

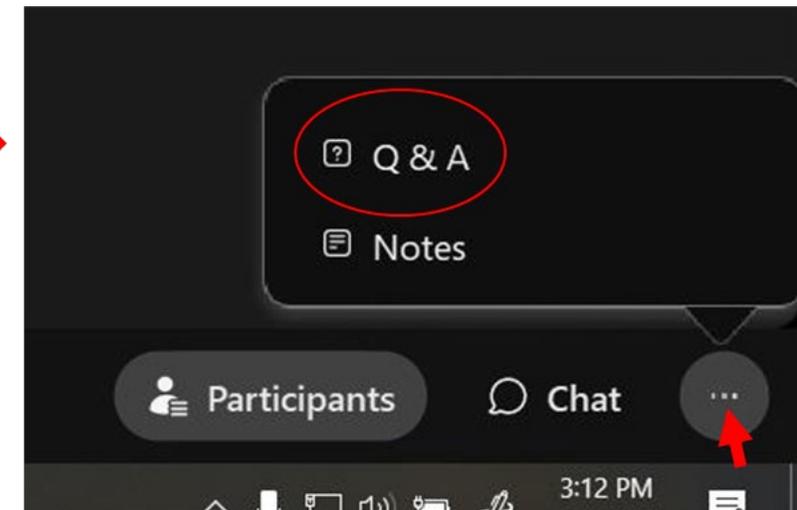


Key Infection Prevention Principles During Wound Care

April 20, 2023

Introduction

- Thank you for joining us!
- This webinar is being recorded.
- Please submit general questions in the “Q&A” box found at the bottom right of the Webex screen.
 - Our presenters will use the "Chat" box to place links and resources.



Land Acknowledgement

Every community owes its existence and vitality to generations from around the world who contributed their hopes, dreams, and energy to making the history that led to this moment. Some were brought here against their will, some were drawn to leave their distant homes in hope of a better life, and some have lived on this land for more generations than can be counted. Truth and acknowledgment are critical to building mutual respect and connection across all barriers of heritage and difference.

We begin this effort to acknowledge what has been buried by honoring the truth. We are standing on the ancestral lands of the Dakota people. We want to acknowledge the Dakota, the Ojibwe, the Ho Chunk, and the other nations of people who also called this place home. We pay respects to their elders past and present. Please take a moment to consider the treaties made by the Tribal nations that entitle non-Native people to live and work on traditional Native lands. Consider the many legacies of violence, displacement, migration, and settlement that bring us together here today. Please join us in uncovering such truths at any and all public events.*

*This is the acknowledgment given in the USDAC Honor Native Land Guide – edited to reflect this space by Shannon Geshick, MTAG, Executive Director Minnesota Indian Affairs Council

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- Provide a case study on group A *Streptococcus* response in long-term care setting to provide insight into potential transmission risks
- Establish that managing wounds and wound care are important for reducing infection risk/burden
- Define evidence-based infection prevention and control (IPC) best practices for wound care in the health care setting

- Since November 2022, Minnesota has observed a higher than normal number of invasive group A streptococcal (iGAS) infections in all age groups
 - This is following a 25% reduction in iGAS cases during the pandemic thought to be due to steps that people took to slow the spread of COVID-19
- Some of the iGAS case increase in 2022 was related to outbreaks of iGAS in long-term care facilities (LTCFs)
 - Wound care was identified as one of the risk factors in these outbreaks
- MDH has collaborated with LTCFs on iGAS outbreak response

- What triggers a visit/consult with MDH
 - Novel or emerging MDRO identified
 - Outbreak
 - Facility request
- Conference call
 - Address immediate concerns
 - Provide resources
- Onsite visit
 - Epidemiologist/ICAR – other content experts as needed
 - Customized action plan with recommendations

Response Goals

- Identify affected residents/patients
- Ensure appropriate control measures are properly implemented
- Determine if transmission within a health care facility and dissemination to other facilities are occurring
- Coordinate response with ongoing prevention activities (e.g., MDRO education, colonization screening, infection control interventions) in the region

[CDC: Containment Strategy | HAI \(www.cdc.gov/hai/mdro-guides/containment-strategy.html\)](https://www.cdc.gov/hai/mdro-guides/containment-strategy.html)

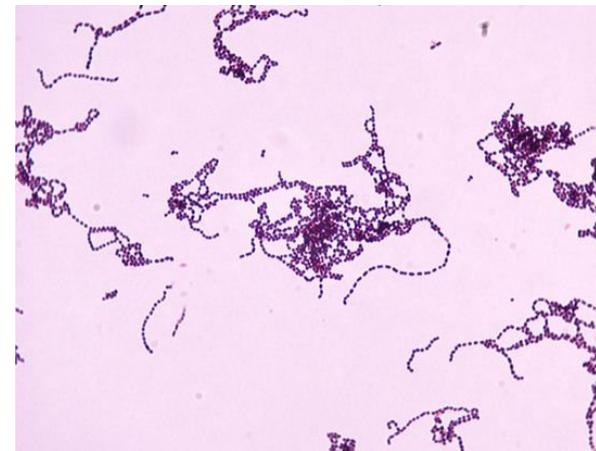
Facility Risk Factors – Infection Prevention & Control Gaps

