

## Hand Hygiene in the Home Setting: Technique Matters

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The importance of performing hand hygiene is constantly reinforced by home care and hospice management, from the time of initial orientation to supervisory visits and ongoing competence assessment activities. Over the years, home care and hospice clinicians' compliance with hand-hygiene activities has improved, but there are still areas for improvement. This column will focus on hand-hygiene technique and how it can be improved.

Hand washing technique is most commonly taught based on the Centers for Disease Control and Prevention's (CDC) hand-hygiene guidelines to include:

- Wet the hands with water;
- Apply the amount of product recommended by the manufacturer to the hands, and rub the hands together vigorously for at least 15 seconds, covering all surfaces of the hands and fingers; and
- Rinse the hands with water and use a disposable towel to dry. Use a towel to turn off the faucet (CDC, 2002).

If using an alcohol-based hand rub product, the CDC's hand-hygiene guidelines instructions include:

- Apply the volume of product recommended by the manufacturer to the palm of one hand;
- Rub the hands together and cover all surfaces of the hands and fingers, until the hands are dry (CDC, 2002).

When washing the hands with soap and water, it is important to note the CDC's hand-hygiene guidelines recommend vigorous hand rubbing for *at least 15 seconds*. Home care and hospice clinicians often perform

visit except for when the hands are visibly soiled (CDC, 2002), or when the home care or hospice clinician is caring for a patient known or suspected to have a *Clostridium difficile* infection (McGoldrick, 2015).

**Due to the potential risk for paper towel contamination, the clinician should never dry their clean hands using paper towels that have been temporarily placed over the clothing and into the staff's underarm while washing their hands in the home.**

this important step in a *much* shorter period of time. Hand hygiene can be continued to 20 seconds or beyond, but *minimally* should be 15 seconds. The term "vigorous" is also important as it is through this activity that the transient microorganisms present on the hands (that can contribute to a home care-onset healthcare-associated infection) are lifted and then removed during hand rinsing under the water and hand drying. When performing hand hygiene using an alcohol-based hand rub product, if the hands are dry in less than 20 seconds, a sufficient quantity may not have been applied to the hands, and it is during this time that the alcohol is killing the microorganisms (not spores) present on the skin. Performing hand hygiene using an alcohol-based hand sanitizer is the most effective way to reduce the number of microorganisms on the hands. It is also acceptable (and preferred) to use an alcohol-based hand rub product routinely for performing hand hygiene throughout the home

One randomized controlled study compared the hand-hygiene technique recommended by the CDC with the hand-hygiene technique recommended by the World Health Organization (WHO) by observing physicians and nurses using an alcohol-based hand rub after delivering patient care. The researchers found the hand-hygiene technique recommended by the WHO to be microbiologically more effective for reducing the median bacterial count (3.28 CFU/mL to 2.58 CFU/mL) compared with the CDC's method (3.08 CFU/mL to 2.88 CFU/mL) on healthcare workers' hands. However, the study also identified that the WHO's hand-hygiene technique took 15% more time to complete (42.50 seconds vs. 35 seconds), and anecdotally only 65% of the healthcare workers completed the entire hand-hygiene process—despite having instructions on the technique in front of them and being directly observed (Reilly et al., 2016). One of the positive elements of the WHO's hand-hygiene

technique is that it specifically includes the thumbs, fingertips, and between the fingers on the hands, which have been identified by Widmer and Dangel (2004) as the most often missed locations during hand hygiene.

Hand hygiene using the WHO's recommended technique is the same whether applying an alcohol-based hand rub or soap, and involves rubbing the hands together to include rotational hand rubbing on both hand palms and backs, and interlacing and interlocking the fingers to cover all surfaces (WHO, 2009). The WHO's hand-hygiene technique for both hand washing and using an alcohol-based hand rub can be viewed and downloaded from the WHO's website at <http://www.who.int/gpsc/5may/resources/posters/en/>. Instructing clinicians to perform hand hygiene using the WHO tech-

nique can be made more effective by using a Glo Germ™ product (liquid or powder form) to simulate germs with the hands viewed under a UV light to look for residual Glo Germ™ product to identify any areas of the hands missed when using the WHO technique.

The transmission of bacteria is more likely to occur from wet skin than from dry skin (Huang et al., 2012). After washing the hands under running water, drying the hands thoroughly with a single-use, disposable paper towel is important and also removes additional microorganisms from the skin. When I observe clinicians in the home, they often remove trifold or C-fold paper towels from their nursing bag and place the paper towels in the fold of their underarm (over clothing) for temporary storage while washing their hands and then using these paper towels to dry their hands. In the home, there are no paper towel dispensers at the sink and often there are no locations for storage at the sink to store the paper towels during hand washing activities. Alternative methods for storing the paper towels while performing hand hygiene need to be considered, such as placing a small stack of paper towels at the sink, and using the bottom layers of the paper towels as a surface barrier or using another type of barrier. The bottom layers would never be used for hand drying and if the paper towels became wet from the "wicking" of water at the sink, the paper towels should not be used. Due to the potential risk for paper towel contamination, the clinician should never dry their clean hands using paper towels that have been temporar-

ily placed over the clothing and into the staff's underarm while washing their hands in the home.

If perhaps your home care and hospice staff are "not ready" for the more "prescriptive" WHO hand-hygiene technique, reinforce to the staff they need to *vigorously* rub *all* surfaces of the hands for *at least* 15 seconds and to use clean, dry paper towels when washing their hands with soap and water. Performing hand hygiene using the correct technique is one of the cornerstones of hand hygiene in preventing infections. ■

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The author declares no conflicts of interest.

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For downloadable posters on handwashing and using an alcohol-based hand rub, visit this link on the WHO's website: <http://www.who.int/gpsc/5may/resources/posters/en/>



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