DEPARTMENT OF HEALTH

Key Infection Prevention Principles During Wound Care Transcript

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[Kristi Juaire, ICAR Nurse Specialist]

Well hello everyone and so it's 11:00 we'll go ahead and get started. So this is the Key Infection Prevention Principles During Wound Care webinar. Next slide, please.

So I just want to thank you all for joining us today. This webinar is being recorded, so please submit any 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. Next slide, please.

So we're just going to take a moment and you can read the land acknowledgement. Okay, next slide. please.

Good morning, everyone. Thank you for joining us today and welcome to today's webinar. My name is Kristi Juaire and I am nurse specialist with the infection control assessment and response or ICAR unit. I'll be joined today by my colleague, Jennifer Zipprich, an epidemiologist with the emerging infections unit. We will be happy to answer your questions at the end of the presentation. So, again, please submit your questions in the Q&A box. Next slide.

So the purpose of this presentation today is to strengthen your knowledge regarding key infection prevention principles during wound care. The objectives are to provide a case study on group A *Streptococcus* response in long-term care settings to provide insight into potential transmission risks, establish that managing wounds and wound care are important for reducing infection risk, and defined evidence-based infection prevention and control best practices for wound care in the health care setting. Next slide, please.

So let's get started with some background information. Since November 2022, Minnesota has observed higher the normal number of invasive group A strep infections in all age groups. This is following a 25% reduction in invasive group A cases during the pandemic, thought to be due to steps that people took to slow the spread of COVID-9. Some of the invasive group A strep cases increase in 2022 is related to outbreaks of invasive group A strep in long-term care facilities. Wound care was identified as one of the risk factors in these outbreaks. MDH has collaborated with long-term care facilities on invasive group A strep outbreak response. Next slide, please.

So first, how can MDH help when a novel or emerging MDRO or an outbreak is identified? The HAI/AR team and ICAR team can provide support through conference calls to address immediate concerns and provide resources. In addition, onsite visits may be scheduled with content experts to provide a customized action plan and recommendations. It is important to note that this collaboration is voluntary. Next slide, please.

So I'd like to emphasize the three key response concepts to keep in mind as we talk today. Identify, isolate, and inform. The response goals are to identify affected residents or patients to ensure appropriate control measures are properly implemented to determine if transmission within a health care facility and dissemination to other facilities are occurring, and coordinate response with ongoing prevention activities, like MDRO education colonization screening, infection control interventions, and do this across a regional approach. Next slide, please.

So I'd also like to share with you the key gaps in infection prevention and control practices, which place facilities at risk for ongoing transmission and point to the importance of adequate infection prevention staffing and training. These gaps include not having a dedicated infection preventionist or insufficient time, lack of competency-based education for example in wound care, and lack of routine audits. Now let's – also in looking at defining the environmental cleaning practices and who cleans what. Now, let's move to review the invasive group A *Streptococcus* case study. I'll turn the presentation over to Jennifer.

[Jennifer Zipprich, Emerging Infections Unit Epidemiologist Supervisor]

Thank you, next slide please. A little bit of background on group A strep or GAS in parens before we begin. Infections caused by group A strep range from mild illness, like strep throat or impetigo, to life threatening invasive illness such a septic shock or necrotizing fasciitis. Invasive group A strep cases in the U. S. range from 9,000 to 11,000 cases annually, 10-15% of those being fatal. Next slide.

Group A strep is transmitted through close person-to-person contact. This could be through contact with secretions from the nose or throat of an infected person or direct contact through infected wounds. Risk of spreading as highest when a person is ill or has an active infection, like strep throat or an infected wound. But treatment with an antibiotic for 24 hours generally eliminates the ability to spread group A strep. Next slide.

The Minnesota Department of Health performs surveillance for invasive bacterial pathogens, including invasive group A strep. All hospitals and laboratories serving Minnesotans must report invasive group A strep to the Minnesota Department of Health. These reports typically include the patient's name, some culture information, and the patient's address. Bacterial isolates are submitted to MDH, and once we have the patient information, our epidemiologists will review the medical record to collect demographic, clinical, and other laboratory information. Next slide.

