# High Five for Hand Hygiene

## Overview, Best Practices and Strategies for Compliance

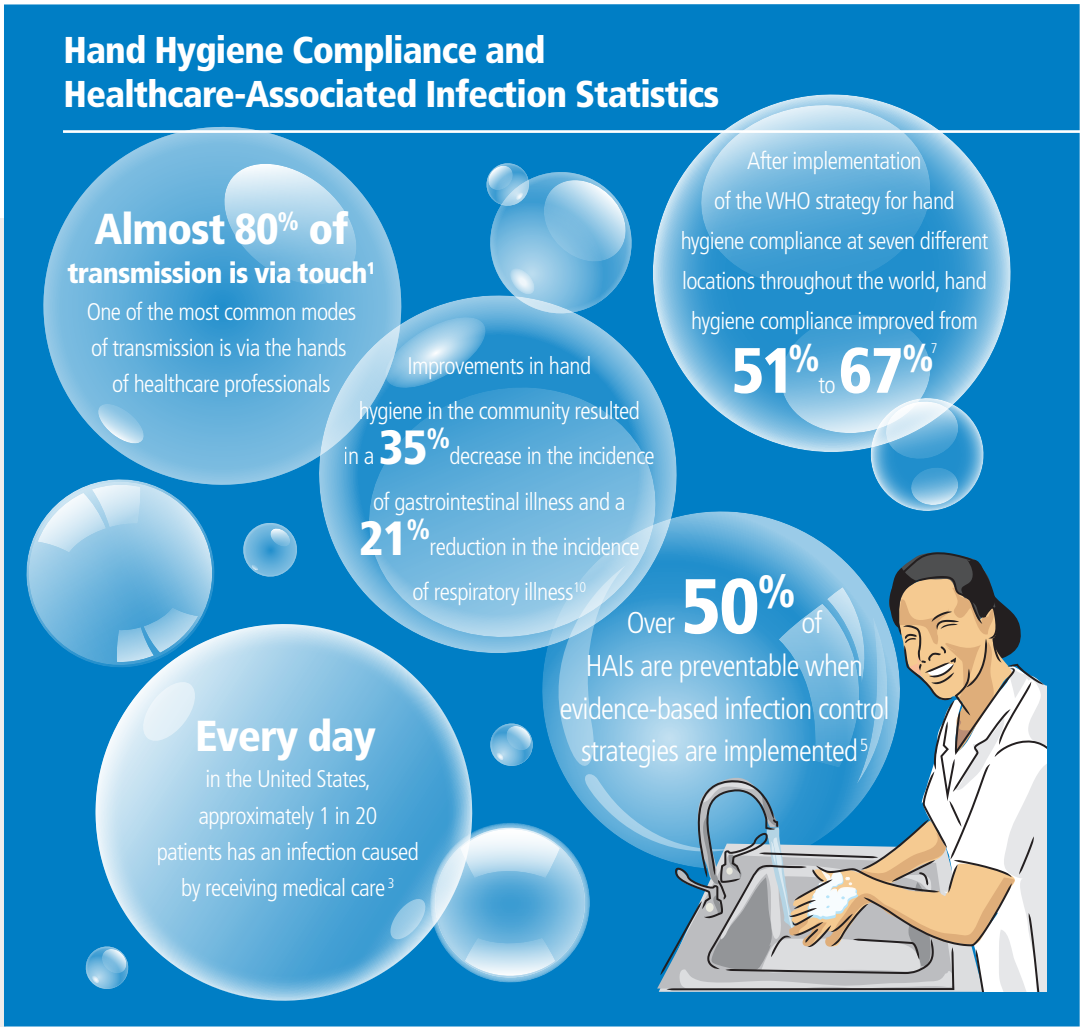
**By Sarah C. Bell-West, Ph.D.**
*Scientist; Clorox Professional Products Company*

*Along with proper cleaning and disinfection of environmental surfaces, proper hand hygiene is the key to reducing the spread of infection in all healthcare settings.*

One of the most common modes of pathogen transmission is via the hands of healthcare workers and almost 80% of infectious diseases are transmitted via touch.[1] According to the Centers for Disease Control and Prevention (CDC), clean hands are the single most important factor in preventing the spread of pathogens and antibiotic resistance in healthcare settings. Despite the documented importance of hand hygiene, early studies showed that adherence rates to hand hygiene standards averaged 40%.[2]

There is a growing body of evidence supporting the importance of improving the safety culture in healthcare environments to reduce healthcare-associated infections (HAIs). Every healthcare worker has the opportunity to help in the fight against HAIs by practicing proper hand hygiene at all stages during patient care. Here is an overview of hand hygiene basics, best practices, and strategies for hand hygiene compliance to help you join in the campaign for safer healthcare and help create a culture of safety in your facility.