- Not having dedicated Infection Preventionist or insufficient time
- Lack of competency-based education
 - Example: PPE donning and doffing & wound care
- No routine audits
 - Hand hygiene, PPE use, infection safety, cleaning/disinfection, device reprocessing
 - Use of standardized tool with calculation of rates
 - Sharing audit results with staff
- Defined list of who cleans what

Case Study

Group A *Streptococcus*

- Group A *Streptococcus* (GAS) is a β -hemolytic *Streptococcus* bacterium
- Infections caused by GAS range from mild illness (e.g., strep throat, impetigo) to life-threatening invasive illness (e.g., septic shock and necrotizing fasciitis)
- Invasive GAS (iGAS) cases annually in the U.S.:
 - 9,000-11,500 cases
 - 1,000-1,800 deaths
 - 10-15% of invasive cases are fatal



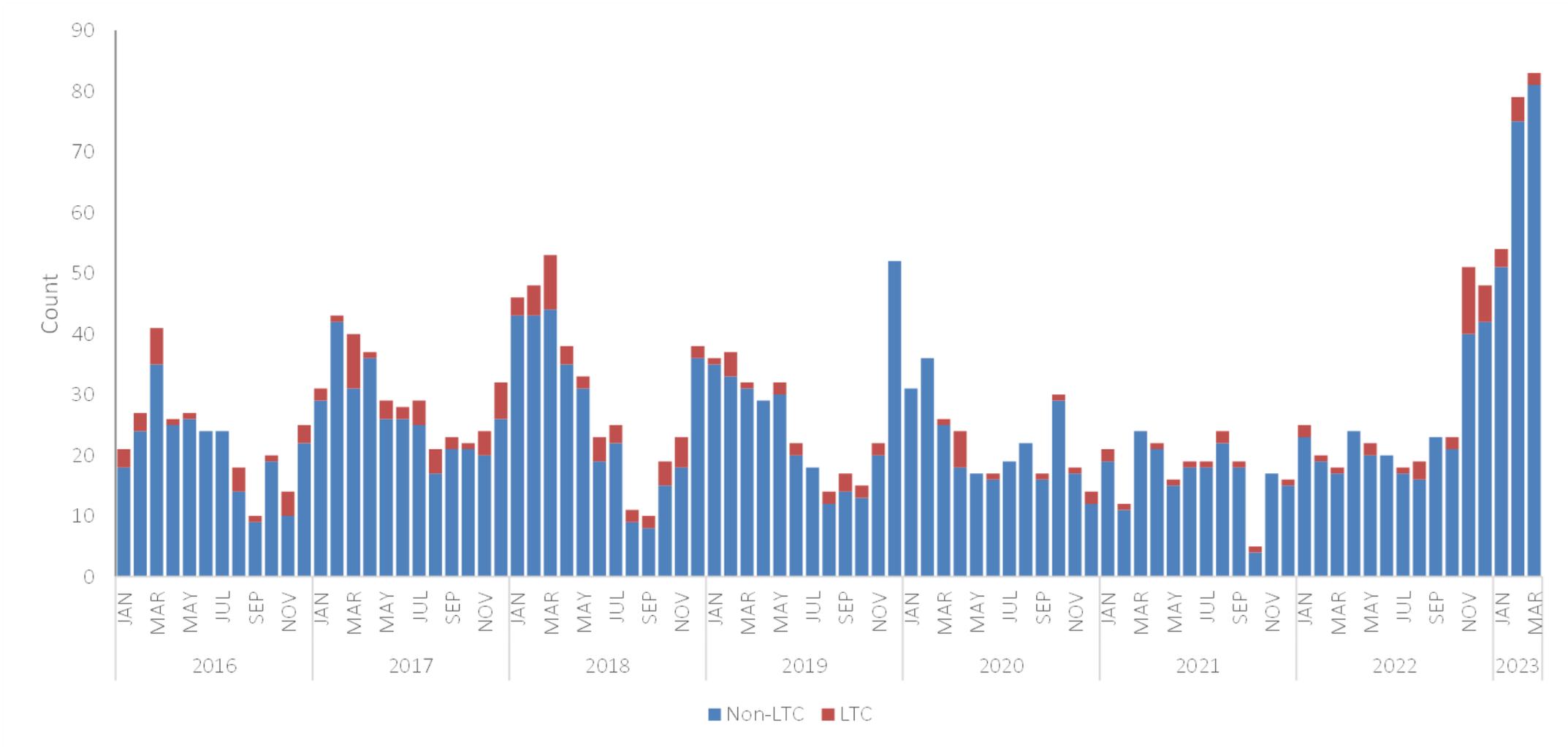
How is iGAS Transmitted?

