

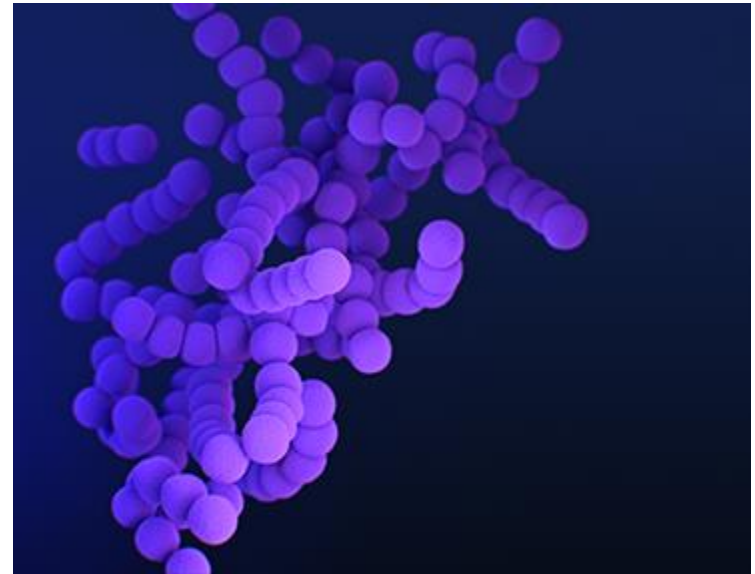
Invasive Group A Strep Toolkit Transition

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▶ Group A *Streptococcus* (GAS)

- Also known as *Streptococcus pyogenes*
- Gram-positive coccoid-shaped bacteria
- Tend to grow in chains



Characteristics of GAS

- Transmitted by respiratory droplets or direct contact
- Variety of clinical presentations
 - ▣ Non-invasive
 - ▣ Invasive
- Antibiotics typically cure most cases of GAS

Non-Invasive Group A Streptococcal Disease

Case-finding method

Isolation from non-sterile site (throat, wound)

Clinical syndromes

Pharyngitis ("strep throat") Impetigo

Epidemiology

Several million cases annually. Mostly school-aged children



http://en.wikipedia.org/wiki/Streptococcal_pharyngitis

Invasive Group A Streptococcal Disease

Case-finding
method

Isolation from normally sterile site
(blood, CSF, pleural fluid)

Toolkit: Normally sterile sites

Clinical
syndromes

Sepsis
Pneumonia
Streptococcal toxic shock
Necrotizing fasciitis

Epidemiology
2020 CDC
estimates

20,270 infections
1,840 deaths

****Reportable in PA****

Rare, but Deadly

- Streptococcal toxic shock syndrome (TSS)
 - Rapidly progressing infection
 - Usually infects people in their 20s or 30s
 - Causes blood pressure to fall rapidly and organs to fail
- Necrotizing fasciitis
 - “Flesh-eating bacteria”
 - Quickly spreading infection of flesh/muscle
 - Caused by toxins released by *S. pyogenes*



Risk Factors for Invasive GAS Disease

- Age: 65 years old and older
- Underlying medical conditions
 - ▣ Heart disease
 - ▣ Diabetes mellitus
- Skin breakdown
- Crowded living conditions/confined settings
 - ▣ Includes long-term care (LTCF)

Invasive GAS in LTCF Residents

- Burden¹
 - ▣ Incidence: 3–8 times higher
 - ▣ Mortality: 1.5 times higher
 - ▣ Compared to community members of same age (65 years of age and older)
- Single cases require public health action

