NC Department of Health and Human Services

Group A Strep Overview

SHARPPS Program, NC Division of Public Health
April 2023
Outline

• Background
  • Epidemiology
  • Transmission
  • Control measures

• Response
  • Reportable cases
  • Postpartum and postsurgical cases
  • Cases in LTCFs
  • Wound care

• Resources
Group A Strep Background
**Epidemiology**

- Estimated 20,000 – 25,000 cases of invasive GAS in the US annually, resulting in 1,800-2,300 deaths\(^1\)
- Elderly populations have the highest risk of invasive GAS infection and death\(^2\)
- Older adults in LTCFs have a 6x greater risk of disease and 1.5x greater risk of death than older adults in the community\(^2\)

2. Invasive Group A Streptococcal Infection in Older Adults in Long-term Care Facilities and the Community, United States, 1998–2003 - Volume 13, Number 12—December 2007 - Emerging Infectious Diseases journal - CDC
Epidemiology

Invasive GAS Outbreaks in North Carolina

- 2016: 4
- 2017: 19
- 2018: 7
- 2019: 7
- 2020: 5
- 2021: 5
- 2022: 7
Strep terminology

• Strep species are classified by Lancefield group and hemolysis type
  - Hemolysis types: beta (complete hemolysis), alpha (partial hemolysis), and gamma (no hemolysis)
  - Lancefield groups classify strep species based on surface antigens
  - Not all strep species have a Lancefield group (e.g., *S. pneumoniae*)

• Group A Strep = *Streptococcus pyogenes*
  - Lancefield group A
  - Beta-hemolytic

Note: this is just for reference if you come across these terms, you don’t need to memorize this!
Clinical presentation

• Can cause multiple clinical syndromes:
  – Strep pharyngitis (strep throat)
  – Impetigo
  – Cellulitis

• Complications:
  – Post-infectious syndromes (glomerulonephritis, rheumatic heart disease)
  – Invasive disease
    • Bacteremia and sepsis
    • Necrotizing fasciitis
    • Pneumonia
    • Streptococcal toxic shock syndrome (STSS)
Risk factors for invasive disease

• Patient-level factors
  • Age
  • Living in a congregate setting, especially LTCFs
  • Breaks in the skin
    • Wounds
    • Indwelling catheters
    • IV drug use
  • Cardiovascular disease
  • Diabetes

• Healthcare factors
  • Significant nursing needs (increased contact with staff)
  • Receiving wound care
  • Staff has poor hand hygiene
  • Staff works while sick
Colonization

- Asymptomatic colonization with GAS is possible
- Testing for colonization is an essential step for investigating sentinel cases and outbreaks
- People with colonization need antibiotic treatment
  - Note: this is different from the antibiotic regimens for acute infection
Transmission and control measures

• Spread through contact with respiratory secretions or infected wounds/sores

• Control measures:
  − HAND HYGIENE!!!
  − Following wound care protocols
    • Scissors must be dedicated to a patient and cleaned and disinfected between each use, or use disposable scissors
  − Educate staff about invasive GAS so they understand the importance of staying home when sick
    • CDC guidance on excluding staff from work for GAS infection/colonization
Transmission-based precautions

- Patients with GAS infection should be placed on transmission-based precautions until **24 hours have passed since initiation of antibiotics**
- Pharyngitis and pneumonia: standard and **droplet precautions**
- Serious invasive disease (STSS, necrotizing fasciitis, sepsis): standard and **droplet precautions**
- Wound infection: standard, **contact, and droplet precautions**
  - For wounds with significant drainage, contact precautions continue until drainage stops or can be contained by a dressing
- Standard Precautions should always be taken which may mean additional PPE is needed during wound dressing changes or other patient care activities

Reference:
Treatment

- Not considered an MDRO, but resistance to erythromycin and clindamycin is increasing
- CDC classifies it as a “concerning threat”
- For 2021, ~34% of isolates were resistant, based on CDC surveillance data
Invasive GAS Reporting
Only invasive GAS is reportable

**Invasive sites (reportable)**
- Blood
- CSF
- Synovial fluid
- Pleural fluid
- Peritoneal fluid
- Bone

**Non-invasive sites (does not meet criteria)**
- Wound culture
- Abscess
- Throat culture
- Misc. tissue sample
Similar/related conditions

