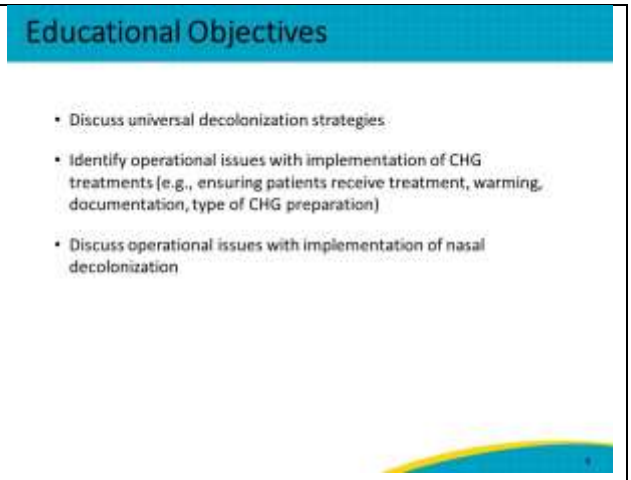
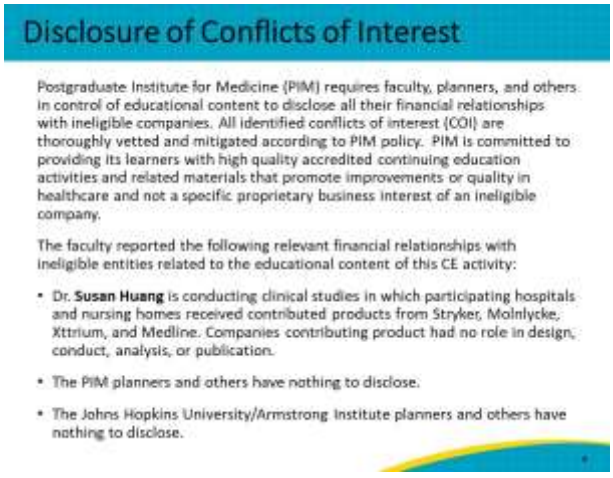
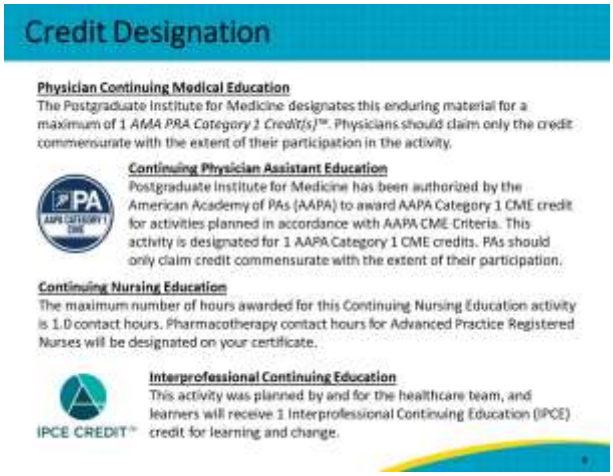
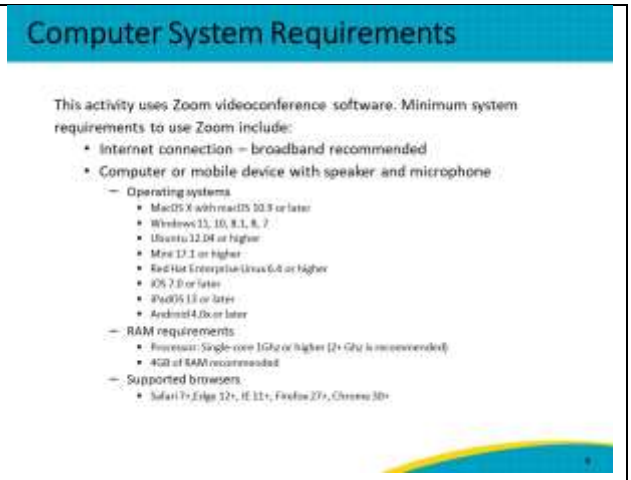
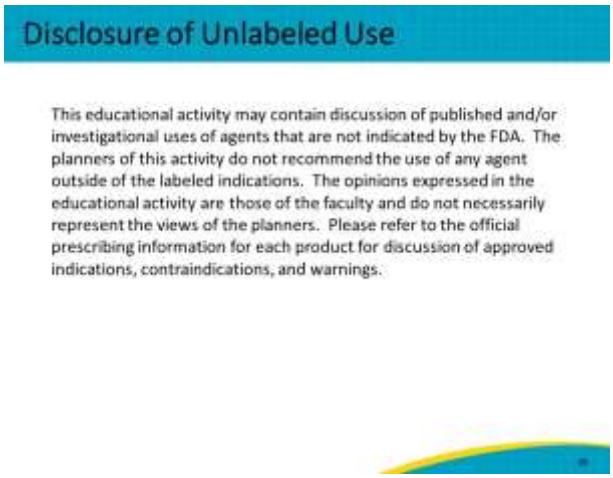
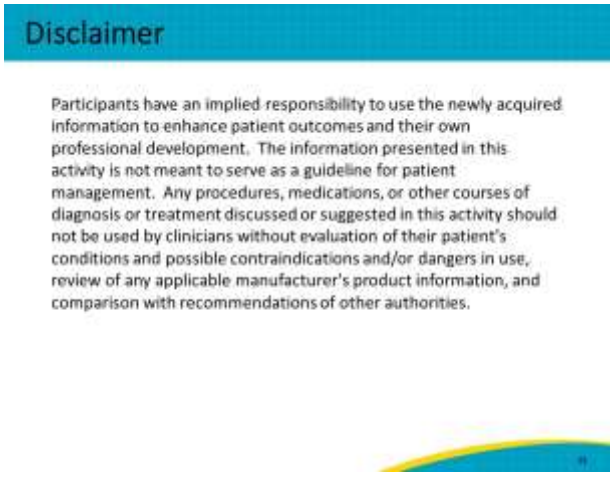
Implementation of Chlorhexidine (CHG) Bathing and Nasal Decolonization

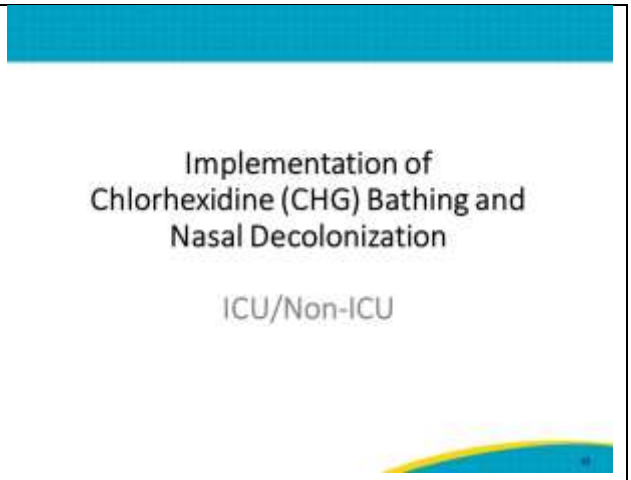
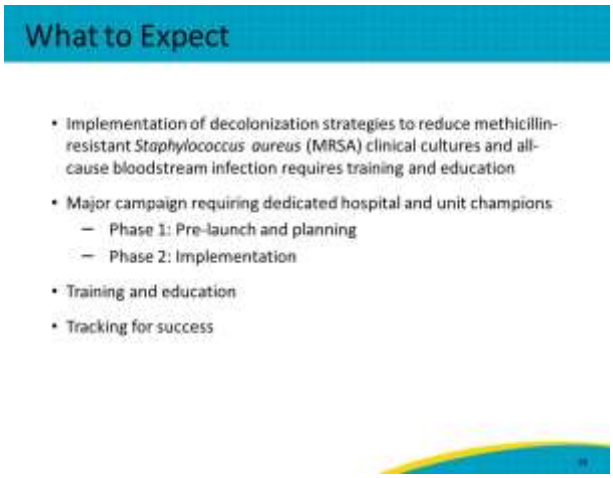
ICU/Non-ICU

Slide Title and Commentary	Slide Number and Slide
Implementation of Chlorhexidine (CHG) Bathing and Nasal Decolonization SAY: Hello, and welcome to the AHRQ Safety Program for MRSA Prevention Webinar on the Implementation of Chlorhexidine, or CHG, Bathing and Nasal Decolonization	**Slide 1** 
Program Support and Target Audience SAY: This program is jointly provided by the Postgraduate Institute for Medicine and Johns Hopkins Medicine, Armstrong Institute. This activity is supported by a contract from the Agency for Healthcare Research and Quality – AHRQ. This activity is intended for physicians, physician assistants, nurse practitioners, registered nurses, and certified nursing assistants.	**Slide 2** 
Educational Objectives SAY:	**Slide 3**

Today, we will discuss universal decolonization strategies. We will identify operational issues with implementation of CHG treatment, including ensuring patients receive treatment, warming, documentation, and type of CHG preparation. And we will discuss operational issues with implementation of nasal decolonization.	
Presenter SAY: Susan Huang will be presenting today's webinar. She is an infectious diseases physician and Professor of Medicine at the University of California at Irvine. She serves as the Medical Director of Epidemiology and Infection Prevention at the University of California, Irvine Health. She is a nationally known expert in the field of decolonization for MRSA transmission and infection prevention and we are honored to have her join us today.	**Slide 4** 
Disclosure of Conflicts of Interest SAY: Dr. Susan Huang is conducting clinical studies in which participating hospitals and nursing homes received contributed products from Stryker, Molnlycke, Xttrium, and Medline. Companies contributing product had no role in design, conduct, analysis, or publication of the content in this activity The faculty and the planners or managers for PIM or Johns Hopkins University have nothing to disclose.	**Slide 5** 
Request for Credit SAY: If you wish to receive acknowledgment for completing this activity, please go to www.cmeuniversity.com. On the navigation	**Slide 6**

menu, click on “Find Post-test/Evaluation by Course” and search by course ID 17100. Upon registering and completing the online evaluation, your certificate will be made available immediately.	
Joint Accreditation Statement SAY: This activity has been planned and implemented by the Postgraduate Institute for Medicine and Johns Hopkins University. The Postgraduate Institute of Medicine is jointly accredited by the Accreditation Council for Continuing Medical Education, the Accreditation Council for Pharmacy Education, and the American Nurses Credentialing Center to provide continuing education for the healthcare team.	**Slide 7** 
Credit Designation SAY: For Physician Continuing Medical Education, this live activity is designated for one (1) AMA PRA Category 1 Credit. This activity is designated for 1 AAPA Category 1 CME credits. PAs should only claim credit commensurate with the extent of their participation. For Continuing Nursing Education, the maximum number of hours awarded is 1.0 contact hours. This activity is designated for 1 Interprofessional Continuing Education (IPCE) credit for learning and change.	**Slide 8** 
Computer System Requirements SAY:	**Slide 9**