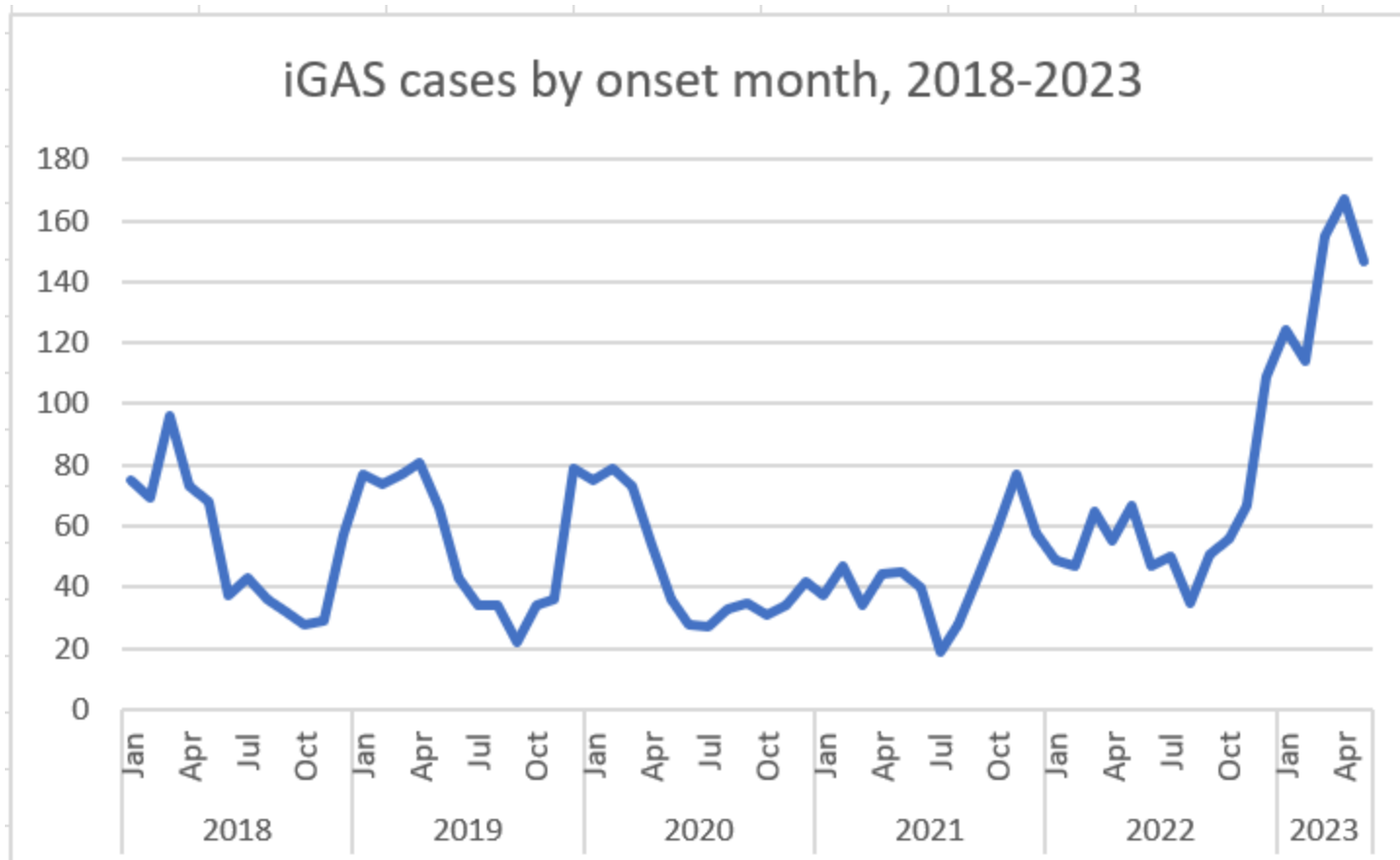
[Residents of long-term care facilities are at increased risk for disease and death from group A Streptococcus | CDC](#)

¹Centers for Disease Control and Prevention. Active Bacterial Core Surveillance Bact Facts Interactive Data Dashboard, Emerging Infections Program Network, Group A *Streptococcus*. Available at [ABCs Bact Facts Interactive Data Dashboard | CDC](#).

