

PUBLIC HEALTH RESPONSE TO INVASIVE GROUP A *STREPTOCOCCUS*

LONG-TERM CARE, POSTPARTUM,
AND POSTSURGICAL CASES

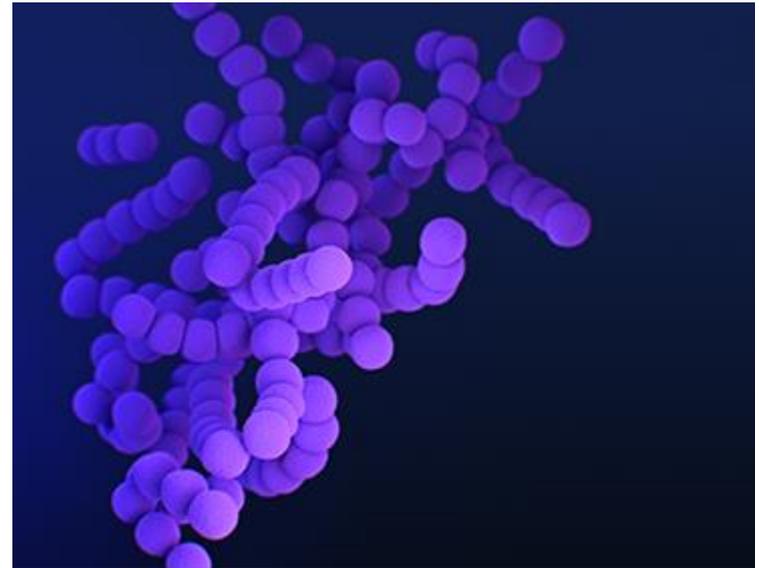
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Bureau of Epidemiology
June 2023

Background

▶ 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

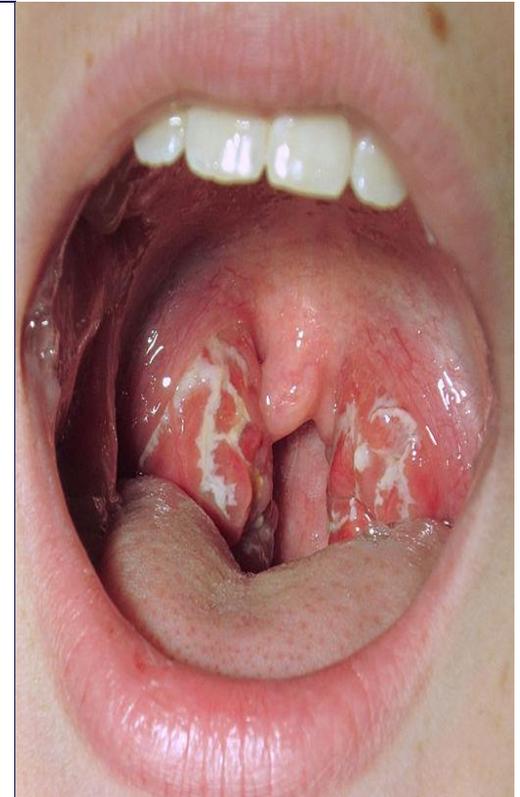
Isolation from non-sterile site (throat, wound)

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

- Burden
 - ▣ 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](#)

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

Carriage

- Prolonged presence of GAS in respiratory tract without evidence of infection (asymptomatic)
- 5–15% in general population, driven heavily by children
- If organism invades vulnerable tissues or hosts, acute infection can occur

Public health response

• Quick guide and case investigation

Investigation Guide: INVASIVE GROUP A *STREPTOCOCCUS* (iGAS)

GENERAL INFORMATION AND COURSE OF DISEASE

Infectious Agent: *Streptococcus pyogenes*, a gram-positive coccus

CASE INVESTIGATION

Priority:	DISEASE/SITUATION	Start Investigation No Later Than:	Complete Investigation Lower Priority if Disease/Situation Occurred Before this time:
	Invasive group A <i>Streptococcus</i> (<i>Streptococcus pyogenes</i>)	One Day	Six Months

- If desired, print the PA-NEDSS template questionnaire
- Contact provider or infection preventionist to obtain information for the PA-NEDSS questionnaire

- Determine if the patient is a resident of a long-term care facility (LTCF, e.g., nursing home, skilled nursing facility, personal care home).

Note: If patient resides in a LTCF, request that the clinical lab save his/her GAS isolate, even if this is the only case of iGAS at the facility; further laboratory testing may be performed on the isolate. Also, consider asking local lab to look retrospectively for positive GAS specimens (invasive & non-invasive) for residents from the same LTCF identified within past month.

- Determine if the patient delivered a baby or had surgery in the past 14 days.
- Contact Bureau of Epidemiology for guidance, if either of the above criteria apply to case being investigated

Long-term care

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

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
- 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

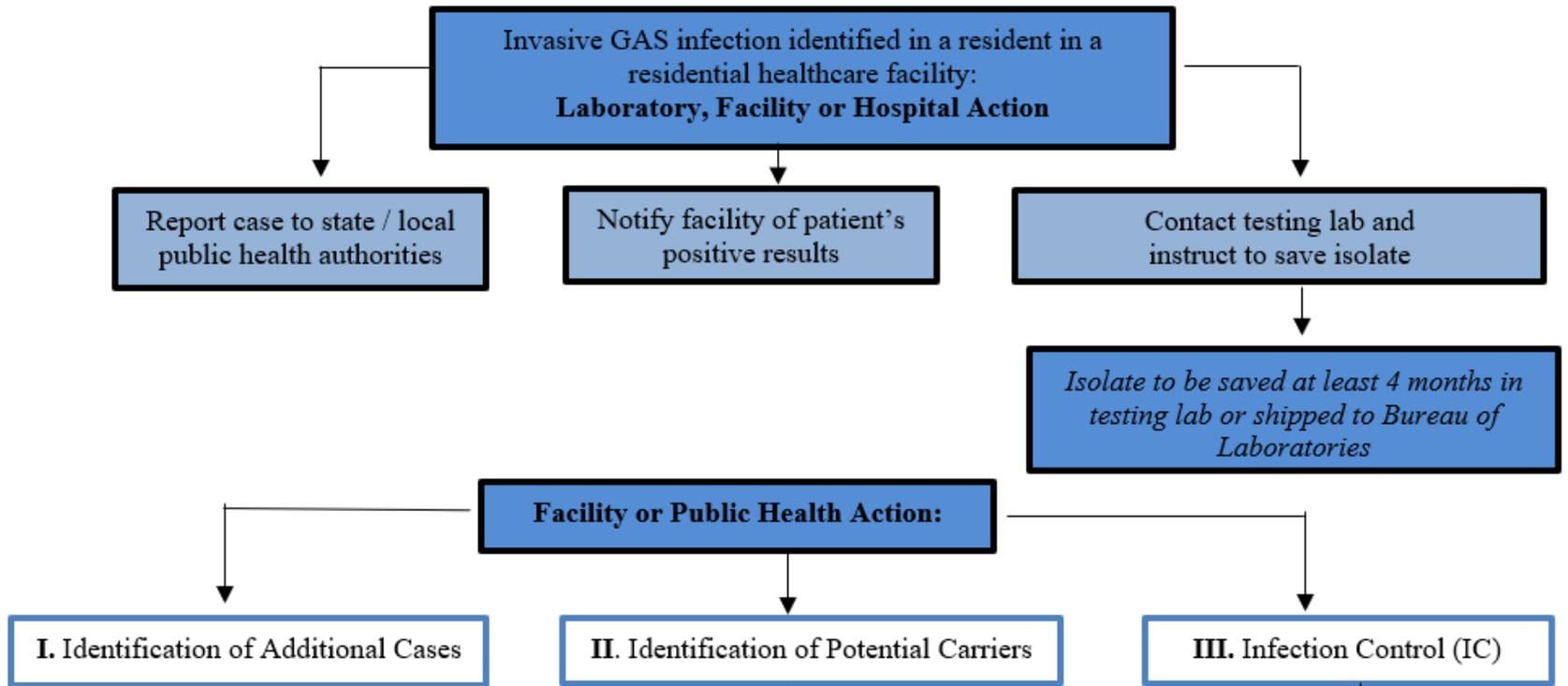
- Surveillance symptom tracker
- Line list template*(for Epi)
- Normally sterile site list
- Handout for healthcare workers in long-term care facilities
- Training PowerPoint*
- Links to GAS resources

