ Cough	☐ Fever	☐ Unilateral parotitis (Sublingual/ submaxillary glands)	☐ Koplik spots
☐ Pharyngitis/sore throat	☐ Myalgia	☐ Orchitis/oophoritis	☐ Meningitis
☐ Other(specify): _____			

Date of onset of prodromal symptoms[3]: _____/_____/_____ (YYYY MM DD) Did the case visit a diagnostic laboratory? Y / N
If yes, name of institution: _____

Date of onset of parotid swelling/orchitis/rash: _____/_____/_____ (YYYY MM DD) Duration of parotid swelling/orchitis/rash (days): ____

D. CASE IMMUNIZATION HISTORY

Is case a conscientious objector to vaccination? ☐ Yes ☐ No ☐ Unknown

Record prior vaccination against this disease:

Vaccine Name	Date Received (YYYY/MM/DD)	Age (Yrs)	Province/Territory or Country of receipt (if known)
1.			
2.			
3.			
4.			

If there are no documents of prior vaccination available:

No documented prior immunization but patient recall indicates vaccine history, specify:

_____

E. EXPOSURES

INCUBATION PERIOD: time interval from contact with infectious person until first symptoms appear

Measles – average time from exposure to onset is 8-12 days (range: 7-18 days)
Mumps – average time from exposure to onset is 16-18 days (range: 12-25 days)
Rubella – average time from exposure to onset is 14-17 days (range: 14-21 days)

Exposure period: Earliest possible exposure _____/_____/_____ (YYYY MM DD) Latest possible exposure _____/_____/_____ (YYYY MM DD)

Did the exposure occur in a health care setting? ☐ Yes ☐ No ☐ Unknown

During exposure period:

Travel[4]: ☐ Yes ☐ No ☐ Unknown

If yes, travel within Canada: ☐ Yes ☐ No ☐ Unknown If yes, specify where _____when_____

travel outside Canada: ☐ Yes ☐ No ☐ Unknown If yes, specify where _____when_____

Contact with a known case: ☐ Yes ☐ No ☐ Unknown

If yes, specify whom_____ where_____ when _____

Notes: _____

Contact with a visitor from outside of Yukon? ☐ Yes ☐ No ☐ Unknown

If yes, specify when: _____ Visitor's residence: _____

Contact in a known outbreak location: ☐ Yes ☐ No ☐ Unknown

If yes, specify where_____ when _____

[1] Any individual who is regulated by the *Health Professions Act* including doctors, nurses, dentists, physiotherapists, occupational therapists

[2] Any individual who self identifies as Aboriginal

[3] Prodome: early non-specific sign(s) or symptom(s) that indicate the start of the illness before disease-specific symptoms occur
Measles*: three to four days before rash (i.e., fever, cough, coryza, conjunctivitis*
Mumps*: three to five days before parotitis (i.e., myalgia, anorexia, malaise, sore throat, headache, low-grade fever)*
Rubella*: one to five days before rash (i.e., fever, headache, malaise, coryza)*

[4] Any travel outside the city of residence should be included

F. LABORATORY INFORMATION (Please also complete the 2nd table if tested for more than one disease)

Laboratory Tests: ☐ Yes ☐ No ☐ Unknown Test results for disease diagnosed

Specimen Collected		Collection Date (YYYY/MM/DD)	Results
☐ Throat, nasopharyngeal or buccal swab (circle specimen collected)			☐ Positive ☐ Negative ☐ Indeterminate ☐ Pending
☐ Urine			☐ Positive ☐ Negative ☐ Indeterminate ☐ Pending
☐ Blood	IgM		☐ Positive ☐ Negative ☐ Indeterminate ☐ Pending
	IgG (acute)		☐ Positive ☐ Negative ☐ Indeterminate ☐ Pending
	IgG (convalescent)		☐ Positive ☐ Negative ☐ Indeterminate ☐ Pending

Other relevant test results: _____

_____

MEASLES, MUMPS AND RUBELLA CASE-RELATED CONTACT SUMMARY FORM

Please complete this form once follow-up with contacts is complete. Complete this form for each reported case of Measles, Mumps and/or Rubella that meets the suspect, probable/clinical or confirmed case definitions.