So what you're looking at here is one of the ways that we monitor our surveillance data that is collected, and this is called an epidemiologic curve. We're looking at cases from January 2016 to 2023. On the X axis you can see the month and year, and on the Y axis is the count. The bars that are blue are the non-long-term care-associated cases, and those shown in red are long-term care-associated cases. So you can probably observe a couple of things about this data as you're looking at it. One is that there is a seasonality to group A strep. If you look in the years prior to the pandemic, you can see we have peak season generally between January and May; however, if you look in the pandemic period 2020/2021, you can see that seasonality wasn't as distinct. Secondly, starting in November of 2022, you can see a large increase in invasive group A strep cases overall, but also the long-term care-associated cases making up a greater proportion of that bar. So we're very interested in looking at these cases that were occurring starting in November as we're interested in whether this represents just an overall increase in cases or if there was something in particular that was happening in long-term care facilities. Next slide.

This is just a different way to look at the data in table format. Here we have the year, the annual number of total cases, and our long-term care facility-associated cases. And you can see that in an average year, we have anywhere from 250 or so to 350 cases. I'll just note that 2023 is incomplete, but we do have a significantly increased number of cases in 2023. The long-term care-associated cases represent anywhere from 5-10% of cases in a typical year, and I'll just note here that in 2017/18, we did have several outbreaks in long-term care facilities and we see that invasive group A strep cases accounted – in long-term care facilities accounted for 11-12% of the overall cases. Another thing that we look at to determine whether or not there are potential outbreaks in long-term care facilities is whether there are multiple cases within a facility, and here we can see in 2022, there are seven facilities with more than one case and there were 19 total cases in those multi-case facilities. Next slide.

So just to step back for a minute to sort of provide context for why we are concerned about group A strep in long- term care facilities. That's because residents of long-term care facilities are particularly at risk for severe

infection and death. We know that the rates of invasive group A strep infection increase with age; however, even compared with older adults in the community, residents of long-term care facilities, have a 3- to 8-fold higher incidence of invasive group A strep infection, and they're more likely to die from of invasive group A strep infection, and it's thought that that is due to the close contact that people in long-term care facilities have with caregivers or other residents as well as the large proportion of residents that have high risk conditions. But out of the many studies or evaluations of outbreaks that have been published, strong infection prevention and control practices have been shown to be critical in stopping those group A strep transmission in long-term care. Next slide.

When MDH learns event and invasive group A strep in a long-term care facility, we typically meet with the facility to really get an understanding of what the epidemiologic risk factors are associated with the patients. Did they receive wound care? Did they have a recent surgery? Do they have contact with a known invasive group A strep case? So it allows us to get really an understanding of what may have led to that person's infection. We make recommendations to the facility around enhancing surveillance for invasive and non-invasive infections, around staff education of group A strep, as well as reinforcing infection prevention practices through observation and audit of hand hygiene, wound care if wound care is identified as a risk in that situation, and environmental cleaning. Additionally, CDC has recommendations around swabbing of asymptomatic residents and staff to identify people who are carriers of group A strep. And then for those who do test positive, elimination of colonization through treatment with antibiotics. And finally we've been working very closely with ICAR to offer assessments, both general infection prevention practices and wound care, to facilities that have had more than one group A strep case. And finally a very important tool in our investigation is whole genome sequencing, which we are fortunate to have the capacity to perform in our Public Health Laboratory. Next slide.

A little more about whole genome sequencing. This is a method that allows us to look at the unique DNA sequence of the group A strep organism. And the whole genome sequence actually provides a lot more information than previous molecular characterization techniques such as PFGE. We can classify isolates into groups called emm types, but we can also compare the entire genome of two different isolates to determine whether they are related or clustered or whether they aren't clustered, and that's really important information because if we know that isolates are clustered, it's likely that with a combination of the epidemiologic and the genetic information, we can determine if there was a single chain of transmission versus separate introductions into a facility. Next slide.

So going back to our long-term care-associated cases, we have 34 cases for which isolates were available for sequencing. And this is an epidemiologic curve again, but showing those cases for which we had an isolate available for sequencing. On the X axis we have time – months and year, and on the Y axis count. And we're showing those patients that had an emm11 type isolate in green. And then in grey, we're showing the patients who had other emm types, so these are assorted emm types. And it's fairly obvious from this figure that emm11 first showed up on the scene in May, and then we started seeing more cases come October, November, December. What our lab was further able to determine among these emm11 type isolates is that they were clustered and so would be considered part of the same cluster. Next slide.