GAS Transmission in Long-term Care

- Outbreaks typically occur in winter and spring (parallel to flu season)
- Typically staff to resident transmission
 - ▣ GAS carriage
 - ▣ Staff working while sick
- Inadequate infection control
 - ▣ Improper hand hygiene
 - ▣ Breaches in wound care technique

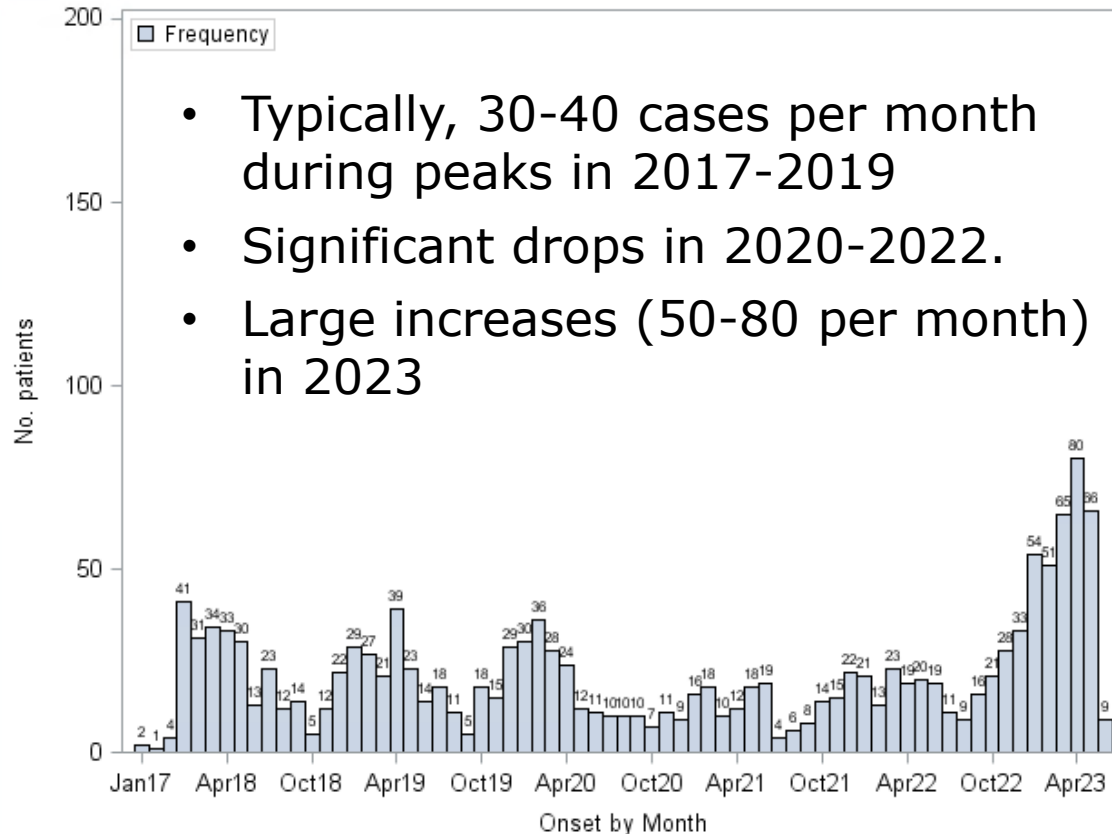
Significant Increases in iGAS in 2023



Data from MMWR dataset from PA-NEDSS. Includes Philadelphia.

Large Increases 65+ Age Group

Number of GAS cases aged 65+ by onset month



- Typically, 30-40 cases per month during peaks in 2017-2019
- Significant drops in 2020-2022.
- Large increases (50-80 per month) in 2023

PA-NEDSS Review/Risk Assessment

Were the following risk factors present?

