

Decolonization of Non-ICU Patients With Devices

Section 9-2 – Standardized Nursing Protocol: Basin Bed Bathing With 2% Liquid Chlorhexidine (CHG) and Showering With 4% CHG Liquid Soap

Background: The Active Bathing to Eliminate (ABATE) Infection Trial found that decolonization of adult non-intensive care unit (ICU) patients with specific 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) clinical cultures.¹ The following protocol details the process for performing skin decolonization in this population.

Protocol Overview

- Daily chlorhexidine gluconate (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, particularly:
 - 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 No-Rinse Bed Bath With 2% Chlorhexidine

Provide one-page CHG information sheet for patients to read prior to beginning bath (see Section 10: “Bathe Daily with Chlorhexidine (CHG) Cloths - Patients”).

Before each CHG bath: Clean all incontinence or gross soilage using CHG-compatible baby wipes or cloths with water. Do not use other soaps, as these can inactivate CHG. Ensure a trash can is nearby for disposal of wipes after use.

Inform the patient that the CHG bed baths 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.

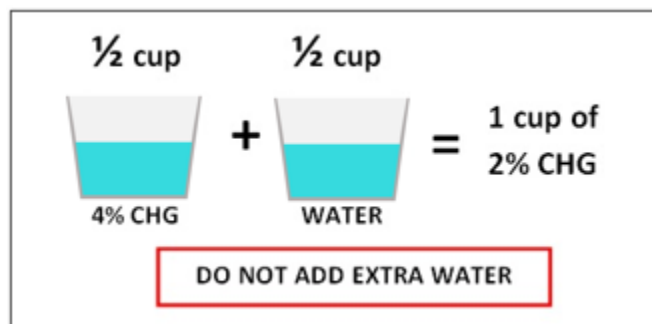
What You Will Need

- 4% liquid CHG to be diluted
- Measuring cup
- Bath basin
- Six disposable wipes (more if needed for lines, tubes, drains, or larger patients)

How To Perform a No-Rinse Bed Bath With 2% Chlorhexidine

- Obtain a bath basin and dispense 1/2 cup of 4% liquid CHG into basin.
- Add 1/2 cup of water (Do **not** dilute more than equal part of water to CHG. The goal is to achieve 2% CHG.) (Figure 9-2-1).
- Bring basin to bedside. Soak disposable wipes in basin. Wring each disposable wipe prior to application. Only soak and wring each disposable wipe once. DO NOT apply wipe to patient and place back in basin to rinse and apply again. Use each of the six wipes for bathing skin areas as instructed below. Ensure that wipes 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.
 - **Wipe 1:** Face,* neck, and chest. **Avoid eyes and ear canals.**
 - **Wipe 2:** Both shoulders, arms, and hands
 - **Wipe 3:** Abdomen and *then* groin/perineum
 - **Wipe 4:** Right leg and foot
 - **Wipe 5:** Left leg and foot
 - **Wipe 6:** Back of neck, back, and *then* buttocks

Figure 9-2-1. How To Create 2% Chlorhexidine



*CHG has been safely used on the face and hair in several large 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 wipes or towels. Rinse or wipe the affected area with water. Then, clean skin with wipes soaked with CHG. If needed, use CHG-compatible barrier protection products for barrier protection (contact product manufacturers to confirm CHG compatibility).
- Allow skin to dry naturally – **do not wipe off**.
- If additional moisturizer or lotion is needed, only use lotions that are known to be compatible with CHG based on manufacturer information.
- Do not place wipes soaked with CHG 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 to skin proteins and will not rub off onto bedding.
- Dispose of wipes in trash. Do not flush in toilet.
NOTE: Use as many additional CHG wipes as are necessary to thoroughly cleanse the body.

Protocol for Showering With 4% Liquid Chlorhexidine

- Provide one-page patient instruction sheet on CHG showering (see Section 10: “Patient CHG Shower Instructions”) for patients to read prior to beginning showers. 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 shower handout and 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 sponge or cloth 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, hip, 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 wash cloth, 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 non-permeable 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 CHG 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 on perineal areas, including 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., wounds that are packed with gauze or other products).

- 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.
- Allergic reactions are rare but can occur. 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
 - whether to provide medication to address a possible reaction
- Adhere to facility policies for covering vascular access devices, dressings, etc., to prevent water penetration and introduction of waterborne 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 provide suggested responses to common patient questions and scenarios for how to address patient refusals.
2. If patient initially declines
 - a. 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 other member of 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 being 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):235-43. PMID: 31494130.

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