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

LTCF Investigation Algorithm

Investigation of One Culture-Confirmed Invasive Group A Streptococcus (GAS) Infection

Given the potential severity of GAS in residential healthcare facilities, **even one case of invasive GAS** should prompt an epidemiological investigation by the facility and the health department.



Single Case Investigations

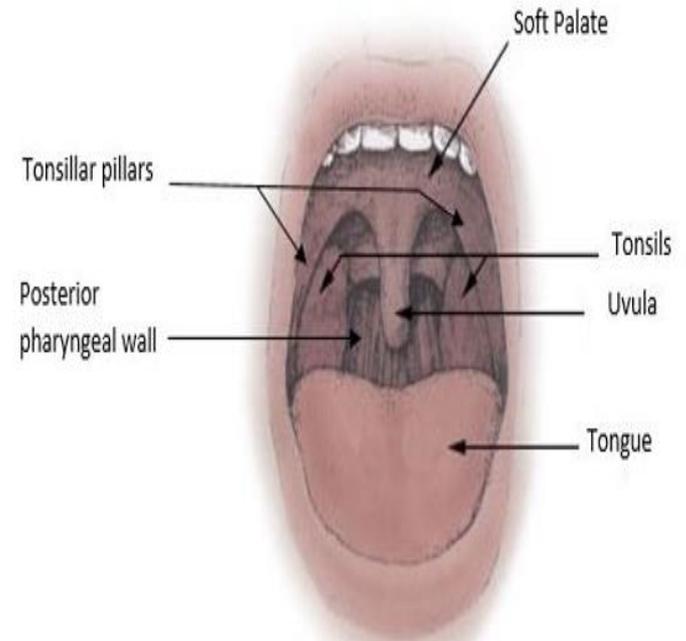
- Important to prevent additional cases
- Standard recommendations
 - ▣ Identification of additional cases
 - ▣ Identification and decolonization of potential carriers
 - ▣ Infection control
- Instruct lab to hold isolate or send to BOL

Identification of Additional Cases

- Retrospective chart review
 - 1 month prior
 - All cultures (e.g., throat, blood, wound)
- Monitor residents daily for symptoms of invasive and non-invasive GAS
 - 4 months from onset of most recent case
 - Culture symptomatic residents
 - **Toolkit: Surveillance symptom tracker**
 - Treat positive cultures as clinically indicated
 - Use transmission-based precautions for infected residents
 - **Toolkit: Transmission-based precautions for GAS Disease in LTCF 2023**
- Monitor healthcare providers (HCPs) for symptoms
 - Culture or refer to personal providers

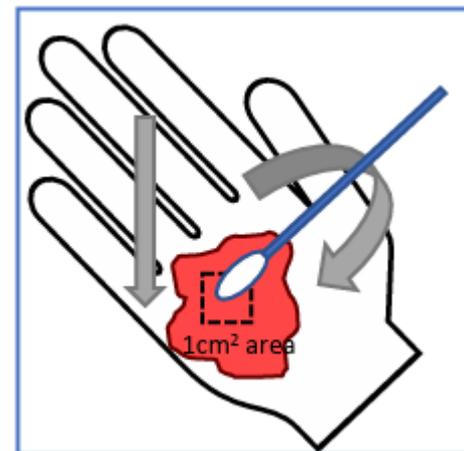
Carrier Identification

- Culture close contacts (roommates, sexual contacts) for GAS carriage
- Increased risk of disease when a roommate has GAS disease or carriage



Carrier Identification

- Sites to culture
 - Throat, all wounds and lesions
 - Gastrostomy and nephrostomy
 - Other insertion sites (e.g., tracheostomy, etc.) only when skin breakdown, redness, irritation is present
- Toolkit
 - How to collect a throat swab for culture
 - How to collect a wound culture
 - How to collect an ostomy culture
- Swab can be sent to local reference lab or state public health lab (BOL)
 - Toolkit: Bacterial Throat Culture Shipping Guidance



Carrier Decolonization

- Treat identified GAS carrier
- **Toolkit: Updated antibiotic recommendations for decolonization 2023**
 - Benzathine penicillin G + rifampin –or–
 - First generation cephalosporins PO (cephalexin, cephadroxil, cephradine)
- Re-culture GAS carriers 7-10 days after completion of antibiotics
- Institute transmission-based precautions, as applicable
 - Until 24 hours after initiation of effective antimicrobial therapy
 - **Toolkit: Transmission-based precautions for GAS Disease in LTCF 2023**

Infection Control

- Encourage facility to review and audit adherence to infection control practices
 - Hand hygiene
 - Aseptic wound care technique
 - Cleaning and disinfection of environmental surfaces and reusable wound care equipment
- Dedicate multidose medication containers (e.g., creams, sprays, ointments) to a single resident
- Educate HCP on signs and symptoms of GAS infection
- Educate HCP on importance of not working while ill
- Encourage facility to review sick leave policies
- **Toolkit: Handout for healthcare workers in LTCFs**

Hand Hygiene Audit Toolkit

Healthcare Professionals (pa.gov)

- [DOH Hand Hygiene Moments Poster](#)
- [Alcohol-Based Hand Rub Memo](#)
- [Hand Hygiene Audit Guidance](#)
- [Hand Hygiene Audit Tracking](#)
- [Hand Hygiene Audit Tool](#)
- [WHO 5 Moments for Hand Hygiene Poster](#)



Toolkit: Single Case Letter



[DATE], 2023|

[Contact person name]

[Facility Name]

[Facility address]

[Facility address]

Dear [Facility Contact Person],

The Pennsylvania Department of Health recently became aware of one case of invasive group A *Streptococcus* (GAS) in a resident at your facility. Although most GAS infections cause mild illness, the bacteria do have the potential to cause severe, life-threatening diseases. **It is important to understand that a single case of invasive GAS requires public health action.** The purpose of this letter is to provide you with some recommendations and emphasize the importance of infection control practices to reduce the potential for additional cases of GAS and other transmissible infections.

These recommendations include:

1. Identification of additional cases:

- Conduct a retrospective chart review of facility residents over the previous month (to look for previously unidentified culture-confirmed infections.) Review wound, throat, ostomy site, device-insertion site, and blood cultures.