- Close person-to person contact
 - For example, secretions from the nose or throat of infected person and/or infected wounds come into contact with another individual
- Risk of spreading is highest when a person is ill or has an active infection (e.g., “strep throat” or an infected wound)
- Treatment with an antibiotic for 24 hours generally eliminates the ability to spread GAS, it is important to complete antibiotic course

Surveillance for iGAS

- MDH performs surveillance for invasive bacterial pathogens including iGAS
- All hospitals and laboratories serving Minnesotans must report iGAS to MDH
- Bacterial isolates are submitted to MDH
- Collect demographic, clinical, and laboratory information on cases

Invasive Group A Streptococcus (iGAS) Cases – Minnesota, Jan 2016-Mar 2023



Invasive GAS in Minnesota LTCFs, 2016-2023

Year	Cases	LTCF Cases	LTCF with Multiple Cases	
			No. LTCF	No. Cases
		No. (%)		
2016	277	27 (10%)	3	7
2017	359	40 (11%)	10*	39
2018	367	44 (12%)	9*	26
2019	326	19 (6%)	1	2
2020	271	13 (6%)	1	2
2021	214	12 (6%)	1	2
2022	311	29 (9%)	7*	19
2023	218	9 (4%)	2*	6

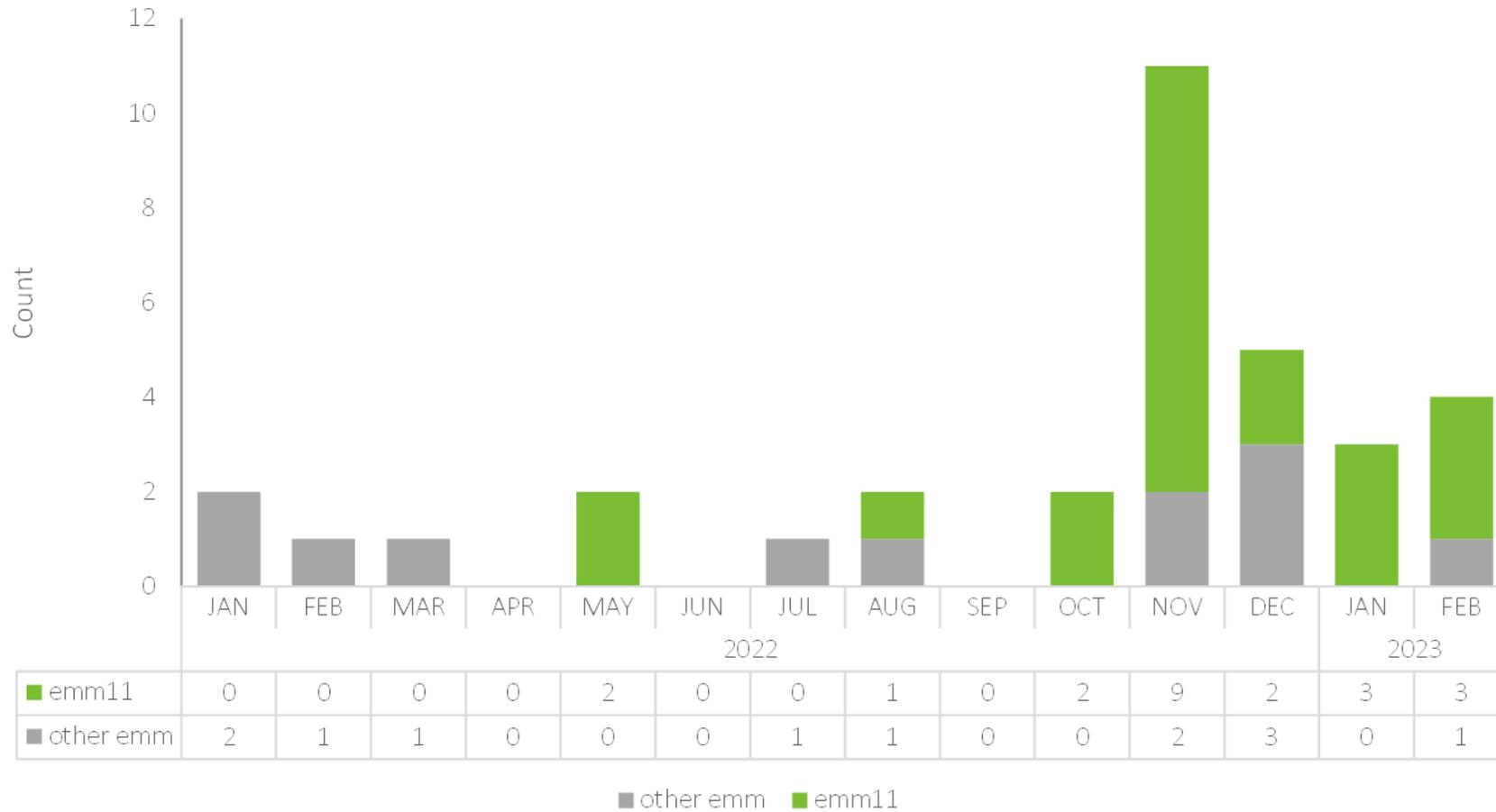
GAS in Long-term Care Facilities

- Residents of long-term care facilities (LTCFs) are particularly at risk for severe infection and death from iGAS infections
