

Appendix A: Disease-Specific Chapters

Chapter: Rubella

Effective: February 2019

Rubella

Communicable

Virulent

**Health Protection and Promotion Act:
O. Reg. 135/18 (Designation of Diseases)**

1.0 Aetiologic Agent

Rubella virus (family *Togaviridae*; genus *Rubivirus*).¹

2.0 Case Definition

2.1 Surveillance Case Definition

Refer to [Appendix B](#) for Case Definitions.

2.2 Outbreak Case Definition

Rubella is not an endemic disease in Canada, therefore one confirmed case is considered an outbreak.

The outbreak case definition varies with the outbreak under investigation. Please refer to the *Infectious Diseases Protocol, 2018* (or as current) for guidance in developing an outbreak case definition as needed.

The outbreak case definitions are established to reflect the disease and circumstances of the outbreak under investigation. The outbreak case definitions should be developed for each individual outbreak based on its characteristics, reviewed during the course of the outbreak, and modified if necessary, to ensure that the majority of cases are captured by the definition. The case definitions should be created in consideration of the outbreak definitions.

Outbreak cases may be classified by levels of probability (*i.e.* confirmed and/or probable).

3.0 Identification

3.1 Clinical Presentation

A mild febrile viral disease presenting with an erythematous maculopapular rash and few constitutional symptoms including low-grade fever, headache, malaise, mild runny nose (coryza) and red eyes (conjunctivitis). The rash starts on the face, becomes generalized in 24 hours and lasts a median of 3 days.^{1,2} Serious complications are rare, with up to 50% of infections being subclinical, however encephalitis can occur as well as arthritis/arthralgia, particularly among adult females. The main goal of immunization is

the prevention of rubella infection in pregnant women which may give rise to congenital rubella syndrome (CRS) or congenital rubella infection (CRI) in the infant.

CRS can result in miscarriage, stillbirth and fetal malformations, including congenital heart disease, cataracts, deafness and intellectual disabilities. The greatest risk of fetal damage following maternal infection is highest in the first trimester (90%) which is reduced as the pregnancy progresses and is very uncommon after the 20th week.¹ Refer to the Disease-Specific Chapter for Rubella, congenital syndrome.

3.2 Diagnosis

See [Appendix B](#) for diagnostic criteria relevant to the Case Definitions.

For further information about human diagnostic testing, contact the Public Health Ontario Laboratories or refer to the Public Health Ontario Laboratory Services webpage: <http://www.publichealthontario.ca/en/ServicesAndTools/LaboratoryServices/Pages/default.aspx>

4.0 Epidemiology

4.1 Occurrence

Worldwide, rubella occurs primarily in unimmunized groups and outbreaks are most frequent in late winter and early spring.²

Immunization was introduced in Canada in 1969 and since the mid-1970s incidence in Canada has remained relatively low.

Canada, as well as the Americas, have successfully eliminated transmission of rubella virus and CRS. Endemic transmission of rubella has been interrupted by high vaccine coverage as a part of routine infant and childhood immunization programs. The last indigenous case of rubella was reported in Canada in 2005.

The incidence of rubella has declined in Ontario since a two-dose MMR immunization program was introduced in 1996. Between 2013 and 2017 two cases were reported.*

Please refer to Public Health Ontario's (PHO) Reportable Disease Trends in Ontario reporting tool and other reports for the most up-to-date information on infectious disease trends in Ontario.

<http://www.publichealthontario.ca/en/DataAndAnalytics/Pages/DataReports.aspx>

For additional national and international epidemiological information, please refer to the Public Health Agency of Canada and the World Health Organization.

4.2 Reservoir

Humans.¹

* Data included in the epidemiological summary are from January 1, 2013 to December 31, 2017. Data were extracted from Query on February 7, 2018 and therefore are considered preliminary.

4.3 Modes of Transmission

Person to person via direct or droplet contact from nasopharyngeal secretions. Infants with congenital rubella syndrome may shed virus for up to one year after birth.¹

4.4 Incubation Period

From 14-21 days.¹

4.5 Period of Communicability

The rubella virus is very contagious and transmission can occur one week before and at least four days after the appearance of the rash. Infants with CRS may shed virus for up to one year after birth,¹ refer to the Disease-Specific Chapter on Rubella, congenital syndrome.