At PA DOH:

- **District ERA prepares letter, sends to central office to obtain signature from Sharon Watkins, Bureau Director and emails the signed copy to facility**
- **Central office mails original**

Two Case Investigations

Investigation of Two Culture-Confirmed Symptomatic Cases of GAS Infection

As outlined in the investigation of a single culture-confirmed case, the laboratory or hospital identifying the positive culture result should inform the facility as well as the health department.

Save all GAS isolates to send to public health laboratory

I. Identification of Additional Cases

- Monitor residents daily for symptoms of invasive OR noninvasive infection for 4 months from onset of most recent GAS case
- **Culture symptomatic** residents
- Treat positive cultures as clinically indicated
- Place infected residents on appropriate transmission-based precautions

- Re-survey (not culture) HCPs for symptoms of GAS infection
- **Culture symptomatic** HCPs
- Treat positive cultures as clinically indicated
- Exclude HCP from workplace until antibiotic administered for ≥ 24 hour

II. Identification of Potential Carriers

- **Culture all residents**, except those on GAS treatment within last 14 days.*
- Place colonized residents on appropriate transmission-based precautions

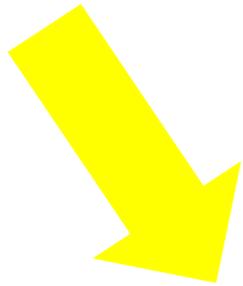
- **Consider culturing epi-linked HCP**, except those on GAS treatment within last 14 days.*
- Exclude HCP from workplace until antibiotic administered for ≥ 24 hours

- Treat positive cultures with antibiotics recommendations for decolonization of asymptomatic persons
- Re-culture GAS carriers 7-10 days after finishing treatment

SETTING:

Identification of 2 symptomatic GAS infections with at least one invasive infection

(Symptom onset of second case occurs within 4 months of the first case)



Additional Components

- If 2 isolates available DOH may arrange for strain relatedness testing (at CDC)
- Prospective monitoring resets to date of most recent case
- Re-survey HCPs for symptoms
 - ▀ Culture symptomatic HCPs and treat positives as clinically indicated
- Site visit to facility
- Culture ALL residents for GAS carriage
- Consider culturing epi-linked HCP for GAS carriage
- **Toolkit: Line list template (Epi)**

Facility Site Visit

- Tour and staff interviews
- Infection control observations
 - Emphasis on hand hygiene, wound care, respiratory care
 - **Toolkit: Wound care observation checklist**
- Consider chart abstraction to look for epi links
- CDC's [Infection Control Assessment and Response \(ICAR\)](#) tools
 - Includes hand hygiene and wound care modules

Culture All Residents for GAS

- Culture recommendations with input from BOE after site visit
 - Epi evidence might support targeted culturing (unit or floor-based or those receiving wound care)
 - Do not culture residents who were on GAS treatment in the last 14 days
- Samples to collect
 - Throat, all wounds and lesions
 - Gastrostomy and nephrostomy
 - Other insertion sites (e.g., tracheostomy, etc.) only when skin breakdown, redness, irritation is present
- Typically sent to BOL

Consider Culturing Epi-linked HCP

- Culture recommendations with input from BOE after site visit
 - ▣ Epi-linked HCP could include wound care staff, unit-based staff, etc.
 - ▣ Decision made on case-by-case basis based upon investigation details
 - ▣ Do not culture staff who were on GAS treatment in the last 14 days
- Exclude positive HCP from workplace until antibiotic administered for ≥ 24 hours

Coordination with BOL

- BOL preferred, unless extenuating circumstances
 - Free for facility, ensures culture quality
 - Public health can monitor results
- BOE or CMHD will obtain approval to use BOL for swab kits, culturing, and for field investigation (FI) number
- Bureau of Community Health Systems (BCHS) or BOE/CMHD will coordinate delivery
- Aim for Mon, Tues, Wed collection
 - Avoid collection at the end of the week or over a holiday
- **Toolkit: Bacterial throat culture shipping guidance BOL**

3 or More Cases

Investigation of Three or More Symptomatic Culture-Confirmed Cases of GAS

Continue steps outlined in algorithms for one or two cases: 1) notify facility of patient 2) notify health department of all new cases 3) save all GAS isolates to send to public health laboratory



I. Identification of Additional Cases

- Monitor residents daily for symptoms of *invasive* OR *noninvasive* cases for 4 months from onset of most recent GAS case
- **Culture symptomatic** residents
- Treat positive cultures as clinically indicated
- Place infected residents on appropriate transmission-based precautions

- Re-survey (not culture) HCPs for symptoms of GAS infection
- **Culture symptomatic** HCPs
- Treat positive cultures as clinically indicated
- Exclude HCP from workplace until antibiotic administered for ≥ 24 hour

II. Identification of Potential Carriers

- **Re-culture all residents**, except those on GAS treatment within last 14 days *
- Place colonized residents on appropriate transmission-based precautions

- **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.**
- Exclude HCP from workplace until antibiotic administered for ≥ 24 hours

SETTING:

Identification of 3+ cases symptomatic cases of GAS with at least one invasive infection identified.

(Symptom onset of third case occurs within 4 months of the first case)



▶ Additional Components

- Prospective monitoring resets to date of most recent case
- Culture all epi-linked HCP
- Consider culturing all HCP
- Re-culture all residents

Culture All Epi-linked Healthcare Providers

- Culture recommendations with input from BOE
- Staff with direct patient contact
- Samples: throat and open, exposed wounds (fingers, hands, forearms, etc.)
- Epi evidence will guide epi-link recommendations (e.g., wound care team, unit based)
- Do not culture staff who were on GAS treatment in the last 14 days
- Exclude positive HCP from workplace until antibiotic administered for ≥ 24 hours

Consider Culturing All Healthcare Providers

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

Infection Prevention and Control Considerations

For 2+ cases

- Hire an external infection control consultant or certified wound ostomy nurse
- Ensure only those with appropriate training are performing wound care
- Implement mask use during wound care activities or when handling invasive medical devices for duration of outbreak
- Cohort HCP on affected units/floors

Toolkit: Two+ Case Letter Template

- Send to facility after site visit
- Infection prevention and control recommendations will vary based on observations made during the visit
 - Letter includes examples- remove or edit as appropriate

Toolkit: Two+ Case Letter Template



[DATE], 2023

[Contact person name]
[Facility Name]
[Facility address]
[Facility address]

Dear [Facility Contact Person],

In [Month, year], a single case of invasive Group A streptococcal (GAS) infection was identified in a resident of [Facility Name]. Since then, [#] additional case[s] of GAS have been identified. Because of the severity of GAS infections, and the high likelihood of person-to-person transmission, cases of invasive GAS in a nursing care setting require immediate and comprehensive action.

Investigators from the PA Department of Health (DOH) performed a site visit at the [Facility Name] on [Date of Site Visit]. We reviewed infection control practices and made recommendations for improvement. The purpose of this letter is to reiterate our recommendations and provide infection control guidance to reduce the potential for additional cases of GAS and other transmissible infections.

Our recommendations include:

1. Monitoring for additional symptomatic cases
 - Monitor residents daily for symptoms of invasive (i.e., blood or other sterile sites) and non-invasive (i.e., wound or throat) infections for 4 months following the last case identified. Staff should check residents daily for symptoms consistent with GAS (particularly pharyngitis and possible wound infections), maintain a record of symptom checks, and culture anyone with symptoms consistent with a GAS infection. This should include residents in all units. Treat residents with positive cultures as clinically indicated.
 - Maintain transmission-based precautions according to the enclosed guidance entitled “Transmission-based Precautions for Residents in Long-term Care Facilities with Group A [Streptococcal Infection or Colonization](#).”