This activity uses Zoom videoconferencing software. Minimum system requirements to use Zoom are listed here. Using the most up-to-date version of Zoom, operating system, and browser software is recommended.	
Disclosure of Unlabeled Use SAY: Please review the Disclosure of Unlabeled Use.	**Slide 10** 
Disclaimer SAY: Please review this disclaimer.	**Slide 11** 
Implementation of Chlorhexidine (CHG) Bathing and Nasal Decolonization SAY:	**Slide 12**

Hi, I'm Susan Huang. It's a pleasure to speak to you today about implementation of chlorhexidine, or CHG, bathing and nasal decolonization for the intensive care unit and the non-intensive care unit setting.	
What to Expect SAY: Implementation of decolonization strategies to reduce methicillin-resistant *Staphylococcus aureus* - or MRSA - clinical cultures as well as all-cause bloodstream infections really requires training, education, and preparation. This would be a major campaign that would be adopted by your hospital and requires dedicated effort from hospital and unit champions. We will be talking today about 2 phases: the preparation phase - pre-launch and planning - and then the implementation phase. Each of these are supported by a number of toolkit documents and that you can avail yourselves of for training and education of staff as well as tracking of implementation success.	**Slide 13** 
AHRQ Website: ICU Resource SAY: I am going to go through a number of websites that provide toolkits, protocols, videos, informational FAQs, and other types of valuable assistance that you can use for your hospital as you implement decolonization. Many of these websites provide editable versions where you can tailor information to your hospital as well as add your own logo. Provision of these editable versions was intentional to make this as easy for you to adopt as possible. I'll first start with the AHRQ website. This is a set of resources that we developed based on the REDUCE MRSA Trial and this has a wide variety of protocols and training documents for you to use.	**Slide 14** 
AHRQ Website: Non-ICU Toolkit SAY:	**Slide 15**

Similarly, the AHRQ toolkit for non-ICU decolonization has just been launched in the past few months on the AHRQ website. This particular toolkit gives you information about how to decolonize non-ICU patients with devices. These protocols and training documents are based on the ABATE Infection Trial that demonstrated substantial benefit in that population.

AHRQ Website: Non-ICU Toolkit

NIH Clinical Trials Website: ABATE Infection

Slide 16

SAY:

This next website is also dedicated to the ABATE Infection Trial, and it has additional information that you can glean off of the NIH, or National Institutes of Health, clinical trials website.

NIH Clinical Trials Website: ABATE Infection

SHIELD MDRO Decolonization Toolkit

Slide 17

SAY:

This is a website from the SHIELD program that is hosted by the University of California Irvine. This was a regional program that implemented decolonization in hospitals, long-term acute care hospitals, and nursing homes in Orange County, California, and demonstrated a regional benefit in reducing multi-drug resistant organisms. This website has toolkits for hospitals, for long-term acute care hospitals, and for nursing homes.

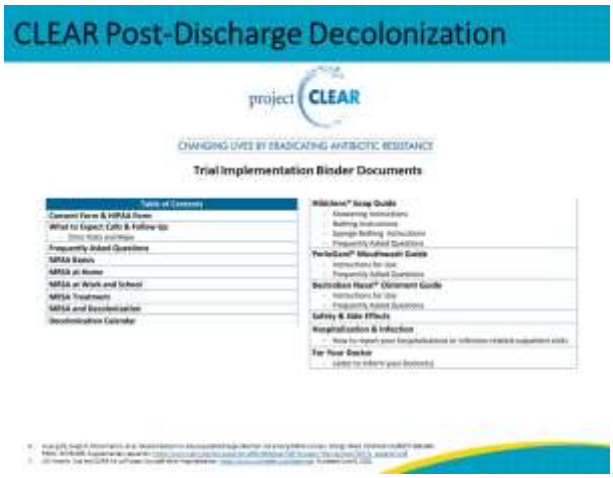
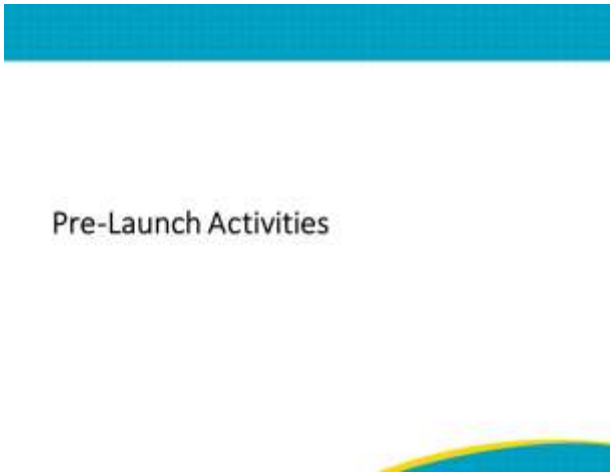
SHIELD MDRO Decolonization Toolkit

SHIELD MDRO Decolonization Toolkit

Slide 18

SAY:

This is an example of some of the things that you can find on these websites- descriptions and details on how you can proceed

with decolonization. Again, the goal is to make this as easy for you as possible so that you can just reach out and find things that are already created for staff and for patients, including protocols and frequently asked questions.	
CLEAR Post-Discharge Decolonization SAY: Finally, these are decolonization resources based on the CLEAR Trial, a post-discharge decolonization trial where decolonization was given to people who were being discharged from the hospital and were known to have MRSA. This large clinical trial showed that decolonization substantially reduced infections and rehospitalization in the year following discharge. Instructions and protocols are provided at this link.	**Slide 19** 
Pre-Launch Activities SAY: So let me now discuss decolonization planning activities, pre-launch. What is helpful to know as you think about adopting decolonization? What should you do ahead of time?	**Slide 20** 
Pre-Launch Checklist SAY: I am going to spend a bit of time on this slide, the pre-launch checklist, and I am going to make some general comments as we	**Slide 21**

talk about what needs to be done. First, it's important for you to get buy-in from your hospital leadership to assure they support your team's efforts to implement decolonization as part of the AHRQ Safety Program. Documents to help you speak to the value and business case for decolonization are provided in many of those resource links that I just described to you, particularly the ones on the AHRQ website. Second, you will want to use or modify available decolonization protocols provided by these resources and published toolkits. Once the protocols are approved by relevant hospital committees, you and your champions can set a launch date and purchase your products.

There are a number of things you want to make sure you have done as you look towards that launch date. First, you want to make sure that all the non-medicated lotions and skin products that you use as moisturizers or barrier creams, are chlorhexidine compatible. With the broad adoption of chlorhexidine across the United States, nearly all manufacturers who provide skin care products to hospitals are aware of whether their product is or is not chlorhexidine compatible. We ask you to check with manufacturers and obtain written evidence or a statement of assurance that their products are CHG compatible. If they cannot do that, then you should switch to one of a wide variety of other similar products that are confirmed to be compatible.

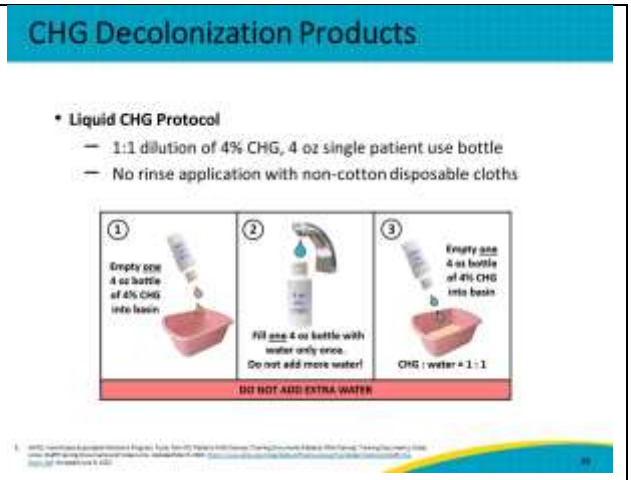
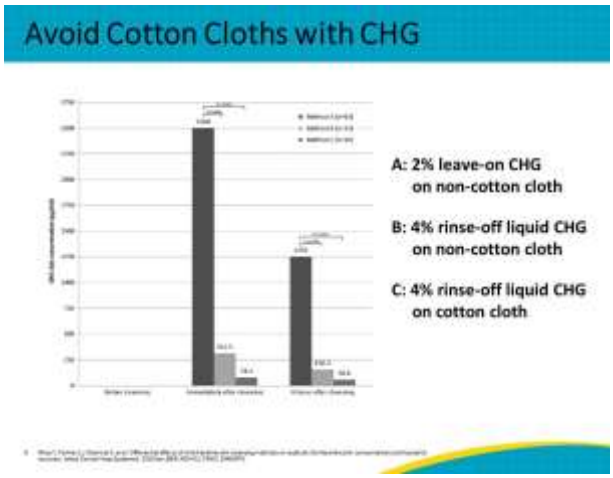
#5- you're going to want to establish order sets; these are very important to ensure compliance and to help nursing keep track of the types of activities that they need to do. While bathing does not require an order, hospitals that establish order sets and make chlorhexidine bathing and nasal product application part of the routine care of the individual are the most successful in attaining high compliance. Establishing order sets also allows documentation that can be used to generate reports to assess compliance.

