Ministry of Health and Long-Term Care

Infectious Diseases Protocol

Appendix A: Disease-Specific Chapters

Chapter: Group B Streptococcal disease, neonatal

Effective: February 2019

Ontario

Group B Streptococcal disease, neonatal

☐ Communicable

☐ Virulent

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

1.0 Aetiologic Agent

Group B *streptococci* (GBS) (*Streptococcus agalactiae*) are gram-positive cocci, which are the most common cause of sepsis and meningitis in "at risk" newborns.[1]

2.0 Case Definition

2.1 Surveillance Case Definition

Refer to Appendix B for Case Definitions.

2.2 Outbreak Case Definition

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

Two distinct forms of illness can occur:[1]

- Early onset disease (1 – 7 days after birth) presents with sepsis, respiratory disease, apnea, shock, pneumonia and meningitis.
- Late onset disease (≥7 days to several months after birth) presents with sepsis and meningitis, however **note that only illness up to 28 days after birth is reportable.**

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

Approximately 10-30% of pregnant women harbour GBS in the genital tract and approximately 1% develop symptomatic infection.[1]

In Ontario, the number of cases have fluctuated in recent years but overall tend to remain steady, with a similar number of cases reported among males and females. Between 2013 and 2017, an average of 51 cases of GBS was reported each year.*

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; commonly found in the gastrointestinal, reproductive, and urinary tracts; less commonly in the pharynx.[1,2]

4.3 Modes of Transmission

Early onset transmission occurs via the infected birth canal as well as in utero. Late onset transmission can also be through person to person contact.[1]

4.4 Incubation Period

For early onset disease, the incubation period is from 1-7 days, presenting most frequently within the first 24 hours of life. The incubation period for late onset GBS disease in infants is unknown, as it can occur from ≥ 7 days to several months, but typically within 3-4 weeks.[2]

* 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.

4.5 Period of Communicability

Group B *streptococci* are transmissible to infants during labour if the mother is colonized, however, a negative vaginal culture at the time of labour does not guarantee absence of colonization.[2]

The period of communicability is unknown but can extend throughout the duration of colonization or disease. Infants can remain colonized for several months after birth and after treatment for systemic infections.[2]

4.6 Host Susceptibility and Resistance

Neonates are universally susceptible; risk is greater among premature babies.[1]

Recurrent GBS disease affects an estimated 1% to 3% of appropriately treated infants.[2]

5.0 Reporting Requirements

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

6.1 Personal Prevention Measures

Prenatal screening for GBS is carried out by the clinician providing prenatal care. There are clinical recommendations for the use of intravenous antibiotics, at the onset and throughout labour, to women who are colonized with GBS, and those who are at high risk of delivering an infected infant (which may include other conditions such as premature labour, premature rupture of membranes, intra-partum fever, prolonged rupture of membranes). The antibiotics aim to interrupt transmission of GBS to newborns and to decrease infection and mortality.[1] For more information regarding the practice of obstetrics and gynaecology, please refer to https://sogc.org/about-sogc.html.

6.2 Infection Prevention and Control Strategies

Nosocomial transmission of GBS has been identified related to improper infection prevention and control practices in delivery rooms and nurseries. Ensure routine practices are followed during hospitalization.[4]

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

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. Treatment is under the direction of the attending health care provider.

6.4 Management of Contacts

Not applicable for individual cases with the exception of outbreaks of GBS.

6.5 Management of Outbreaks

Outbreaks of GBS have been found to occur through nosocomial transmission. In the instance of a GBS outbreak in newborns, investigation of contacts and source of infection should be completed.

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: Group B Streptococcal Infections. 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 Agency for Health Protection and Promotion Provincial Infectious Diseases Advisory Committee. Routine Practices and Additional Precautions in All Health Care Settings. Toronto, ON: Queen's Printer for Ontario; 2012. Available from: https://www.publichealthontario.ca/en/BrowseByTopic/InfectiousDiseases/PIDAC /Pages/Routine_Practices_Additional_Precautions.aspx

8.0 Document History

Table 1: History of Revisions

Revision Date	Document Section	Description of Revisions
January 2014	General	New template. Title of Section 3.5 changed from "Susceptibility and Resistance" to "Host Susceptibility and Resistance" Title of Section 4.2 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" Section 8.0 Document History added.
January 2014	1.2 Outbreak Case Definition	Entire section revised.
January 2014	2.1 Clinical Presentation	First paragraph, second bullet changed from "Late onset disease (7 days to several months after birth)" to "Late onset disease (≥7 days to several months after birth)"
January 2014	2.2 Diagnosis	Addition of direction to contact Public Health Ontario Laboratories or PHO website for additional information on human diagnostic testing.
January 2014	3.1 Occurrence	Second paragraph, addition of second sentence "Between 2007 and 2011…" Addition of third paragraph.
January 2014	3.3 Modes of Transmission	Addition of second sentence "Late onset transmission can also be through person to person contact."

Revision Date	Document Section	Description of Revisions
January 2014	3.4 Incubation Period	First sentence changed from “For early onset disease, the incubation period is from 1-3 days; disease is apparent at birth and the majority are apparent in the first 24 hours of life.” to “For early onset disease, the incubation period is from 1-7days, presenting most frequently within the first 24 hours of life.” Addition of second sentence “The incubation period…”
January 2014	5.1 Personal Prevention Measures	Entire section revised.
January 2014	5.2 Infection Prevention and Control Strategies	Entire section revised.
January 2014	5.3 Management of Cases	Entire section revised.
January 2014	5.4 Management of Contacts	First sentence “Not applicable” addition of “…for individual cases with the exception of outbreaks of GBS.”
January 2014	5.5 Management of Outbreaks	Entire section revised.
January 2014	6.0 References	Updated.
January 2014	7.0 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, and Management of Outbreaks. The epidemiology section and references were updated and Section 8.0 Additional Resources was deleted.
February 2019	4.5 Period of Communicability	Paragraph two added.

Revision Date	Document Section	Description of Revisions
February 2019	4.6 Host Susceptibility and Resistance	Added sentence, “Recurrent GBS disease affects an estimated 1% to 3% of appropriately treated infants.”


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