Notification Timeline:

From Lab/Practitioner to Public Health: Immediate.

From Public Health to Ministry of Health: Immediate.

Public Health Follow-up Timeline: Immediate.

Public Health Purpose for Notification of invasive Group A Streptococcal (iGAS) Disease (adapted from Health Protection Surveillance Center

- To measure the burden of iGAS, identify populations at increased risk and provide a basis for epidemiologic studies;
- To ensure early detection of clusters/outbreaks of iGAS so effective control measures can be implemented;
- To prevent mortality and serious morbidity from iGAS through contact tracing and initiation of chemoprophylaxis;
- To monitor trends in iGAS;
- To monitor the effectiveness of prevention and control measures;
- To inform health care planning; to support ongoing research into sources, transmission, risk factors, pathogenesis and control of iGAS; and
- To inform the public and medical community about iGAS.

Surveillance Case Definition[1] (Public Health Agency of Canada, 2008)

Confirmed case	Laboratory confirmation of infection with or without clinical evidence of invasive disease:* • isolation of group A streptococcus (*Streptococcus pyogenes*) from a normally sterile site (blood, cerebrospinal fluid (CSF), pleural fluid, pericardial fluid, peritoneal fluid, deep tissue specimen taken during surgery [e.g., muscle collected during debridement for necrotizing fasciitis], bone or joint fluid excluding the middle ear and superficial wound aspirates [e.g., skin and soft tissue abscesses^]).

[1] Surveillance case definitions ensure uniform reporting to allow comparability of surveillance data. The definition is not intended to be used for clinical or laboratory diagnosis or management of cases.

Probable case	Clinical evidence of invasive disease* in the absence of another identified etiology and with non-confirmatory laboratory evidence of infection: • isolation of group A streptococcus from a non-sterile site **OR** • positive group A streptococcus antigen detection.
*****Clinical evidence of invasive disease may be manifested as one or more of several conditions. These include: a) Streptococcal Toxic Shock Syndrome (STSS), which is characterized by hypotension (systolic blood pressure ≤ 90 mmHg in adults or < 5th percentile for age for children) and at least two of the following signs: i. Renal impairment (creatinine level ≥ 177 µmol/L for adults). ii. Coagulopathy (platelet count ≤ 100,000/mm3 or disseminated intravascular coagulation). iii. Liver function abnormality (SGOT [AST], SGPT [ALT], or total bilirubin ≥ 2x upper limit of normal). iv. Adult respiratory distress syndrome (ARDS). v. Generalized erythematous macular rash that may desquamate. b) Soft-tissue necrosis, including necrotizing fasciitis, myositis or gangrene. c) Meningitis.	
^ Wounds are not considered a sterile site with the exception of isolation of group A streptococcus (GAS) and the presence of necrotizing fasciitis and/or STSS.	

Pneumonia with isolation of GAS from a sterile site, or from a bronchoalveolar lavage (BAL) when no other cause has been identified, should be regarded as a form of invasive disease for the purposes of public health management; however, as BAL does not provide a sterile site specimen, the latter would not meet the national case definition and would not be nationally notifiable.

