Decolonization of Non-ICU Patients With Devices

Section 9-1 – Standardized Nursing Protocol: Bed Bathing With 2% Chlorhexidine (CHG) No-Rinse Bathing Cloths and Showering With 4% CHG Liquid Soap

Background: The **A**ctive **Bath**ing to **E**liminate (ABATE) Infection Trial found that decolonization of adult non-intensive care unit (ICU) patients with selected medical devices (i.e., central lines, midline catheters, and lumbar drains) resulted in a 32 percent reduction in all-cause bloodstream infections, and a 37 percent reduction in positive methicillin-resistant *Staphylococcus aureus* (MRSA) and vancomycin-resistant enterococcus (VRE) cultures.[1] The following protocol details the process for adopting skin decolonization in this population.

Protocol Overview

- Daily chlorhexidine (CHG) bathing/showering for non-ICU adult patients with medical devices for the duration of the hospital stay

CHG for Targeted Decolonization

- Target patient population
  - *Include:* Adult non-ICU patients with medical devices, such as:
    - Central lines (including dialysis catheters and port-a-caths)
    - Midline catheters*
    - Lumbar drains
  - *Exclude:* Patients with known allergies to CHG
- Initiate the protocol each time an eligible patient is admitted to the hospital, even if the patient has received the protocol in a prior admission.

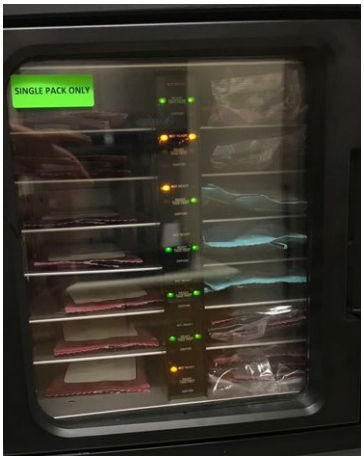
---

* To support the inclusion of midlines, note that the ABATE Infection Trial showed the same 32 percent reduction in bloodstream infection for midlines as it did for central lines.

Protocol for Bed Bathing With 2% CHG No-Rinse Bathing Cloths

- Provide one-page instruction sheet for patients on CHG bathing to read prior to beginning bath (Section 10: "Bathe Daily with Chlorhexidine (CHG) Cloths – Patients").
- Remove one set of warmed packets (three packets in a set, two cloths per packet) of no-rinse 2% CHG cloths from the warmer (total six cloths). Note: Cloths should not be removed from warmer until just before bath.
- For obese or incontinent patients, additional cloths may be needed. Because these cloths come bundled as a set of three two-cloth packets, a packet of two cloths can be taken separately and warmed in a separate slot in the provided warmer (Figure 9-1-1).
- We recommend that you reserve one column in the warmer for single two-cloth packets to address the common situation of needing additional cloths for obese or incontinent patients, or to thoroughly clean devices. Use these additional packets as needed during the day.
- Inform the patient that the CHG cloths work better than soap and water in removing bacteria from the skin and that the cloths serve as their routine bath (not a top coat).
- If the patient wishes to self-bathe, provide verbal instructions and assist with hard-to-reach areas.
- Use each of the six cloths for bathing all skin areas, in the order listed below. Ensure that cloths are applied to skin by firm massage to ensure the binding of CHG to skin proteins. This allows CHG to continue to kill germs for a minimum of 24 hours.
    - **Cloth 1:** Face,* neck, and chest. Avoid eyes and ear canals.
    - **Cloth 2:** Both shoulders, arms, and hands
    - **Cloth 3:** Abdomen and *then* groin/perineum
    - **Cloth 4:** Right leg and foot
    - **Cloth 5:** Left leg and foot
    - **Cloth 6:** Back of neck, back and *then* buttocks

Figure 9-1-1. CHG Cloth Warmer



*CHG has been safely used on the face and hair in several large studies and clinical trials.[1-4]. Pay special attention to avoid the eyes and ear canals, as would be done when using all soaps. The risk associated with having CHG in the ear canal is that if a patient has a perforated ear drum, that would allow CHG to come in direct contact with deep nerves of the ear. If CHG comes in contact with the eye itself, flush well with water or saline.