- Rates of iGAS infection and death increase with age
- Compared with older adults 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 iGAS infections
 - Close contact with caregivers or other residents
 - Large proportion of residents with high risk conditions
- Strong infection prevention and control practices are critical to stopping GAS transmission and preventing outbreaks in LTCFs

MDH Response to iGAS in LTCFs

- Meet with the facility
 - What are the epidemiologic risk factors of the patients?
- Make recommendations to the facility
 - Enhance surveillance for invasive and non-invasive infection, educate staff, observe and audit hand hygiene, wound care, and environmental cleaning
 - Eliminate iGAS colonization
 - ICAR assessment
- Whole genome sequencing

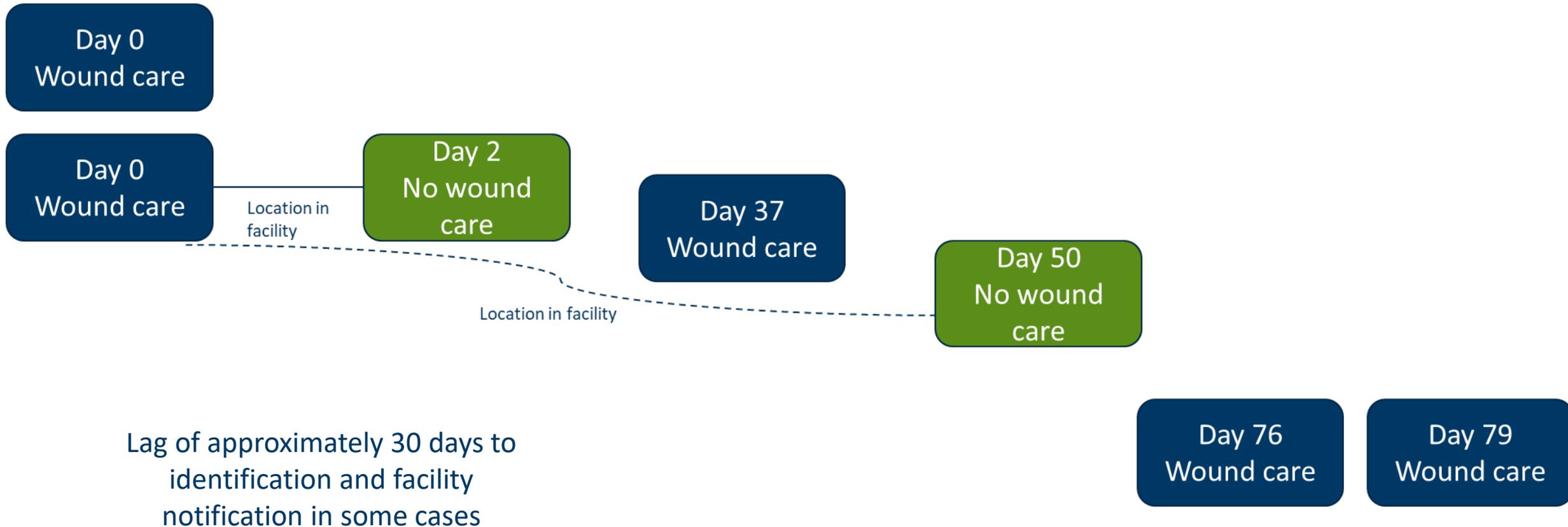
Distribution of Emm11 – Minnesota, Jan 2022 - Feb 2023



Risk Factors of Clustered iGAS Cases

- 22 of 34 LTC associated cases were emm11 and considered “clustered”
- 12 had received wound care
 - 10 of those who received wound care had chronic skin breakdown or diabetes
- 8 did not receive wound care
 - 2 unknown risk, 1 podiatry, 1 surgery, 1 roommate to a case, 1 roommate to a person who received wound care, 2 neighbors to cases
- 2 had unknown risk history

