Respiratory and Direct Contact

Neonatal Group B *Streptococcus*

Notification Timeline:

From Lab/Practitioner to Public Health: Immediate.
From Public Health to Ministry of Health: Within 2 weeks.

Public Health Follow-up Timeline: Within 72 hours.

Information

Case Definition (Public Health Agency of Canada, May 2008)

Confirmed Case	Clinical illness[1] in an infant less than 1 month of age with laboratory confirmation of infection: • isolation of group B *Streptococcus* (*Streptococcus agalactiae*) from a normally sterile site (such as blood or cerebrospinal fluid) **OR** • demonstration of group B *Streptococcus* DNA in a normally sterile site.
Probable Case	Clinical illness[1] in an infant less than 1 month of age with laboratory confirmation of infection: • detection of group B *Streptococcus* antigen in a normally sterile site.

[1]There are two forms of clinical illness; early onset disease (1-7 days), characterized by sepsis, respiratory distress, apnea, shock, pneumonia, and meningitis; and late onset (7 days to 1 month), characterized by sepsis and meningitis.

Even though the case definition is for infants < 1 month, follow-up of infants between 1 to 3 months may be considered.

Causative Agent

Streptococcus agalactiae, group B *Streptococcus* (GBS).

Symptoms

There are 2 distinct forms:

- Early-onset disease – lethargy, poor feeding, jaundice, fever, grunting respirations and other signs of respiratory distress, pallor and hypotension. Respiratory distress is usually present at or within a few hours after birth. Diagnosed as sepsis, pneumonia and less frequently meningitis, osteomyelitis or septic arthritis. It is acquired in utero or during delivery; low-birth weight, premature infants are more susceptible.

- Late-onset disease – lethargy, poor feeding, irritability and fever. Diagnosed as sepsis and meningitis and, less frequently, bone and joint infections.

Incubation Period

- Early-onset – 1 to 7 days.
- Late-onset – 7 days to 1 month.

Reservoir/Source

Humans. Heymann (2008) says about 10-30% of pregnant women harbour group B streptococci in the genital tract, and about 1-2% of their offspring may develop symptomatic infection.

Mode of Transmission

- Early-onset is acquired in utero or during delivery.
- Late-onset is acquired through person-to-person contact and occurs in full-term infants.
- Nosocomial transmission may occur if appropriate infection prevention and control measures are not taken.

Risk Factors/Risk Group

The American Academy of Pediatrics (2009) indicates that the risk for GBS is increased in the following:

- maternal age younger than 20 years;
- previous baby with GBS disease;
- urinary tract infection due to GBS during the pregnancy;
- GBS carriage late in pregnancy;
- maternal temperature of 38 degrees Celsius or higher during labour;
- rupture of membranes 18 hours or more before delivery;
- preterm infants born at less than 37 weeks gestation.

Period of Communicability

The administration of intravenous antibiotics (generally penicillin) to women colonized with group B streptococci at the onset and throughout labour interrupts transmission to newborn infants, decreasing infection and mortality. (This is consistent with Society of Obstetricians and Gynaecologists of Canada Guidelines, Jan 2007.)

Specimen Collection and Transport

- Take a vaginal and rectal swab for culture at 35-37 weeks gestation. Cultures collected earlier do not accurately predict whether a woman will have GBS at delivery.
- For diagnosis in a neonate, culture of sterile fluid (blood or CSF) is required.

Methods of Control/Role of Investigator

Prevention and Education

There are limited effective primary prevention strategies for the early onset form of this disease. Refer to the Respiratory and Direct Contact Introduction and General Considerations section of the manual that highlights topics for client education that should be considered as well as provides information on high-risk groups and activities. Prevention of the late onset form of this disease is best accommodated via handwashing.

Studies that looked at screening versus risk-based approach found that risk of early-onset disease was significantly lower among the infants of screened women compared to those in the risk-based approach. As such, pregnant women are to be tested late in pregnancy (35-37 weeks) to determine whether or not they are positive for GBS, so they can be treated during labour.

Intrapartum therapy of women with positive screenings and certain other risk factors has been found to be the most effective in preventing neonatal GBS disease (Dobson & Money, 2004).

Immunization

Immunization strategies have been researched for many years, but currently, there is no vaccine for group B *Streptococcus*.