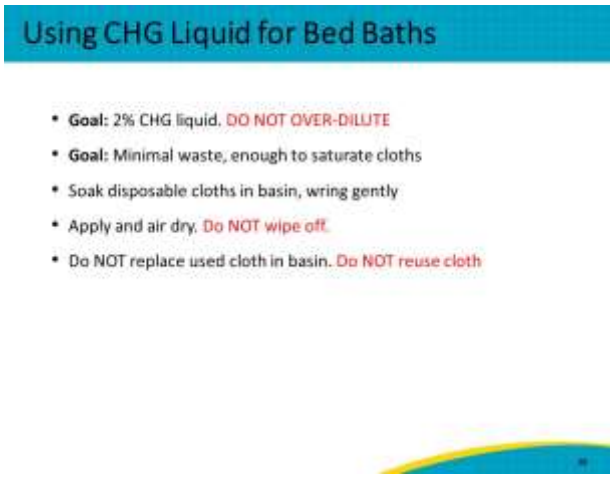
#6 is important because this is a new process. A lot of staff have not received formal bathing training; a lot of people assume that bathing training is not needed because we all have learned to bathe ourselves, but the truth is we are used to bathing intact skin. There is increasing evidence that if CHG is not applied properly, then the infection prevention benefit will not be received.

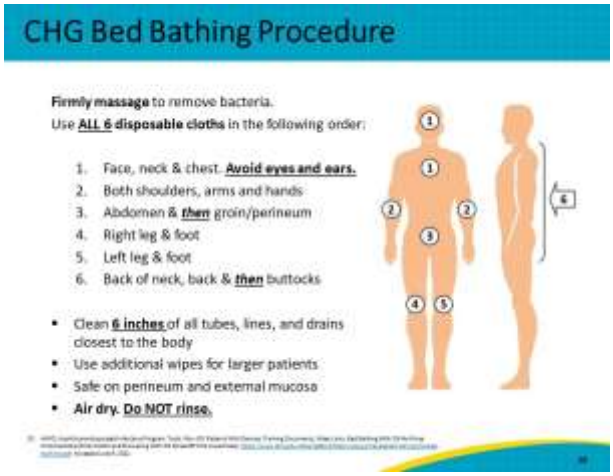
There is a fair amount of important information to convey to staff. For this reason, the resources I discussed provide ample educational materials, demos, videos, computer-based training modules, and huddle documents to address some of those special situations that come up during bathing. We will talk about several of these in the upcoming slides.

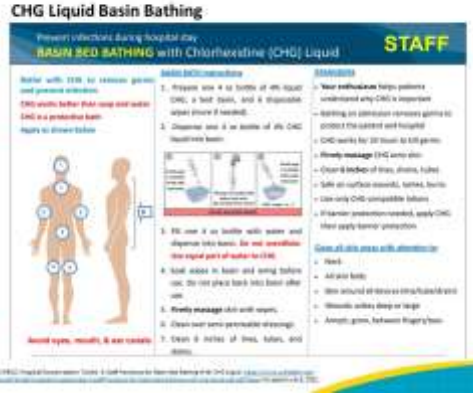
#7- you will want to develop consensus among your unit-based champions for what reports to generate to assess compliance

and the frequency needed for skills and assessments. Much like hand hygiene and other types of critical things that are embedded within the safety and quality of health care, bathing training, assessments, and reminders are critical for maintaining best practice. Performing a one-time baseline skin check before you begin the intervention is also very important if your staff are not familiar with chlorhexidine. While chlorhexidine has been around for over 70 years in health care, not all staff are familiar with it. Some may be worried that CHG may cause side effects even though the data suggest that skin irritation is uncommon and mild when it occurs. If the skin is not checked before beginning CHG, staff may incorrectly believe that some unnoticed pre-existing skin conditions may be caused by CHG. Always have staff perform a baseline skin check before you begin the intervention. Since skin checks are standard in health care, this is merely a way to ensure focused attention to existing conditions prior to introducing CHG. Then, you are ready to launch and begin decolonization.	
Chlorhexidine Gluconate (CHG) Products SAY: Let's start by talking about chlorhexidine gluconate or CHG products. For showering, use 4% rinse-off CHG. When performing a bed-bath, use 2% leave-on CHG, which is applied and left to air dry. There are two main ways to obtain 2% CHG for bed bathing. You can currently purchase 2% leave-on chlorhexidine bathing cloths from a couple of manufacturers. These are your typical bath-in-a-bag products where 2% CHG is already impregnated into the cloth. These cloths come with warmers, and they provide an efficient way to apply CHG to the skin at a stable concentration. The cloth is a good applicator for allowing staff to massage CHG into the skin. As an alternative, many hospitals will take 4% CHG solution and dilute it with equal parts water to generate 2% CHG. The 2% CHG can then be applied to disposable cloths and used for bed bathing patients. If done properly, both methods can apply chlorhexidine in a reliable manner.	**Slide 22** 
CHG Decolonization Products SAY: I want to talk about the process of creating your own liquid CHG for bed bathing because it does require that you do it correctly. Using 2% leave-on CHG is the best way to apply CHG products to reduce germs on the skin. In contrast to regular soap and water, CHG binds to skin proteins, and continues to kill invisible germs for 24 hours.	**Slide 23**

How do you make a 2% solution if you're not purchasing ready-made impregnated cloths? The key step is to take 4% CHG and dilute it with an equal part water; you do not want to over dilute. For example, if you are taking a 4-ounce bottle of CHG, then you want to fill that same bottle with water and then pour it into the same basin, so you have 2% CHG. Then use disposable cloths, as long as they are not made of cotton, to bathe the patient. -Wring them out so they are not dripping and then apply firmly to the skin in a massaging fashion. We'll talk next about why it's important to use non-cotton and, ideally, disposable cloths	
Avoid Cotton Cloths with CHG SAY: So why do we want to avoid using cotton cloths with CHG? The reason is because cotton binds CHG and does not release it to the skin, and of course, the whole purpose of putting CHG on a cloth is to apply it to the skin. This study compares the application of a 2% leave-on CHG non-cotton cloth, a 4% rinse-off CHG non-cotton cloth, and a 4% rinse-off CHG cotton cloth. If you look at A, you can see that when you use a no-rinse, CHG-impregnated cloth, you get high skin concentrations after the bath. That's what you're seeing here on the Y-axis; a high concentration of CHG that is left on the skin after cleansing, which will help keep your patient germ-free. This study shows a persistent germicidal effect for 6 hours after bathing with 2% leave-on CHG cloths. Concentrations around 1,000 is ideal, but even several 100 is highly effective in killing germs. If you look at the rinse-off formulation with a non-cotton cloth, you see that because you rinse it off, the levels on CHG on the skin are lower, but still several 100 micrograms per mL immediately after cleansing, and it still stays over one-hundred six hours after cleaning. In the third case, when you apply a 4% liquid rinse-off solution but using a cotton cloth, you get much, much lower levels on the skin, consistent with cotton binding CHG and not releasing it to the skin. So, it's important that you do not use a cotton cloth. In addition, using non-cotton disposable cloths is ideal since it make it easy to complete the bath and throw the cloths away.	**Slide 24** 
Using CHG Liquid for Bed Baths SAY: To use CHG liquid for bed baths, this is what you will need: a bottle of 4% CHG, an equal part of water, a bath basin, and 6 dry	**Slide 25**

disposable non-cotton non-medicated cloths. If made correctly without over-diluting, this would create 2% CHG cloths.	
Using CHG Liquid for Bed Baths SAY: So, as I mentioned, the key thing if you're going to make your own 2% CHG cloths is not to over dilute. You only need to create the minimum amount of liquid to saturate the cloths, so you have minimal waste. You're going to want to use at least 6 disposable cloths to apply the CHG regardless of the size of your adult patient, but you may need more than 6. Later, we'll go over what you do with each of the 6 cloths. Sometimes you might need more if you have a particularly large patient, or if you have a lot of devices or wounds to clean. You are going to want to apply and air dry. For all these 2% liquid applications, air dry leave-on applications are going to give you the best outcomes for reducing infection. Do not put a cloth that's already been used on your patient back into the basin of 2% CHG liquid; you do not want to reuse cloths.	**Slide 26** 
Ensuring Compatibility with CHG SAY: Ensuring compatibility with CHG is important. Make sure that preventative skin products like lotions and barrier creams are confirmed by the manufacturer to be compatible with CHG. Check with the manufacturers. If they are unable to confirm compatibility, you will want to switch to something that is confirmed to be compatible. You don't want to go through this entire effort for a major campaign only to find that it didn't work because you were using incompatible products. There are some things that are always incompatible- deodorants are mostly incompatible and all shampoos are incompatible so use those things in a manner that is either sparing or keeps it off the skin, such as using shampoo caps. If you do use shampoo in the shower, provide instructions to try to keep it off the skin as much	**Slide 27** 

as possible so that it will not inactivate chlorhexidine. CHG can also be used as a shampoo.	
CHG Bed Bathing Procedure SAY: Let's review the bed bathing procedure. If you use a bath-in-a-bag product, it generally has 6 cloths in it. If you make your own, you should ensure that you have at least 6 disposable cloths that are available to you. In this body image, there are numbers from one to six so that you can apply each cloth to a particular body area. Of course, this is going to depend on how much dirt or grime is on the body and the size of the body. You may need to be flexible; you might need more than 6 cloths. For an adult-sized patient, use all 6 cloths, even on your smallest patient. Use the first cloth to clean the face, the neck, and the chest. Cleaning this area well is important since it is near the mouth and nose, where we have lots of germs. Plus, people frequently touch their face, their nose, and their mouth, and can then transfer germs to other parts of the body. People forget that the neck has a lot of sweat and a lot of skin folds that can hide germs. Be sure to clean it well. Like all soaps, you want to avoid getting CHG into the eyes or into the ear canal. With the second cloth, clean the shoulders, the arms, and the hands. For all skin folds, be sure the CHG dries. You can prop it open to air or fan it dry, but do not wipe it off. If your patient has devices, they also need to be cleaned, this includes all lines, tubes, drains, EKG leads, and wound vacs. To clean devices, take a clean chlorhexidine cloth and clean at least 6 inches of all devices closest to the body. This was safely done in all the large randomized clinical trials. CHG was safe on the devices and protected the patient from infection since tubes, lines, and drains can dive into the skin and produce a gateway for infection. You don't want clean skin right next to unclean dressings or unclean tubing. You want the whole entire body to be clean. In addition, CHG is safe on the perineum and the peri-vaginal area. In fact, CHG can reduce bacteriuria through good perineal cleansing and is acceptable prep for vaginal hysterectomy. Finally, apply a 2% leave-on CHG solution and air dry.	**Slide 28** 
Staff Handouts Teach and Save Time SAY: Handouts for applying CHG cloths can provide important information to staff and patients who are not familiar with the process. People may want to understand a little bit more about CHG - How long has it been around? Is it safe? What does it do?	**Slide 29**

