



NJDOH Guidance for Managing Group A *Streptococcus* Cases and Outbreaks in Long-term Care Facilities

Overview

Group A *Streptococcus* (GAS) infections are a serious cause of illness and death for adults 65 years of age or older in the United States. Residents of long-term care facilities (LTCFs) are particularly at risk for severe infection and death from GAS infections. Early recognition of GAS infections in LTCF residents is important as infections can rapidly progress and result in increased morbidity and mortality. Strong infection prevention and control practices are critical to stopping GAS transmission and preventing outbreaks. This guidance is applicable to the following LTCF settings: nursing homes, skilled nursing facilities, and assisted living facilities.

GAS can cause a [spectrum of syndromes](#) and severity of infections in residents of LTCFs. Infections can rapidly progress within a matter of hours to days. [Cellulitis](#) and wound infections are common types of GAS infections among older adults and residents of LTCFs; less common but more severe GAS infections may also occur.

A GAS case is defined as invasive GAS or “iGAS” when the Group A *Streptococcus* bacteria is isolated by culture from a normally sterile site, or if a wound culture is positive in a patient with necrotizing fasciitis or streptococcal toxic shock syndrome. Examples of iGAS infections may include pneumonia, bacteremia in association with cutaneous infection, deep soft tissue infection, meningitis, peritonitis, osteomyelitis, septic arthritis, postpartum or neonatal sepsis and non-focal bacteremia.

Among adults, rates of iGAS infections increase with age. iGAS-associated mortality also increases with age, with the highest rates seen among adults aged 65 years or older. Approximately 14% of people aged 65 years or older die from their invasive GAS infection.⁸

Older adults living in LTCFs are at higher risk of GAS infection and death compared to older adults living in the community. Compared to age-matched adults living in the community, residents of LTCFs have a 3- to 8-fold higher incidence of iGAS infections and are 1.5 times more likely to die from GAS infections.⁸

Common Routes of GAS Transmission in LTCFs

Once introduced into a LTCF, GAS can easily spread through multiple routes. GAS can be transmitted via residents, visitors or healthcare personnel (HCP) from an infected or colonized person through:

- Respiratory droplets
- Contact with saliva or nasal secretions.
- Contact with open sores or wounds.

Spread of GAS among residents in LTCFs has been associated with the following:

- Having a roommate who is infected or colonized with GAS
- Being cared for by the same HCP as a resident who is infected or colonized with GAS
- Residing on the same unit as a resident who is infected or colonized with GAS

GAS outbreaks in LTCFs frequently involve multiple routes of transmission and are rarely point source or common source. Multiple outbreaks have occurred in which transmission was linked to HCP with GAS pharyngitis who cared for patients while ill. Asymptomatically colonized residents and healthcare personnel can serve as sources of GAS transmission. Residents with wounds are at particular risk of developing iGAS. Contamination of the wound with GAS during provision of care may be a significant transmission factor in LTCFs.

Case and Outbreak Reporting

Reporting communicable disease cases and outbreaks serves many purposes. **The immediate goal is to control further spread of the disease.** Information gained from outbreak investigations can help healthcare facilities and public health agencies identify and eliminate infection sources, learn about emerging problems, identify carriers to mitigate their role in disease transmission, and implement new strategies for prevention within facilities. A single case of iGAS in a LTCF resident could indicate the possibility of an outbreak and requires timely public health investigation.

Reporting refers not only to the initial notification, but also to the provision of routine updates on the status of the investigation. The facility and the LHD shall be in frequent contact regarding case numbers, control measures taken, and other pertinent information. LHDs should maintain frequent communication with the NJDOH Communicable Disease Service (CDS) throughout the investigation.

The facility shall:

- Immediately contact their LHD to report all cases of iGAS and any suspected or confirmed GAS outbreak by phone. Contact information for LHD can be found at: www.localhealth.nj.gov ; and after-hours at: <https://www.nj.gov/health/lh/documents/LocalHealthDirectory.pdf>
- If LHD staff cannot be reached, the facility shall make the report by phone directly to NJDOH/CDS. Call (609) 826-5964 during business hours and (609) 392-2020 during after-hours and weekends.
- Notify the New Jersey Division of Health Facilities Evaluation and Licensing at 609-292- 0412. (This applies to Assisted Living Facilities, Assisted Living Programs, Comprehensive Personal Care Homes, Residential Health Care Facilities, and Adult and Pediatric Day Health Services Facilities ONLY.)