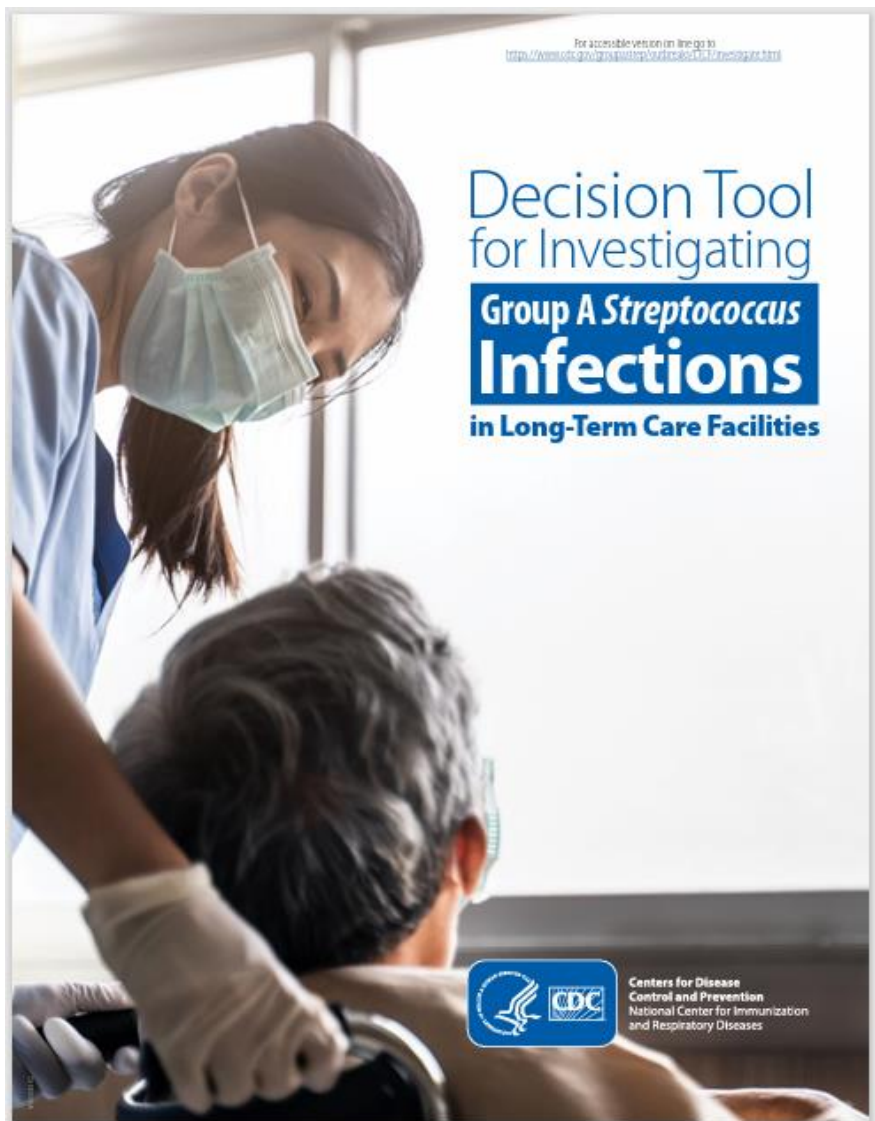
Is the patient a resident of a nursing home or other chronic care facility, or was he/she recently transferred from such a facility?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown
Was the patient homeless at any time in the past 30 days?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown
Ever inject drugs not prescribed by a doctor	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown
Does the patient have any chronic conditions?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown
Does the patient have any wounds (e.g., postsurgical, pressure related)	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown
Has the patient had surgery in the past 14 days?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown
Did the patient deliver a baby in the past 14 days?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown
Does the patient require indwelling devices (catheter, feeding tube, etc.)?	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown
Other	<input type="radio"/> Yes <input type="radio"/> No <input type="radio"/> Unknown

- If yes, begin single-case investigation
- Contact facility
 - Obtain resident details (e.g., demographics, other PA-NEDSS risk questions)
 - Advise them to contact regulatory agency
- PADOH staff: email Epi List Serve
- Instruct testing lab to save isolate for 4 months

CDC: Controlling Outbreaks in LTCFs

- Includes toolkit for investigating and controlling outbreaks
 - [Group A Strep in Long-term Care Facilities: Identifying and Managing Outbreaks | CDC](#)
- Investigation tools
 - [Investigate Outbreaks of Group A Streptococcus Infections in Long-Term Care Facilities | CDC](#)
- Can be used as a reference but toolkit differs slightly from the PA response
 - Follow PA toolkit when providing recommendations to facilities

CDC GAS Decision Tool



- [Itcf-decision-tool-508.pdf \(cdc.gov\)](http://www.cdc.gov/nceizdnp/itcf-decision-tool-508.pdf)