4.6 Host Susceptibility and Resistance

Rubella-susceptible persons are all individuals who have not received at least one dose of rubella-containing vaccine. Immunity is usually permanent after immunization and natural infection.¹

5.0 Reporting Requirements

Ontario is currently documenting the elimination of rubella and is involved in enhanced surveillance for this disease. Any confirmed or probable case of rubella identified by the public health unit should be reported immediately via telephone to PHO.

As part of elimination documentation, it is essential to document travel history and other exposure history to assess the source of infection, as well as immunization status, on every rubella case.

As per Requirement #3 of the “Reporting of Infectious Diseases” section of the *Infectious Diseases Protocol, 2018* (or as current), the minimum data elements to be reported for each case are specified in the following:

- *Ontario Regulation 569* (Reports) under the *Health Protection and Promotion Act* (HPPA);³
- The iPHIS User Guides published by PHO; and
- Bulletins and directives issued by PHO.

6.0 Prevention and Control Measures

In the event that publicly funded vaccine doses are needed for case and contact management, the public health unit should contact the Ministry of Health and Long-Term Care’s (ministry) immunization program at vaccine.program@ontario.ca as soon as possible.

6.1 Personal Prevention Measures

Immunize as per the current *Publicly Funded Immunization Schedules for Ontario*.⁴

In Ontario, the *Immunization of School Pupils Act* (ISPA) is the legislation that governs the immunization of school pupils for the designated diseases included in the Act. All students without a valid exemption must have documented receipt of one dose of rubella containing vaccine.⁵

In Ontario, the *Child Care and Early Years Act, 2014* (CCEYA) is the legislation that governs licensed child care settings. Pursuant to *Ontario Regulation 137/15* under the CCEYA, children who are not in school and who are attending licensed child care settings must be immunized as recommended by the local medical officer of health prior to being admitted. Under the CCEYA parents can provide a medical reason as to why the child should not be immunized or object to immunization on religious/conscience grounds.⁶

Control of rubella infection is needed primarily to prevent infection in susceptible pregnant females and congenital rubella syndrome.¹ Educate women of childbearing years about the importance of knowing their rubella immunization status. Screening of all pregnant women is recommended to determine susceptibility to rubella and facilitate post-partum immunization of susceptible women. This is important especially for adolescent females and women who have emigrated from countries where rubella is still endemic.²

6.2 Infection Prevention and Control Strategies

Hospitals should obtain documented proof of immunity to rubella as a condition of employment for reasons of patient safety as per the Rubella Surveillance Protocol for Ontario Hospitals.⁷

For hospitalized cases, in addition to routine practices, droplet precautions are recommended for 7 days after onset of the rash.²

Routine practices and respiratory isolation precautions are recommended for hospitalized CRS cases; only persons with documented immunity to rubella should have contact with these infants.

Refer to PHO's website at www.publichealthontario.ca to search for the most up-to-date information on Infection Prevention and Control.

6.3 Management of Cases

Confirm the diagnosis and ensure that appropriate specimens have been collected for diagnosis according to Appendix B.

In addition to the requirements set out in the Requirement #2 of the "Management of Infectious Diseases – Sporadic Cases" and "Investigation and Management of Infectious Diseases Outbreaks" sections of the *Infectious Diseases Protocol, 2018* (or as current), the board of health shall investigate cases to determine the source of

infection. Refer to Section 5: Reporting Requirements above for relevant data to be collected during case investigation.

Advise case to avoid contact with pregnant females; and exclude from work, school and other activities for 7 days from the onset of the rash.^{1,2}

There is no specific treatment for rubella infection.¹

6.4 Management of Contacts

Contact identification and tracing:

- Contact history during period of communicability;
- Assessment of type of contact and probability of transmission;
- Identification of contacts for follow-up and determine immunization status of contacts;
- Occupation of contact; and
- Residency/attendance at a facility or institution.