*Sarah C. Bell-West is a scientist at Clorox Professional Products Company providing technical resources to help healthcare professionals in the fight against healthcare-associated infections. She is a member of the Association for Professionals in Infection Control and Epidemiology (APIC). Sarah holds a B.S. in chemistry from the University of Pittsburgh and a Ph.D. in chemistry from the University of California, Berkeley. For more information and educational materials from Clorox Healthcare, please visit* **www.CloroxHealthcare.com**



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## Hand Hygiene Basics

Hand hygiene is a general term that applies to hand washing, antiseptic handwash, antiseptic handrub or surgical hand hygiene/antisepsis.[2] Hand washing with soap and water remains the cornerstone of hand hygiene and involves the physical removal of debris including pathogenic microorganisms from the surface of hands.

According to the CDC, if your hands are visibly contaminated you should wash your hands using soap and water. However, other situations may necessitate the use of other hand hygiene agents. When hands are not visibly soiled, an alcohol-based handrub can be used to decontaminate hands. Alcohol-based handrubs should contain at least 60% alcohol (commonly ethanol or isopropanol) and are effective in killing most bacteria and viruses. Surgical hand hygiene products are used preoperatively by surgical personnel to eliminate transient microorganisms present on the skin and reduce resident hand microflora.

## The Importance of Clean Hands in Preventing Healthcare-Associated Infections

Every day in the United States, approximately 1 in every 20 patients has an infection caused by receiving medical care.[3] The growing prevalence of HAIs is a major problem that jeopardizes patient safety and is associated with the increased cost of patient care.

According to a recent study published in the Journal of *the American Medical Association (JAMA) Internal Medicine*, the annual financial burden of treating the five most common HAIs in the United States is estimated at $9.8 billion.[4] Furthermore, recent analyses of HAI data have shown that over 50% of HAIs are preventable when evidence-based infection control strategies are implemented.[5]

HAIs often occur when germs are transferred directly from healthcare provider hands to patients. When a healthcare worker's hands are not clean, they can serve as vectors for transmitting disease-causing germs between patients in a healthcare facility. Healthcare workers hands can also contaminate environmental surfaces within the patient environment and further spread germs to patients indirectly.

Dr. Didier Pittet and colleagues at the University of Geneva Hospitals developed and implemented a multimodal approach for proper hand hygiene in healthcare settings and showed that proper hand hygiene was effective in reducing the transmission of pathogens including methicillin resistant Staphylococcus aureus (MRSA) as well as decreasing HAI rates.[6] This approach was successfully reproducible in other facilities and has become the basis for the World Health Organization's (WHO) hand hygiene compliance strategy.

A recent study by Pittet and colleagues demonstrated that after implementing implementation of the WHO strategy for hand hygiene compliance at seven different locations throughout the world, hand hygiene compliance improved from 51% to 67%.[7]

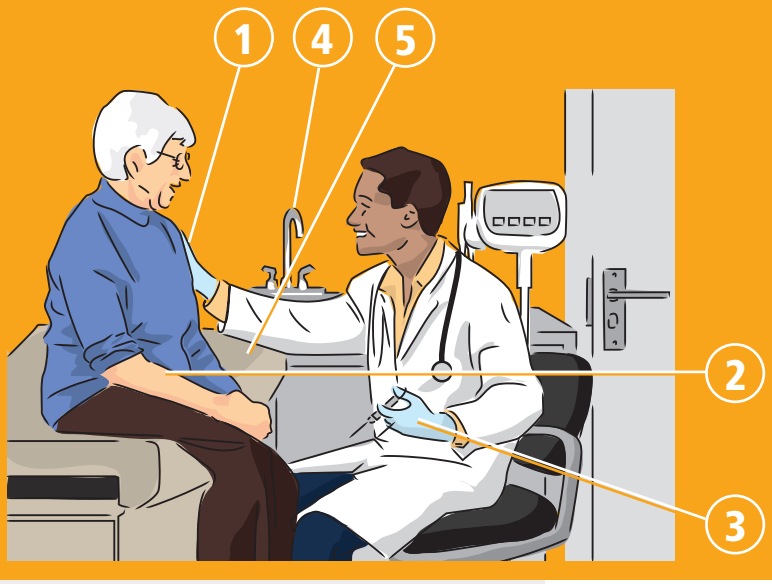
## Hand Hygiene in Practice – When and Why?