2023 GAS LTCF Toolkit Components

- Summary of key changes to the iGAS toolkit 2023
- GAS investigation algorithm*
- Single case letter*(send after personalized & signed)
- Transmission-based precautions for GAS
- Two-case letter template*(send after Epi review)
- GAS antibiotic recommendations for decolonization

*Items marked with an * are designed for public health use only and should not be shared with facilities.*

2023 GAS LTCF Toolkit Components

- Bacterial Throat Culture Shipping Guidance
Bureau of Laboratories (BOL)
- How to collect a throat swab for culture
- How to collect an ostomy culture
- Wound care observation checklist
- How to collect a wound culture

*Items marked with an * are designed for public health use only and should not be shared with facilities.*

2023 GAS LTCF Toolkit Components

- Surveillance symptom tracker
- Line list template*(for Epi)
- Normally sterile site list
- Handout for healthcare workers in long-term care facilities
- Training PowerPoint*
- Links to GAS resources

*Items marked with an * are designed for public health use only and should not be shared with facilities*

GAS Investigation Algorithm: General Updates

2018

- Isolate to be saved for **3 months**
- Identify additional cases
 - Monitor residents daily for signs and symptoms of invasive or noninvasive infection for **3 months**
- Identify potential carriers:
 - Sites to culture include pharynx, skin lesions & **indwelling catheter sites (only if red/signs of infection)**
 - Re-culture GAS carriers **14 days** after finishing treatment

2023

- Isolate to be saved for **4 months**
- Identify additional cases
 - Monitor residents daily for signs and symptoms of invasive or noninvasive infection for **4 months**
- Identify potential carriers:
 - Sites to culture include pharynx, skin lesions, **gastrostomy & nephrostomy sites. Other insertion sites (i.e., tracheostomy) should only be included if red/signs of infection**
 - Re-culture GAS carriers **7-10 days** after finishing treatment

GAS Investigation Algorithm: Single Case

2018

- Infection control
 - Review hand hygiene
 - Review wound care aseptic technique
 - Encourage facility hand hygiene in-service

2023

- Infection control
 - Review hand hygiene
 - Review wound care aseptic technique
 - Encourage facility hand hygiene in-service
 - Clean and disinfect environmental surfaces and reusable wound care equipment
 - Dedicate multidose medication containers to a single resident
 - Educate healthcare providers on signs and symptoms of GAS infection and not working while ill
 - Encourage facility to review sick leave policies

GAS Investigation Algorithm: Two Cases

2018

- Setting
 - Identification of 2 invasive cases OR 1 invasive case + 1 noninvasive case. Does not explicitly state that individuals need to be symptomatic
 - Symptom onset of 2nd case occurs within 3 months of the first case
- Identify potential carriers
 - Does not include consideration to screen epi-linked healthcare providers

2023

- Setting
 - Identification of 2 symptomatic GAS infections with at least one invasive infection. Clarifies that new cases are in symptomatic individuals
 - Symptom onset of 2nd case occurs within 4 months of the first case
- Identify potential carriers
 - Includes consideration to screen epi-linked healthcare providers

More conservative approach

*In some investigations, epidemiologic evidence might support targeted culturing of residents (e.g., wing or floor based) and/or epi-linked healthcare providers (e.g. wound care staff). This decision will be made on a case-by-case basis in consultation with Bureau of Epidemiology.

GAS Investigation Algorithm: Three Cases

2018

- Setting
 - Identification of ≥ 3 invasive cases OR 2 invasive cases + 1 noninvasive case. Does not explicitly state that individuals need to be symptomatic
 - Symptom onset of 3rd case occurs within 3 months of the first case
- Identify potential carriers
 - Culture all healthcare providers (HCP), including those who completed treatment ≥ 14 days prior to identification of third case.