A contact of a rubella case is any susceptible person who has had close contact with the case during the period of communicability.

Transmission is via droplet spread and direct contact with infected persons.

Nasopharyngeal secretions are infectious as well as the urine of CRS infants.²

Contact management:

- Pregnant contacts should be advised to consult with their physician promptly to confirm rubella susceptibility status and where this is negative, perform serology to determine if infected. Routine use of immunoglobulin for susceptible women exposed to rubella early in pregnancy is not recommended;⁸
- Assess immunization status of identified contacts and immunize where appropriate;
- Alert contacts about signs and symptoms; and
- Advise contact to seek medical attention upon symptom onset and inform the local board of health.

6.5 Management of Outbreaks

Given rubella elimination from Canada, one case is considered an outbreak. However, given the communicability of rubella, clusters of cases can occur.

Please see the *Infectious Diseases Protocol, 2018* (or as current) for the public health management of outbreaks or clusters in order to identify the source of illness, manage the outbreak and limit secondary spread.

7.0 References

1. Heymann DL, editor. Control of Communicable Diseases Manual. 20 ed. Washington, D.C: American Public Health Association; 2015.

2. Committee on Infectious Diseases, American Academy of Pediatrics. Section 3: Summaries of Infectious Diseases: Rubella. In: Kimberlin DW, Brady MT, Jackson MA, Long SS, editors. Red Book: 2018 Report of the Committee on Infectious Diseases. 31 ed. Itasca, IL: American Academy of Pediatrics; 2018.
3. Health Protection and Promotion Act, R.S.O. 1990, Reg. 569, Reports, (2018). Available from: <https://www.ontario.ca/laws/regulation/900569>
4. Ontario, Ministry of Health and Long-Term Care. Publicly Funded Immunization Schedules for Ontario: December 2016. Toronto, ON: Queen's Printer for Ontario; 2016. Available from: <http://www.health.gov.on.ca/en/pro/programs/immunization/schedule.aspx>
5. Immunization of School Pupils Act, R.S.O. 1990, c.I.1, (2018). Available from: <https://www.ontario.ca/laws/statute/90i01>
6. Child Care and Early Years Act, 2014, S.O. 2014, c. 11, Sched. 1, (2018). Available from: <https://www.ontario.ca/laws/statute/14c11>
7. Ontario Hospital Association, Ontario Medical Association. Rubella Surveillance Protocol for Ontario Hospitals. Toronto, ON: Ontario Hospital Association; 2017. Available from: <https://www.oha.com/labour-relations-and-human-resources/health-and-safety/communicable-diseases-surveillance-protocols>
8. National Advisory Committee on Immunization, Public Health Agency of Canada. Part 4- Active Vaccines: Rubella Vaccine. 2016. In: Canadian Immunization Guide [Internet]. Evergreen ed. Canadian Immunization Guide: Her Majesty the Queen in Right of Canada, [cited April 30, 2018]. Available from: <https://www.canada.ca/en/public-health/services/publications/healthy-living/canadian-immunization-guide-part-4-active-vaccines.html?page=7>

8.0 Document History

Table 1: History of Revisions

Revision Date	Document Section	Description of Revisions
January 2013	General	<p>New template.</p> <p>Title of Section 4.6 changed from “Susceptibility and Resistance” to “Host Susceptibility and Resistance”</p> <p>Title of Section 5.2 changed from “To Public Health Division (PHD)” to “To the Ministry of Health and Long-Term Care (the ministry) or Public Health Ontario (PHO), as specified by the ministry”</p> <p>Section 9.0 Document History added.</p>