The LHD shall:

- Immediately notify NJDOH.

LTCF iGAS Investigation/Outbreak Definitions

iGAS Investigation/Suspect Outbreak (I#): 1 iGAS case (see Overview for iGAS case definition) identified in a LTCF resident

iGAS Outbreak (E#): ≥ 2 symptomatic cases of GAS among residents AND at least 1 of them is an iGAS case AND the illness onset dates are within 4 months of each other.

GAS Investigation in Long-Term Care Facilities

A timely and thorough investigation of iGAS infections can help to prevent further transmission in LTCFs. Given the potential to prevent additional cases and the risk of severe outcomes in this population, a facility and public health investigation is warranted for even a single case of iGAS infection in a LTCF resident.

Purpose of the investigation:

1. Identify any additional symptomatic cases among residents and staff
2. Identify and treat asymptomatic carriers
3. Assess and improve current infection control practices in the facility
4. Identify potential transmission routes

Strategies for investigating iGAS cases and outbreaks, and the associated control recommendations vary by the number and type of cases that have been identified. **An increase in cases necessitates a larger response to control the outbreak.**

1. One case – 1 case of iGAS infection
2. Two cases - 2 cases (at least 1 invasive) of GAS infection in a 4-month period
3. Three or more cases - 3 or more cases (at least 1 invasive) of GAS infection in a 4-month period

Investigating one case of iGAS infection in a LTCF resident

iGAS Investigation (I#): 1 iGAS case identified in a LTCF resident

Upon notification of a positive iGAS culture in a resident, the LHD should instruct the performing laboratory to save the GAS isolate. CDS will determine the need for emm typing and whole genome sequencing and will provide instructions for the isolate to be sent to PHEL. The LHD should advise the LTCF to do the following:

- Identify additional symptomatic cases
 - Conduct a retrospective chart review to identify any other cases of symptomatic invasive or noninvasive GAS infection among facility residents for the **one month prior to the onset of the iGAS case**. Review records for residents at LTCF, referral hospitals, and referral laboratories. Notify the LHD of any additional cases identified.
 - Survey all current residents and healthcare personnel (HCP), including consultants, for symptoms of GAS infection.
 - Culture symptomatic residents and HCP as clinically indicated. Include all symptomatic cases in the line list and report any cases to the LHD.
 - Treat symptomatic residents and HCP as clinically indicated. **Note: Recommended antibiotic regimens are listed below (p.8-9). If alternative regimens are to be used for any resident due to contraindication to preferred regimens, antibiotic susceptibility should be requested on the lab order.**
 - Maintain active surveillance for additional invasive or noninvasive cases among LTCF residents for **4 months from onset of most recent GAS case**. If another case is identified, notify the LHD and move to the algorithm for 2+ cases.
- Identify potential asymptomatic carriers

- Screen (by culture) close contacts of ill resident, including roommates and close social contacts. Sites to culture:
 - Throat
 - Skin lesions
 - Ostomy sites – gastrostomy, ileostomy, colostomy and nephrostomy. (Collection of cultures should only be performed by personnel trained in the appropriate management of these types of devices and ostomy sites).
 - Treat anyone with a positive culture with an appropriate antibiotic regimen according to CDC guidance and notify the LHD of any positive cultures.
 - After consulting CDS, asymptomatic carriers who screened positive and underwent antibiotic treatment should be re-tested by culture 7-10 days after finishing the antibiotic regimen.
- Assess infection control measures
- Review and audit HCP adherence to infection control practices:
 - Hand hygiene, preferably using alcohol-based hand rub/sanitizer
 - Appropriate selection and proper use of personal protective equipment (PPE)^d
 - use of gown and gloves during high contact care activities for residents with wounds or invasive medical devices. Also, appropriate PPE for residents with suspected or confirm GAS infection or colonization (Wound – contact and droplet precautions; throat – droplet precautions.)
 - Cleaning and disinfection of environmental surfaces and reusable wound care equipment (when not an option to use single use or dedicated equipment) according to manufacturer’s instructions for use for contact time.
 - Maintaining separation between clean and soiled equipment to prevent cross contamination
 - Dedicating multidose vials to a single patient whenever possible. If multidose vials are used for more than one patient, restrict the medication vials to a centralized medication area and do not bring them into the immediate patient treatment area (e.g., operating room, patient room/cubicle).
 - Increasing audits and observations during an outbreak