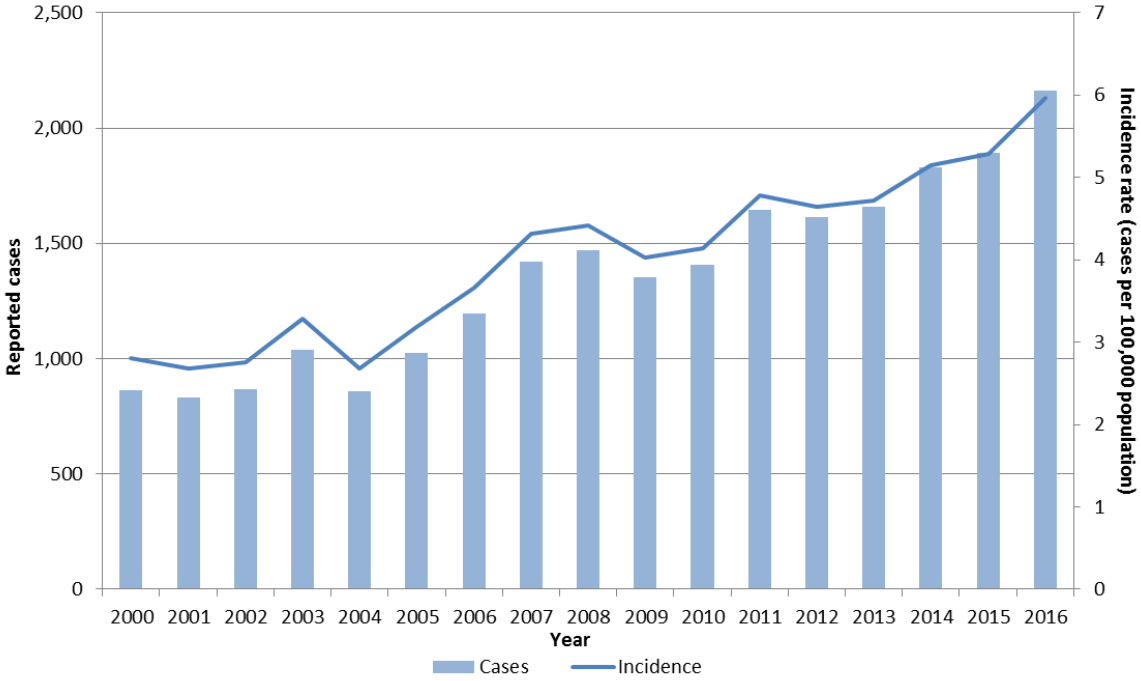
Epidemiology and Occurrence

iGAS in Canada[2]

Figure 1 shows the number of cases and incidence rates of iGAS reported to the Canadian Notifiable Disease Surveillance System from 2000 to 2016. The graph shows the steady increase in the incidence rate of iGAS; doubling between 2004 (2.7/100 000) and 2016 (6.0/100,000).

[2] National Epidemiologic Summary as of February 28, 2018

Figure 1. Number of cases and incidence rates of iGAS in Canada by year, 2000-2016



iGAS in Saskatchewan[3]

Figure 2 shows the number of cases and incidence rates of iGAS in Saskatchewan between 2004-2017. The upsurge in 2008, which was seen across the most westerly provinces and was related to Indigenous people, was not sustained over the following years.

Starting in 2013, a gradual increase in the iGAS trend was noted in Saskatchewan with a doubling of cases by 2017. No definitive reason has been established for this upward trend other than it reflects an upward trend reported in other Canadian provinces.

[3] Saskatchewan Ministry of Health (2018)

Figure 2. Number of cases and incidence rates of iGAS in Saskatchewan, 2004-2017

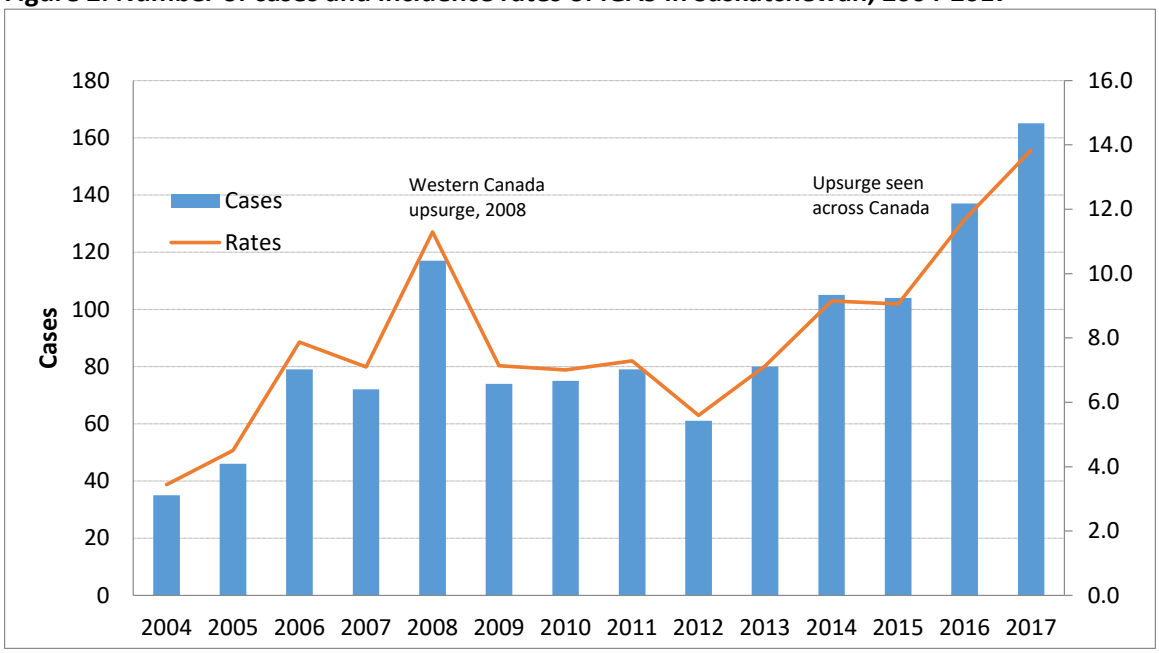
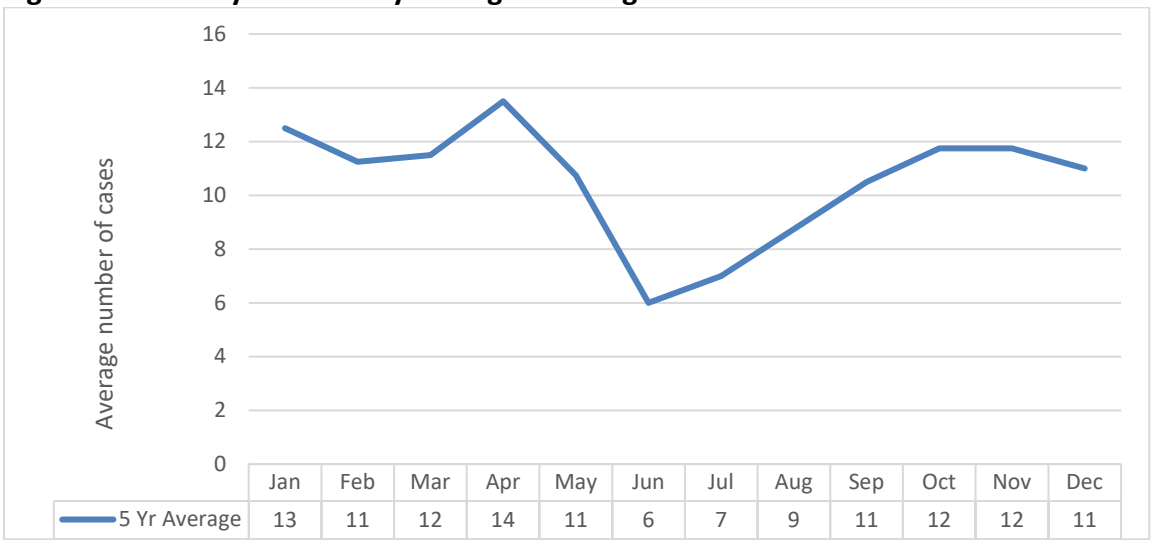