- After applying a CHG wipe to a designated body section, use a clean section of the CHG wipe (or a new wipe) to **clean any device that is on that part of the body**. This includes not only any central line, midline catheter, or lumbar drain, but also any other drain and tube on that patient's body. In accordance with the ABATE Infection Trial protocol**, clean the 6 inches of ALL lines, drains, and tubing (e.g., central lines, midline catheters, chest tubes, surgical drains, G-tube/J-tube, urinary catheter, rectal tube) that are closest to the body using a clean portion of the CHG cloth, or a new CHG cloth. Wipe over nonpermeable dressings.** This will help remove bacteria close to where devices penetrate the skin. CHG is safe to use on devices and should be used over non-gauze dressings.
- If incontinence occurs, or if there are other secretions on the skin, remove soilage with disposable cloths or towels. Rinse or wipe the affected area with water, then clean skin with CHG cloths. If needed, use CHG-compatible barrier protection products for barrier protection (contact product manufacturers to confirm CHG compatibility).
- Allow CHG to air dry naturally – do not wipe off.
- CHG cloths have moisturizers. If additional moisturizer or lotion is needed, only use lotions that are known to be compatible with CHG based upon manufacturer information.
- Do not place CHG cloths directly on bedding. When washed in the laundry cycle, CHG has a chemical interaction with bleach and will leave a brown stain. NOTE: Once CHG is applied to the skin, it binds skin proteins and will not rub off onto bedding.
- Dispose of CHG cloths in trash. Do not flush in toilet.
  NOTE: Use as many additional CHG bathing cloths as necessary to thoroughly cleanse body.

Protocol for Showering With 4% Liquid Chlorhexidine

- Provide one-page instruction sheet on CHG showering for patients to read prior to beginning shower (located in Section 10: "Patient CHG Shower Instructions"). Patients will be more likely to read the instructions in their spare time.
- Provide patient with a single-use rinse-off 4 oz 4% CHG bottle for each shower.
- Wrap all devices, as needed, to protect from water in shower.
- Provide patient with a mesh sponge, which allows CHG to lather well and aids application to the skin. Do not use cotton cloths – cotton binds CHG and does not release CHG well onto the skin. In addition, when laundered, CHG on cloths can mix with bleach and cause a brown stain.
- Inform the patient that CHG works better than soap and water in removing bacteria from the skin and that additional non-CHG soap should not be used.
- Provide the patient with the following verbal shower instructions:
  - Use liquid CHG as shampoo in addition to body cleansing.
  - Wet skin with water. Turn off water or stand out of water stream.

- Pour CHG onto wet mesh sponge and rub sponge until it is foamy.
- Firmly massage soapy sponge all over skin in the same order as indicated for the CHG cloth instructions (see Section 10). Reapply CHG generously to keep sponge or cloth full of foamy lather. Be sure to clean from top down (cleanest to dirtiest areas).
    - Neck and chest, including under breasts for women
    - Back of neck, shoulders, and back
    - Armpits, arms, and hands
    - Abdomen, hips and groin
    - Both legs and feet
    - Perineum (genitals) last
- For best results, leave soapy lather on skin for 2 minutes before rinsing. Lathering all body areas **twice** before rinsing generally takes about 2 minutes.

- CHG should be encouraged for hair, face, and body use. However, if patients insist on using personal shampoo or face products, instruct them to use their personal products first with a separate washcloth, rinse well, and keep personal bathing products off of the body because many regular soaps and all shampoos can inactivate CHG and prevent its germicidal activity.
- **After the shower, unwrap devices and use a single packet of two 2% CHG cloths to clean the 6 inches of ALL lines, drains, and tubing (e.g., central lines, midline catheters, chest tubes, surgical drains, G-tube/J-tube, urinary catheter, rectal tube) that are closest to the body. Wipe over nonpermeable dressings.** This will help remove bacteria close to where devices penetrate the skin. CHG is safe on devices and should be used over non-gauze dressings.