Toolkit: Two+ Case Letter Template

3. Infection prevention and control recommendations

- A certified wound ostomy care nurse (WOCN) or an infection preventionist with expertise in wound care should be available to provide training and education for all staff who perform wound care (including care for minor wounds) and to thoroughly assess wound care practices and policies.
- Develop a facility-specific hand hygiene policy that emphasizes preferred use of alcohol based hand rub (ABHR) over hand washing according to CDC guidelines (<http://www.cdc.gov/mmwr/PDF/rr/rr5116.pdf>).
- Perform monthly hand hygiene audits on each floor or unit. If possible, consider a “secret shopper” approach so that staff do not necessarily know they are being observed. Audits should occur during day, night and weekend shifts.
- Ensure standard precautions during resident care are being followed, particularly during wound care. Gloves should be changed and hand hygiene performed when moving from dirty to clean wound care activities (e.g., removal of soiled dressings, before handling clean supplies). Reinforce the idea that standard precautions include wearing a gown and gloves whenever contact with body fluids might occur.
- Consider implementing surgical mask use during all wound care. GAS is a common pathogen for intermittent pharyngeal colonization, often without symptoms. Furthermore, GAS is spread by droplet transmission, which can occur from a distance up to 3 feet.¹ This means that wound care staff could be colonized with and transmit GAS even when they do not have symptoms. This recommendation is important and will provide additional protection in preventing potential severe diseases caused by GAS and GAS transmission.
- Ensure only those with appropriate training are performing wound care. Verify that aseptic technique is maintained throughout wound care procedures by performing routine audits of wound care dressing changes and other procedures.

These recommendations will vary based on the facility and the observations made on the site visit. Although we have included several examples that we commonly use for LTCF, they should be modified to suit the investigation

CDC Strain Typing

- BOE obtains approval to send isolates to CDC, and Epi will communicate findings
- *emm* and T-typing completed first
- Whole genome sequencing
 - CDC determines need based on epi
- *emm* typing and T-typing suggest relatedness
- WGS can more precisely characterize the likelihood of intrafacility transmission

Personal care homes

- Handled on a case-by-case basis
 - Given more flexibility
- Typically recommend discussion with facility
 - To understand capacity and epidemiologic need to meet single case recommendations
- Examples (BOE can assist)
 - Apartment type living with outpatient medical care: prospective surveillance only, as able
 - In-house medical staff or wound care team: follow LTCF recommendations

Postsurgical and postpartum

Postpartum (PP) GAS

- PA surveillance
 - ▣ GAS isolation from a normally sterile site or wound within 14 days of giving birth
- CDC case definition
 - ▣ Symptom onset during the postpartum period which includes all inpatient days and the first 7 days after discharge.
- Assess on a case-by-case basis to determine likelihood of healthcare-associated transmission
- Incidence
 - ▣ Approximately 0.06 cases/1000 live births

Sequelae: Postpartum

- Wound infection & dehiscence
- Breastfeeding impairment
- Disruption of maternal-infant bonding
- Sepsis
- Hysterectomy
- Death

Single cases require public health response.

BOE can provide guidance since cases are uncommon.

Postsurgical GAS

- PA surveillance
 - ▣ GAS isolation from a normally sterile site or wound within 14 days of surgery
- CDC case definition
 - ▣ Symptom onset during the hospital stay or within the first 7 days after discharge
- Assess on a case-by-case basis to determine likelihood of healthcare-associated transmission
- Postsurgical iGAS has been linked to colonized healthcare workers



Sequelae: Postsurgical

- Wound infection & dehiscence
- Need for repeat/multiple surgeries
- Sepsis
- Death

Single cases require public health response.

BOE can provide guidance since cases are uncommon.

MAJOR ARTICLE

Prevention of Invasive Group A Streptococcal Disease among Household Contacts of Case Patients and among Postpartum and Postsurgical Patients: Recommendations from the Centers for Disease Control and Prevention

The Prevention of Invasive Group A Streptococcal Infections Workshop Participants*

The Centers for Disease Control and Prevention hosted a workshop to formulate recommendations for the control of invasive group A streptococcal (GAS) disease among household contacts of persons with invasive GAS infections and for responding to postpartum and postsurgical invasive GAS infections. Experts reviewed data on the risk of subsequent invasive GAS infection among household contacts of case patients, the effectiveness of chemoprophylactic regimens for eradicating GAS carriage, and the epidemiology of postpartum and postsurgical GAS infection clusters. For household contacts of index patients, routine screening for and chemoprophylaxis against GAS are not recommended. Providers and public health officials may choose to offer chemoprophylaxis to household contacts who are at an increased risk of sporadic disease or mortality due to GAS. One nosocomial postpartum or postsurgical invasive GAS infection should prompt enhanced surveillance and isolate storage, whereas ≥ 2 cases caused by the same strain should prompt an epidemiological investigation that includes the culture of specimens from epidemiologically linked health care workers.

• Quick guide and case investigation

Investigation Guide: INVASIVE GROUP A *STREPTOCOCCUS* (iGAS)

GENERAL INFORMATION AND COURSE OF DISEASE

Infectious Agent: *Streptococcus pyogenes*, a gram-positive coccus

CASE INVESTIGATION

Priority:	DISEASE/SITUATION	Start Investigation No Later Than:	Complete Investigation Lower Priority if Disease/Situation Occurred Before this time:
	Invasive group A <i>Streptococcus</i> (<i>Streptococcus pyogenes</i>)	One Day	Six Months

- If desired, print the PA-NEDSS template questionnaire
- Contact provider or infection preventionist to obtain information for the PA-NEDSS questionnaire
 - Determine if the patient is a resident of a long-term care facility (LTCF, e.g., nursing home, skilled nursing facility, personal care home).

Note: If patient resides in a LTCF, request that the clinical lab save his/her GAS isolate, even if this is the only case of iGAS at the facility; further laboratory testing may be performed on the isolate. Also, consider asking local lab to look retrospectively for positive GAS specimens (invasive & non-invasive) for residents from the same LTCF identified within past month.

- Determine if the patient delivered a baby or had surgery in the past 14 days.
- Contact Bureau of Epidemiology for guidance, if either of the above criteria apply to case being investigated

PA-NEDSS Review/Risk Assessment

Has the patient had surgery in the past 14 days?