Investigating Two cases (at least 1 invasive) of iGAS infection in LTCF residents

iGAS Outbreak (E#): ≥ 2 symptomatic cases of GAS have been identified among residents AND at least 1 of them is an iGAS case AND the illness onset dates are within 4 months of each other

Upon notification of two symptomatic cases of GAS occurring within 4 months of each other, where at least one of the cases is invasive, the LHD should instruct the performing laboratory to save the GAS isolates. CDS will determine the need for emm typing and whole genome sequencing. The LHD should advise the LTCF to do the following:

- Identify additional symptomatic cases
- Conduct a retrospective chart review to identify any other cases of symptomatic invasive or noninvasive GAS infection among facility residents for the **one month prior to the onset of the first iGAS case**. Review records for residents at LTCF, referral hospitals, and referral laboratories. Notify the LHD of any additional cases identified.

- Survey all current residents and healthcare personnel (HCP), including consultants, for symptoms of GAS infection.
 - Culture symptomatic residents and HCP as clinically indicated. Include all symptomatic cases in the line list and report any cases to the LHD.
 - Treat residents and HCP as clinically indicated.
 - Maintain active surveillance for additional invasive or noninvasive cases among LTCF residents for **4 months from onset of most recent GAS case**. If another case is identified, report to the LHD and move to the algorithm for 3+ cases.
- Identify potential asymptomatic carriers
- Screen **all residents** by culture, except those treated for GAS within the last 14 days. (In situations in which all case-patients reside in a single unit, floor, or building within the LTCF, screening may be limited to residents in that unit, floor, or building. This decision will be made on a case-by-case basis in consultation between the facility infection prevention team and the health department and may take into account where cases are located within the facility, the size and layout of the facility, and the mobility of patients with GAS infection or asymptomatic carriage). Sites to culture for residents:
 - Throat
 - Skin lesions
 - Ostomy sites - gastrostomy, ileostomy, colostomy and nephrostomy. (Collection of cultures should only be performed by personnel trained in the appropriate management of these types of devices and ostomy sites).
 - Consider screening **epidemiologically linked HCP** by culture, except those treated for GAS within the last 14 days. Sites to culture for HCP:
 - Throat
 - Skin lesions
 - Notify the LHD of screening plans, as well as of any positive results and treatment regimens used.
 - Treat anyone with a positive culture with an antibiotic regimen per CDC guidelines for GAS eradication. **Note: Recommended antibiotic regimens are listed below (p.8-9). If alternative regimens are to be used for any resident due to contraindication to preferred regimens, antibiotic susceptibility should be requested on the lab order.**
 - After consulting CDS, asymptomatic carriers who screened positive and underwent antibiotic treatment should be re-tested by culture 7-10 days after finishing the antibiotic regimen.
- Assess infection control measures
- Review and audit HCP adherence to infection control practices.
 - Hand hygiene, preferably using alcohol-based hand rub/sanitizer
 - Appropriate selection and proper use of personal protective equipment (PPE)^d
 - Cleaning and disinfection of environmental surfaces and reusable wound care equipment
 - Maintaining separation between clean and soiled equipment to prevent cross contamination
 - Dedicating multidose vials to a single patient whenever possible. If multidose vials are used for more than one patient, restrict the medication vials to a centralized medication

area and do not bring them into the immediate patient treatment area (e.g., operating room, patient room/cubicle).