• Streptococcal toxic shock syndrome (STSS)
  – Reported separately from invasive GAS, details to follow

• Non-streptococcal toxic shock syndrome
  – Usually caused by *Staph aureus*
  – Always reportable
  – Separate case definition from STSS
Streptococcal toxic shock syndrome (STSS) is reported separately

• **Case definition:**
  - Hypotension (SBP < 90) AND at least two of the following:
    - Renal impairment
    - Coagulopathy
    - Liver involvement
    - Acute respiratory distress syndrome (ARDS)
    - Generalized erythematous macular rash
    - Soft-tissue necrosis

Note: streptococcal toxic shock syndrome has a different case definition from non-streptococcal toxic shock syndrome
STSS reporting tips

• For patients with severe illness, please document in the GAS event whether they meet STSS criteria or not

• We can create the STSS event, if criteria are known
  – If you do create an STSS event, please make a note in the GAS event with the STSS event number

• STSS events don’t need everything copied from the GAS event
  – STSS event should include at least:
  – Clinical findings that meet case definition
  – Lab specimen type, date, specimen ID
  – If patient was in a congregate living setting or had a healthcare exposure during the period of interest
Invasive GAS Response
Risk history package

- Please document if the patient was in a congregate living setting or had a relevant healthcare exposure during the period of interest
  - “Other” for LTCFs

- Period of interest is the 7-day window prior to disease onset
Case investigation resources

• Cases in three settings are considered sentinel events and need further follow-up
  – Postpartum
  – Postsurgical
  – LTC facilities

• For instructions on investigating cases in these settings, see the Group A Strep Toolkit in the CD Manual
Postpartum and postsurgical GAS

• Defined as invasive GAS in the 7 days following a surgery or birth

• Response to a sentinel event:
  − LHD informs facility
  − Facility conducts 6 months of retrospective surveillance, 6 months of prospective surveillance
  − Isolate is sent to State Lab
  − LHD should discuss IP procedures with facility, particularly hand hygiene and wound care

• Response to an outbreak (2+ cases in 6 months):
  − Above steps, plus:
  − Screen HCP for asymptomatic GAS carriage

Reference: Invasive Group A Strep Surveillance Duties (ncdhhs.gov)
GAS in long-term care facilities (LTCFs)

• Follow the CDC GAS Algorithm (modified for use by NC DPH) posted on the CD Manual

• Always do the following:
  – Notify the facility
  – One-month retrospective chart review for invasive GAS
  – 4 months prospective surveillance for invasive or non-invasive GAS
  – Review hand hygiene, wound care, and other IP policies with facility staff
  – Have the isolate sent to the State Lab
GAS in LTCFs: summary of GAS algorithm

• **One invasive case:**
  – Survey direct care staff for current symptoms of GAS infection, screen (by culture) symptomatic staff
  – Screen (by culture) close contacts of resident case including roommate and close social contacts
    • Sites to culture are throat, skin lesions/wounds, ostomy sites

  – One-month retrospective chart review for invasive GAS
  – 4 months prospective surveillance for invasive or non-invasive GAS
  – Review hand hygiene, wound care, and other IP policies with facility staff
  – Have the isolate sent to the State Lab
GAS in LTCFs: summary of GAS algorithm

- **Two cases** (at least one invasive)
  - Survey for symptomatic direct care staff and culture anyone with symptoms
  - Culture all residents (or affected unit/floor, if facility is very large)
  - Consider culturing asymptomatic staff with epi links to either of the cases
  - 4 months prospective surveillance for invasive or non-invasive GAS
  - Review hand hygiene, wound care, and other IP policies with facility staff
  - Have the isolate sent to the State Lab

- If there are two resident cases, a site visit is recommended. RIPS teams are available for ICAR and wound care observation

Note: Cases include both invasive and non-invasive cases. Cases must be within 4 months of previous case. **Surveillance begins with an invasive case.** Two or more cases within the surveillance period is considered an outbreak.
GAS in LTCFs: summary of GAS algorithm

• Three or more cases (at least one invasive)
  – Survey for symptomatic direct care staff and culture anyone with symptoms
  – Culture all residents (or affected unit/floor, if facility is very large)
  – Culture all staff with epi links to any of the cases