Figure 3 demonstrates the seasonal impacts and a lower incidence in the summer months when there is less crowding of individuals.

Figure 3. iGAS 5-year monthly average showing seasonal variation



	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
5 Yr Average	13	11	12	14	11	6	7	9	11	12	12	11

Additional Background Information

Causative Agent

Group A streptococcus – *Streptococcus pyogenes,* a gram-positive coccus.

Symptoms

- Early signs and symptoms of necrotizing fasciitis include: fever, severe pain, redness and swelling at the site of wound.
- Symptoms of STSS may include pain (abrupt in onset and severe), pneumonia, acute myocardial infarction, or pericarditis, fever, chills, myalgia, nausea, vomiting, diarrhea, confusion, clinical signs of soft tissue infection (localized swelling and erythema).
- Clinical evidence for STSS is outlined in the case definition, above.
- Refer to clinical textbooks for symptoms of other clinical presentations related to GAS (meningitis, etc.).

Reservoir/Source

Humans.

Incubation Period

The incubation period of iGAS infection has not been determined (Public Health Agency of Canada, 2006).

Period of Communicability

The specified period of infectivity of the index case is:

- 7 days prior to the onset of illness, until 24 hours after the start of treatment.

Mode of Transmission

- Large respiratory droplets.
- Direct person to person contact with patient and or carrier.

Risk Groups/Risk Factors
GAS infection can occur in anyone but risk of iGAS is significantly associated with the following:

- chronic conditions (HIV infection, cancer, heart disease, diabetes, lung disease);
- alcohol abuse;
- injection drug use;
- varicella;
- crowded living conditions;
- suboptimal hygiene practices;
- immunosuppressive therapy;
- elderly (65 years and older);
- systemic steroid use;
- Aboriginal persons.

Specimen Collection and Transport
To confirm the diagnosis of GAS, specimens should be cultured from:

- a sterile site (e.g., blood, CSF, joint fluid) or;
- an aspirate from a non-sterile site, in individuals with clinical signs of hypotension and/or invasive disease such as necrotizing fasciitis.

All GAS isolates from iGAS disease are to be sent to the Roy Romanow Provincial Laboratory (RRPL) for typing and screening for toxin genes. Characterization of the organism (emm type, whole genome sequencing) becomes important for monitoring virulence or identifying transmission patterns.

Public Health Investigation

I. Case

Refer to Attachment – Invasive Group A Streptococcal Disease Data Collection Worksheet to assist.

History

- Presentation of illness and for severity of disease.
- Health conditions that may render the individual more susceptible to invasive disease (see Risk Factors).
- Contact details - refer to Attachment - Contact Follow-up Form in the Respiratory and Direct Contact Introduction and General Considerations section.

Public Health Interventions

Assessment

- Assess for contacts as per Table 1.

Communication

- When clients are hospitalized, communication with hospital staff and or infection control staff is important.

Education

- All cases should be provided disease information as well as information on prevention and control measures including period of communicability.