There are ready-made downloadable and editable handouts on a number of the websites that I pointed to you earlier. You can put your own logo on it, and it does remind you not to flush the disposable cloths since they can clog toilets and pipes.	Staff Handouts Teach and Save Time: CHG Pre-Packaged Cloths 
Staff Handouts Teach and Save Time SAY: The toolkits also provide a variety of staff and patient handouts that reflect the type of process that you choose to use for 2% CHG bathing. There are specific handouts for hospitals diluting 4% CHG to create 2% CHG for basin bathing, and specific handouts for prepackaged cloths.	**Slide 30** Staff Handouts Teach and Save Time: CHG Liquid Basin Bathing 
Keeping Germs Away SAY: We also have poster templates that hospitals can send for printing as a reminder for bathing. In the clinical trials, we put this in front of every single bed to remind patients, their families, and their caretakers that it is very important to have a bath and the purpose of that bath is not only to feel better, comfortable, and warmer, but to keep germs away and protect your patient from infections every day.	**Slide 31** 
Just in Time Training SAY: We know that hospitals often have a need for temporary staff. These include registry staff that cover gaps for vacation, illness, or other staff shortages. Training of temporary staff or newly	**Slide 32**

onboarded staff is critical to maintain adherence a decolonization protocol. The toolkits provide supporting documents for just-in-time training. This is one example- a one page document that gives the staff member key points about what to do and recommends being paired with a buddy, so someone walks them through so that they are prepared to do it on their own. This example also includes mupirocin nasal treatment and has a place to sign if documentation of training is desired. These forms are editable so you can adjust to meet your needs.

Nasal Decolonization Products

SAY:

Let's talk about nasal decolonization. There are several different formulations, but there are two that are well studied. It's important to use products with substantial data supporting their benefit. Mupirocin has the most data and most clinical trials. It is a prescription antibiotic, and most hospitals use the generic instead of name brand form for cost savings. Mupirocin is commonly provided by a single-patient multi-dose tube so one tube covers the whole 5-day course for one patient. I will note that mupirocin is superior to iodophor for ICU decolonization. This was shown in the Mupirocin-Iodophor Swap Out Trial that was recently presented. You can also use iodophor. While mupirocin is an antibiotic, nasal 10% povidone-iodine is the most commonly used nasal antiseptic product that has been studied in trials. Iodophor swabs are available over the counter and can be used for decolonizing the nose. While mupirocin is about 20% better than iodophor in reducing *Staph aureus* clinical cultures, iodophor can have the advantage of bypassing the need for a prescription.

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Mupirocin-Iodophor Swap Out Trial

SAY:

The mupirocin-iodophor Swap Out Trial I just mentioned was a large cluster, randomized trial that compared decolonization with mupirocin-chlorhexidine to iodophor-chlorhexidine. It was conducted in a large number of community hospitals in the HCA Healthcare system- 137 hospitals, 233 adult ICUs. What it found was that mupirocin with chlorhexidine daily bathing was superior to iodophor with chlorhexidine bathing. The mupirocin combination led to 18% fewer *Staph aureus* clinical cultures and 14% fewer MRSA cultures. So, mupirocin should be chosen over iodophor if possible unless you have a known high prevalence of

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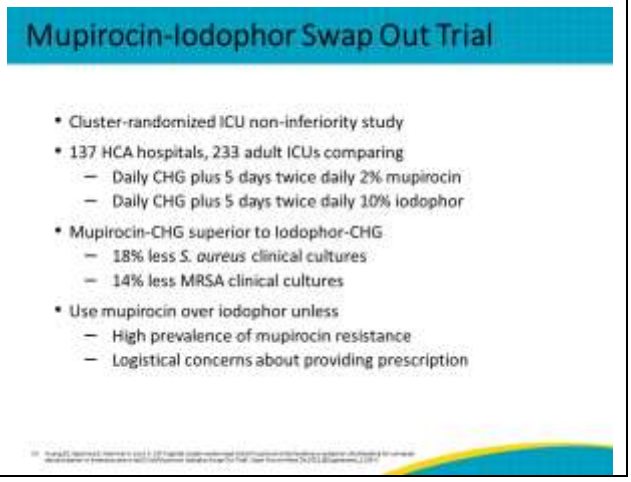
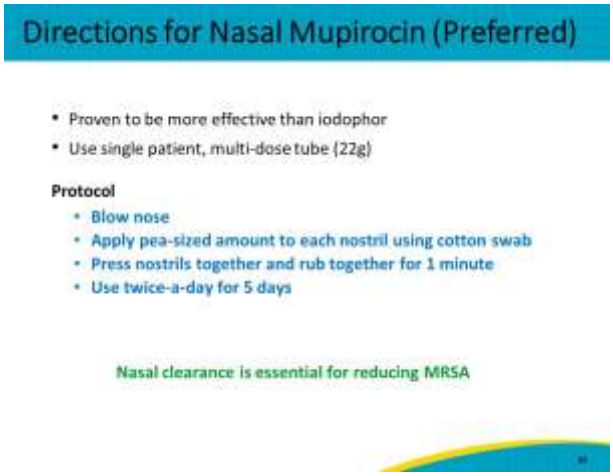
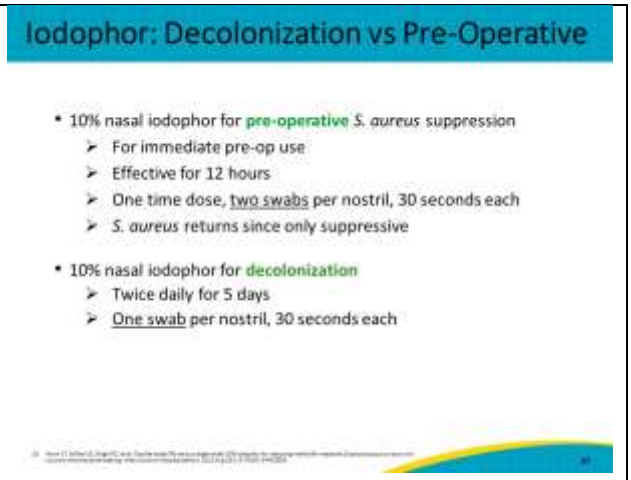
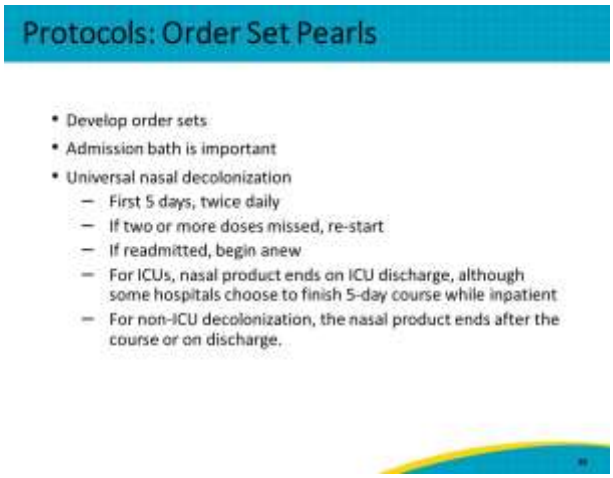
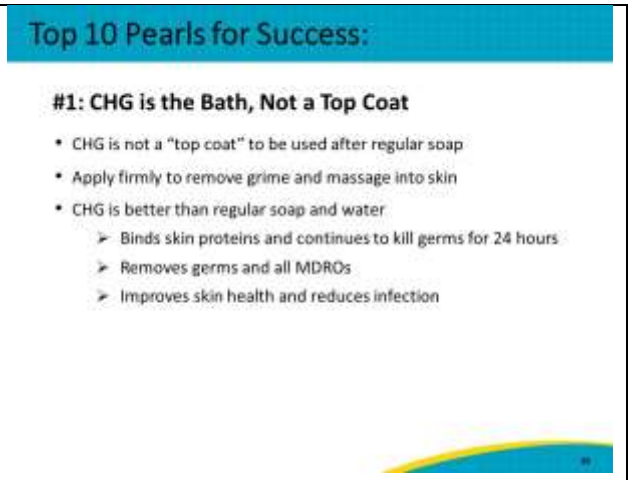
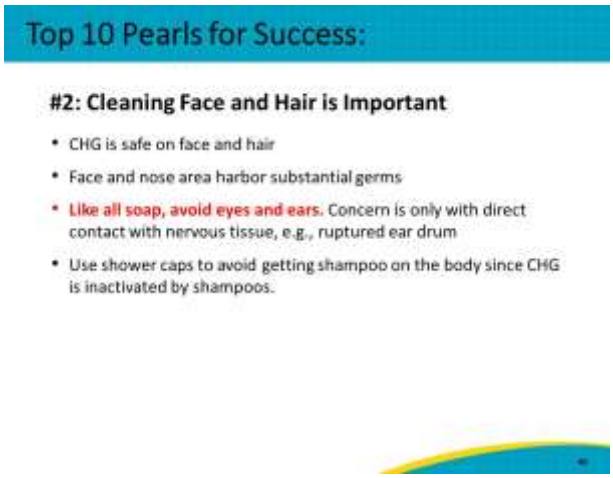
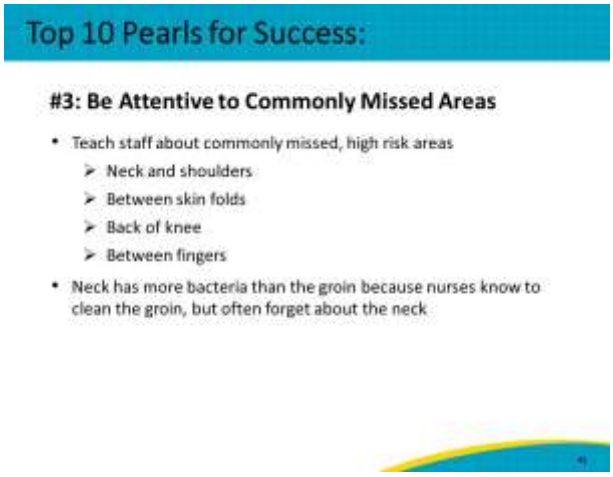