- Review and audit infection control practices for wound care and respiratory care.
 - Educate HCP on signs and symptoms of GAS infection.
 - Educate HCP on the importance of not working while ill.
 - Review sick leave policies.
- Conduct an epidemiologic and laboratory investigation
- Investigate potential linkages between cases, including close contacts (roommates and close social contacts) and HCP.
 - Labs should be asked to store any positive cultures for iGAS or GAS and LHDs should work with CDS to send these isolates to PHEL for emm typing and whole genome sequencing.

Investigating 3+ cases (at least 1 invasive) of iGAS infection in LTCF residents

Upon notification of three or more symptomatic cases of GAS occurring within 4 months of each other, where at least one of the cases is invasive, the LHD should instruct the performing laboratory to save the GAS isolates. CDS will determine the need for emm typing and whole genome sequencing. The LHD should advise the LTCF to do the following:

- Identify additional symptomatic cases
- Conduct a retrospective chart review to identify any other cases of symptomatic invasive or noninvasive GAS infection among facility residents for the **one month prior to the onset of the first iGAS case**. Review records for residents at LTCF, referral hospitals, and referral laboratories. Notify the LHD of any additional cases identified.
 - Survey all current residents and healthcare personnel (HCP), including consultants, for symptoms of GAS infection.
 - Culture symptomatic residents and HCP as clinically indicated. Include all symptomatic cases in the line list and report any cases to the LHD.
 - Treat residents and HCP as clinically indicated. **Note: Recommended antibiotic regimens are listed below (p.8-9). If alternative regimens are to be used for any resident due to contraindication to preferred regimens, antibiotic susceptibility should be requested on the lab order.**
 - Maintain active surveillance for additional invasive or noninvasive cases among LTCF residents for **4 months from onset of most recent GAS case**. If another case is identified, report to the LHD for additional guidance.
- Identify potential asymptomatic carriers
- Screen **all residents** by culture, except those treated for GAS within the last 14 days. (In situations in which all case-patients reside in a single unit, floor, or building within the LTCF, screening may be limited to residents in that unit, floor, or building. This decision will be made on a case-by-case basis in consultation between the facility infection prevention team and the health department and may take into account where cases are located within the facility, the size and layout of the facility, and the mobility of patients with GAS infection or asymptomatic carriage). Sites to culture for residents:
 - Throat

- Skin lesions
 - Ostomy sites
- Consider screening **epidemiologically-linked HCP** by culture, except those treated for GAS within the last 14 days. Sites to culture for HCP:
 - Throat
 - Skin lesions
- For outbreaks that persist despite other outbreak control measures, consider screening HCP with strong epidemiologic links to case patients by self-collected vaginal and anal or rectal cultures in addition to throat and skin lesion cultures. GAS can colonize throat, skin lesions, vagina, and anus and rectum. Previous outbreaks in healthcare settings have been linked to HCP who were colonized at one or more of these sites. For example, in outbreaks with a predominance of case-patients who have wounds and are receiving wound care, the wound care team members might be considered for screening for GAS carriage by culture from throat and skin lesions and self-collected vaginal and anal or rectal swabs. Notify the LHD of screening plans, as well as of any positive results and treatment regimens used.
- Treat anyone with a positive culture with an appropriate antibiotic regimen, according to CDC guidelines for GAS eradication.
- After consulting CDS, asymptomatic carriers who screened positive and underwent antibiotic treatment should be re-tested by culture 7-10 days after finishing the antibiotic regimen.
- Assess infection control measures
 - Review and audit HCP adherence to infection control practices.
 - Hand hygiene, preferably using alcohol-based hand rub/sanitizer
 - Appropriate selection and proper use of personal protective equipment (PPE)^d
 - Cleaning and disinfection of environmental surfaces and reusable wound care equipment
 - Maintaining separation between clean and soiled equipment to prevent cross contamination
 - Dedicating multidose vials to a single patient whenever possible. If multidose vials are used for more than one patient, restrict the medication vials to a centralized medication area and do not bring them into the immediate patient treatment area (e.g., operating room, patient room/cubicle).
 - Review and audit infection control practices for wound care and respiratory care.
 - Educate HCP on signs and symptoms of GAS infection.
 - Educate HCP on the importance of not working while ill.
 - Review sick leave policies.
- Conduct an epidemiologic and laboratory investigation in collaboration with the LHD.
 - Investigate potential linkages between cases, including close contacts (roommates and close social contacts) and HCP.
 - Labs should be asked to store any positive cultures for iGAS or GAS and LHDs should work with CDS to send these isolates to PHEL for emm typing and whole genome sequencing