That led us to look into the risk factors of those particular patients to see if there was something shared among them out of the 22 of 34 long-term care associated cases that were emm11 and considered clustered, 12 of them had received wound care. Ten of those who received wound care had chronic skin breakdown or diabetes. Eight of those individuals, however, did not receive wound care and did have some other risks identified. I think importantly looking at the location and the facility, we did identify patients who were either roommates to cases roommates to people who had received wound care, or were neighbors to cases. So there were some other factors that might've explained exposures. And then two of those patients had an unknown, totally unknown risk history. Next slide.

KEY INFECTION PREVENTION PRINCIPLES DURING WOUND CARE TRANSCRIPT

This slide just provides an illustration of what one of the invasive group A outbreak facilities looked like and what they experienced. In the rectangles here, each rectangle is a patient, and we've indicated within the rectangle whether that patient received wound care or didn't receive wound care. The time on the slide represents the time since the first case. So here we see the first two cases were identified on day 0 and both of those cases received wound care. On day 2 or two days later, there was an additional patient identified and that patient didn't receive wound care but was epidemiologically linked to one of the first patients. The fourth patient was identified 37 days after the first patients and that patient did receive wound care. On day 50 there was a patient identified who did not receive wound care but was epidemiologically linked to one of the earlier cases. And then on days 76 and 79 we had two additional patients both who received wound care. So there are a few things that I wanted to highlight with this example. One is that these transmission situations are complex. We have people who had wound care and people who didn't have wound care. Among the people who didn't have wound care, they did co-locate within the facility and that could indicate that they had direct contact with each other or they had shared health care staff between them. The other thing I wanted to highlight is that these cases occur over a fairly long period of time. So this represents about two and a half months of transmission and we're still monitoring cases at this facility, but this is a pretty long period of time. And then the third challenge that I just wanted is to mention is that at least for a couple of these cases, MDH did have a lag of identifying that cases were associated with the long-term care facility, because the way that cases come to us you know with an address. If they come with a private address, we can't associate them with a facility until we review the medical record. Similarly, the facilities have some barriers to identify culture positives for group A strep if those results are not readily available to them, and so that create a barrier to timely identification of an outbreak. Next slide.

So to conclude a couple of things that we learned from investigating these outbreaks that we felt were important to share was that communication of laboratory results across the continuum of care will increase timeliness of outbreak identification and response. And really just adherence to the core infection prevention practices is critical to stopping group A strep transmission and preventing outbreaks in long-term care facilities. Recently, excuse me. Recently CDC developed some tools for responding to invasive group A strep in long-term care facilities, and the link is shown on the slide and you'll get a copy of the slides after the presentation. And also MDH has resources for long-term care facilities around invasive group A strep and that link is shown here. And I think with that, I will pass it over to Kristi. Thank you.

[Kristi Juaire]

Thanks Jennifer, so now we'll kind of dive into the infection prevention and control recommendations. Next slide.

Alright, so let's turn to how wounds are a risk factor. Wound care treatments and services provided in health care settings can entail complex procedures utilizing a wide array of products and/or equipment. Wounds are a risk factor for both invasive infection and colonization. Infected or colonized wounds can play a role in transmission if appropriate precautions are not followed. The source of ongoing transmission can be through direct person-to-person contact, contact with contaminated or shared equipment like shared wound care supplies, and transmission occurs through infected and in colonized people. So some common bacteria that can cause infection in wounds are staph as well as strep. Next slide, please.

As you can see from the infographic, we need to assess the risk to break the chain of infection. So 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, and consider the risks for exposure for intact versus non-intact skin, mucous membranes, equipment, and surfaces. Next slide, please.

So let's elaborate further on key administrative controls. So they include evidence-based policies and procedures readily available regarding wound detection, assessment, and management, which are reviewed and

updated on an annual basis. Wound care resources are available for staff to utilize should questions or concerns arise. So an example would be nursing reference books with checklists. Competency-based programs for training all personnel who provide wound care, upon higher and annually, and this education is provided when new equipment or protocols are introduced. Audits to monitor and document adherence to wound care policies and procedures and provide feedback. Audit should be conducted with a standardized tool on a routine basis. If gaps are identified during audit, focused education should be provided. And wound care documentation and evidence-based IPC practices. Next slide, please.