Additional Important Instructions for Chlorhexidine Bathing and Showering

- CHG replaces regular soap for bathing. CHG works better than soap and water to deeply cleanse the skin.
- Do not use regular soap with CHG. Many soaps inactivate CHG.
- Ensure thorough cleaning, with special attention to commonly soiled areas such as the neck, axilla, skin folds, and groin/perineal areas. CHG is safe to use for perineal cleaning, including cleaning the female labia and genital surface.
- CHG is safe for superficial wounds, including stage 1 and 2 decubitus ulcers and superficial burns, as well as rashes and abrasions. Use of CHG on these areas kills germs and helps prevent infections. Do not use on large or deep wounds (e.g., packed wounds).
- Use CHG for all bathing purposes, including once-a-day full-body bathing, cleaning after soiling, or any other reasons for additional cleaning. This includes the face; however, avoid contact with eyes and ear canals.
- If moisturizer is needed, provide patient with CHG-compatible lotion.

- Remind patient that skin may feel sticky for just a few minutes after 2% CHG impregnated cloths are applied due to lotion or aloe vera in the cloths. This will go away once skin completely dries.
- Allergic reactions are rare, but can occur and are minor. If your patient experiences a reaction possibly related to CHG use, contact the patient's treating physician for all clinical decisions on whether to stop using the product or on whether or not to provide any medication to address a possible reaction.
- Adhere to facility policies for covering vascular access devices, dressings, etc., to prevent water penetration and introduction of water-borne bacteria.
- Generally, patients with lumbar drains are not permitted to shower. However, use the showering protocol if patient is able to shower with a covered waterproof dressing.

Escalation Efforts for Patient Refusals

As is the case with other medical care, patients can refuse any portion of decolonization, either the CHG bath or the nasal product. In order to make sure your patient is maximally informed before a refusal is accepted, perform the following:

1. Review tools in Section 14, which provides suggested responses to common patient questions and scenarios for how to address patient refusals.
    a. If patient initially declines
2. Assess why: Is your patient tired? Uncomfortable due to poor bed positioning? In pain? These things need to be addressed before they will be likely to accept a bath.
3. If patient declines after bedside nurse explains concept
    a. An escalation pathway is recommended, not because a patient refuses, but because some patients may respond to a different approach or style with better understanding. For example, if a patient refused a critical antihypertensive or diabetic medication, their healthcare providers should ensure that the person truly understood the implications of that refusal and make every attempt to help the patient take their medication. Similarly, the goal here is to ensure that the patient understands that they are refusing a protective product that has been proven to reduce their infection risk. Escalating simply means asking a more senior or experienced leader or peer to attempt to communicate key concepts to your patient. An escalation pathway may include asking an expert peer champion, a nurse manager or director, or another member of the unit or hospital leadership to speak to the patient about their refusal.
    b. In the ABATE Trial, escalation pathways were commonly used to help explain and reinforce the importance of the protection and safety provided by targeted decolonization. If the patient refused after the concepts and purposes were clearly conveyed through more than one attempt by the primary nurse and through escalation to at least one other person, the refusal was accepted as well-informed.

References

1. Huang SS, Septimus E, Kleinman K, et al. Chlorhexidine versus routine bathing to prevent multi drug-resistant organisms and all-cause bloodstream infection in general medical and surgical units: the ABATE Infection Cluster Randomized Trial. Lancet. 2019. Mar 23;393(10177):1205-15. PMID: 30850112.
2. Huang SS, Singh R, McKinnell JA, et al. Decolonization to reduce post-discharge infection risk among MRSA carriers. N Engl J Med. 2019;380(7):638-50. PMID: 30763195.
3. Mupirocin-Iodophor ICU Decolonization Swap Out Trial. https://clinicaltrials.gov/ct2/show/NCT03140423. Accessed August 11, 2019.
4. Huang SS. Chlorhexidine-based decolonization to reduce healthcare-associated infections and multidrug-resistant organisms (MDROs): who, what, where, when, and why? J Hosp Infect. 2019 Nov;103(3):235-243. PMID: 31494130.

AHRQ Pub. No. 20(22)-0036
March 2022