FAX THIS FORM TO YCDC AT 867-667-8349

PERIOD OF COMMUNICABILITY: time interval when the case can transmit the infection to others

Measles: one to two days before onset of prodomal symptoms and up to four days after rash onset
Mumps: maximum infectiousness occurs between two days before to five days following the onset of parotid swelling
Rubella: seven days before to at least seven days after rash onset

Period of communicability: From _____/_____/_____ To _____/_____/_____
YYYY MM DD YYYY MM DD

Manage case contacts based on this date range. Include contact summary in Section E Contact Management.

Note: If travel occurred during the period of communicability notify BCCDC of travel itinerary

G. CONTACT TRACING

Case Health Care #: _____ Case name: _____ _____
First name Last name

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

Total number of contacts: _____

Number of susceptible contacts: _____ Number of immune contacts: _____

Number of contacts that received MMR: _____ _____ within 3 days _____ within 4 to 6 days

Number of contacts that received Ig: _____

Number of contacts by setting type:

_____ Household _____ School, day care
_____ Workplace (not including doctor's office, Emergency Room or hospital)
_____ Health care setting (doctor's office, ER, hospital)
_____ Other, please specify: _____

14.0 CONGENITAL RUBELLA SYNDROME (CRS)/CONGENITAL RUBELLA INFECTION (CRI) CASE REPORT FORM

Please fax completed form to: 867 667-8349

YCDC
Yukon Communicable Disease Control
4 Hospital Rd., Whitehorse, YT Y1A 3H8

CONGENITAL RUBELLA REPORTING FORM

REPORTING INFORMATION

Case Identifier:	
Month of Reporting:	
Province:	
Today's Date:	

Please complete the following sections for the case identified above. Confidentiality of information will be assured.

CASE DEFINITION FOR CONGENITAL RUBELLA SYNDROME (CRS) OR INFECTION

CRS/Confirmed case: Includes live and stillborn children. Any *clinically compatible defect(s)* and one or more of the following *(laboratory confirmation)*:

1. Detection of rubella virus.
2. Detection of rubella-specific IgM (in the absence of recent immunization with rubella-containing vaccine).
3. Persistence of rubella-specific IgG longer than expected from passive transfer of maternal antibody.

CRS/Clinical case: *Clinically compatible defects* without laboratory confirmation, in the absence of any other known cause.

Clinically compatible defects means that the case has, at least, any two complications listed in (A), or one complication from (A) and one from (B).

(A) Cataracts or congenital glaucoma (either or both, count as one), congenital heart disease, sensorineural hearing loss, pigmentary retinopathy.
(B) Purpura, splenomegaly, jaundice, microcephaly, mental retardation, meningoencephalitis, radiolucent bone disease, progressive conditions occurring during childhood or adulthood, such as diabetes and progressive panencephalitis, and any other conditions possibly caused by rubella virus.

N.B.: If any of the following laboratory findings exists, then the case cannot be classified as a "CRS/Clinical case":

1. Rubella antibody titre absent in the infant.
2. Rubella antibody titre absent in the mother.
3. Rubella antibody titre declines in the infant consistent with the normal decline after birth of passively transferred maternal antibody.

Congenital Rubella Infection: A case with no defects present but laboratory confirmation of infection.

SECTION 1 — DEMOGRAPHIC INFORMATION

1.1 Patient Identifier: _____

1.2 Date of birth: __ __ __ __/__ __ __ __/__ __ __ __
DD MM YYYY

1.3 Sex: Male ☐ Female ☐

SECTION 2 — CLINICAL FEATURES

2.1 General	Yes	No	Unknown	
Intrauterine growth retardation	☐	☐	☐	
Premature birth	☐	☐	☐	
In utero death	☐	☐	☐	
Infant death	☐	☐	☐	If **yes**, date of death: __ __ / __ __ / __ __ __ __ (DD / MM / YYYY)
Ocular:				
Congenital cataract	☐	☐	☐	
Congenital glaucoma	☐	☐	☐	
Pigmentary retinopathy	☐	☐	☐	
Microphthalmia	☐	☐	☐	
Auditory:				
Sensorineural hearing loss	☐	☐	☐	
Cardiovascular				
Patent ductus arteriosus	☐	☐	☐	
Pulmonary stenosis	☐	☐	☐	
Ventricular/atrial septal defects	☐	☐	☐	
Myocarditis	☐	☐	☐	
Neurological				
Meningoencephalitis	☐	☐	☐	
Microcephaly	☐	☐	☐	
Mental retardation	☐	☐	☐	
Miscellaneous				
Splenomegaly	☐	☐	☐	
Jaundice	☐	☐	☐	
Purpura	☐	☐	☐	
Radiolucent bone disease	☐	☐	☐	
Progressive conditions				
Diabetes	☐	☐	☐	
Progressive panencephalitis	☐	☐	☐	
Other abnormality(ies) (e.g. generalized lymphadenopathy)	☐	☐	☐	