Education

- Prenatal education of high risk mothers about screening and intrapartum treatment.
- Physicians should be aware of the need for testing of pregnant women and appropriate treatment of the women who screen positive.

Management

I. Case

History

See Risk Factors/Risk Groups above.

Immunization

Not applicable.

Treatment/Supportive Therapy

- Treatment choices are governed by the most recent guidelines. The public health practitioner should direct any questions regarding the current treatment protocols to the physician or Medical Health Officer. See Appendix H – Sources for Clinical Treatment Guidelines.
- See Attachment – Recommendations for Prevention and Management of Neonatal Group B *Streptococcus*.

Exclusion

Not applicable.

Referrals

15-30% of survivors of group B streptococcal meningitis have permanent neurologic sequelae (hearing/vision loss or learning disabilities). Referral by physician to appropriate disciplines.

II. Contacts/Contact Investigation

Contact Definition

No contact tracing is required**.**

Testing

Test only if symptomatic.

Prophylaxis/Immunization

Not applicable.

Exclusion
Not applicable.

III. Environment

Child Care Centres/Institutional Control Measures
Neonatal nurseries – hand hygiene is the best way to prevent the spread to other infants (American Academy of Pediatrics, 2009).

Epidemic Measures

- Contact precautions and cohorting of ill and colonized infants is recommended during an outbreak.
- Epidemiologic evaluation of late-onset cases in a special care nursery may be required to determine a common source and prevent spread to others.

References

American Academy of Pediatrics. (2009). *Red book: 2009 Report of the Committee on Infectious Diseases* (28th ed.). Elk Grove Village, IL: Author.

Dobson, S. & Money, D. (2004). The prevention of early-onset neonatal group B streptococcal disease. *Journal of Obstetric and Gynecology Canada, 26(9)*, 826-32, September 2004. Retrieved August, 2011 from http://www.sogc.org/guidelines/public/149E-CPG-September2004.pdf.

Heymann, D. L. (Ed.). (2008). *Control of communicable diseases manual* (19th ed.). Washington, DC: American Public Health Association.

Public Health Agency of Canada. (2008). Case definitions for communicable diseases under national surveillance. *Canada Communicable Disease Report (CCDR*), *35S2*, November 2009. Retrieved August, 2011 from http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/09vol35/35s2/Strep_B-eng.php.

Neonatal Group B *Streptococcus*
Attachment – Recommendations for Prevention and Management of Neonatal Group B *Streptococcus*

The following are recommendations for pregnant women (Society of Obstetricians and Gynaecologists of Canada [SOGC], 2004):

1. Offer all women screening for group B *streptococcus* (GBS) disease at 35 to 37 weeks' gestation with culture done from one swab first to the vagina then to the rectal area.
2. Treat the following women intrapartum at time of labour or rupture of membranes with IV antibiotics:
    - all women positive by GBS culture screening done at 35 to 37 weeks;
    - any women with an infant previously infected with GBS;
    - any women with documented GBS bacteriuria (regardless of level of colony-forming units per mL) in this pregnancy.
3. Treat women at less than 37 weeks' gestation with IV antibiotics unless there has been a negative GBS vaginal/rectal swab culture within 5 weeks.
4. Treat women with intrapartum fever with IV antibiotics (i.e., chorioamnionitis must be treated, but broader spectrum antibiotics would be advised).
5. If a woman is GBS-positive by culture screening or by history of bacteriuria, with prelabour rupture of membranes at term, treat with GBS antibiotic prophylaxis and initiate induction of labour with IV oxytocin.
6. If GBS culture result is unknown and the woman has ruptured membranes at term for greater than 18 hours, treat with GBS antibiotic prophylaxis.

Neonatal Management (SOGC, 2004)

1. Infants delivered by women who have received intrapartum antibiotics at least 4 hours before delivery, do not need a septic workup. These infants should be observed in hospital for the first 24 hours for signs of infection, but do not need additional therapy or investigations.
2. Infants who appear well despite their mothers being GBS colonized and not receiving adequate antibiotics (< 4 hours) should be observed for 48 hours and evaluated or treated if signs of sepsis develop.
3. Infants of mothers with chorioamnionitis should undergo a diagnostic evaluation for sepsis and be treated with antibiotics. (Sepsis workup includes a complete blood-cell count and differential, blood culture, and chest radiograph, including a lumbar puncture if feasible.)