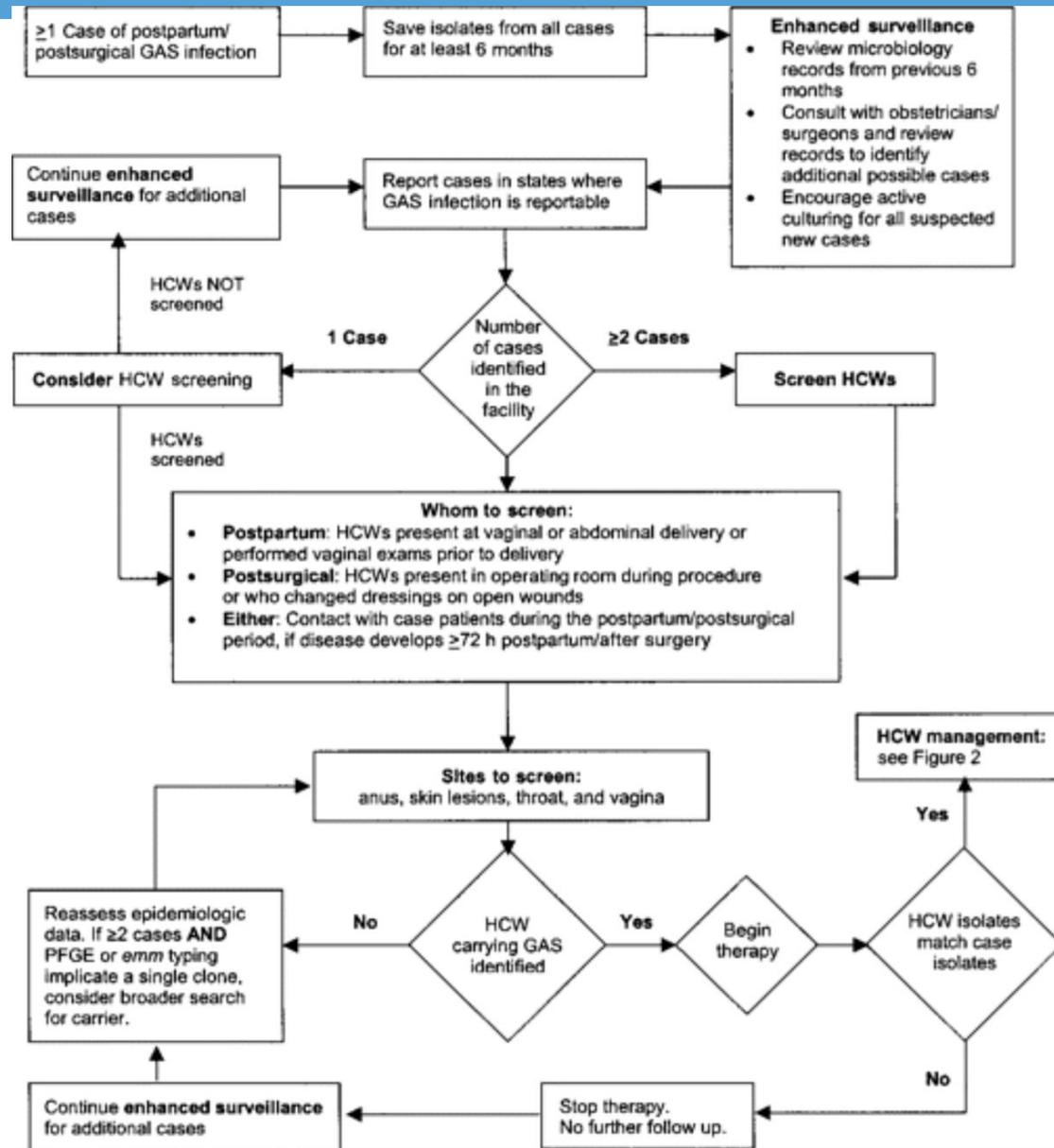
Date of surgery (Date)
Name of facility (Text)
Location of facility (Text)
Describe (Multiline Text)

Did the patient deliver a baby in the past 14 days?

Date of delivery (Date)
Date of discharge following delivery (Date)
Name of facility (Text)
Location of facility (Text)
Type of delivery (Select :Vaginal, Caesarean (C-section), Unknown)
Any post-partum complications associated with the invasive infection (e.g., hysterectomy, uterine abscess) (Select :Yes, No, Unknown)
If yes, describe (Text)
Comments (Multiline Text)

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

Figure 1: Recommended public health response to cases of postpartum and postsurgical group A streptococcal (GAS) disease



Public Health Investigations

- Single case
 - Retrospective microbiology/chart review over previous 6 months
 - Enhanced surveillance for 4 months from onset
 - Encourage obstetricians/surgeons to conduct pretreatment cultures
 - Survey HCWs for symptoms of GAS and culture symptomatic HCW
 - Review hand hygiene and infection control
- Postpartum or postsurgical iGAS one-case letter template

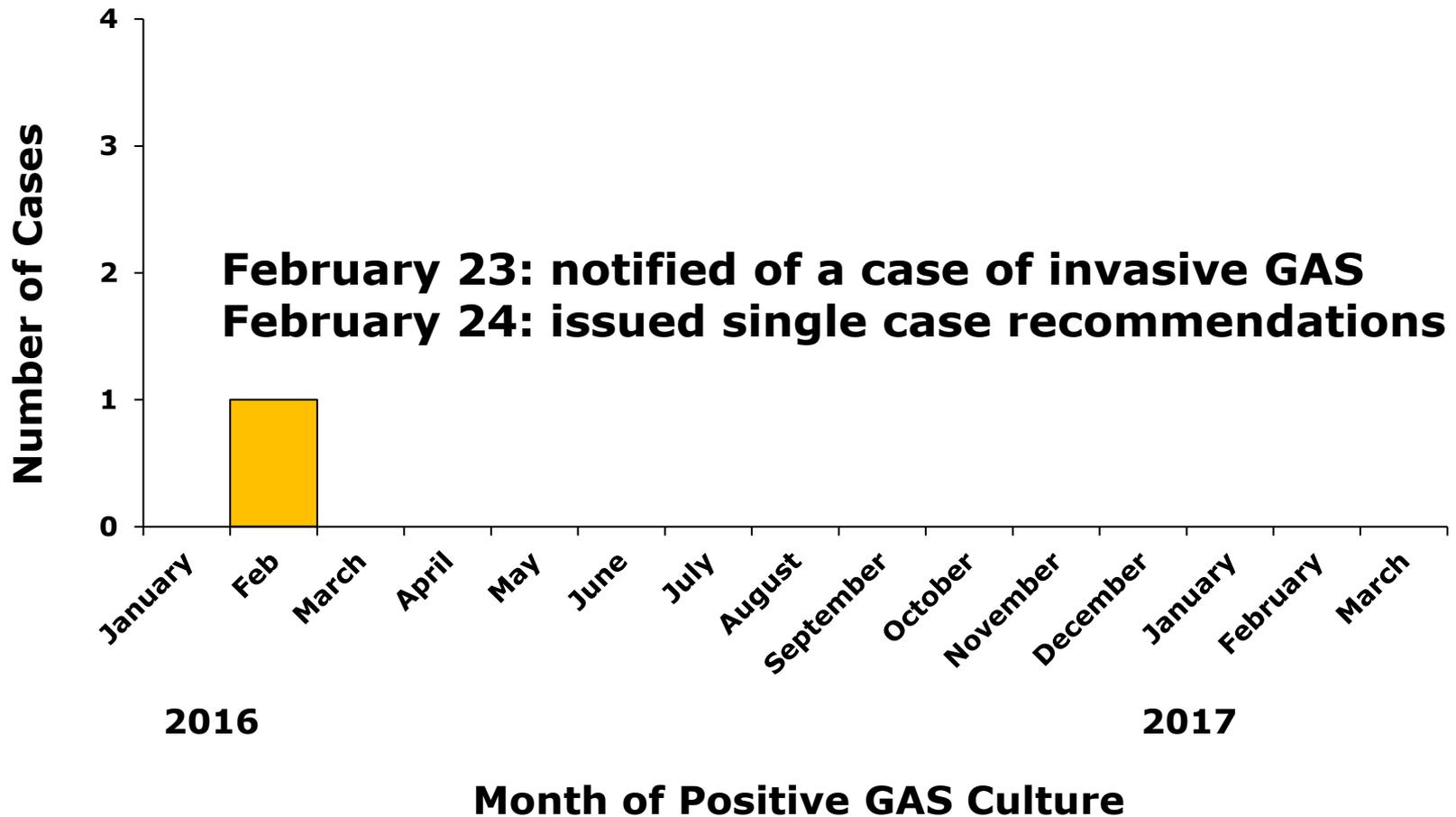
More Than 2 Cases

- Identified within 6 months of one another
- Coordinate with BOE to discuss potential next steps including:
 - ▣ Site visit
 - ▣ HCW screening
 - ▣ Strain typing