The World Health Organization (WHO) created a "5 Moments for Hand Hygiene" toolkit to help increase awareness of the importance of hand hygiene at all stages of patient care.[8] This simple reference guide reminds healthcare workers to take a time-out for hand hygiene before, during, and after caring for a patient.

Despite the challenges that facilities face in implementing a hand hygiene protocol as part of infection prevention strategies, practicing proper hand hygiene is an effective infection prevention strategy that everyone in the healthcare setting (doctors, nurses, staff, patients, visitors) can do to prevent the spread of infections.

As part of its "Clean Care is Safer Care" initiative, the World Health Organization named hand hygiene as the cornerstone of prevention strategies to reduce HAIs. As of September 2013, 133 countries have committed to address HAIs and the use of proper hand hygiene as part of a bundled infection control approach, elevating the importance of hand hygiene to a global level.

### Your Five Moments for Hand Hygiene




| When To Clean Your Hands | Why? |
|---|---|
| **1** Before touching a patient | To protect the patient against harmful germs carried on your hands |
| **2** Before clean/aseptic procedure | To protect the patient against harmful germs, including the patient's own, from entering his/her body |
| **3** After body fluid exposure risk | To protect yourself and the healthcare environment from harmful patient germs |
| **4** After touching a patient | To protect yourself and the healthcare environment from harmful patient germs |
| **5** After touching patient surroundings | To protect yourself and the healthcare environment from harmful patient germs |

*Graphic adapted from the World Health Organization 'Your 5 Moments for Hand Hygiene'[8]*

*"The World Health Organization named hand hygiene as the cornerstone of prevention strategies to reduce HAIs."*

Patients are also empowered to participate in the safety culture by promoting proper hand hygiene.[9] As part of its "Hand Hygiene Saves Lives" campaign, the CDC encourages patients and residents in healthcare settings to practice hand hygiene often and also request that other individuals in the healthcare setting (including visitors, doctors, nurses and other workers) also practice proper hand hygiene.

Both the CDC and WHO have developed easy to follow step-by-step directions for properly using hand washes and handrubs. Hand washing involves 5 simple steps (Wet, Lather, Scrub, Rinse, and Dry) and the entire procedure should take 40-60 seconds. Hand rubbing involves 2 major steps (Apply, and Rub) and the process should take 20-30 seconds.

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## Gloves are Not a Substitute for Proper Hand Hygiene

The use of gloves is an important part of protecting hands when there is contact with blood or other bodily fluids as part of standard precautions. However, the use of gloves is not a substitute for proper hand hygiene. Furthermore, the CDC recommends performing hand hygiene before and after the use of gloves.

## Practice Hand Hygiene Every Day, Everywhere

Whether you are in a healthcare setting, in the community or at home, practicing proper hand hygiene is a simple and effective task to help reduce the spread of disease-causing pathogens. A recent analysis of hand hygiene trials performed in the community found that improvements in hand hygiene resulted in a 35% decrease in the incidence of gastrointestinal illness and a 21% reduction in the incidence of respiratory illness.[10]

## The CDC Recommends Practicing Hand Hygiene at these Moments:[11]

- Before, during and after preparing food
- Before eating food
- Before and after caring for someone who is sick
- Before and after treating a cut or wound
- After using the toilet
- After changing diapers or cleaning up a child who has used the toilet
- After blowing your nose, coughing or sneezing
- After touching an animal or animal waste
- After handling pet food or pet treats
- After touching garbage

## Which Should I Pick? Soap & Water or Alcohol-based Handrubs?

Evidence-based infection control guidelines recommend the use of both hand washes and alcohol-based handrubs for hand hygiene depending on the situation. Alcohol-based handrubs have also become an important component of hand hygiene protocols.

However, alcohol-based handrubs should not become a substitute for regular hand washing and they are not effective in killing spore-forming organisms like *Clostridium difficile,* a potentially deadly pathogen that infects the gastrointestinal tract.