An iGAS outbreak



- Communication of laboratory results across the continuum of care will increase timeliness of outbreak identification and response
- Adherence to core infection prevention practices is critical to stopping GAS transmission and preventing outbreaks in LTCFs
- CDC has developed tools for responding to iGAS in LTCFs:
 - [CDC: Group A Strep in Long-term Care Facilities: Identifying and Managing Outbreaks \(www.cdc.gov/groupastrep/outbreaks/ltnf/index.html\)](https://www.cdc.gov/groupastrep/outbreaks/ltnf/index.html)
- MDH iGAS resources for LTCFs:
 - [MDH: Invasive Group A Streptococcus \(GAS\) in Long Term Care Facilities \(www.health.state.mn.us/diseases/strep/gas/ltnf.html\)](https://www.health.state.mn.us/diseases/strep/gas/ltnf.html)

Infection Prevention & Control Recommendations

Wound Care

Wounds are a Risk Factor

Wound care treatment and services can be complex procedures

- Utilizing a wide array of products and/or equipment

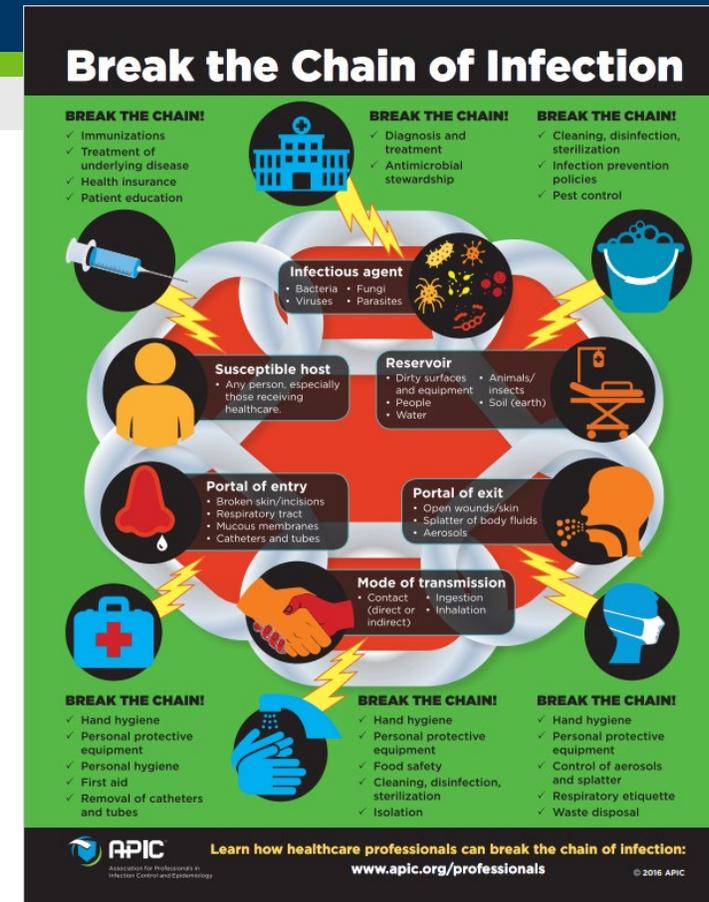
Wounds are a risk factor for both invasive infections and colonization

- Infected or colonized wounds can play a role in transmission if appropriate precautions are not followed

Source of ongoing transmission through:

- Direct person-to-person contact
- Contact with contaminated, shared equipment (e.g., shared wound care supplies)
- Transmission occurs through infected and colonized people

- Consider the potential for contamination of the patient's skin or clothing by microorganisms in the treatment environment
- Consider the potential for exposure to the patient's blood, body fluids, secretions, and tissues for you and others in the treatment area
- Consider the risks for exposure for intact vs non-intact skin, mucous membranes, equipment and surfaces



[APIC: Break the Chain of Infection \(https://infectionpreventionandyou.org/protect-your-patients/break-the-chain-of-infection/\)](https://infectionpreventionandyou.org/protect-your-patients/break-the-chain-of-infection/)

Administrative Controls

- Evidence-based policies and procedures
- Wound care resources (e.g., nursing reference book with checklists)
- Competency-based program for training
- Audits (monitor and document) adherence to wound care policies and procedures
- Wound care documentation
- Evidence-based IPC practices

Infection Prevention & Control (IPC) Practices

- Hand Hygiene
- Standard Precautions, Transmission-based Precautions, Enhanced Barrier Precautions
- Wound Care
- Environmental Cleaning
- Regular assessments/audits of infection control practices

- Ensure staff are educated on proper wound care practices.
- Maintain proper storage, handling, and transport of medications and supplies.
- Ensure proper cleaning and disinfection of reusable equipment and other items.
- Ensure proper disposal of used materials.
- Perform audits of wound care practices and provide feedback to staff on adherence.

“Maintain separation between clean and soiled equipment to prevent cross contamination.”

“Dedicated multidose vials to a single patient whenever possible.”