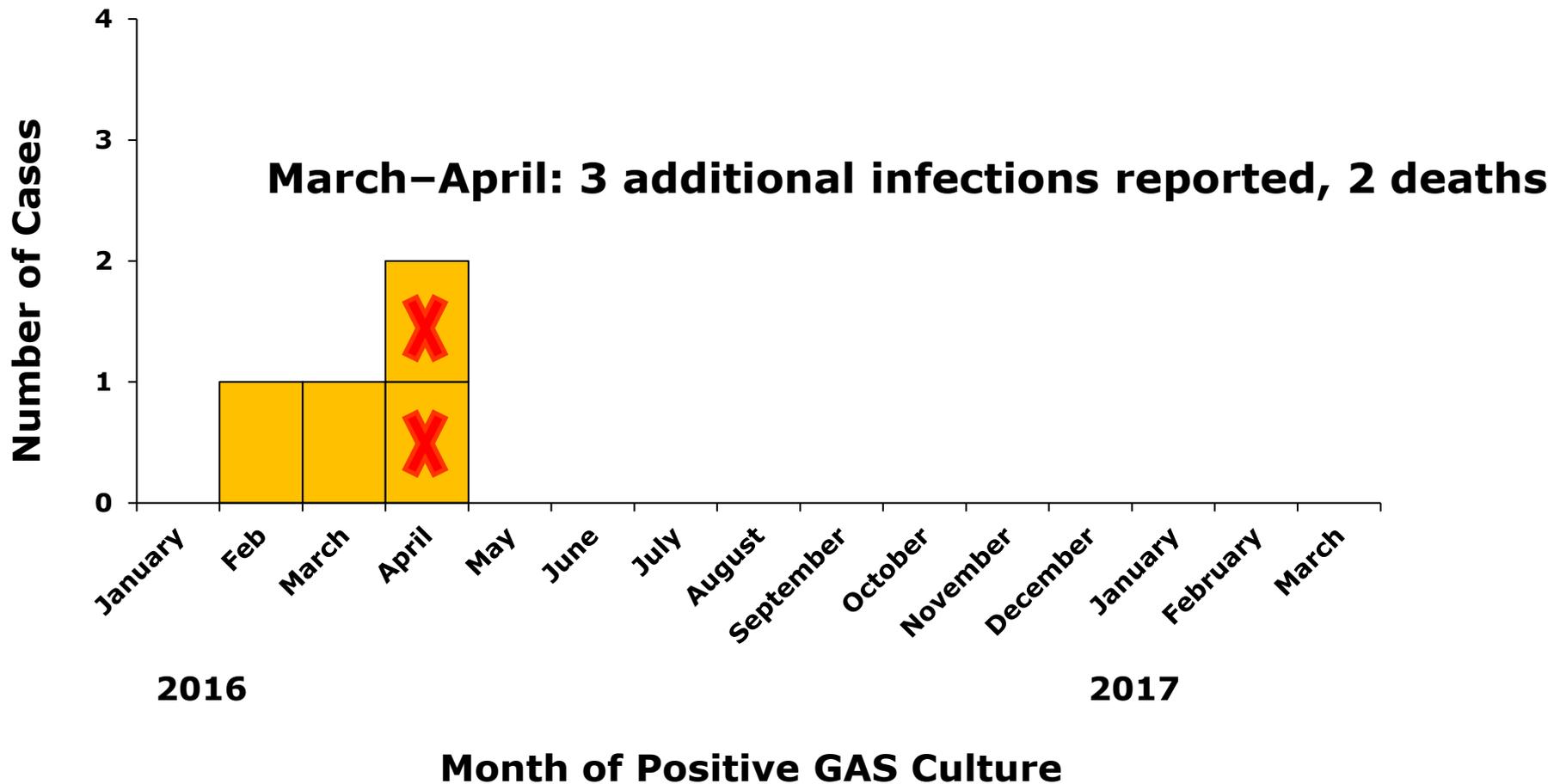
Case Study

Prolonged Outbreak of Invasive Group A Streptococcal (GAS) Infections Among Residents at a Skilled Nursing Facility— Pennsylvania, 2016

The Call



The Cluster Expands...



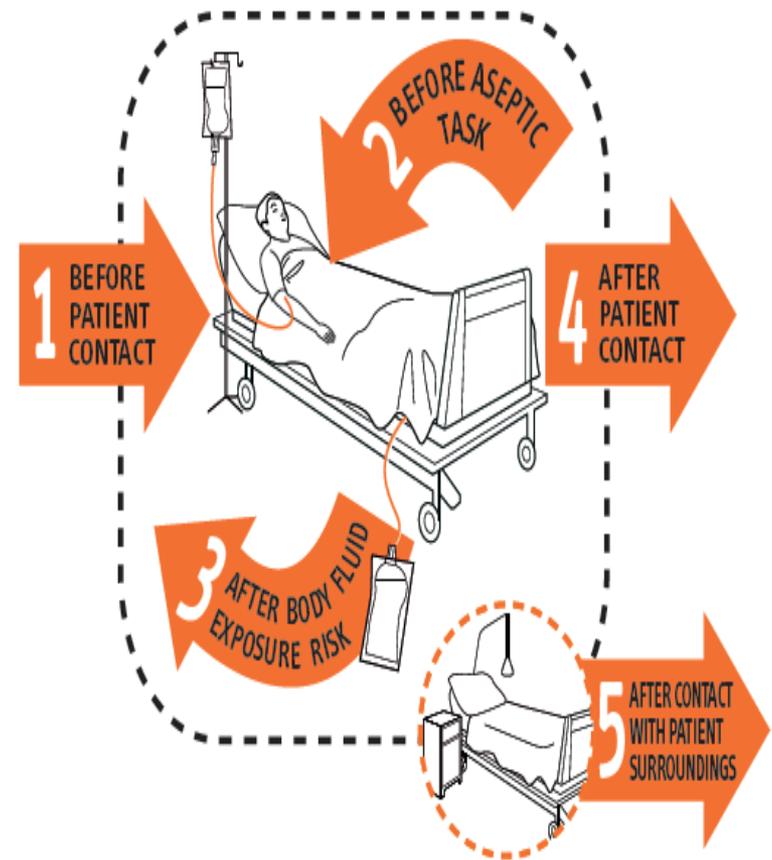
Enhanced Investigation

- Prospective case identification
 - 4 months of daily symptom assessment
 - Culture symptomatic residents and staff
 - Cases categorized as invasive or noninvasive
- Screening for asymptomatic carriage
 - 4 / 171 (2.3 percent) staff positive
 - 5 / 195 (2.6 percent) residents positive
 - Carriers treated with antibiotics, staff excluded
- Strain typing on select isolates
 - CDC laboratory