mupirocin resistance. The hospital setting generally has minimal logistical issues around providing a prescription product for inpatient decolonization compared to pre- or post-discharge decolonization needs.	
Directions for Nasal Mupirocin (Preferred) SAY: Before applying nasal mupirocin, have the patient blow their nose to empty their nostrils. You don't want anything to impede your ability to apply mupirocin to the sides of the nose. Take a pea-sized amount and put it into each nostril using a cotton swab then press the nostrils together, rubbing them together for about 1 min. That way it coats the entirety of the internal nostrils. Do this twice a day for 5 days. Remember, if your goal is to reduce MRSA, the number one reservoir - the favorite place that MRSA likes to reside - is inside the nose. When people touch their face and rub their nose, they can move MRSA from their nose to other parts of their body. For that reason, a nasal product is essential for clearing MRSA and reducing MRSA infections.	**Slide 35** 
Directions for Nasal Iodophor (Alternative) SAY: If you use nasal iodophor as an alternative for nasal decolonization, you will want to apply one swab to each nostril, which is the way iodophor was studied in decolonization trials. Have the patient blow their nose as before, and then apply the iodophor swab for 30 seconds to each nostril. It may be hard to keep track of time, but at minimum, let your staff know to go around each nostril slowly at least 3 times to coat the entire nostril. Apply fairly firm pressure so you can see the bulging of the nostril as it is applied. Similar to mupirocin, iodophor decolonization is given twice a day for 5 days.	**Slide 36** 
Iodophor: Decolonization vs Pre-Operative SAY: If you choose to use iodophor, it is important to know the application differences between pre-operative use and general decolonization. For immediate pre-operative suppression of Staph aureus, you use <u>two</u> swabs per nostril for 30 seconds each. This will keep the burden of Staph aureus down for up to 12 hours, which will last for the duration of surgery. This regimen is only suppressive, so you should expect that Staph aureus will return. If you use iodophor pre-operatively in a patient who is	**Slide 37**

being hospitalized, I personally recommend that you can complete the full decolonization regimen for twice daily up to 5 days while admitted. In contrast to pre-operative use, decolonization is <u>one</u> swab per nostril twice daily for 5 days. If you implement iodophor in your hospital, make sure you address these distinctions in your order sets and train your staff about the differences in these two uses.	
Protocol: Order Set Pearls SAY: Order sets are incredibly helpful. They post the decolonization task to the nursing dashboard and allows them to document against those tasks so that reports can be generated. When you develop these order sets or compliance reports, remember that the admission bath is particularly important. When patients come in, they have been ill, they often haven't felt up to bathing, and they are bringing in all sorts of germs into your units. So, it's very important that your order sets address the admission bath in addition to the daily bath. As you know, admission is a busy time for nurses and other frontline staff; it's easy to become distracted and unless there's an order for an admission bath, it may not get done. The same idea applies to universal nasal decolonization - start on entry into the unit. You also want to have rules about what happens if someone is off the floor for surgery or another reason and they miss a dose. Maybe they're off the floor again for a radiologic procedure and they miss another dose. How many doses does it take for you to have to restart the regimen? In the trials, if you missed 2 or more doses, the regimen was restarted. Otherwise, if only one dose was missed, you can pick up where you left off. These protocols are found on a number of those websites that I provided to you at the beginning of this talk.	**Slide 38** 
Top 10 Pearls for Success: **#1: CHG is the Bath, Not a Top Coat** SAY: Let's go through the top 10 pearls for success. These are important points or common situations where staff may need more information to feel comfortable about how to use chlorhexidine. The first pearl is that CHG is the bathing soap.	**Slide 39**

Some staff may want to bathe the patient with regular soap and water and then apply CHG as a topcoat. It's important tell them not to do this. You don't want to bathe the person twice. CHG is not a topcoat, it is the bath itself. CHG is better than regular soap and water for removing germs. Even though it doesn't lather, it's important to let your staff and patients know that this is a protective bath. It not only removes germs that can produce infection, but it removes germs that produce odor. The CHG bed bath provides an efficient and comfortable way of bathing while staying in bed.	
Top 10 Pearls for Success: **#2: Cleaning Face and Hair is Important** SAY: #2- the importance of washing the face and hair. CHG is safe to use as a face wash and as a shampoo, just avoid getting CHG into the eyes or into the ear canal, as you would for any soap. If you read a variety of bottles of chlorhexidine, you'll find that some manufacturers say don't use it above the neck, others say don't get into the eyes and ears. There is no reason why CHG cannot be used on the face. The reason to avoid getting CHG into the eyes and into the ear canal is that CHG should not come in direct contact with nerves. If you happen to have a ruptured eardrum, then CHG can get past your eardrum and contact nerves. So, if you avoid that, you can safely use CHG as a regular soap over the face, the neck, and the chin. For hair, you can use CHG as a shampoo, or, if your patient prefers their own shampoo, try to keep any shampoo off the skin, since all shampoos can inactivate CHG.	**Slide 40** 
Top 10 Pearls for Success: **#3: Be Attentive for Commonly Missed Areas** SAY: #3- commonly missed areas. Remind staff that it's easy to miss certain areas. Let them know that the neck is a particularly easy area to miss. It has a lot of folds, and it hides a lot of bacteria. The neck is also close to a wide variety of devices. Be sure to clean between every skin fold, under the breast, and under any pannus. After cleaning with CHG, be sure to air dry. Chlorhexidine requires drying to kill germs, so you do not want to leave moisture between skin folds. In fact, chlorhexidine is active against yeast and can improve candida rashes, but you need it to dry. If you have moisture with chlorhexidine between	**Slide 41** 

skin folds, then these rashes may get worse. If it does not dry, it does not have the opportunity to work to kill germs.

Top 10 Pearls for Success:
#4: Clean Wounds, Pressure Ulcers, Rashes

SAY:

#4- wounds, pressure ulcers, and rashes. Everybody is used to bathing intact skin; we're used to bathing ourselves, and we are comfortable with healthy skin. When staff see wounds, breaks in the skin, rashes, friable or denuded skin, pressure ulcers, some might pause and think “Oh, that's going to hurt a little bit, so maybe I won't clean it,” and that's the wrong type of thinking. The correct thought process is that breaks in the skin allow germs to get in and cause infection. Therefore, the most important places to clean with CHG – to remove germs - are where breaks in the skin exist.

Ensure that your doctors, nurses, and nursing assistants understand this important fact. CHG is safe to use on friable skin, abrasions, superficial burns, superficial pressure ulcers, and wounds that are not packed or deep. In fact, chlorhexidine is approved as a wound cleanser. Across our randomized clinical trials, we have bathed over a million patients with the instruction to make sure that all breaks in the skin are cleansed and all wounds are cleaned with CHG unless deep or packed. It can help to have a wound care nurse champion who is very comfortable with the use of CHG on wounds and who can speak to and show others how to bathe these areas well. Cleaning these areas is critical to preventing infection.

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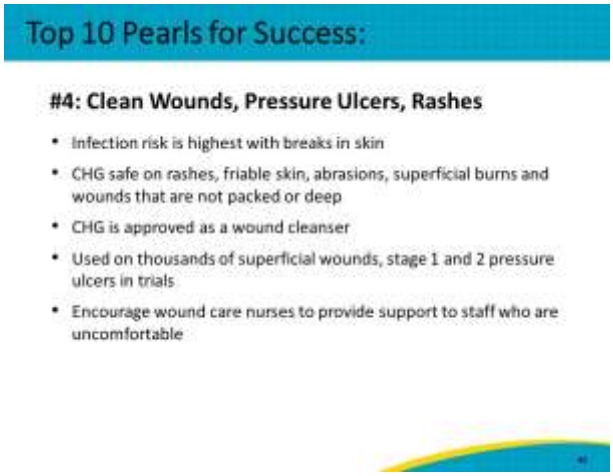

Top 10 Pearls for Success:
#5: Clean All Medical Devices

SAY:

#5 – The same concept applies to medical devices. Devices are often placed through the skin and this break in the skin can predispose patients to infection. This is particularly true with lines, tubes, and drains, so you want to make sure that you clean them. The protocol for over a million patients in our clinical trials was to clean every medical device within 6 inches of the body. Clean the device, any ports, and every dressing that is occlusive or semi-permeable. Wipe over it, around it, and onto the actual device itself, making sure that you're left with a body that not only has clean skin, but clean devices and clean dressings. If the patient showered, then unwrap the waterproofing that was placed on medical device to shower, and then take a 2% CHG cloth and wipe the device within 6 inches of the body. The