GAS Outbreaks in Multiple Facilities

LTCFs, especially those in close geographic proximity, may share HCP, which could be a GAS transmission link between facilities. If cases are identified in multiple nearby LTCFs, LHDs should consult with CDS to coordinate investigation of a potential single, multi-facility outbreak.

In LTCFs experiencing cases of iGAS, it's especially important for LHDs to inquire about wound care service providers and other external consultants. External consultants often work in multiple LTCFs.

Whenever possible, LTCFs with shared HCP should seek to

- Align policies and procedures (e.g., flexible sick leave policies) to ensure that HCP do not report to work when ill; and
- Establish procedures for communication when shared HCP are placed on work restrictions.

Antibiotic Regimens for GAS Carriage Eradication during Outbreaks

Which antibiotic regimen to use for GAS carriage eradication during an outbreak depends on multiple considerations, and LTCFs and public health should carefully consider the pros and cons of each regimen on a case-by-case basis with the LTCF medical director and infection prevention and control personnel. GAS is universally susceptible to beta-lactam antibiotics, including penicillin and cephalosporins. Table 1 includes a list of universally susceptible antibiotic regimens recommended by the CDC.

Multiple regimens may be needed, including a first-line regimen and alternative regimens for those who have allergies to antibiotics or who are at risk for drug-drug interactions. Susceptibility may need to be considered when using select alternative antibiotic regimens as clindamycin and macrolide resistance have been commonly reported in GAS isolates. Antibiotic susceptibility testing for *Strep pyogenes*/GAS may not be routinely run by laboratories. Therefore, if alternative antibiotic regimens will be used due to patient contraindications to penicillin or cephalosporin use, susceptibility testing for the alternative regimens must be ordered from the lab to ensure that the selected antibiotic will be effective. Table 2 includes a list of alternative antibiotic regimens recommended by the CDC.

Table 1: Universally susceptible antibiotic regimens, with dosages

Antibiotic regimen	Dosage(s)
Benzathine penicillin G (BPG) plus rifampin	BPG: 600,000 units for patients <27 kilograms (kg) or 1,200,000 units for patients ≥27 kg intramuscular (IM) in a single dose
	Rifampin: 20 mg/kg/day (maximum daily dose 600 mg/day) oral in 2 divided doses for 4 days
First-generation cephalosporins, such as cephalexin	Cephalexin: 25-50 mg/kg/day (maximum daily dose 1000 mg/day) in 2–4 divided doses for 10 days

Table 2: Alternative Antibiotic regimens, with dosages, **which need susceptibility testing prior to use.**

Antibiotic regimen	Dosage(s)
Azithromycin ^{1,4}	12 mg/kg/day (maximum daily dose 500 mg/day) in a single dose daily for 5 days
Clindamycin ^{1,3}	20 mg/kg/day (maximum daily dose 900 mg/day) in 3 divided doses for 10 days

Infection Prevention and Control

Lapses in infection prevention and control practices, including lapses in hand hygiene and during wound care, have been identified in multiple GAS outbreak investigations in LTCFs. Wound care can lead to shedding or spray of GAS into the environment or onto HCP performing wound care. Continued use of a facemask by HCP during all wound care activities or when handling invasive medical devices is recommended until the outbreak is over.

Additional PPE use, as described below, is recommended to control a GAS outbreak.