Exclusion and Isolation

- Individuals are communicable until at least 24 hours after antibiotics are started.
- Strict enforcement of standard infection control practices including contact and droplet precautions. Refer to local Infection Control Manuals.

Immunization

- There is no immunization for GAS.
- If the case has any risk factors, they may be eligible for other immunizations. If not up-to-date, offer vaccines as appropriate.

Referrals

- Inform clients that supportive services (physiotherapy, occupational therapy, Home Care) are available if necessary. Refer client to primary caregiver for referrals.
- Consultation with the Medical Health Officer (MHO) may be required to determine if chemoprophylaxis is to be offered to contacts.

Treatment/Supportive Therapy

- For patient management, the client's physician is to consult an infectious disease specialist.
- Antibiotic treatment is required.
- Client may need to be hospitalized.
- In the case of necrotizing fasciitis, surgical intervention may be required.

II. Contacts/Contact Investigation

Contact Definition/Categorization

Table 1. Definition of Close Contacts
• Household contacts of a case who has spent at least 4 hours/day on average in the previous 7 days or 20 hours/week with the case. • Non-household persons who share the same bed with the case or had sexual relations with the case. • Persons who have had direct mucous membrane contact with the oral or nasal secretions of a case (e.g., mouth-to-mouth resuscitation, open mouth kissing) or direct contact with an open skin lesion of the case. • Injection drug users who have shared needles with the case.

Source: Guidelines for the Prevention and Control of Invasive Group A Streptococcal Disease, 2006.

In order to be considered a close contact, there must have been exposure to the case during the period of communicability (see above). School classmates (kindergarten and older), work colleagues, as well as social or sports contacts of a case are not usually considered close contacts, unless they fit into one of the above categories.

Public Health Interventions

Assessment

- Assess for symptoms.
- Assess for risk factors.

Education

All close contacts (irrespective of whether prophylaxis is given of confirmed cases of severe disease should be alerted to signs and symptoms of iGAS disease, and be advised to seek medical attention immediately should they develop febrile illness or any other clinical manifestations of GAS infection within 30 days of diagnosis in the index case.

Chemoprophylaxis

- Chemoprophylaxis is used to prevent disease in colonized individuals and in those who have recently been exposed, thereby decreasing transmission of a strain known to cause severe infection.
- **NOTE:** Chemoprophylaxis should only be offered to close contacts of a confirmed severe case (cases of STSS, soft-tissue necrosis including necrotizing fasciitis, myositis, or gangrene, meningitis, GAS pneumonia or other life-threatening conditions) or a confirmed case resulting in death (Public Health Agency of Canada, 2006).
- Chemoprophylaxis is not routinely recommended for contacts of cases that are not severe (i.e., bacteremia or septic arthritis). These cases often have milder disease

than those with invasive disease. Their contacts are also likely to have milder disease as well since there is consistency in type and severity of disease with particular strains of GAS.

- Refer to contact definition for listing of those who require prophylaxis. A close contact will be given prophylaxis if they were in contact with the case during the period of communicability (noted above).
- Even though the incubation period is not known, most subsequent cases occur within 7 days after last contact with an infectious case (Public Health Agency of Canada, 2006). Close contacts should ideally be given antibiotics within 24 hours of case identification; however it is still advisable for up to 7 days. The benefits of starting prophylaxis should be discussed with the MHO if it is beyond 7 days of last contact with the infectious case.
- Refer to Attachment - Recommended Chemoprophylaxis Regimens for Close Contacts.

Testing

- Not routinely done – Refer to Attachment - Investigation and Control Approaches for Long Term Care Facilities for the screening procedures for instances in long term care[4] (LTC) facilities.

Exclusion

- No need to exclude contacts from day care, school or work.

III. Environment

Table 2. Impetus for Action for Organization-based Outbreaks or Clusters	
Long-term care facility	▪ An incidence rate of culture-confirmed GAS infections > 1 per 100 residents per month, OR ▪ At least 2 cases of culture-confirmed infection in one month in facilities with less than 200 residents, OR ▪ An incidence rate of suspected GAS infections of > 4 per 100 residents per month.
Child care centre	▪ One severe case of iGAS disease in a child attending a child care centre.
Hospital	▪ One or more linked invasive or non-invasive GAS cases in either patients or staff occurring within one month of an iGAS case (see Annex 3 – National Guidelines, Oct 2006).

Source: Adapted from Guidelines for the Prevention and Control of Invasive Group A Streptococcal Disease, 2006.

[4] Adapted from Guidelines for the Prevention and Control of Invasive Group A Streptococcal Disease, October 2006.

Child Care Centre Control Measures

- Although outbreaks of iGAS disease occurring among children attending a child care centre are rare, when a case occurs the following needs to occur:
    - strict enforcement of standard infection control practices – refer to the Saskatchewan Ministry of Health Infection Control Manual for Child Care Facilities;[5]
    - details of the Child Care Centre (size, attendees, etc.) should be collected.