So strong infection control practices are crucial. Inadequate infection control practices such as a lapse in proper hand hygiene, a lapse in wound care practices, a lapse in environmental cleaning practices have been shown to contribute to outbreaks. According to the CDC, each day approximately 1 in 31 U.S. patients and 1 in 43 nursing home residents contract at least one infection in association with their health care, underscoring the need for attention to infection prevention and control practices. Next slide, please.

So while much progress has been made, we have to remember that it is very important for facilities to 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, and perform regular audits of skin breakdown or wounds on all residents. In many nursing homes, wound care services might be provided by consultants. Your program is responsible for IPC practices during wound care provided in the facility, even if external providers are contracted to perform this service, so you should ensure that consultants are aware of the recommended IPC practices during wound care. Infection prevention and control happens when health care systems, infection preventionists, and health care workers collectively take action to eliminate or minimize the risk of infection. Next slide, please.

So we need to think about what steps should be taken to prevent contamination of wound care supplies. CDC provides the following guidance: maintaining separation between clean and soiled equipment to prevent cross-contamination and dedicated multi-dose vials to single patients whenever possible. Next slide, please.

So to give you an example, any unused disposable supplies that enter the patient or resident's care area should remain dedicated to that patient or resident or be discarded. They should not be returned to the clean supply area. If supplies are dedicated to an individual patient or resident, they should be properly labeled and stored in a manner to prevent cross-contamination or use on another patient or resident. So example: in a designated cabinet in the patient/resident room. Multi-dose topical wound care medications, such as creams or sprays and ointments, should be dedicated to an individual patient or resident whenever possible. Dedicated containers should be properly labeled and stored in a manner to prevent cross-contamination or use on another patient or resident. If it is not possible to dedicate an entire tube or container of wound care cream or ointment to an individual patient or resident use prior to the procedure. The remainder of the multi-dose container should be properly stored in a dedicated clean area. Containers entering patient or resident care areas should be dedicated for single patient or resident use or discard it after use. Next slide, please.

Alright, let's turn to hand hygiene. So hand hygiene is the single most important intervention to prevent the spread of infection. Proper hand hygiene is that which occurs at the right time, uses the right method, and uses correct technique and duration. So CDC states, "use an alcohol-based hand rub or wash with soap and water to perform hand hygiene." So hand hygiene is performed for the following clinical indications: immediately before touching a patient or resident, before performing an aseptic task or handling invasive medical devices, before moving from work on a soiled body site to a clean body site on the same patient or resident, after touching a patient or the patient's immediate environment, after contact with blood, body fluids, or contaminated surfaces, and immediately after glove removal. Next slide, please.

KEY INFECTION PREVENTION PRINCIPLES DURING WOUND CARE TRANSCRIPT

So let's elaborate just a little bit further about alcohol-based hand sanitizer and when to use soap and water. So alcohol-based hand sanitizer is the preferred method of hand hygiene in health care settings and should always be used except when hands are visibly soiled, after known or suspected exposure to *C. difficile* if your facility is experiencing in outbreak or higher endemic rates, after known or suspected exposure to patients with infectious diarrhea, before eating, and after using the restroom. Next slide, please.

So CDC states, "easy access to hand hygiene supplies is essential." So we need to think about placement within the workflow and the proximity to the point of views, especially when we're thinking about wound care. So when using alcohol-based hand sanitizer, cover all surfaces of your hands and rub hands until they feel dry. When washing your hands with soap and water, rub hands together vigorously for at least 15 seconds, covering all hand surfaces. Rinse hands with water and use disposable towels to dry, and turn off the faucet with the towel. Next slide, please.

So what are the barriers to performing hand hygiene during wound care in your setting? Do all health care workers have access to alcohol-based hand rub when performing wound care? Do all health care workers perform when needed? And do all health care workers perform correctly? Think about how you could help improve hand hygiene. Remember key hand hygiene moments during wound care include prior to starting wound care, after touching a patient or the patient's immediate environment, before performing aseptic tasks, and immediately after removing gloves. Next slide, please.

So next is to prepare a clean field. So CDC states, "maintain separation between clean and soiled equipment to prevent cross-contamination" and "require routine and targeted cleaning of environmental surfaces as indicated by the level of patient contact and the degree of soiling." Next slide, please.

