



# Hand Hygiene in Healthcare Settings: A Summary



## Summary

The following white paper outlines current, nationally recognized guidelines for infection control in healthcare settings with respect to hand hygiene. Hand hygiene is a general term that applies to either hand washing, antiseptic hand wash, alcohol-based hand rub, or surgical hand antisepsis. This whitepaper will discuss hand hygiene in terms of hand washing with soap and water and hand sanitizing with an alcohol-based hand rub (ABHR).

## Introduction

The most common mode of transmission of pathogens is via the hands of healthcare workers and hand hygiene is accepted as one of the most important measures for preventing transmission of pathogens in health-care facilities.<sup>1</sup> There is substantial evidence that hand hygiene reduces the incidence of healthcare-associated infections (HAI).<sup>2-4</sup> Alcohol-based hand rubs have been widely adopted in healthcare facilities because of their convenience, speed of use, skin health benefits, ability to be used independently of sinks, and superior efficacy. In a laboratory setting, plain soaps reduce bacterial counts, but antimicrobial soaps are better, and ABHR are best.<sup>1</sup> Because of this, the Centers for Disease Control and Prevention (CDC) included the recommendation that ABHR should be used in the majority of clinical situations in their 2003 Guideline for Hand Hygiene in Health-Care Settings.<sup>1</sup> Further, the World Health Organization (WHO) affirmed these recommendations in their 2009 Guidelines on Hand Hygiene in Health Care.<sup>5</sup> It is important to note that there are caveats to the use of ABHR, and they include when hands are visibly soiled or contaminated with blood or other bodily fluids. In these situations, the use of either antimicrobial or non-antimicrobial soap and water is warranted.

## The Challenge

Despite the evidence supporting hand hygiene's role in the reduction of HAI, the benefits of ABHR, and innovations in product and dispenser design to enhance the user experience, hand hygiene rates remain sub-optimally low. In fact, published studies report compliance rates less than 50% in the United States.<sup>6</sup> Self-reported and observed reasons for non-compliance include ineffective or inconvenient placement of ABHR dispensers or sinks, the HCW forgot or was distracted, ineffective or incomplete education, lack of accountability, skin irritation, and inadequate safety culture, to name a few.<sup>7</sup> HCWs are certainly at risk for occupational dermatitis from hand hygiene. There is a perception that alcohol-based hand rubs (ABHR) are the primary cause, but in reality soap and water is the main factor affecting skin condition,<sup>8</sup> and a properly formulated ABHR has very little impact on the skin. Therefore selecting the right products that are formulated for good efficacy, skin health, and skin feel is critical to ensure HCW acceptance. It is also important to consider dispenser systems and availability of other solutions such as small bottles for personal carriage, brackets for mounting bottles on mobile equipment, or other solutions to ensure products are accessible to HCW at the point of care.

ABHR should be the primary means for performing hand hygiene in the majority of clinical situations, except when hands are visibly soiled or contaminated.

If hands are visibly soiled or contaminated, perform hand hygiene using **either an antimicrobial or a non-antimicrobial soap and water.**

## The Solution

It should not be assumed that HCW know when and how to perform hand hygiene. Hand hygiene education should occur upon hire and at least annually. In addition, providing discipline-specific education that puts hand hygiene within the context of an employee's daily work and processes is essential. Monitoring HCW hand hygiene compliance and providing feedback are also strongly encouraged.<sup>1,5</sup>

***The WHO recognizes 5 critical moments when hand hygiene should occur. They include:***

1. Before patient contact
2. Before an aseptic task
3. After body fluid exposure risk
4. After patient contact
5. After contact with patient surroundings

It is not only important to perform hand hygiene when indicated, but also to use the appropriate technique and an adequate quantity of the product to cover all skin surfaces for the recommended length of time. Observational studies have demonstrated that the duration of hand hygiene episodes by HCWs ranged on average from as short as 6.6 seconds to 30 seconds, though most of the studies were observations of hand washing and not ABHR use.<sup>5</sup> In addition to washing their hands for very short time periods, HCWs often failed to cover all surfaces of their hands and fingers. Even if hand hygiene is performed at the right time, the applied technique may be inadequate therefore education must incorporate all of these aspects.

***When performing hand hygiene with an ABHR, perform the following steps:***

1. Apply the manufacturer's recommended amount of ABHR to the palm of one hand
2. Rub hands together, covering all surfaces for at least 15 seconds until dry
3. Once dry, your hands are safe

***When performing hand hygiene with soap and water, perform the following steps:***

1. Wet hands with lukewarm water
2. Apply the manufacturer's recommended amount of product to hands
3. Rub hands together vigorously covering all surfaces thoroughly for 15 seconds
4. Rinse hands with lukewarm water
5. Gently pat hands dry with a disposable towel and use the towel to turn off the faucet
6. The entire procedure should take about 40-60 seconds

## Other Important Considerations

Not all ABHRs are created equal. In the United States, antiseptic hand hygiene products for use by HCW are regulated by the Food and Drug Administration (FDA) and requirements for testing products are outlined in the FDA Tentative Final Monograph for Healthcare Antiseptic Drug Products (TFM).<sup>9</sup> The current method that the FDA indicated is needed for testing is the Healthcare Personnel Handwash Test. This is a standard test method that involves applying a specific amount of bacteria to the hands, using the product being tested in a standard method 10 times with sampling at uses 1, 3, 7, and 10. The FDA requires products to achieve a minimum 2-log<sub>10</sub> reduction after the 1st use and a 3-log<sub>10</sub> reduction after the 10th consecutive use. A "log-reduction" is a term that refers to the reduction of germs relative to the starting concentration. To explain it further, a 2-log<sub>10</sub> reduction means the number of germs is 100 times smaller, and a 3-log<sub>10</sub> reduction means the number of germs is 1000 times smaller. PURELL Advanced Instant Hand Sanitizer meets those FDA testing requirements.<sup>10</sup>

## Conclusion

Hand hygiene is a critical aspect of patient safety. Choosing the right products designed to be efficacious, benefit skin health, and have good skin feel is foundational to a hand hygiene program. In addition, providing HCW with education on how and when to perform hand hygiene, monitoring compliance with established protocols, and providing feedback are critical program aspects. Strategies to improve hand hygiene compliance should be multi-modal and multi-disciplinary. **A Guide to Application of the WHO Multi-modal Hand Hygiene Improvement Strategy for Outpatient Settings**<sup>11</sup> can be downloaded free of charge from the WHO website.

## Reference List

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