[CDC’s Core Infection Prevention and Control Practices for Safe Healthcare Delivery in All Settings \(www.cdc.gov/infectioncontrol/guidelines/core-practices/index.html\)](https://www.cdc.gov/infectioncontrol/guidelines/core-practices/index.html)

IPC Best Practice - Supplies

- Supplies are handled in a way to prevent contamination
- Supplies are dedicated to and labeled for one individual
- Multi-dose medications are used appropriately
 - Multi-dose wound care medications (e.g., ointments, creams) should be dedicated to a single resident whenever possible or a small amount of medication should aliquoted into a clean container for single-resident use.
 - Medications should be stored properly in a centralized location and never enter a patient treatment area or room.

IPC Guidance - Hand Hygiene

“Use an alcohol-based hand rub or wash with soap and water to perform hand hygiene”.

[CDC’s Core Infection Prevention and Control Practices for Safe Healthcare Delivery in All Settings](https://www.cdc.gov/infectioncontrol/guidelines/core-practices/index.html)
(www.cdc.gov/infectioncontrol/guidelines/core-practices/index.html)



IPC Best Practice - Hand Hygiene

Must use Soap and Water

Visibly soiled hands

Before handling food

Before assisting with meals

After using the restroom

After contact with infectious diarrhea (i.e., *C. diff*)

May use Hand Sanitizer

Before and after direct resident contact

Before and after invasive procedure

Before and after entering isolation precaution settings

After removing gloves or aprons

IPC Guidance – Hand Hygiene Access

“Easy access to hand hygiene supplies is essential”



Think placement within the workflow and proximity to point of use.

Things to Think About - Hand Hygiene

- What are the barriers to performing HH during wound care?
- Do all HCWs have access to ABHS when performing wound care?
- Do all HCWs perform when needed?
- Do all HCWs perform correctly?

Think about how you can help improve hand hygiene.

IPC Guidance – Prepare Clean Field

“Maintain separation between clean and soiled equipment to prevent cross-contamination.”

“Require routine and targeted cleaning of environmental surfaces as indicated by the level of patient contact and degree of soiling.”

[CDC’s Core Infection Prevention and Control Practices for Safe Healthcare Delivery in All Settings](https://www.cdc.gov/infectioncontrol/guidelines/core-practices/index.html)
(www.cdc.gov/infectioncontrol/guidelines/core-practices/index.html)



IPC Best Practice - Prepare Clean Field

- Surface cleaned with antiseptic wipes following manufactures guidelines
 - EPA-registered that are microbiodical against pathogen
 - Dilution
 - Contact time
 - Shelf-life
- Surface barrier applied (e.g., Chux pad)
- Supplies placed on surface barrier in aseptic manner

IPC Guidance -Hand Hygiene & PPE

“Use an alcohol-based hand rub or wash with soap and water for the following clinical indication:

c) Before performing an aseptic task.”

“Wear gloves, wear a gown, use protective eyewear and a mask, or face shield ...”

[CDC’s Core Infection Prevention and Control Practices for Safe Healthcare Delivery in All Settings](https://www.cdc.gov/infectioncontrol/guidelines/core-practices/index.html)
www.cdc.gov/infectioncontrol/guidelines/core-practices/index.html



Standard, Contact, and Enhanced Barrier Precautions

- Clean gloves and personal protective equipment donned according to Standard or Contact Precautions
 - Consider use of surgical mask for all wound care
 - Goggles and facemask, or a face shield should be worn when splashes or aerosols may be generated
- Long-term care facilities may consider implementing Enhanced Barrier Precautions.
 - Targeted gown and glove use during high-contact resident care activities (e.g., dressing, bathing/showering, transferring, providing hygiene, changing linens, changing briefs/toileting, device care, wound care)

CDC Comparison Table

- Standard Precautions
- Contact Precautions
- Enhanced Barrier Precautions

[CDC: Implementation of Personal Protective Equipment \(PPE\) Use in Nursing Homes to Prevent Spread of Multidrug-resistant Organisms \(MDROs\)](https://www.cdc.gov/hai/containment/PPE-Nursing-Homes.html)
www.cdc.gov/hai/containment/PPE-Nursing-Homes.html

Table: Summary of PPE Use and Room Restriction When Caring for Residents Colonized or Infected with MDROs in Nursing Homes

