

Group A Streptococcal Disease, Invasive

Reporting Obligations

Group A Streptococcal Disease, Invasive is designated as a disease of public health significance and is reportable under the *Ontario Health Protection and Promotion Act*. Report all suspect and confirmed cases **immediately by phone** to the health unit.

Epidemiology

Aetiologic Agent:

Invasive Group A Streptococcal (iGAS) disease is caused by the gram-positive B-hemolytic bacterium, *Streptococcus pyogenes* (*S. pyogenes*). More than 100 distinct M-protein serotypes of *S. pyogenes* have been identified.

Clinical Presentation:

The most common clinical presentations for invasive group A streptococci are skin or soft tissue infections, bacteremia with no septic focus, pneumonia, streptococcal toxic shock syndrome (STSS) and necrotizing fasciitis (NF). *Streptococcus pyogenes* may colonize the throat of individuals (carriers) without symptoms and may be passed from person to person.

Symptoms may be vague and include pain of unusual severity, swelling, fever, chills, influenza-like symptoms, generalized muscle aches, generalized macular rash, bullae, nausea, vomiting, diarrhea, malaise, or joint pain.

Symptoms of NF and myositis include fever, and a red painful swelling of tissue, which spreads rapidly. Death may occur in 12-24 hours.

Symptoms of STSS include the primary site of GAS and or NF, plus hypotension, adult respiratory distress syndrome, renal impairment, rapid onset of shock and multi organ failure.

Modes of transmission:

Transmission is generally person to person most commonly by:

- Droplet spread; direct or indirect contact of the oral or nasal mucus membranes or non-intact skin with infectious respiratory secretions or with exudates from wounds or skin lesions; sharing of contaminated needles

Incubation Period:

Usually 1 – 3 days.

Period of Communicability:

In untreated uncomplicated cases, 10-21 days; in untreated conditions with purulent discharges, weeks or months. With adequate treatment, transmissibility generally ends within 24 hours. Persons with untreated streptococcal pharyngitis may carry the organism for weeks or months, but infectivity decreases in 2-3 weeks after onset of infection.

Risk Factors/Susceptibility

The risk of iGAS disease is associated with several underlying conditions including HIV infection, cancer, heart disease, diabetes, lung disease and alcohol abuse. Older individuals, persons with chronic diseases, persons in institutions and pregnant women also appear to be at higher risk of invasive GAS.

Many persons who acquire iGAS infection have no underlying disease. Varicella is the most commonly identified risk factor in children, and close contacts of persons with invasive GAS are at higher risk of infection.

Invasive GAS is most commonly seen in Ontario among adults greater than 65 years of age, followed by children less than 1 year of age. Invasive GAS follows a seasonal pattern, with cases occurring more frequently in the late winter and throughout the spring.

Diagnosis & Laboratory Testing

Laboratory confirmation includes isolation of Group A Streptococcus from a normally sterile site (e.g., blood, cerebrospinal fluid, joint, pleural, pericardial fluid) with or without clinical evidence of severity OR Isolation of *Group A Streptococcus* from a non-sterile site (e.g., skin) with clinical evidence of severity.

TESTING INFORMATION & REQUISITION

Treatment & Case Management

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

Routine infection prevention and control practices, as well as contact and droplet precautions should be in effect until 24 hours after appropriate treatment is started.

Individuals with confirmed streptococcal pharyngitis, especially school aged children should remain at home until at least 24 hours after beginning appropriate antimicrobial therapy.

Close contacts are defined as: household contacts of a case who have spent at least 4 hours/day on average with the case in the previous 7 days; non-household persons who have shared the same bed with the case; persons who have had direct mucous membrane contact or unprotected direct contact with an open skin lesion of the case; injection drug users who have shared needles with the case.

Chemoprophylaxis is recommended for close contacts of a case of invasive disease with evidence of severity such as in Streptococcal Toxic Shock Syndrome, soft tissue necrosis, meningitis, pneumonia or death. **All close contacts will be notified by Public Health staff.**

See the Public Health Agency of Canada's recommended chemoprophylaxis regimens for close contacts in table 6.

Patient Information

PATIENT FACT SHEET

References

1. Ontario. Ministry of Health. *Infectious Diseases Protocol, Appendix 1: Group A Streptococcus*. Toronto: Queen's Printer for Ontario; 2022 [effective 2024 Jan] [cited 2024 Mar 12].

Additional Resources

1. PHAC. *Guidelines for the Prevention and Control of Invasive Group A Streptococcal Disease*. CDR 2006;32S2:1-26. [cited 2024 Mar 12].
2. OHA. *Communicable Disease Surveillance Protocol Guide; 2023*.
3. Heymann, D.L. *Control of Communicable Disease Manual* (21st Ed.). Washington, American Public Health Association, 2022.
4. SMDHU HealthSTATS: *Invasive Group A Streptococcus*
5. PHO. *Group A Streptococcal Disease, Invasive (iGAS)*. Dec 2022.