Institutional Control Measures

- Residents of LTC facilities are at increased risk of morbidity and mortality due to iGAS disease because of their older age and higher prevalence of underlying conditions.
- Strict enforcement of standard infection control practices including contact and droplet precautions are required. Refer to Local Infection Control Manual. In LTC facility outbreaks, the implicated strain is usually widespread within the facility and limited provision of chemoprophylaxis to close contacts is not the optimal approach. Refer to Attachment - Investigation and Control Approaches for Long Term Care Facilities for detailed information regarding investigation and control approaches that may be useful.

IV. Epidemic Measures

- Determine source and manner of spread.
- Investigate promptly the extent of the exposure.
- If there is exposure of groups like schools, LTCs, daycare centres, it may be necessary to administer preventative antimicrobial therapy to the whole group.
- Consider extensive consultation with various specialties including: infectious disease, laboratory medicine, Saskatchewan Ministry of Health, others as appropriate.

Prevention Measures

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 individuals and environments.

[5] http://www.saskatchewan.ca/live/births-deaths-marriages-and-divorces/starting-a-family/early-learning-and-child-care/child-care.

Education

- Good hygiene, especially hand washing is important to prevent the spread of bacteria.
- Provide information sheet, Attachment - Invasive Group A Streptococcal Disease.
- Non-severe cases will be dealt with on a case-by-case basis in consultation with the MHO.

Revisions

Date	Change
September 2018	• Updated to align with Panorama configuration • Incorporated the purpose for notification of cases to public health • Provided clarification in the case definition on the limited applicability of specimens from wounds. • Incorporated an Epidemiology and Occurrence section to the chapter. • Rearranged and updated the style into the new format of the Manual. • References reaffirmed or updated as necessary.

References

Health Protection Surveillance Centre (2006). The management of invasive group A streptococcal infections in Ireland. Retrieved June, 2018 from https://www.hpsc.ie/a-z/other/groupastreptococcaldiseasegas/publications/File,2080,en.pdf

Public Health Agency of Canada. (2006). Guidelines for the prevention and control of invasive group A streptococcal disease. *Canada Communicable Disease Report (CCDR), 32S2,* October 2006. Retrieved June, 2018 from http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/06vol32/32s2/index-eng.php.

Public Health Agency of Canada. (2008). Case definitions for communicable diseases under national surveillance. *Canada Communicable Disease Report (CCDR), 35S2,* November 2009. Retrieved June, 2018 from http://www.phac-aspc.gc.ca/publicat/ccdr-rmtc/09vol35/35s2/Strep_A-eng.php.

Government of Saskatchewan

Streptococcal Invasive Disease (group A) Data Collection Worksheet

PANORAMA

Please complete **all** sections.

Panorama QA complete: ☐ **Yes** ☐ **No**
Initials:

Panorama Client ID: _____
Panorama Investigation ID: _____

A) CLIENT INFORMATION

LHN -> SUBJECT -> CLIENT DETAILS -> PERSONAL INFORMATION

Last Name:	First Name: and Middle Name:	Alternate Name (Goes by):
DOB: YYYY / MM / DD Age: _____	Health Card Province: _____ Health Card Number (PHN): _____	Preferred Communication Method: (specify - i.e. home phone, text): Email Address: ☐ Work ☐ Personal
Phone #: ☐ Primary Home: ☐ Mobile contact: ☐ Workplace:		
Place of Employment/School:	Gender: ☐ Male ☐ Female ☐ Other ☐ Unknown	
Alternate Contact: _____ Relationship: _____ Alt. Contact phone: _____	Address Type: ☐ No fixed ☐ Postal Address ☐ Primary Home ☐ Temporary ☐ Legal Land Description Mailing (Postal address): Street Address or FN Community (Primary Home): Address at time of infection (if not the same):	

B) INVESTIGATION INFORMATION

SUBJECT SUMMARY->RESPIRATORY & DIRECT CONTACT ENCOUNTER GROUP->CREATE INVESTIGATION

Disease Summary Classification: CASE	**Date**	***Classification: CONTACT***	***Date***	***LAB TEST INFORMATION:***
☐ Confirmed	YYYY / MM / DD	☐ *Contact*	*YYYY / MM / DD*	*Date specimen collected:*
☐ Does Not Meet Case Definition	YYYY / MM / DD	☐ *Not a Contact*	*YYYY / MM / DD*	*YYYY / MM / DD*
☐ Person Under Investigation	YYYY / MM / DD	☐ *Person Under Investigation*	*YYYY / MM / DD*	*Specimen type:*
☐ Probable	YYYY / MM / DD			☐ *Blood* ☐ *CSF* ☐ *Other*