Precautions	Applies to:	PPE used for these situations:	Required PPE	Room restriction
<i>Standard Precautions</i>	All residents	Any potential exposure to: <ul style="list-style-type: none"> • Blood • Body fluids • Mucous membranes • Non-intact skin • Potentially contaminated environmental surfaces or equipment 	Depending on anticipated exposure: gloves, gown, or facemask or eye protection (Change PPE before caring for another resident)	None
<i>Enhanced Barrier Precautions</i>	All residents with <i>any of the following</i> : <ul style="list-style-type: none"> • Infection or colonization with an MDRO <i>when Contact Precautions do not apply</i> • Wounds and/or indwelling medical devices (e.g., central line, urinary catheter, feeding tube, tracheostomy/ventilator) <i>regardless of MDRO colonization status</i> 	During high-contact resident care activities: <ul style="list-style-type: none"> • Dressing • Bathing/showering • Transferring • Providing hygiene • Changing linens • Changing briefs or assisting with toileting • Device care or use: central line, urinary catheter, feeding tube, tracheostomy/ventilator • Wound care: any skin opening requiring a dressing 	Gloves and gown prior to the high-contact care activity (Change PPE before caring for another resident) (Face protection may also be needed if performing activity with risk of splash or spray)	None
<i>Contact Precautions</i>	All residents infected or colonized with a MDRO <i>in any of the following situations</i> : <ul style="list-style-type: none"> • Presence of acute diarrhea, draining wounds or other sites of secretions or excretions that are unable to be covered or contained • For a limited time period, as 	Any room entry	Gloves and gown (Don before room entry, doff before room exit)	Yes, except for medically necessary care

IPC Guidance - During Procedure

“Maintain separation between clean and soiled equipment to prevent cross contamination.”

“Use an alcohol-based hand sanitizer or wash with soap and water ...

[CDC’s Core Infection Prevention and Control Practices for Safe Healthcare Delivery in All Settings](https://www.cdc.gov/infectioncontrol/guidelines/core-practices/index.html)
(www.cdc.gov/infectioncontrol/guidelines/core-practices/index.html)



IPC Best Practice – During Procedure

- Barrier positioned under wound
- Old dressing removed and discarded immediately.
- Dirty gloves removed and discarded
- Hand hygiene performed properly before accessing clean supplies
- Clean gloves donned
- Wound treatment completed

Aseptic Non-Touch Technique

Wound cleaned and treatment completed using aseptic non-touch technique to prevent transmission of microorganisms to the wound.

- Clean gloves should not directly contact the wound bed.
- If the wound requires direct palpation, sterile gloves should be worn.
- Sterile applicators should be used to apply medications.
- Dressing handled in an aseptic manner so that the dressing surface applied to the wound is never touched by staff hands or other surfaces.

IPC Best Practice – Procedure Completion

- Dirty supplies discarded in trash receptacle
- Gloves removed and hand hygiene performed properly after dressing change is complete

[CDC: Environmental Cleaning 101](https://www.cdc.gov/infectioncontrol/pdf/strive/EC101-508.pdf)
(www.cdc.gov/infectioncontrol/pdf/strive/EC101-508.pdf)

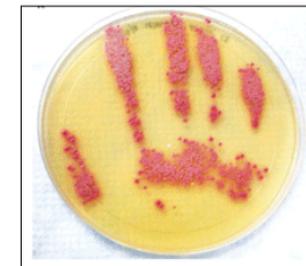
Environmental Contamination Leads to Healthcare Personnel Contamination

After **5 seconds** of contact with the bedrail and bedside table, healthcare personnel hand cultures were positive* in:

53% of occupied rooms

24% of vacant, “clean” rooms

*Including: *S. aureus*, vancomycin-resistant enterococci (VRE), *C. difficile*, gram-negative bacilli



(Image source: Donskey CJ, *N Eng J Med*, 2009)



(Bhalla A, *Infect Control Hosp Epidemiol*, 2004)

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IPC Guidance-Wound Care Equipment

“Clean and reprocess (disinfect or sterilize) reusable medical equipment...prior to use on another patient and when soiled.

- a. Consult and adhere to manufacturers’ instructions for reprocessing.”*

“Maintain separation between clean and soiled equipment to prevent cross contamination.”

[CDC’s Core Infection Prevention and Control Practices for Safe Healthcare Delivery in All Settings](https://www.cdc.gov/infectioncontrol/guidelines/core-practices/index.html)
(www.cdc.gov/infectioncontrol/guidelines/core-practices/index.html)

[CDC: Environmental Cleaning 101](https://www.cdc.gov/infectioncontrol/pdf/strive/EC101-508.pdf)
(www.cdc.gov/infectioncontrol/pdf/strive/EC101-508.pdf)

Pathogens Can Survive in the Environment for Long Periods of Time

Organism	Duration of Survival
<i>Acinetobacter</i> sp.	3 days-5 months
<i>Clostridioides difficile</i>	5 months
<i>E. coli</i>	1.5 hours-16 months
<i>Enterococcus</i> (VRE, VSE)	5 days-4 months
<i>Klebsiella</i> sp.	2 hours->30 months
<i>Proteus vulgaris</i>	1-2 days
<i>Pseudomonas aeruginosa</i>	6 hours-16 months
<i>Serratia marcescens</i>	3 days-2 months
<i>S. aureus</i> (including MRSA)	7 days-7 months



(Kramer A, BMC Infect Dis, 2006)

6



IPC Best Practice - Wound Cart

Wound cart is clean and utilized appropriately

- The clean supply cart should not enter the patient/resident's room/immediate care area.