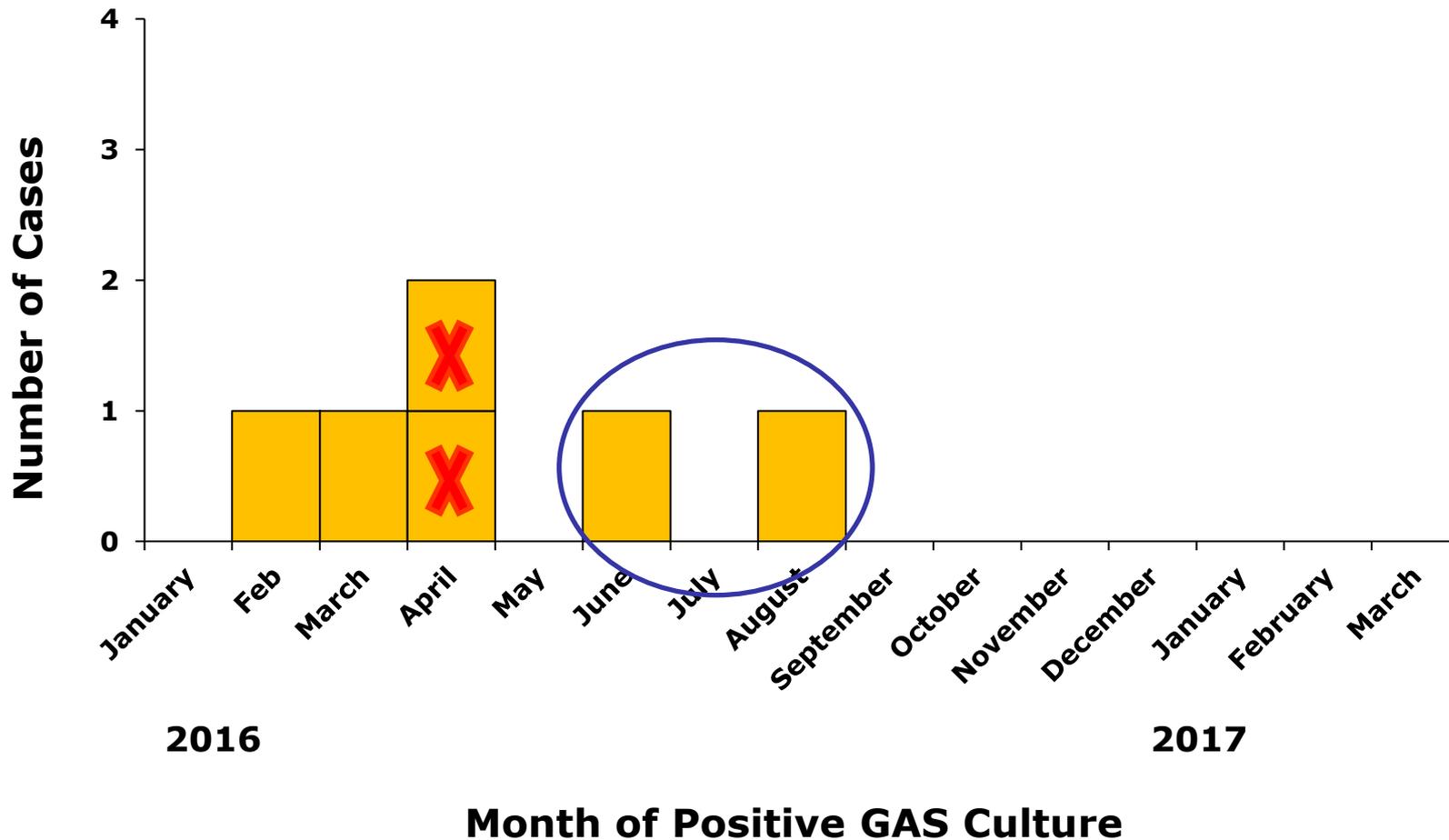
Site Visit: April 13, 2016

- Infection control deficiencies
 - Inadequate hand hygiene
 - Lack of supplies, including alcohol-based hand rub
 - Poor technique with personal protective equipment (PPE)
- Formal recommendations
 - Via letter on April 28
 - Inconsistent communication from facility, DOH concerns about implementation
 - Bureau of Facility Licensure

WHEN? Your 5 moments for hand hygiene



Two New Cases Identified



Additional Response

- Targeted screening
 - 3 new carriers identified (2 residents, 1 staff)
- Recommended review of wound care practices
 - Certified wound care/ostomy nurse
 - All 6 case-residents had nonintact skin
 - Consider mask usage during wound care
- Conference call with facility
 - Aug 17: DOH, CDC, facility's contracted infectious disease physician
 - Again, emphasized infection control
- Aug 18: Written recommendations