Disposition:

FOLLOW UP:

☐ In progress	YYYY / MM / DD	☐ Complete	YYYY / MM / DD
☐ Incomplete - Declined	YYYY / MM / DD	☐ Not required	YYYY / MM / DD
☐ Incomplete – Lost contact	YYYY / MM / DD	☐ Referred – Out of province (specify where)	YYYY / MM / DD
☐ Incomplete – Unable to locate	YYYY / MM / DD		

REPORTING NOTIFICATION Name of Attending Physician or Nurse**:**	Location:
Physician/Nurse Phone number:	Date Received (Public Health): YYYY / MM / DD
Type of Reporting Source: ☐ Health Care Facility ☐ Lab Report ☐ Nurse Practitioner ☐ Physician ☐ Other_____	

Streptococcal Invasive Disease (group A) Data Collection Worksheet

Please complete **all** sections.

Panorama Client ID: _____
Panorama Investigation ID: _____

C) SIGNS & SYMPTOMS *(Bold text = part of case definition)*

LHN-> INVESTIGATION->SIGNS & SYMPTOMS

Description	No	Yes – Date of onset	Description	No	Yes - Date of onset
Acute respiratory distress syndrome (ARDS) - CXR/CT*		YYYY / MM / DD	**Muscle inflammation (myositis)**		YYYY / MM / DD
Arthritis - septic		YYYY / MM / DD	Necrosis - skin and tissue		YYYY / MM / DD
Cardiac - myocardial infarction		YYYY / MM / DD	**Necrotizing fasciitis**		YYYY / MM / DD
Cellulitis		YYYY / MM / DD	Confusion		YYYY / MM / DD
Chills		YYYY / MM / DD	Pain - severe		YYYY / MM / DD
Fever		YYYY / MM / DD	Cardiac - pericarditis		YYYY / MM / DD
Gangrene		YYYY / MM / DD	Pharyngitis (sore throat)		YYYY / MM / DD
Hypotension*		YYYY / MM / DD	Pneumonia		YYYY / MM / DD
Infection - soft tissue		YYYY / MM / DD	**Rash - erythematous macular ***		YYYY / MM / DD
Infection - wound		YYYY / MM / DD	**Renal impairment *** (refer to CDC Manual for parameters)		YYYY / MM / DD
Lab - liver function abnormality* (refer to CDC Manual for parameters)		YYYY / MM / DD	**Sepsis (e.g. bacteremia, septicemia, etc.)**		YYYY / MM / DD
Lab - platelet count low* (refer to CDC Manual for parameters)		YYYY / MM / DD	Skin - pain and swelling		YYYY / MM / DD
Meningitis		YYYY / MM / DD	**Streptococcal toxic shock syndrome (STSS)** Includes hypotension and 2 or more of the S/S with an *		YYYY / MM / DD
Other s/s					

D) INCUBATION AND COMMUNICABILITY

LHN-> INVESTIGATION->INCUBATION & COMMUNICABILITY

Communicability for Case (period for transmission):
Earliest Possible Communicability Date: YYYY / MM / DD **Latest Possible Communicability Date**: YYYY / MM / DD

Communicability Calculation Details:

E) RISK FACTORS (RF followed by + impact the Immunization Forecaster)

LHN-> SUBJECT->RISK FACTORS

DESCRIPTION	YES	N – No NA – not asked U - Unknown	DESCRIPTION	YES	N – No NA – not asked U - Unknown
Chronic Medical Condition - Cardiac Disease +			**Medical Risk Factor** - Varicella	YYYY / MM / DD	
Chronic Medical Condition - Diabetes Mellitus +			**Medical Treatment** - Surgery/surgical wound	YYYY / MM / DD	
Chronic Medical Condition - Liver disease +			**Setting** - Crowded living conditions (>1 person per room excluding bathrooms)		
Chronic Medical Condition - Lung disease +			**Special Population** – Homeless +		
Chronic Medical Condition - Renal disease +			**Special Population** - Lives in a communal setting		
Contact to a known case (Add'l Info)	YYYY / MM / DD		**Special Population** - LTC Facility +		

Streptococcal Invasive Disease (group A) Data Collection Worksheet

Please complete **all** sections.