If **yes**, specify: _____

_____

SECTION 3 — LABORATORY INVESTIGATION OF CHILD

3.1 Isolation of rubella virus: Yes ☐ No ☐ Unknown ☐ Not done ☐
If **yes**, site: _____ Date collected: __ __ __ / __ __ __ / __ __ __ __ (DD / MM / YYYY)

3.2 Presence of rubella-specific IgM: Yes ☐ No ☐ Unknown ☐ Not done ☐
If **yes**, type of test: _____ Result: _____ Date collected: __ __ __ / __ __ __ / __ __ __ __ (DD / MM / YYYY)

3.3 Presence of persisting rubella-specific IgG antibodies: Yes ☐ No ☐ Unknown ☐ Not done ☐
If **yes**, type of test: _____ Result: _____ Date collected: __ __ __ / __ __ __ / __ __ __ __ (DD / MM / YYYY)
If **yes**, type of test: _____ Result : _____ Date collected: __ __ __ / __ __ __ / __ __ __ __ (DD / MM / YYYY)

SECTION 4 — HISTORY OF MOTHER

4.1 Age at delivery: ☐

4.2 Ethnicity:

Aboriginal Canadian-born ☐
Non-aboriginal Canadian-born ☐
Foreign-born ☐ Country of birth: _____ Year of arrival in Canada: _____
Unknown ☐

4.3 Number of previous pregnancies:

Gravida ☐ Para ☐

4.4 Immunization with rubella-containing vaccine: Yes ☐ No ☐ Unknown ☐

If **known**, name(s) of vaccine(s):	Date(s) of immunization(s): (DD / MM / YYYY)	Place (city, prov., country)
_____	__ __ __ / __ __ __ / __ __ __ __	_____
_____	__ __ __ / __ __ __ / __ __ __ __	_____
_____	__ __ __ / __ __ __ / __ __ __ __	_____

4.5 Routine rubella IgG testing before or during current/previous pregnancy(ies): Yes ☐ No ☐ Unknown ☐
(prenatal screening)

If **yes**, type of test most recently done: Result: _____ Date of test: _____ __ __ __ / __ __ __ / __ __ __ __ (DD / MM / YYYY)

4.6 Contact with a person with rubella or a rash during pregnancy: Yes ☐ No ☐ Unknown ☐

4.7 Rubella-like illness or any rash during pregnancy: Yes ☐ No ☐ Unknown ☐

If **yes**, week or month of pregnancy: ☐ weeks or ☐ months

4.8 Rubella outbreak in mother's area of residence during pregnancy: Yes ☐ No ☐ Unknown ☐

SECTION 4 — HISTORY OF MOTHER (cont'd)

4.9 Laboratory confirmation of rubella infection during pregnancy? Yes ☐ No ☐ Method _____
Check all that apply or are appropriate:

Isolation of rubella virus: Yes ☐ No ☐ Unknown ☐

Presence of rubella-specific IgM: Yes ☐ No ☐ Unknown ☐

Four-fold rise of rubella-specific IgG antibodies (tests performed simultaneously?): Yes ☐ No ☐ Unknown ☐

SECTION 5 — REPORTING PHYSICIAN

First name _____ Surname _____

Address _____

City _____ Province _____ Postal code _____

( ) _____
Telephone number

( ) _____
Fax number

Date form completed: __ __ __/__ __ __ __/__ __ __ __
DD MM YYYY

Thank you for completing this form.

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16.0 CONTACT INFORMATION

Yukon Communicable Disease Control
Hours: Monday- Friday (08:30 to 16:30)
#4 Hospital Road, Whitehorse, YT Y1A 3H8
Telephone: Local (867) 667-8323
Within Yukon 1-800-661-0408, ext. 8323
Fax: (867) 667-8349

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Chief Medical Officer of Health, Yukon
#4 Hospital Road, Whitehorse, YT Y1A 3H8
Telephone: Office: (867) 456-6136
Cell: (867) 332-1160
Fax: (867) 667-8349

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(Ambulatory Care)
#5 Hospital Road, Whitehorse, YT Y1A 3H7
Telephone: (867) 393-8700
Fax: (867) 393-8772
WGH Laboratory telephone: (867) 393-8739