Appendix B: Provincial Case Definitions for Diseases of Public Health Significance

Disease: Group A Streptococcal Disease, invasive (iGAS)

Effective: February 2019
Group A Streptococcal Disease, invasive (iGAS)

1.0 Provincial Reporting
Confirmed cases of disease

2.0 Type of Surveillance
Case-by-case

3.0 Case Classification

3.1 Confirmed Case
- Isolation of Group A Streptococcus (*Streptococcus pyogenes*) or deoxyribonucleic acid (DNA) detection by nucleic acid amplification test (NAAT) from a normally sterile site (e.g., blood, cerebrospinal fluid, joint, pleural, pericardial fluid) with or without evidence of clinical severity,
  OR
- Isolation of Group A Streptococcus from a non-sterile site (e.g., skin) with evidence of severity.

4.0 Laboratory Evidence

4.1 Laboratory Confirmation
Any of the following will constitute a confirmed case of invasive Group A Streptococcal (iGAS) Disease:
- Positive Group A Streptococcus culture from a normally sterile site (e.g., blood, cerebrospinal fluid, joint, pleural, pericardial fluid);
- Positive Group A Streptococcus culture from a non-sterile site (e.g., skin) with evidence of severity (refer to section 5.0 below);
- Positive NAAT for *Streptococcus pyogenes* from a normally sterile site

4.2 Approved/Validated Tests
- Standard culture with serogrouping for Group A Streptococcus.
- NAAT for *Streptococcus pyogenes* DNA.
4.3 Indications and Limitations

- Isolates from iGAS cases should be forwarded to the Public Health Ontario Laboratory for further characterization.
- Once confirmed that the isolate is GAS (24-48hrs from the day specimens are received) all specimens are then forwarded to the National Microbiology Laboratory (NML) for EMM typing. Outbreak specimens are given priority and sent to NML as soon as cultures are confirmed as GAS (Pulsed-Field Gel Electrophoresis (PFGE) is done on outbreak isolates at Public Health Ontario Laboratory). Turn-around-time for NML varies between 2-4 weeks. NML may be able to expedite testing, if the clinical circumstances warrant this. **Note:** NML receives all iGAS specimens throughout Canada, as such, special request must be discussed with, and done by Public Health Ontario Laboratory.

5.0 Clinical Evidence

Evidence of severe invasive disease may be manifested as several conditions. The following are considered evidence of severe invasive disease:

- Streptococcal toxic-shock syndrome (STSS) which is characterized by hypotension (systolic blood pressure ≤ 90 mm Hg in adults or < 5th percentile for age for children) and at least two (2) of the following signs:
  - renal impairment (creatinine ≥ 177 μmol/L for adults);
  - coagulopathy (platelet count ≤ 100,000 mm³ or disseminated intravascular coagulation);
  - liver function abnormality (AST [SGOT], ALT [SGPT] , or total bilirubin ≥ 2x upper limit of normal for age);
  - adult respiratory distress syndrome (ARDS);
  - generalized erythematous macular rash that may desquamate.
  
  **OR**

- Soft-tissue necrosis,* including necrotizing fasciitis or myositis or gangrene;
  
  **OR**

- Meningitis;
  
  **OR**

- Death;
  
  **OR**

- A combination of any of these conditions.

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* Soft-tissue necrosis should not include chronic soft-tissue necrosis/gangrene, or acute or chronic cellulitis. Soft-tissue necrosis should be acute in nature and deeper than the skin (e.g., necrotizing fasciitis, myositis and gangrene), as determined by the clinician.
6.0 ICD 10 Code(s)
A40.0 Septicaemia due to group A streptococcus
A49.1 Streptococcal infection, unspecified
B95.0 Group A Streptococcus as the cause of diseases classified elsewhere, e.g.:
   A48.3 Toxic shock syndrome
   O85 Puerperal sepsis
   M72.6 Necrotizing fasciitis
   M00 Pyogenic arthritis
   G00.2 Streptococcal meningitis

7.0 Sources

8.0 Document History

Table 1: History of Revisions

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<td>March 2017</td>
<td>General</td>
<td>New Template</td>
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<tr>
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<td>1.0 Provincial Reporting</td>
<td>Removal of “…and probable…”</td>
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<td>4.1 Laboratory Confirmation</td>
<td>Addition of “… (e.g., skin) and “…with evidence of severity (refer to section 5.0 below)” to the second bullet point. Removal of “See section 3.1 and 5” from the second…”</td>
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<td>5.0 Evidence of Severity</td>
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<td>9.0 Document History</td>
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<tr>
<td>February 2019</td>
<td>General</td>
<td>Minor revisions were made to support the regulation change to Diseases of Public Health Significance.</td>
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