2023

- Setting
 - Identification of 3+ symptomatic GAS infections with at least one invasive infection identified. Clarifies that new cases are in symptomatic individuals
 - Symptom onset of 3rd case occurs within 4 months of the first case
- Identify potential carriers
 - Culture all epi-linked HCP, except those on GAS treatment within last 14 days.
 - Consider culturing all HCP, except those on GAS treatment within last 14 days

**Whether to screen only epi-linked HCP by culture for GAS in the facility or all HCP is a decision that should be made on a case-by-case basis in consultation with BOE

Less conservative approach

GAS Investigation Algorithm: Three Cases

2018

- Infection prevention
 - Includes recommendation to consider restricting visitors
 - Includes recommendation to consider cohorting patients and staff

2023

- Infection prevention
 - Removes recommendation to consider restricting visitors
 - Removes recommendation to consider cohorting patients
 - Includes recommendation to consider cohorting healthcare providers on affected units/floors

Updated GAS Antibiotic Recommendations for Decolonization

2018

- First generation cephalosporin dosage
 - 500 mg PO twice daily for 10 days

2023

- First generation cephalosporin dosage
 - 25-50 mg/kg/day (maximum daily dose 1000 mg/day) in 2-4 divided doses for 10 days
- Reformatted Benzathine Penicillin + Rifampin dosing instructions for readability
- Wording added to include antibiotic resistance data from 2020
- Wording added to indicate that GAS is universally susceptible to beta-lactam antibiotics



Antibiotic recommendations for decolonization of asymptomatic people with Group A Streptococcus

Notes

These recommendations are only for non-pregnant* asymptomatic people who have been identified as positive for Group A Streptococcus (GAS). Anyone who is symptomatic for GAS infection should be treated by their primary provider per his or her preference.

Decolonization of GAS is much more difficult than treating an active infection, therefore these guidelines are based on what is currently known to be effective against colonized GAS.

For decolonization, either of the following treatments may be prescribed for non-pregnant* people:

1. Benzathine Penicillin G + rifampin:
 - a. Patients less than 27 kg: 600,000 Units IM injection x 1 dose, plus rifampin 20 mg/kg/day divided into 2 doses/day for 4 days
 - b. Patients \geq 27 kg: 1,200,000 Units IM injection, plus rifampin 20 mg/kg/day [max daily dose: 600 mg/day] divided into 2 doses/day for 4 days
2. First generation cephalosporins (cephalexin, cephadroxil, cephadrine)
 - a. Adults: 500 mg PO twice daily for 10 days

The following alternatives may be considered if one of the above medications cannot be tolerated by the patient:

Note: Many GAS isolates are resistant to Clindamycin and/or Azithromycin. Thus, for any person who is receiving Clindamycin or Azithromycin for decolonization of GAS, the isolate should be tested for antibiotic sensitivity.

1. Clindamycin 20 mg/kg/day PO [max daily dose: 900 mg/day] divided into 3 doses/day for 10 days
2. Azithromycin 12 mg/kg/day PO [max daily dose: 500 mg/day] once daily for 5 days

*For decolonization of pregnant or lactating women, please contact the Bureau of Epidemiology central office.



Antibiotic recommendations for decolonization of asymptomatic people with Group A *Streptococcus*¹

Notes

These recommendations are only for non-pregnant* asymptomatic people who have been identified as positive for Group A *Streptococcus* (GAS). Anyone who is symptomatic for GAS infection should be treated by their primary provider per his or her preference.

Decolonization of GAS is much more difficult than treating an active infection, therefore these guidelines are based on what is currently known to be effective against colonized GAS. GAS is universally susceptible to beta-lactam antibiotics, including penicillin and cephalosporins.

For decolonization, either of the following treatments may be prescribed for non-pregnant* people:

Antibiotic regimen	Dosage(s)
Benzathine penicillin G (BPG) plus rifampin; or	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

The following alternatives may be considered if one of the above medications cannot be tolerated by the patient:

Note: Among invasive disease isolates in 2020, 30% of GAS isolates were macrolide resistant and 29% of isolates were clindamycin resistant¹. Thus, for any person who is receiving Clindamycin or Azithromycin for decolonization of GAS, the isolate should be tested for antibiotic sensitivity.

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

*For decolonization of pregnant or lactating women, please contact the Bureau of Epidemiology central office at 717-787-3350.