Panorama Client ID: _____
Panorama Investigation ID: _____

DESCRIPTION	YES	N – No NA – not asked U - Unknown	DESCRIPTION	YES	N – No NA – not asked U - Unknown
Immunocompromised - HIV +			**Special Population** - Self-reported Indigenous identity		
Immunocompromised - Related to underlying disease or treatment			**Substance Use** - Alcohol		
Medical Risk Factor - Postpartum			**Substance Use** - Injection drug use (including steroids) +		
Medical Risk Factor History of injury (Add'l Info)	YYYY / MM / DD		Travel - Outside of Canada (Add'l Info)	YYYY / MM / DD	
Medical Risk Factor - Skin infection or dermatological condition	YYYY / MM / DD		Travel -Outside of Saskatchewan, but within Canada (Add'l Info)	YYYY / MM / DD	

F) TREATMENT

INVESTIGATION-> MEDICATIONS->MEDICATIONS SUMMARY

Medication *(Panorama = Other Meds) :* _____

Prescribed by:_____ Started on: YYYY / MM / DD

G) INTERVENTIONS

INVESTIGATION->TREATMENT & INTERVENTIONS->INTERVENTION SUMMARY

Intervention Type and Sub Type:

Assessment:
☐ Assessed for contacts YYYY / MM / DD
Investigator name

Education/counselling: Investigator name
☐ Prevention/Control measures YYYY / MM / DD
☐ Disease information provided YYYY / MM / DD

Communication:
☐ Phone call attempted (day) YYYY / MM / DD
☐ Phone call attempted (evening) YYYY / MM / DD
☐ Home visit attempted YYYY / MM / DD
☐ Letter sent YYYY / MM / DD
☐ Text message sent YYYY / MM / DD
☐ Other communication (See Investigator Notes) YYYY / MM / DD
☐ Letter (See Document Management) YYYY / MM / DD
Investigator name

Immunization:
☐ Eligible Immunization(s) recommended YYYY / MM / DD
Investigator name

Isolation:
☐ Facility isolation YYYY / MM / DD ☐ Home isolation YYYY/MM/ DD
Investigator name

Referral
☐ Consult with MHO YYYY / MM / DD
Investigator name

General: Investigator name
☐ Disease-Info/Prev-Control YYYY/ MM / DD
☐ Disease-Info/Prev-Cont/Assess'd for Contacts YYYY/ MM / DD

Other Investigation Findings:
☐ Investigator Notes YYYY / MM / DD
☐ Document Management

Date	Intervention subtype	Comments	Next follow-up Date	Initials
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	
YYYY / MM / DD			YYYY / MM / DD	

Streptococcal Invasive Disease (group A) Data Collection Worksheet

Please complete **all** sections.

Panorama Client ID: ___________
Panorama Investigation ID: ___________

H) OUTCOMES LHN-> INVESTIGATION-> OUTCOMES

☐ Not yet recovered/recovering	YYYY / MM / DD	☐ ICU/intensive medical care	YYYY / MM / DD	☐ Hospitalization	YYYY / MM / DD
☐ Recovered	YYYY / MM / DD	☐ Intubation /ventilation	YYYY / MM / DD	☐ Unknown	YYYY / MM / DD
☐ Fatal	YYYY / MM / DD	☐ Other ___________________	YYYY / MM / DD		

Cause of Death: (if Fatal was selected) ____________________________

I) Transmission Events LHN -> INVESTIGATION-> EXPOSURE SUMMARY -> TRANSMISSION EVENT SUMMARY -> QUICK ENTRY

Transmission Event ID (system-generated can be documented below	**Exposure Name**	**Setting type** (Select the most appropriate setting for the TE; if >1 select multiple settings will be entered into Panorama)	**Date/Time**	**# of contacts**
		☐ Childcare worker/attendee ☐ Health care setting ☐ Household ☐ Sexual exposure ☐ Type of community contact ☐ Congregate/communal living setting		
		☐ Childcare worker/attendee ☐ Health care setting ☐ Household ☐ Sexual exposure ☐ Type of community contact ☐ Congregate/communal living setting		
		☐ Childcare worker/attendee ☐ Health care setting ☐ Household ☐ Sexual exposure ☐ Type of community contact ☐ Congregate/communal living setting		
		☐ Childcare worker/attendee ☐ Health care setting ☐ Household ☐ Sexual exposure ☐ Type of community contact ☐ Congregate/communal living setting		
	iGAS Contacts – Inv ID# _____	☐ Multiple Settings	YYYY / MM / DD to YYYY / MM / DD	

J) TOTAL NUMBER OF CONTACTS
LHN -> INVESTIGATION-> EXPOSURE SUMMARY -> TRANSMISSION EVENT SUMMARY -> TE HYPERLINK -> UNKNOWN/ANONYMOUS CONTACTS

Anonymous contacts:________ (total number of individuals exposed)