Revision Date	Document Section	Description of Revisions
January 2013	2.2 Outbreak Case Definition	<p>Addition of first two paragraphs:</p> <ul style="list-style-type: none"> • Rubella is not an endemic disease in Canada... • Public health units should notify PHO... <p>Third paragraph changed from “The outbreak case definition varies with the outbreak under investigation. Consideration should be given to...” to “The outbreak case definition varies with the outbreak under investigation. The outbreak case definition should be created in consideration of the provincial surveillance case definition; for example, confirmed outbreak cases should at a minimum meet the criteria specified for the provincial surveillance confirmed case classification. Consideration should be given to...”</p> <p>Addition of bullet # 5 in third paragraph: Further strain typing as appropriate...</p>
January 2013	3.2 Clinical Presentation	Entire section revised.
January 2013	4.1 Occurrence	<p>Addition of third paragraph: Canada, as well as the Americas, has made great progress in its goal of rubella elimination...</p> <p>Addition of fifth paragraph: For more information on infectious diseases activity in Ontario, refer to the current version of the annual provincial epidemiology report...</p>
January 2013	4.4 Incubation Period	Changed from “From 14-17 days, with a range of 14-21 days” to “From 14-21 days.”
January 2013	4.5 Period of Communicability	Changed from “For about 1 week before onset and at least 4 days after onset of rash, sometimes 5-7 days after onset of rash; rubella is a highly communicable infection” to “The rubella virus is very contagious and transmission can occur 1 week before and at least 4 days after the appearance of the rash. Infants with CRS may shed virus for months after birth”

Revision Date	Document Section	Description of Revisions
January 2013	4.6 Host Susceptibility and Resistance	First sentence changed from “Unimmunized individuals are susceptible to infection” to “Rubella-susceptible persons are all individuals who have not received at least one dose of rubella-containing vaccine.”
January 2013	5.2 To the Ministry of Health and Long-Term Care (the ministry) or Public Health Ontario (PHO), as specified by the ministry	<p>First paragraph changed from “The local health unit shall notify the PHD by phone as soon as possible after receiving a report of a suspect or probable case of Rubella, and after ruling out any other similar illness. Report only case classifications specified in the case definition to PHD” to “Ontario is currently documenting the elimination of rubella and is involved in enhanced surveillance for this disease. Any confirmed or probable case of rubella identified by the public health unit should be reported via telephone to PHO, as specified by the ministry, within one (1) business day of receipt of initial notification”</p> <p>Addition of third paragraph: “As part of elimination documentation, it is essential to document...”</p> <p>Final paragraph: Changed from “The disease-specific User Guides published by the ministry; and, Bulletins and directives issued by the ministry” to “The disease-specific User Guides published by PHO; and, Bulletins and directives issued by PHO”</p>
January 2013	6.1 Personal Prevention Measures	Entire section revised.

Revision Date	Document Section	Description of Revisions
January 2013	6.2 Infection Prevention and Control Strategies	First paragraph changed from “Healthcare workers should provide proof of immunity prior to employment to protect all susceptible health care workers” to “Hospitals should obtain documented proof of immunity to rubella as a condition of employment for reasons of patient safety as per the Rubella Surveillance Protocol for Ontario Hospitals” Addition of third paragraph: “Routine practices and respiratory isolation precautions are recommended for hospitalized CRS cases...”
January 2013	6.3 Management of Cases	Entire section revised.
January 2013	6.4 Management of Contacts	Entire section revised.
January 2013	6.5 Management of Outbreaks	Second sentence of first paragraph changed from “Provide public health management of outbreaks or clusters in order to identify the source of illness, stop the outbreak and limit secondary spread” to “Given rubella elimination from Canada, one case is considered an outbreak. However, given the communicability of rubella, clusters of cases can occur. The Public Health Division of the ministry and PHO provide support in the management of an outbreak...”
January 2013	7.0 References	Updated.
January 2013	8.0 Additional Resources	Updated
February 2019	General	Minor revisions were made to support the regulation change to Diseases of Public Health Significance. Common text included in all Disease Specific chapters: Surveillance Case Definition, Outbreak Case Definition, Diagnosis, Reporting Requirements, Management of Cases, Management of Contacts and Management of Outbreaks. The epidemiology section and references were updated and Section 8.0 Additional Resources was deleted.

Revision Date	Document Section	Description of Revisions
February 2019	6.0 Prevention and Control Measures	Updates regarding the ordering of publicly funded vaccines for case and contact management.
February 2019	6.1 Personal Prevention Measures	Updates to information on <i>Immunization of School Pupils Act</i> and <i>Child Care and Early Years Act</i> .