Wound Care Equipment and Supplies

- Reusable equipment
- Dedicated equipment
- Dedicate tape, sprays, creams, and all wound care products to an individual resident
- Store wound care supplies in a clean area of resident room

[APIC: Non-Critical Is Critical Infographic](https://apic.org/wp-content/uploads/2021/09/Infographic_noncritical_is_critical.pdf)

https://apic.org/wp-content/uploads/2021/09/Infographic_noncritical_is_critical.pdf

Non-Critical Is Critical

Strategies to Mitigate Cross Contamination of Non-critical Medical Devices

Multiple-use, "non-critical," non-invasive, portable clinical items, such as medical tape and stethoscopes, can become star players in cross contamination and pathogen transmission. Unlike medical devices deemed critical, non-critical medical devices may not be accompanied by Instructions for Use (IFUs)—documents outlining the proper handling, storage, and processes required to clean and reach the parameters of safe use on patients. As a result, proper handling and storage of "non-critical" medical devices is often overlooked.

What are examples of non-critical medical devices?

- THERAPY TOYS
- OXYGEN SATURATION MONITORS
- BLOOD PRESSURE CUFFS
- STETHOSCOPES
- MEDICAL TAPE

APIC
Association for Professionals in Infection Control and Epidemiology

Tools & Resources

Audit/Observation Tools



Wound Dressing Change Observation Tool

This audit tool can be used to determine compliance of wound dressing change practices for any staff member.

Observer: _____ Date: _____ Location (room/unit/etc.): _____

Role	All supplies gathered before dressing change ¹	HH performed before dressing change	Clean gloves donned before dressing change ²	Multi-dose wound care meds used appropriately ³	Dressing change performed in manner to prevent cross-contamination ⁴	Gloves removed after dressing change completed	HH performed after dressing change completed	Reusable equipment cleaned and/or disinfected appropriately ⁵	Clean, unused supplies discarded or dedicated to one resident	Wound care performed/assessed regularly ⁶	Wound care supply cart is clean ⁷
<input type="checkbox"/> RN <input type="checkbox"/> REHAB <input type="checkbox"/> PROVIDER <input type="checkbox"/> CONTRACTOR	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA										
<input type="checkbox"/> RN <input type="checkbox"/> REHAB <input type="checkbox"/> PROVIDER <input type="checkbox"/> CONTRACTOR	<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> N/A										

- Infection Prevention Audit Tools Instruction Manual
- 4 sections (HH, PPE, Wound Care & EVS)
 - Observation (PDF & Word)
 - Audit Tracking Workbook (Excel)

www.health.state.mn.us/facilities/patientsafety/infectioncontrol/icar/res/audit.html

- [CDC's Core Infection Prevention and Control Practices for Safe Healthcare Delivery in All Settings \(www.cdc.gov/infectioncontrol/guidelines/core-practices/index.html\)](https://www.cdc.gov/infectioncontrol/guidelines/core-practices/index.html)
- [CDC: Hand Hygiene | Guidelines Library | Infection Control \(www.cdc.gov/infectioncontrol/guidelines/hand-hygiene/index.html\)](https://www.cdc.gov/infectioncontrol/guidelines/hand-hygiene/index.html)
- [CDC TRAIN: Module 10C - Infection Prevention during Wound Care \(www.train.org/cdctrain/course/1081811/details\)](https://www.train.org/cdctrain/course/1081811/details)
- [CDC: Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings \(2007\) \(www.cdc.gov/infectioncontrol/pdf/guidelines/isolation-guidelines-H.pdf\)](https://www.cdc.gov/infectioncontrol/pdf/guidelines/isolation-guidelines-H.pdf)
- [CDC: Implementation of Personal Protective Equipment \(PPE\) Use in Nursing Homes to Prevent Spread of Multidrug-resistant Organisms \(MDROs\) \(www.cdc.gov/hai/containment/PPE-Nursing-Homes.html\)](https://www.cdc.gov/hai/containment/PPE-Nursing-Homes.html)

Infection Control Assessment and Response (ICAR)

- Partner with facility infection preventionists to:
 - Assess infection prevention domains
 - CDC or MDH developed assessment tool
 - In-person visit
 - Tele-visit (virtual)
 - Identify priorities and gaps
 - Provide resources
 - Offer ongoing consultation



[MDH: Enroll in ICAR \(www.health.state.mn.us/facilities/patientsafety/infectioncontrol/icar/enroll.html\)](http://www.health.state.mn.us/facilities/patientsafety/infectioncontrol/icar/enroll.html)

Thank You!