- I. Residents with suspected or confirmed GAS infection or who are colonized (presence of GAS in the throat or on the skin of a person who has no signs or symptoms of infection) should be placed on appropriate Transmission-Based Precautions pending culture results:
 - i. Wound—Residents with GAS cultured from a wound, ostomy, or device-insertion site should remain on [Contact and Droplet Precautions](#) until 24 hours after the initiation of effective antibiotic therapy and any wound drainage stops or can be contained by a dressing. HCP should then return to use of [Enhanced Barrier Precautions](#), where the use of personal protective equipment is required during high-contact resident care activities, such as dressing, bathing, and the provision of device and/or wound care.
 - ii. Throat—Residents with GAS cultured from their throat should remain on [Droplet Precautions](#) until 24 hours after the initiation of effective antibiotic therapy.

Infection prevention and control is critical for preventing GAS outbreaks in LTCFs. Strengthening of infection control practices, with special attention to good hand hygiene and wound care practices, is key to interrupting transmission of GAS in ongoing outbreaks. Increasing audits and observations (hand hygiene and wound care practice) especially during an outbreak can help to identify any lapse or breach in IC practice. Additional resources on wound care and infection control auditing are provided below in “References and Resources.”

Specimen Submission for Strain Typing at PHEL or CDC

Healthcare facilities should save all GAS isolates associated with a LTCF investigation or outbreak. CDS will facilitate testing at PHEL and/or CDC to assess strain relatedness during an outbreak when indicated. LHDs and

healthcare facilities should promptly notify CDS regarding any outbreak-associated GAS isolates, and should work with CDS to coordinate specimen submission.

References & Resources

1. New Jersey Administrative Code, Title 8. Department of Health, Chapter 57: Communicable Diseases. Available at: <https://www.nj.gov/health/cd/reporting/acode>
2. Center for Disease Control and Prevention, Investigate All Outbreaks of Group A *Streptococcus* Infections in Long-Term Care Facilities. Available at <https://www.cdc.gov/groupastrep/outbreaks/LTCF/investigate.html>
3. Center for Disease Control and Prevention, Investigating 1 case of invasive group A *Streptococcus* infection. Available at: <https://www.cdc.gov/groupastrep/outbreaks/lpcf/investigating-1-case.html>
4. Center for Disease Control and Prevention, Investigating 2 cases (at least 1 invasive) of group A *Streptococcus* infection. Available at <https://www.cdc.gov/groupastrep/outbreaks/lpcf/investigating-2-cases.html>
5. Center for Disease Control and Prevention, Investigating 3+ cases (at least 1 invasive) of group A *Streptococcus* infection. Available at <https://www.cdc.gov/groupastrep/outbreaks/lpcf/investigating-3-cases.html>
6. Center for Disease Control and Prevention, Residents of long-term care facilities are at increased risk for disease and death from group A *Streptococcus*. Available at <https://www.cdc.gov/groupastrep/outbreaks/LTCF/risk.html>
7. Center for Disease Control and Prevention, Outbreaks and Public Health Response. Available at <https://www.cdc.gov/groupastrep/outbreaks.html>
8. Center for Disease Control and Prevention, For Laboratorians. Available at <https://www.cdc.gov/groupastrep/lab.html>
9. Center for Disease Control and Prevention, Decision Tool for Investigating Group A *Streptococcus* Infections in Long-Term Care Facilities. Available at <https://www.cdc.gov/groupastrep/downloads/lpcf-decision-tool-508.pdf>
10. Center for Disease Control and Prevention, Infection Control. Available at <https://www.cdc.gov/infectioncontrol/index.html>
11. New Jersey Communicable Disease Services, Infection Prevention Audit Tool Development. Available at https://www.nj.gov/health/cd/documents/topics/hai/infection_control_auditing.pdf
12. New Jersey Department of Health, Infection Prevention & Control Audit Tool for Wound Care Available at: https://www.nj.gov/health/cd/documents/topics/hai/ICAR_Wound_Care_Audit_Tool.pdf
13. Center for Disease Control and Prevention, Infection Control Assessment and Response (ICAR) Tool for General Infection Prevention and Control (IPC) Across Settings. Available at <https://www.cdc.gov/infectioncontrol/pdf/icar/ipc-obs-form-wound-care.pdf>