Initial Report completed by:		**Date initial report completed:** YYYY / MM / DD

Drug	Dosage	Comments
First line - First generation cephalosporins: cephalexin, cephadroxil, cephradine	Children and adults: 25 to 50 mg/kg/day, **to a maximum of 1 g/day**, in 2 to 4 divided doses x 10 days	Recommended drug for pregnant and lactating women. Should be used with caution in patients with allergy to penicillin. Use of cephalosporins with nephrotoxic drugs (e.g. aminoglycosides, vancomycin) may increase the risk of cephalosporin-induced nephrotoxicity.
Second line - Erythromycin	Children: 5 to 7.5 mg/kg every 6 hours or 10 to 15 mg/kg every 12 hours (base) x 10 days (**to a maximum of the adult dose**) Adults: 500 mg every 12 hours (base) x 10 days	Erythromycin estolate is contraindicated in persons with pre-existing liver disease or dysfunction and during pregnancy. Sensitivity testing is recommended in areas where macrolide resistance is unknown or known to be ≥10%.
Second line - Clarithromycin	Children: 15 mg/kg/day in divided doses every 12 hours (**to a maximum of the adult dose)** Adults: 250 mg po bid x 10 days	Contraindicated in pregnancy. Sensitivity testing is recommended in areas where macrolide resistance is unknown or known to be ≥10%.
Second line - Clindamycin	Children: 8 to 16 mg/kg/day divided into 3 or 4 equal doses x 10 days (**to a maximum of the adult dose)** Adults: 150 mg every 6 hours x 10 days	Alternative for persons who are unable to tolerate beta-lactam antibiotics.

Source: Guidelines for the Prevention and Control of Invasive Group A Streptococcal Disease, 2006

All prophylactic regimes are administered orally and taken for 10 days.

Note: All persons who receive chemoprophylaxis should watch for signs and symptoms of invasive GAS disease, for 30 days after the diagnosis of invasive disease in the index patient.

Background

Residents of LTC facilities are at increased risk of morbidity and mortality due to iGAS disease because of their older age and higher prevalence of underlying conditions. When a culture-confirmed case of iGAS disease occurs in a LTC facility, there is a 38% likelihood that a second positive blood culture-confirmed case of the same strain will be detected in the facility within six weeks. A number of outbreaks of iGAS infections have been documented in LTC facilities. Infection is often spread through person-to-person contact, with clustering of cases by room or care unit in some instances. Staff may be a source of or conduit of infection either through poor infection control practices or asymptomatic carriage. However, hospital staff who are carriers are more likely to be the source of infection in outbreaks in acute care facilities, whereas outbreaks in LTC facilities are more often patient-propagated. In LTC facility outbreaks, the implicated strain is usually widespread within the facility and limited provision of chemoprophylaxis to close contacts is not the optimal approach.

Procedure

In addition to strict enforcement of standard infection control practices, the following approach may be useful in the investigation and control of iGAS disease in LTC facilities:

1. When a confirmed case of iGAS disease occurs in a LTC facility such as a nursing home, the facility should:
    a. Report the case to the local Medical Health Officer (MHO) or designate.
    b. Review the facility's nosocomial infection reports, for the previous 4 to 6 weeks, for culture-confirmed cases of GAS disease and cases of skin and soft tissue infections (e.g., pharyngitis and cellulitis). An excess of GAS infection and clinically compatible illness, or LTC facility outbreak, is defined in Table 2 Impetus for Action for Organization-based Outbreaks or Clusters.
    c. Assess the potential for a source of infection from outside the facility (e.g., regular visits from children who have recently been ill).

2. If an excess of GAS infection is identified, the following actions should be considered:
    a. Consult the local Infection Control Practitioner/MHO/CD Epidemiologist team, as to the most practical approach. This could comprise the concentric-circles approach, (i.e., begin screening the closest contacts and extending the investigation from there).
    b. Anyone colonized with GAS should receive chemoprophylaxis.
    c. Non-patient care staff[1] should be asked about possible recent GAS infections. Those with a positive history should be screened for GAS and those persons positive should be treated with antibiotics.
        - 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 MHO. Refer to Heymann and other texts and clinical treatment guidelines for specific treatment details. See Appendix H - Sources for Clinical Treatment Guidelines.
    d. All GAS isolates should have further typing. This should be coordinated through the MHO and the Saskatchewan Disease Control Lab (SDCL). Culturing for a test of cure is recommended for individuals found to have the outbreak-related strain. Culturing for a test of cure is not necessary for individuals infected with a non-outbreak-related strain of GAS.
    e. Re-screen all GAS positive residents and staff including their throat and skin lesion(s) 14 days after the treatment has been started. If this screen is positive, the individual should be retreated with antibiotics and re-screened in 14 days. If still colonized, discontinue treatment unless the facility has an ongoing problem with GAS infection.
    f. Active surveillance for GAS infection should be initiated and continued for 1 to 2 months as determined by the local outbreak team.
    g. Appropriate specimens should be taken for culture to rule out GAS when suspected infections are detected by active surveillance.
3. If no excess is identified, especially if there is evidence of an outside source of infection for the index case, then active surveillance alone for 2 to 4 weeks to ensure the absence of additional cases is warranted.

[1] This includes maintenance and housekeeping staff for example.