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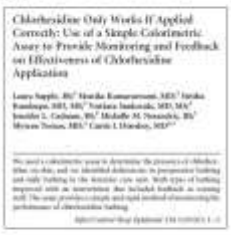
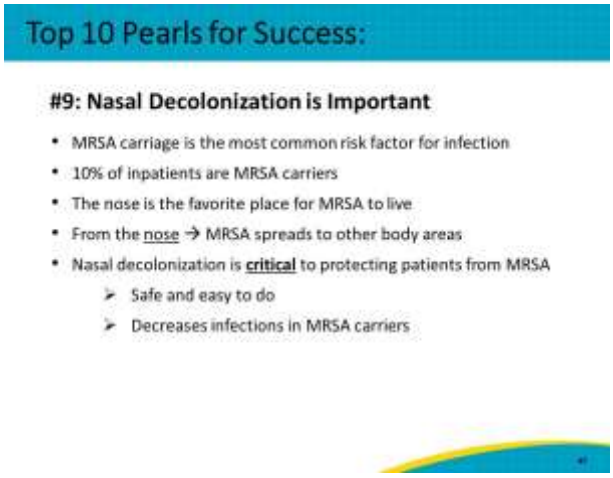
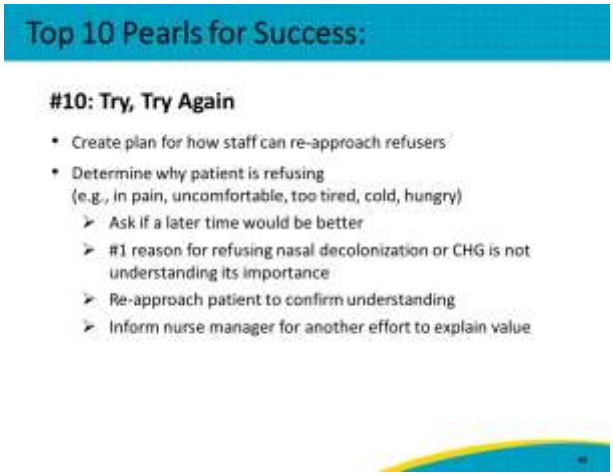
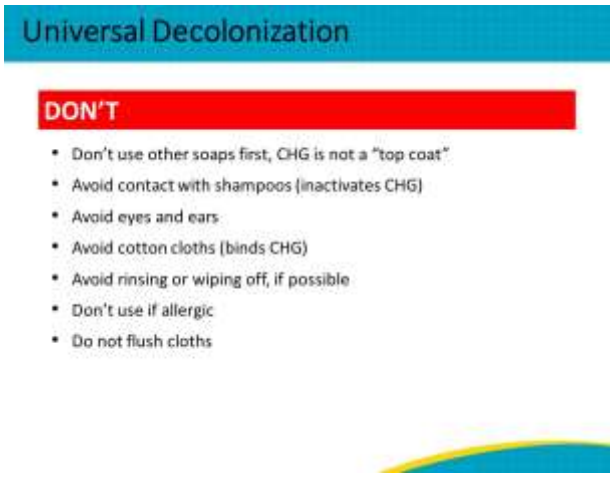
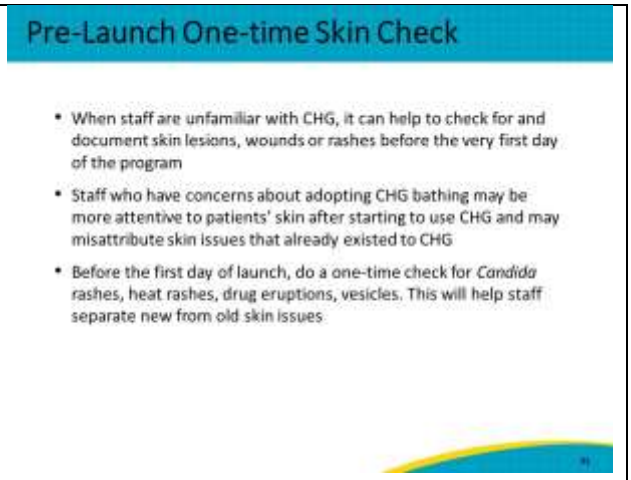
toolkit links at the beginning of this talk have several videos that show exactly how to do this for a medical device.	
Top 10 Pearls for Success: **#6: Allow CHG to Dry** SAY: #6 - Allow 2% CHG to fully air dry. Remember, CHG does not work until it is dry. You do not want to wipe it off. That's because you want CHG's persistent effect for killing germs. CHG binds to the skin proteins and works for up to 24 hours. It's a terrific way to prevent or improve rashes due to yeast in the skin. For large skin folds, you can fan it dry, or use rolled towels to prop it open so that it dries. Remember, if someone complains that the chlorhexidine looks like it is making their rash worse, you might say "Oh, that might be because you didn't allow it to fully dry." So, remember 2% CHG is to be left-on and air dried. For the shower, use 4% CHG to be rinsed off.	**Slide 44** Top 10 Pearls for Success: **#6: Allow CHG to Dry** • Do NOT wipe off CHG or towel dry after application • CHG binds to skin proteins and continues to kill germs • Works for up to 24 hours • CHG residual on skin helps protect. Do not rinse or wipe off • CHG is effective against *Candida species* ➢ Allow skin folds to dry – fan dry or prop with rolled towels ➢ Improves *Candida*/yeast rashes ➢ If moisture stays within skin folds, it can make a *Candida* rash worse
Top 10 Pearls for Success: **#7: Apply CHG Closest to the Skin** SAY: # 7- apply CHG closest to the skin. Then apply any topical lotion or cream. It's easy to remember- CHG has to bind to the skin proteins, so you want it to be closest to the skin. After that, you can use CHG compatible lotions, creams, or CHG compatible barrier protection if needed.	**Slide 45** Top 10 Pearls for Success: **#7: Apply CHG Closest to the Skin** • CHG should be applied closest to the skin, to bind skin proteins and kill germs • After CHG, apply CHG-compatible lotions or creams • For incontinence clean up: ➢ Clean soilage with water and wipes or disposable cloths ➢ Reapply CHG if skin breaks/wounds are present in area ➢ Apply CHG-compatible barrier protection, if needed
Top 10 Pearls for Success: **#8: How CHG is Applied Matters** SAY: #8- how you apply CHG matters. There are a number of papers that show if you don't train your staff to use it right - to leave it to air dry, to massage it firmly into the skin, to make sure to clean over wounds and devices - then you may not glean the benefits seen in the clinical trials where there was a 37% reduction in MRSA, and a 44% reduction in all-cause bloodstream infection in ICU patients. You may think that bathing is intuitive, but bathing someone in a hospital with breaks in the skin, devices, surgical incisions can lead to a lot of incorrect assumptions or avoidance for bathing. In our clinical	**Slide 46** Top 10 Pearls for Success: **#8: How CHG is Applied Matters** • Bathing is not intuitive • Many incorrect assumptions • If not done right → no benefit • Training imperative for success ➢ High turnover of staff ➢ Multiple competing knowledge priorities  Chlorhexidine Only Works If Applied Correctly: Use of a Simple Colorimetric Assay to Provide Monitoring and Feedback on Effectiveness of Chlorhexidine Application

trial of non-ICUs, we found that the most successful units ensured that nurses empowered the nursing assistants to know how to clean wounds and devices. You want to avoid having a nursing assistant say, “I don't feel comfortable cleaning that wound or cleaning that device dressing, so I'll just leave it for the nurse to take care of.” As you know, nurses rarely have the time to come and perform the last part of a bath that is being performed by another staff member. So, it's important to build rapport between your nurses and your nursing assistants. You want your nurses to empower the nursing assistants, to show them how to wipe over a dressing, to wipe over the first 6 inches of any line, tube or drain; to make sure that they hold it securely while they clean it and that they feel comfortable and know that this is an important part of patient safety and care to prevent infections.	
Top 10 Pearls for Success **#9: Nasal Decolonization is Important** SAY: #9- the importance of nasal decolonization. Sometimes staff members may wonder if they can just perform CHG bathing without the nasal decolonization. Again, if MRSA or all Staph aureus is your target for reduction, then you need to address the nose. The nose is the most common and favorite place for MRSA to live. We know that the MRSA that lives in the nose is usually the strain that causes infection. We also know that nasal decolonization alone can be used to prevent future infection from MRSA. Nasal decolonization is easy to do, and it's important to make sure your staff understands why it's a critical part of the process.	**Slide 47** 
Top 10 Pearls for Success: **#10: Try, Try Again** SAY: Finally pearl #10 is to try, try again. Staff might approach a patient for a bath and the patient might say no. It's important to ask why the patient is refusing. As we know, patients have the ability and the right to refuse any care, but just like your staff would not allow a patient to just say “I don't want to take my diabetic medication,” without trying to emphasize the importance of doing so; similarly, staff should take some time to help patients understand that a CHG bath prevents infection. Maybe your patient is refusing a bath because they are uncomfortable, tired, hungry, cold, or in pain. Once you address the reason why the patient is refusing, you might find that a later time would be fine for a bath. On the other hand, you might find	**Slide 48** 

that they're refusing because they don't understand that this bath is actually not just for their comfort, but for their protection. We encourage hospitals to create a strategy for how to address refusals. The most successful hospitals have a sequence to follow if a patient refuses a CHG bath. A nurse or nursing assistant will escalate to another person, either a peer champion or the nurse manager or director to have an additional conversation with the patient to explain the value of the bath. Of course, in the end, the patient always has the right to refuse, but many will agree once they understand the motivation and receive some encouragement.	
Universal Decolonization: Do SAY: So, in summary, if you look at dos and don'ts of CHG bathing, you want to make sure you confirm chlorhexidine compatibility for your other prophylactic skin products. Make sure to apply it with a firm massage- this isn't a light topcoat; it really does need to get massaged into the skin to bind those skin proteins. It is safe on the face and perineum, but not in the eyes or in the ear canal. CHG best prevents infection where the skin has been disrupted, so all incisions, wounds, lines, tubes, and drains should be cleaned. The only exception would be wounds that are large, deep, or packed. Air drying with 2% CHG is ideal. Of course, in the shower you're going to use 4% CHG and rinse it off.	**Slide 49** 
Universal Decolonization: Don't SAY: You do not want to do a number of things. As I mentioned, you don't want to use incompatible products, you don't want to use cotton cloths, you don't want to use CHG if the patient is allergic to the product, and you absolutely do not want to flush the cloth.	**Slide 50** 
Pre-Launch Skin Check SAY: Perform a skin check just prior to launch day. This is particularly important if staff are unfamiliar with CHG and uncomfortable	**Slide 51**

about starting a soap with a chemical sounding name. To avoid any misattribution of pre-existing skin rashes to CHG, do a one-time pre-launch skin check before the launch day when patients will begin to receive their first CHG bath. This allows staff to be attentive to what's already there, so they don't wonder if a skin issue, they hadn't noticed before is actually due to CHG. While skin checks are expected of hospital staff, this reminder helps your decolonization program to start off on good footing. Generally, after the first few days without concerns, staff come to realize that CHG soap is safe, and eventually, more and more staff find that CHG is beneficial for their patients' skin.



Value of Checking Adherence

SAY:

Let's now talk about adherence. Now that you've launched this program and done all this training, how will you know that it's being done? How do you monitor that? Use as many tools as you can to assist you. The electronic medical record can be helpful for having nurses or nursing assistants document bathing adherence during their shift; that is one major way that you can have data to generate a report. You want to generate a report that shows how often a daily bath has been done with a drill down by unit, shift, and staff member. Are there certain times when it's done better than others? Maybe it's being done better in the daytime, or during night shift, or on the weekdays versus weekends. This would allow you to identify fallouts and be able to provide targeted training and encouragement. Are certain staff, unit shifts doing better than others? Well, maybe those staff members, units, or shifts, can be a beacon to other areas that are having trouble. Often having a peer champion is your strongest way of getting adoption. Provide feedback, support, huddle documents, documentation, reports, and order sets - all these things are going to be invaluable for checking and compelling adherence.