So what steps should be taken to prepare a clean field? Well, surfaces should be cleaned with a selected EPAregistered disinfectant following the manufacturer guidelines. A surface barrier should be applied, so for example a Chux pad. And supplies placed on surface barriers in aseptic manner. So think about the environment in which wound care is conducted in your facility Is there a surface available that could be prepared as the clean field or is that an opportunity to further explore? Think about wound care supplies such as dressing materials and equipment should be selected and gathered prior to entering the patient or resident's care area to avoid accessing the supply cart or the clean storage area during the procedure. Only the materials needed for an individual patient or resident should be brought into the patient or resident's room or treatment area and placed on a clean surface and away from potential sources of contamination. So an example is like away from any splash zones or sinks, and prior to beginning wound care activities. Next slide, please.

So here's another opportunity where hand hygiene is performed. So before starting the procedure, we're going to perform hand hygiene and we're going to have PPE available. So gloves should be worn during all stages of wound care procedures. Gowns should be worn when wound care requires significant contact with the resident or their immediate environment, such as when turning or positioning a resident for wound care or if the procedure should generate splashes or sprays, so an example like during irrigation. Face protection such as goggles and a facemask or a face shield should be worn during wound care procedures that may generate splashes or aerosols, such as irrigation, pulsed lavage, and handling of equipment such as a vacuum-assisted closure device. Next slide, please.

So, standard and contact and enhanced barrier precautions are used based on the needs of the patient or resident. So we want to think about clean gloves and personal protective equipment donned according to standard or contact precautions – would be considering the use of also a surgical mask for all wound care. Goggles and facemask and face shields again should be worn when splashes or aerosols may be generated. And long-term care facilities may consider implementing enhanced barrier precautions. This is utilizing targeted gown and glove use during high contact resident care activities such as dressing, bathing, showering,

transferring, providing hygiene, changing linens, changing briefs or toileting, device care, and wound care. Next slide, please.

The CDC also has a nice table comparing standard precautions, contact precautions, and enhanced barrier precautions. The CDC released this new guidance to protect residents and staff from multi-drug resistant organisms, often referred to as MDROs, and these new recommendations for nursing homes are called enhanced barrier precautions. So enhanced barrier precautions require the staff to wear the gown and gloves while performing the high contact activities and then with all residents who are in a high risk of acquiring or spreading an MDRO. So this includes residents with known infection or colonization with an MDRO, and any resident with an indwelling medical device or wound, and residents on enhanced barrier precautions do not require placement in a private room. They can continue to participate in group activities. Enhanced barrier precautions are intended to be used for the entire length of stay; however, if the sole criteria enhanced barrier precautions is a wound and the wound heals, enhanced barrier precautions could be discontinued. So the CDC does provide a full list of the high contact resident care activities. Next slide, please.

So now we come to CDC guidance during the procedure, so which is that separation should be maintained between clean and dirty supplies. For example, used bandages should be immediately discarded and not placed on a surface next to clean bandages. And there are additional hand hygiene moments. So before moving from work on a soiled body site to a clean body site on the same patient, after touching a patient or the patient's immediate environment, after contact with blood, bodily fluids, or contaminated surfaces, and immediately after glove removal. Next slide, please.

So during the procedure, infection prevention and control practices include a barrier positioned under the wound, old dressings removed and discarded immediately, dirty gloves removed and discarded, hand hygiene performed properly before accessing clean supplies, clean gloves are donned, and wound treatment is completed. So thinking about that, gloves should be changed and hand hygiene performed when moving from dirty to clean wound care activities. So that again, after removal of the soiled dressing, before handling clean supplies, as well as debridement or irrigation should be performed in a way that minimizes cross-contamination of surrounding surfaces from aerosolized irrigation solution. Next slide, please.

So the wound is cleaned and treatment is completed using aseptic non-touch technique to prevent transmission of microorganisms to the wound. This is important as aseptic non-touch technique refers to a procedure that aims to prevent the transmission of microorganisms to the wound. Clean gloves should not directly come in contact with the wound bed. If the wound requires direct palpation, sterile gloves should be worn and sterile applicators should be used to apply medications. Dressing should be handled in aseptic manner so that the dressing surface applied to the wound is never touched by staff hands or other surfaces. Next slide, please.