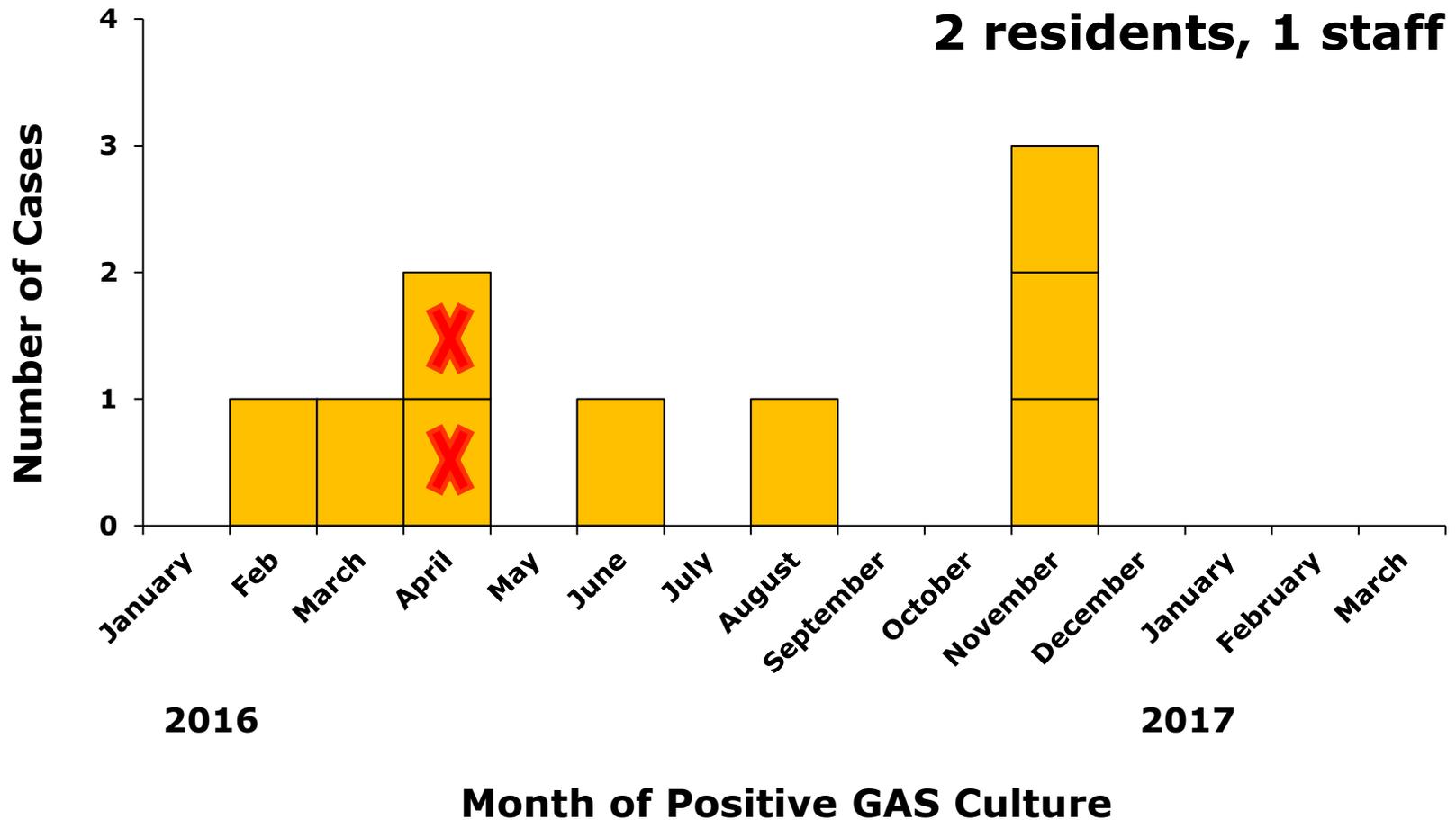
Choices, Choices

- Recommended review of wound care practices
 - Certified wound care/ostomy nurse
 - All 6 case-residents had nonintact skin
 - Consider mask usage during wound care
- Facility instead opted to use mass prophylaxis
 - Aug 31–Sept 3, 2016
 - All staff and residents received Keflex
 - 20 staff refused and were swabbed for carriage

Initial Strain Typing Results

- 17 available isolates
 - 5 cases
 - 12 carriers (7 residents, 5 staff)
- All 5 cases and 10 of 12 carriers
 - *emm11*
 - Indistinguishable whole genome sequencing
- Remaining 2 staff carriers
 - *emm3.1 and emm89*

But, Still More Cases...



Infection Control Improvements

- Increased access to alcohol-based hand rub
- Strict adherence to sick leave policy
- Aggressive staff education
- Consistent hand hygiene audits
- Retained services of external certified infection control consultant (Dec 15, 2016)

Summary

- 9 cases of GAS infections during Feb–Nov, 2016
 - 8 residents (6 invasive), 1 staff
- Suboptimal infection control practices
- Introduction of a new strain, with intrafacility transmission
- Highlights need for strong infection control practices particularly during wound care
- Challenging to maintain without culture shift

Epi Manual

CASE INVESTIGATION

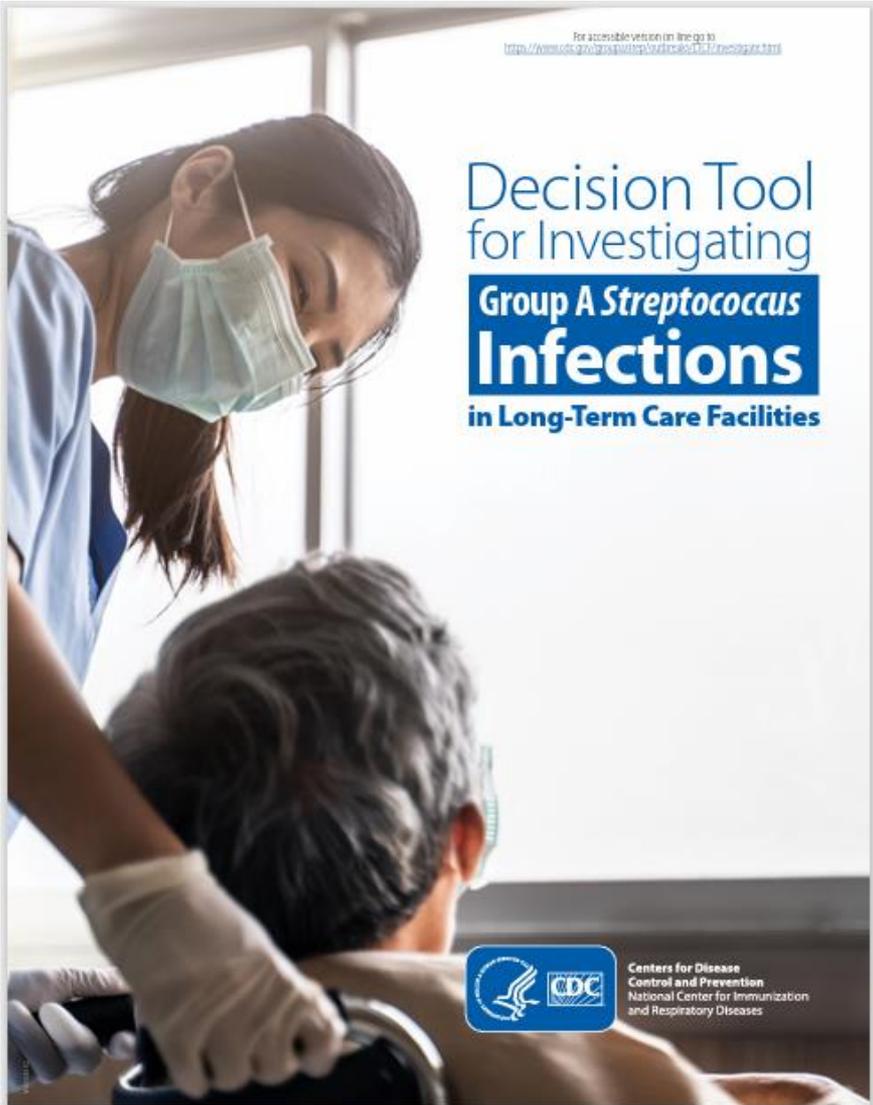
Priority:	DISEASE/SITUATION	Start Investigation No Later Than:	Complete Investigation Lower Priority if Disease/Situation Occurred Before this time:
	Invasive group A <i>Streptococcus</i> (<i>Streptococcus pyogenes</i>)	One Day	Six Months

- If desired, print the PA-NEDSS template questionnaire
- Contact provider or infection preventionist to obtain information for the PA-NEDSS questionnaire
 - Determine if the patient is a resident of a long-term care facility (LTCF, e.g., nursing home, skilled nursing facility, personal care home).
Note: If patient resides in a LTCF, request that the clinical lab save his/her GAS isolate, even if this is the only case of iGAS at the facility; further laboratory testing may be performed on the isolate. Also, consider asking local lab to look retrospectively for positive GAS specimens (invasive & non-invasive) for residents from the same LTCF identified within past month.
 - Determine if the patient delivered a baby or had surgery in the past 14 days.
 - Contact Bureau of Epidemiology for guidance, if either of the above criteria apply to case being investigated
- Recommend that symptomatic contacts seek medical care
- Educate the public, parents, and healthcare workers about modes of transmission and the importance of hand hygiene.
- Field investigation of cases and their contacts, in an attempt to identify source of infection, is ordinarily of no practical value and is not recommended unless foodborne or nosocomial outbreaks are suspected.
- Please reference PADOH's Invasive Group A Streptococcus Toolkit located on the HAIP/AS website ([Invasive Group A Streptococcus \(iGAS\) Toolkit](#)) for available resources for use during case and outbreak investigations.

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/nceizdntm/stratococci/decisiontool.html)

▶ PA Toolkit Location

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