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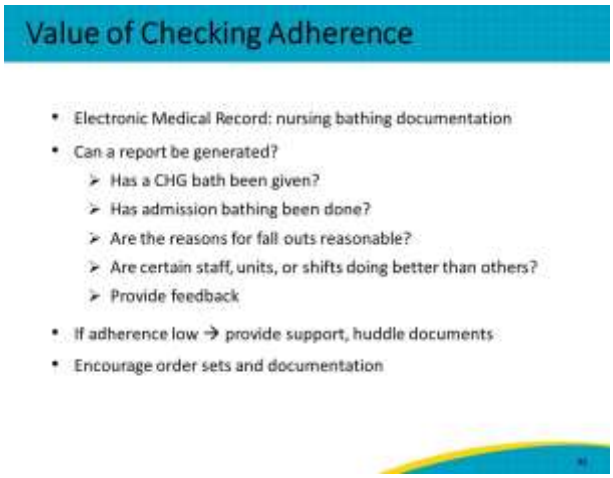

Admission Bath is Critically Important

SAY:

Admission is one of the most important times to trigger a CHG bathing order. You should have a daily order for a bath, but you really do want the admitting order set to trigger an admission bath. This is because nurses are busy on admission; they've got a lot of things to attend to, especially in the ICU, but again, the bath is a proven way to succeed in reducing infection. When arriving to your hospital, a patient may not have bathed for days. They will bring in germs, including multi-drug resistant organisms

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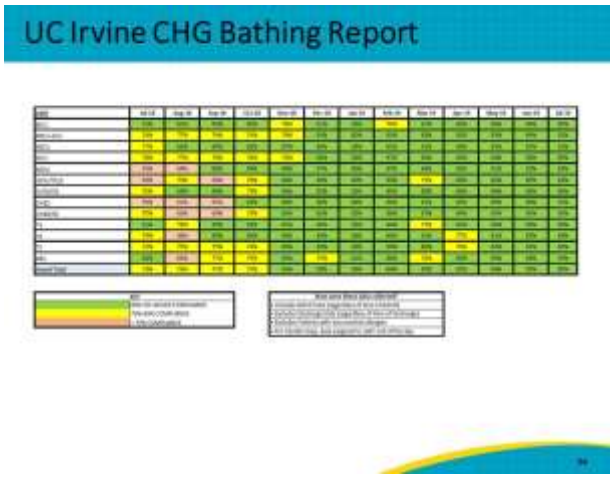
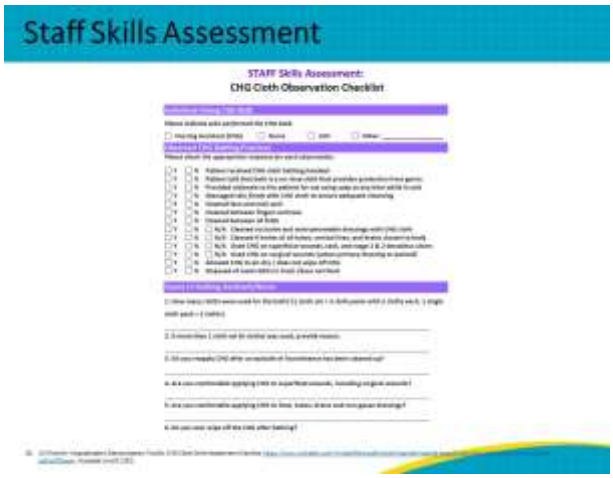
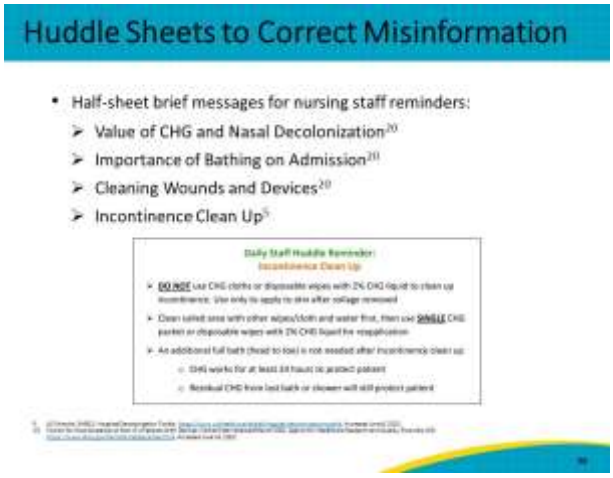
on their body, possibly from other places that they have been such as a skilled nursing facility. The best way to prevent infection is to make sure that anybody who comes into your unit is cleaned first, so your overall unit is clean. You also want to clean the skin before patients undergo procedures for devices or surgery. Cleaning the skin before that happens protects your patients and protects your unit.	
UC Irvine CHG Bathing Report SAY: This is an example of a bathing feedback report that we use at UC Irvine. When we launched this many years ago, there was a transition point when adherence started to improve because of leadership support and monthly feedback. This comparison report allowed units to see what was possible from other units. When you launch, pick a reasonable and achievable target. When we first launched chlorhexidine bathing, we had a target of 80% or higher compliance as green in our report. Over the past couple of years, we're now using 90% or higher, but at the beginning use a target that is encouraging for your staff and then change it over time. We also generated reports that would allow you to separate out the admission bath to see how that's going separate from the daily bath. That is important because, admission bathing is the most difficult to accomplish because of competing things that the nurses have to contend with. So, you may have different reach targets for the two.	**Slide 54** 
Staff Skills Assessment SAY: It's important to do skills assessments. When you launch a campaign, it's common to do a lot of training in the beginning, and you might reinforce that training once a year. But with new staff coming in and out all the time, how do you really know that your chlorhexidine bathing is done well? This is one way to reinforce the concepts- this is an example of a skills assessment available in those toolkits that I mentioned earlier. Such assessments are not part of the data to be collected as part of the program, but you may find it quite helpful to assess how your staff are implementing the program. It is used to perform bathing observations. This could be performed by a nurse manager, or it could be peer-to-peer follow-up.	**Slide 55** 

As you're launching the campaign, request skills assessments a few times a week for each unit, and then as time goes on, this can change to once a week or a couple of times a month to make sure that processes continue to go well. You might encourage nurse managers to assess newer staff. It is a simple checklist; you're just saying yes or no to a bunch of simple questions and then you're asking the bathing assistant or nurse whether or not they feel comfortable with certain situations. All patients may not have a device, they may not have a wound, so it's important that you ask the bather if they would feel comfortable applying the CHG in certain situations. If they say, "No I wouldn't", then you know that retraining may be helpful, or it might be helpful to partner them with a buddy who is comfortable with those situations.	
Huddle Sheets to Correct Misinformation SAY: Huddle documents can be immeasurably helpful. As you go through your campaign, you will notice that there are a couple of things that your staff do really well and a couple of things where they tend to fall short. When that happens it's important to have huddle reminders. We have a number of half-page huddles, simple ideas that you may want to convey. When you go to the toolkit websites, you will find suggested huddles, and you can pick the ones that are relevant for your staff. There is a number of them related to nasal application, bathing on admission, wounds and devices, incontinence, addressing refusals; there is all sorts of things that you can do to correct misinformation and we try to make it as easy for you as possible. This information is gleaned from the trials and the most common issues hospitals had with ensure proper CHG bathing technique and protocol.	**Slide 56** 
Training Video for CHG Bathing SAY: There are a number of CHG bathing videos, some with a mannequin, some with conversations with live actors where they act out common scenarios: How do you handle it when patients refuse a bath? What do you do when you need to clean a device? Can you watch one being performed? These bathing videos are short and can be instrumental to your training. Our videos can be streamed online or downloaded so that you can have them in your system and use them as you see fit.	**Slide 57** 

Summary

SAY:

In summary, implementing a universal decolonization process in both intensive care units and non-intensive care units requires a campaign and a systematic process. Preparation, education, order sets, and feedback reports are all critically important, so planning is key. You'll need to get on the agenda for committees, find champions, work with your technology groups to get into the queue to build and vet order sets, make sure you don't have CHG incompatible products, design reports so you can have seamless feedback, and making sure that you have training materials ready for launch. The decolonization strategy is a proven method to reducing MRSA and bloodstream infections and a well-conducted campaign should reap substantial benefits. I hope this has been helpful to you. It's been a great pleasure to support your efforts to successfully implement decolonization strategies in your hospital for the AHRQ Safety Program for MRSA Prevention. Thank you very much.

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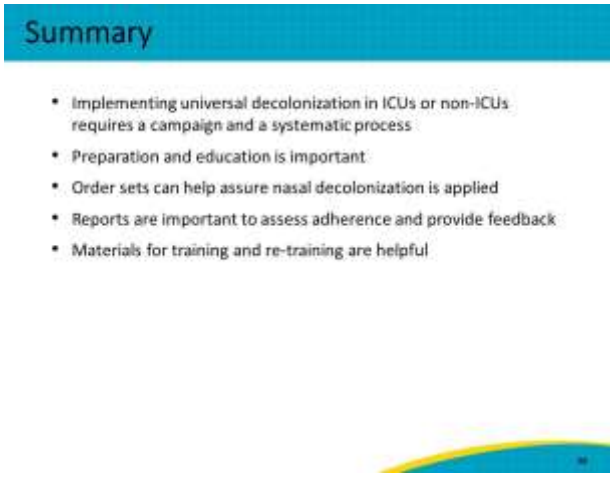

Decolonization Materials

SAY:

In her presentation on Implementation of Chlorhexidine Bathing and Nasal Decolonization, Dr. Huang referred to many planning and implementation steps and tools, from documents on the steps that need to be taken to begin the implementation process to the protocols for the bathing and decolonization themselves.

We are developing tools specifically for this program, but they aren't quite ready. However, the materials we are developing are all based on materials from two existing AHRQ websites – Universal ICU Decolonization: An Enhanced Protocol and the Toolkit for Decolonization of Non-ICU Patients With Devices.

There are a few differences between the materials on these sites and the materials we are developing for this specific program. For example, we will include the use of chlorhexidine to bathe the face and head. We are also including the choice of an iodophor for nasal decolonization.