So upon completion of the wound care procedures, dirty supplies are discarded in the trash and gloves are removed and hand hygiene performed properly after the dressing change is completed. So in addition to potential direct environment-to-patient transmission, the contaminated environment can lead to contamination of health care personnel hands that can subsequently result in transmission to other surfaces, objects, and patients. The image provided illustrates one study where 64 health care personnel performed hand hygiene. They went into a hospital room where they place their hands on bed rails for five seconds and then also on the bedside table for five seconds. They then had a hand imprint culture performed prior to performing hand hygiene. When this experiment was conducted in occupied patient rooms, hand cultures were positive for pathogenic organisms such as staphylococcus, VRE, and gram-negative bacilli as well as *C. diff* in 53% of the experiments. Perhaps even more surprising and concerning is that hand cultures are positive for one or more of these pathogens in 24% of experiments conducted in vacant rooms that had been terminally cleaned and were waiting for a new patient admission. Next slide, please.

Another factor to be aware of is that once these pathogens have contaminated environmental surfaces, fixtures, furniture, and equipment, they can survive for a very long time in absence of effective cleaning and disinfection. Most of us have probably heard that C. diff spores can survive in the environment for months, but I think it's less commonly known how long many other pathogens can survive in the environment. As shown in this table, many of these pathogens, including MRSA and gram-negative organisms such as *Acinetobacter* and *Pseudomonas* are capable of surviving for hours to days to weeks, and even for several months. This ability to persist in the environment can play a critical role in the transmission of pathogens from patient to patient. Next slide, please.

So this leads to infection prevention and control best practices for wound carts. So wound care supply cards should never enter the patient/resident's immediate care area nor be assessed while wearing gloves or without performing hand hygiene first. These are important steps to prevent cross-contamination of clean supplies and reiterate the importance of collecting all supplies prior to beginning wound care. Next slide, please.

Multi-use or non-critical, non-invasive portable clinical items such as medical tape and stethoscopes can become star players in cross-contamination and pathogen transmission. While non-critical equipment can typically be cleaned and disinfected using disinfectant wipes, a more complex processes is required for semi-critical and critical equipment. To prevent pathogen transmission, reusable wound care equipment should be cleaned and disinfected after each use. The level of cleaning and disinfection will depend on the type of equipment and the degree of risk for infection involved in its use. So for example, bandage scissors would only require cleaning following by a low or intermediate level disinfectant. A low or intermediate level disinfectant, however, would not be sufficient for equipment used during wound debridement, which should be sterile. So reusable equipment should also be transported and stored in a manner to prevent contamination when moved between treatment areas. So for example, bandage scissors should not be carried in pockets. If device reprocessing it is performed elsewhere, verify that the device is contained and transported to the reprocessing area in a manner to prevent cross-contamination. So think about if you have other services like podiatry or other consultants that may be bringing in instrumentation that they take back with them for reprocessing. In addition to reusable medical equipment, any surface in the patient or resident's immediate care area contaminated during a dressing change should be cleaned and disinfected and any visible blood or bodily fluids should be removed per facility policy. Surfaces and equipment should be visibly saturated with solution and allowed to dry for proper disinfection before reuse. Next slide, please.

So now we're just going to take a look at some tools and resources that can assist you. Next slide. So the ICAR team has developed Infection prevention audit tools. They include the observation tool as you see here, as well as an Excel document, workbook document that you can track your data and it will help you analyze where you may have gaps in your process. So these audit tools cover both, as we have here, wound and dressing changes, but there's also hand hygiene, PPE, and environmental cleaning. Along with the tools, we have also developed an instruction manual that will help you walk through their utilization. But again, these are great tools in the sense that it is important as you're doing your auditing, yes to give feedback in the moment, but you also need to take that information and you have to look at it from an improvement process perspective where you can then identify where are our gaps or where are potential opportunities where we can again prevent that potential transmission or cross-contamination within our environment. Next slide, please. So here I've included the resources that I identified throughout the presentation to help you navigate this area of wound care and best practices. Next slide. But you all are - all Minnesota acute care hospitals, long-term care facilities, outpatient clinics, and ambulance services may request an ICAR assessment and site visit. So our team would be happy to have a conversation with you, to come out and provide an onsite visit, and we can look at and partner with you related to infection prevention best practices. So as this brings us to the end of our presentation, I hope you found this presentation useful and next slide. I just want to thank you for your attention and we'd be happy to answer any questions.

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