¹ [Investigate Outbreaks of Group A Streptococcus Infections in Long-Term Care Facilities | CDC](#)

Transmission-based Precautions for Group A Streptococcal Infection

2018

- No differentiation between infection and asymptomatic colonization
- Standard precautions for wounds that can be contained by dressings
- Precautions for wounds without dressing end after 24 hours of antimicrobial therapy

2023

- Separated into 2 sections
 - One for infections with PPE recommendations based on infection site
 - One for asymptomatic colonization with PPE recommendations specimen source
- Contact, standard, and droplet precautions for wound, burn, skin infections and wound, ostomy, device-insertion site specimen sources
- Precautions end after 24 hours of antimicrobial therapy and until any wound drainage stops or can be contained by a dressing.



Transmission-based Precautions for Group A Streptococcal infection in Long-term Care Facilities

Infection type	Precautions Indicated	Notes
Wound, burn or skin infection		
If dressing covers and contains drainage	Standard	
If no dressing is present or the dressing does not adequately contain drainage	Contact, Droplet and Standard	Maintain Contact and Droplet precautions until 24 hours after initiation of effective antimicrobial therapy.
Pharyngitis Pneumonia Invasive disease	Droplet and Standard	Maintain Droplet precautions until 24 hours after initiation of effective antimicrobial therapy.

Reference:

Siegel JD, Rhinehart E, Jackson M, Chiarello L, Healthcare Infection Control Practices Advisory Committee. 2007 guideline for isolation precautions: preventing transmission of infectious agents in health care settings. Atlanta (GA): Centers for Disease Control and Prevention (CDC); 2007 Feb 15. 209 p. Also available: <https://www.cdc.gov/infectioncontrol/guidelines/isolation/>.



Transmission-based Precautions for Residents in Long-term Care Facilities with Group A Streptococcal (GAS) Infection or Colonization

Note: For residents in a long-term care facility where enhanced barrier precautions have been implemented, use of gown and gloves is recommended during high-contact care activities as per policy. Additional personal protective equipment (PPE) use, as described below, is recommended for residents with GAS infection or colonization, including full contact or droplet precautions for a defined period.

Infection

Infection type	Precautions Indicated	Notes
Wound, burn or skin infection	Contact, Droplet and Standard	Maintain Contact and Droplet precautions until 24 hours after initiation of effective antimicrobial therapy AND until any wound drainage stops or can be contained by a dressing.
Pharyngitis Pneumonia Invasive disease	Droplet and Standard	Maintain Droplet precautions until 24 hours after initiation of effective antimicrobial therapy.

Asymptomatic Colonization

Specimen source	Precautions Indicated	Notes
Wound, ostomy, device-insertion site	Contact, Droplet and Standard	Maintain Contact and Droplet precautions until 24 hours after initiation of effective antimicrobial therapy AND until any wound drainage stops or can be contained by a dressing.
Throat	Droplet and Standard	Maintain Droplet precautions until 24 hours after initiation of effective antimicrobial therapy.

References:

[Decision Tool for Investigating Group A Streptococcus Infections In Long-term Care Facilities \(cdc.gov\)](#) (footnote d)

Siegel JD, Rhinehart E, Jackson M, Chiarello L, Healthcare Infection Control Practices Advisory Committee. 2007 guideline for isolation precautions: preventing transmission of infectious agents in health care settings. Atlanta (GA): Centers for Disease Control and Prevention (CDC); 2007 Feb 15. 209 p. Also available: <https://www.cdc.gov/infectioncontrol/guidelines/isolation/>

4/2023



Additional changes

2018

- Recommendation to implement surgical mask use during all wound care (2+ case letter)

2023

- Recommendation to implement surgical mask use during all wound care activities and when handling invasive medical devices for the duration of the outbreak (2+ case letter)
 - 4 months from onset of most recent case
- Single case and 2+ case letters modified to reflect all updated recommendations
- Added “How to collect an ostomy culture” instructions

PA Toolkit Location

- HAIP-AS website
 - [Public Health \(pa.gov\)](https://www.pa.gov)
- Internal DOH N: drive (for BOE staff)
 - <N:\GAS Resources\Toolkit\FINAL 2023>

Acknowledgements

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