We will post our new materials as they are approved, starting with the information you need to set up your decolonization program and going forward to add protocols and patient handouts.

While we are developing these tools, you can use and access materials from these sites from our program website. To access these pages, please click on the Decolonization tab on the left

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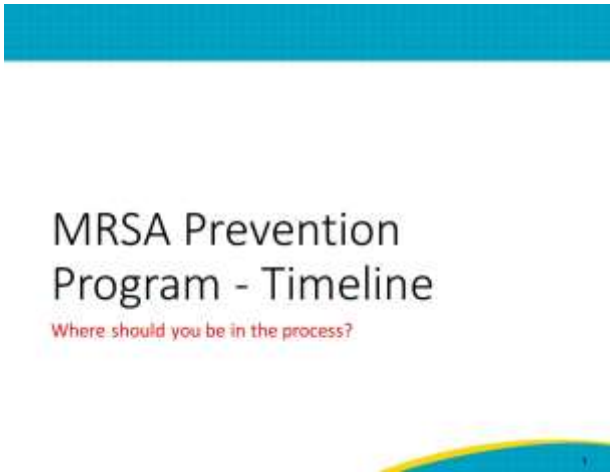
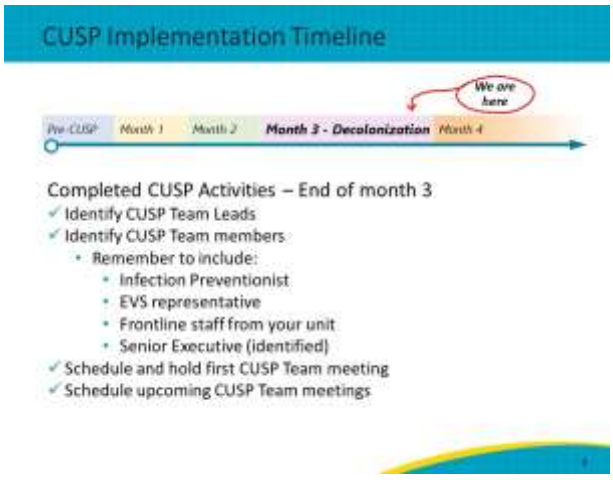
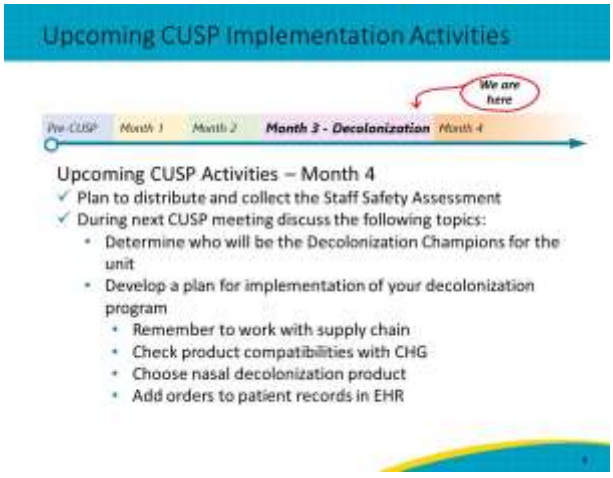
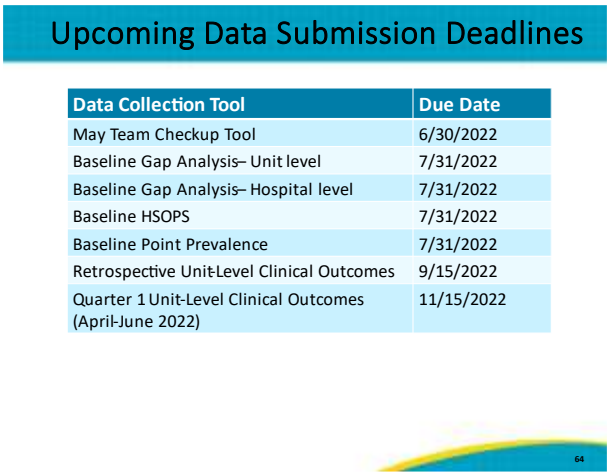
side of the page. Click on either ICU Universal Decolonization or Non-ICU Targeted Decolonization. The materials you are looking for are accessible here.	
CUSP Activities SAY: We have almost finished month three and are about to enter Month 4 of the MRSA Prevention program. In the next few slides, we will review the relevant programmatic and CUSP activities that should be completed by this time, what's upcoming, and data collection deadlines, so you are fully prepared to participate and implement the MRSA prevention interventions. The data collection schedule is available on the website. We will share that at the end.	**Slide 60** 
CUSP Activities: Where should you be in the process? SAY: By now, you should have finished recruiting your CUSP Team members and have held your first CUSP Team Meeting. Hopefully, you will have scheduled upcoming CUSP Team meetings for the next few months, if not the next year. If you haven't done this yet, remember to accommodate your Senior Executive's schedule. It's important they attend when they are available.	**Slide 61** 
Upcoming CUSP Implementation Activities SAY: During month 4, you should continue the incorporation of the technical aspects of the program into your CUSP activities. If you haven't already done so, schedule your upcoming monthly CUSP meetings. Develop a plan to distribute and collect the Staff Safety Assessment. You'll use the collected information during future CUSP meetings to address and find solutions to brought forward by your frontline staff. Remember these surveys are anonymous. The slides and script for this presentation and together with the recording will be available on the website towards the end of	**Slide 62** 

next week. Review this information with your CUSP team and your next meeting. During the next webinar, we will discuss the process of Learning From Defects. Using the techniques you will learn in the next webinar, you can begin to strategize decolonization implementation. You can also begin the review the Staff Safety Assessment forms you have collected.	
Upcoming Data Submission Deadlines SAY: The upcoming data submission deadlines are listed here. Please note several of the deadlines have been extended. While the May Team Checkup Tool is still due June 30th. The Baseline Gap Analysis, for both unit and hospital level, Baseline HSOPS, and Baseline Point Prevalence Survey are all now due on July 31st, 2022. These have been extended due to feedback we have received from your Implementation advisors that you need more time. The due date for the Retrospective Unit-Level Clinical Outcomes is now September 15th, 2022. This date has been extended as we are setting up workshops specifically for your data analyst to learn how to pull the needed data from your EHR. We will have workshops for both sites who have conferred NHSN rights and those who have chosen not to confer. The due date for the Quarter 1 Unit-level Clinical Outcomes has not changed. It is still November 15th, 2022.	**Slide 63** 
Program Website Access SAY: A recording of this webinar will be available on the program website. Please log in to the website to access project resources such as the project schedule, recorded presentations, and slide decks with scripts. The website is updated routinely with new resources. Please note that recorded webinars may take up to 5 days after the presentation date to be posted on this website. The URL for the project website is: http://safetyprogram4mrsaprevention.org. If you have any questions about login credentials or website content, please email us at MRSAPrevention@NORC.ORG	**Slide 64** 
Thank You	**Slide 65**

SAY: Thank you for joining us for our presentation today. The contact information for the program is on the slide. We invite you to now ask questions. While we're waiting for questions, I will read the following disclaimer.	**Thank You** **Questions?** Email: MRSAPrevention@norc.org **Take Aim To Prevent MRSA**  **Materials from this webinar and others are available on the website:** http://safetyprogram4mrsaprevention.org
Disclaimer SAY: The findings and recommendations in this webinar are those of the authors, who are responsible for its content, and do not necessarily represent the views of AHRQ. No statement in this webinar should be construed as an official position of AHRQ or of the U.S. Department of Health and Human Services. Any practice described in this webinar must be applied by health care practitioners in accordance with professional judgment and standards of care in regard to the unique circumstances that may apply in each situation they encounter. These practices are offered as helpful options for consideration by health care practitioners, not as guidelines.	**Slide 66** **Disclaimer** • The findings and recommendations in this webinar are those of the authors, who are responsible for its content, and do not necessarily represent the views of AHRQ. No statement in this webinar should be construed as an official position of AHRQ or of the U.S. Department of Health and Human Services. • Any practice described in this webinar must be applied by health care practitioners in accordance with professional judgment and standards of care in regard to the unique circumstances that may apply in each situation they encounter. These practices are offered as helpful options for consideration by health care practitioners, not as guidelines.
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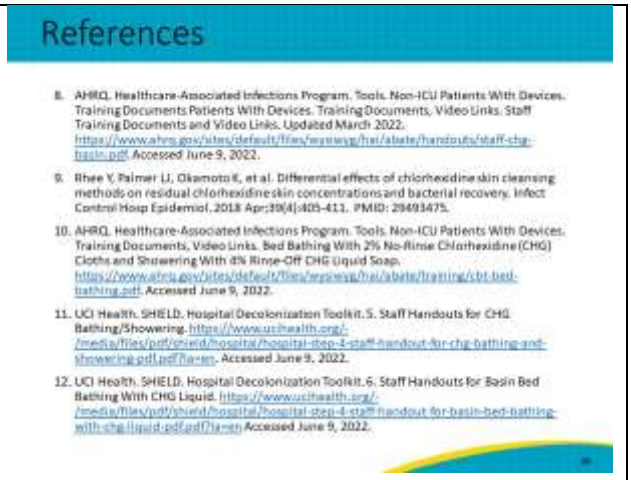

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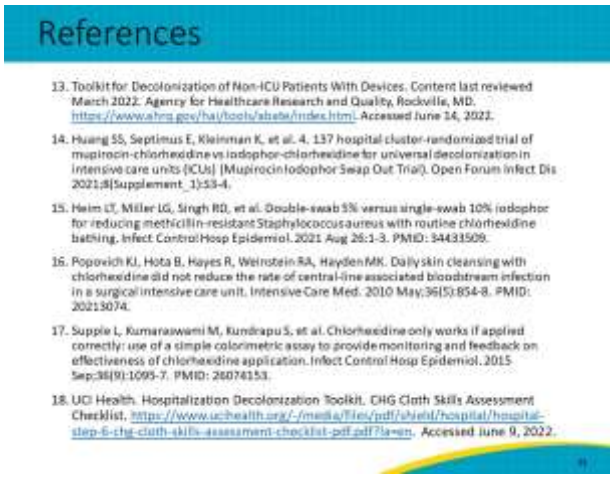

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