  – 4 months prospective surveillance for invasive or non-invasive GAS
  – Review hand hygiene, wound care, and other IP policies with facility staff
  – Have the isolate sent to the State Lab

• If there are two resident cases, a site visit is recommended. RIPS teams are available for ICAR and wound care observation

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Wound care

• Wound care practices are a common source of GAS transmission in LTC facilities

• Prevent opportunities for cross-contamination:

  • Dedicated wound dressing change supplies and equipment should be gathered/accessible before starting
    - Includes scissors – should be dedicated to individual resident and disinfected between each use

  • Multi-dose wound care medications (ointments, creams, cleanser) should be dedicated to a single resident whenever possible
    - If not dedicated to a single resident, a small amount of medication should be aliquoted into clean container for single-resident use
Wound care

• Gloves should be changed and hand hygiene performed when moving from dirty to clean wound care activities

• Wound care supply carts should never enter the resident’s immediate care area and should never be accessed without removing gloves and performing hand hygiene
  − Gather all supplies before starting dressing change so wound cart does not need to be accessed during procedure

• Any clean equipment that is brought into a resident’s room and not used should be dedicated to the resident or disposed of

• Reusable medical equipment and any surface in the resident’s immediate care area contaminated during a dressing change should be cleaned and disinfected
Dressing change steps

- Disinfect area where supplies will be placed (e.g., over bed table) and place trash bag nearby
- Perform hand hygiene
- Gather all necessary supplies and equipment
- Don clean gloves
- Remove tape and dressings, dispose
- Assess wound
- Remove soiled gloves and dispose, perform hand hygiene, and put on clean gloves
- Apply dressing and secure
- Dispose of all supplies
- Remove soiled gloves and dispose, perform hand hygiene
Key takeaways

• Always discard gloves, perform hand hygiene, and don new gloves when moving from dirty to clean

• Reduce opportunities for contamination by touching the wound as little as possible and preparing supplies in advance

• Dedicate reusable supplies (including scissors and multi-dose medications) to one resident whenever possible

• Wound care carts should be clean, not cluttered, and should never enter a resident’s room
## Wound care observation tool snapshot

<table>
<thead>
<tr>
<th>Elements</th>
<th>Assessment</th>
<th>Notes for Improvement</th>
</tr>
</thead>
<tbody>
<tr>
<td>All supplies are gathered before dressing change¹</td>
<td>Yes ☐</td>
<td>No ☐</td>
</tr>
<tr>
<td>HH performed before dressing change</td>
<td>Yes ☐</td>
<td>No ☐</td>
</tr>
<tr>
<td>Clean gloves donned before dressing change²</td>
<td>Yes ☐</td>
<td>No ☐</td>
</tr>
<tr>
<td>Multi-dose wound care meds are used appropriately³</td>
<td>Yes ☐</td>
<td>No ☐</td>
</tr>
<tr>
<td>Dressing change performed in manner to prevent cross-contamination⁴</td>
<td>Yes ☐</td>
<td>No ☐</td>
</tr>
<tr>
<td>Gloves removed after dressing change completed</td>
<td>Yes ☐</td>
<td>No ☐</td>
</tr>
<tr>
<td>HH performed after dressing change completed</td>
<td>Yes ☐</td>
<td>No ☐</td>
</tr>
<tr>
<td>Reusable equipment cleaned and/or disinfected appropriately⁵</td>
<td>Yes ☐</td>
<td>No ☐</td>
</tr>
<tr>
<td>Clean, unused supplies discarded or dedicated to one resident</td>
<td>Yes ☐</td>
<td>No ☐</td>
</tr>
<tr>
<td>Wound care performed/assessed regularly⁶</td>
<td>Yes ☐</td>
<td>No ☐</td>
</tr>
<tr>
<td>Wound care supply cart is clean⁷</td>
<td>Yes ☐</td>
<td>No ☐</td>
</tr>
</tbody>
</table>

¹ Note: These elements and assessments are part of the Wound Dressing Change Observation tool. Links to the tool and additional resources are provided for further information.
Resources

- Invasive GAS case definition
- STSS case definition
- GAS toolkit
- NC SPICE wound care resources:
  - Wound care observation tool
  - Webinar for LTC on Wound Care in the Elderly
    - https://spice.unc.edu/ltc-wound/