*"Selecting the proper hand hygiene agent and proper hand hygiene technique are equally important to effectively prevent the spread of disease."*

**The follow situations necessitate hand washing using soap and water:**

- When hands are visibly soiled or contaminated with blood or bodily fluids
- Before eating
- After using the restroom
- If you are exposed to spore-forming organisms including *Clostridium difficile*

**Soap and water or alcohol-based handrubs may be used in the following situations:**

- Before and after direct patient contact
- Before donning sterile gloves
- Before inserting invasive devices
- After contact with patient's intact skin (e.g., taking pulse or blood pressure)
- After removing gloves
- After contact with objects and equipment in the patient's immediate vicinity
- When moving from a contaminated body site to a clean body site during patient care

## Proper Hand Washing

1. Wet hands with clean running water (warm or cold) and apply soap.

2. Rub hands together to make a lather and scrub them well; be sure to scrub the backs of hands, between your fingers, and under nails.

3. Continue rubbing hands for at least 20 seconds. Need a timer? Hum the 'Happy Birthday' song from beginning to end twice.

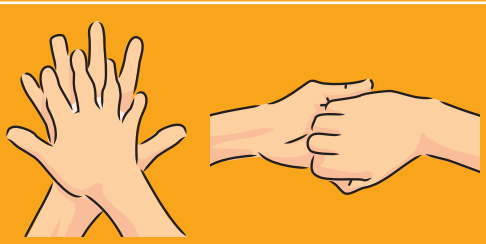
4. Rinse hands well under running water.

5. Dry your hands using a clean towel or air dry.

## Proper Use of Hand Sanitizers

1. Apply the product to the palm of one hand (read the label to learn the correct amount).

2. Rub your hands together.



3. Rub the product over all surfaces of hands including between fingers and the nail beds.

4. Once dry, your hands are safe.

In addition to selecting the proper hand hygiene agent, proper hand hygiene technique is equally important to effectively prevent the spread of disease. Before using any hand hygiene agent, it is important to read manufacturer's directions for use listed on the product label.

The CDC also recommends providing lotions or creams to healthcare workers to minimize irritation associated with repeated hand washings.[2] Furthermore, employers should provide healthcare workers with manufacturer information regarding the adverse effects associated with hand hygiene agents.

## Barriers to Hand Hygiene Compliance

The Joint Commission added a National Patient Safety Goal requiring that accredited healthcare organizations comply with the WHO's current recommendations for hand hygiene or CDC's hand hygiene guidelines (NPSG.07.01.01).[12] While the importance of proper hand hygiene is clear, facilities still face challenges in attaining high levels of hand hygiene compliance. Healthcare workers have cited the following factors that result in poor adherence with proper hand hygiene behaviors.[2]

- Lack of knowledge
- Time constraints
- Irritated and dry hands
- Lack of hand washing supplies (sinks, hand hygiene agents)
- Belief that wearing gloves obviates the need for hand washing
- Lack of role models
- Lack of administrative priority for hand hygiene
- Lack of administrative sanctions

*"Hand hygiene experts recommend a multi-modal strategy for enabling and promoting hand hygiene in the healthcare environment."*

## Strategies to Increase Hand Hygiene Compliance in Your Facility

Hand hygiene experts recommend a multi-modal strategy for enabling and promoting hand hygiene in the healthcare environment. The World Health Organization has developed a free self-assessment guide for facilities to track their progress and improve hand hygiene compliance.[13]

### The WHO's Hand Hygiene Compliance Strategy Consists of Five Main Components:[14]

1. **Ensuring the necessary infrastructure** is in place to allow healthcare workers to practice hand hygiene, including two essential elements:
   - Access to a safe, continuous water supply as well as to soap and towels
   - Readily accessible alcohol-based handrub at the point of care
2. **Training and education** of healthcare workers on the most important times in patient care for hand hygiene
3. **Monitoring and feedback** on compliance
4. **Visual reminders** at the point of care in the workplace
5. **Creation of a culture of attention** to patient and healthcare worker safety within the institution

## Make Hand Hygiene a Personal Priority

While implementation of infection control practices can be challenging, practicing proper hand hygiene is a simple action that healthcare professionals can take to prevent the spread of disease-causing germs both inside and outside of the healthcare environment.

# Additional Hand Hygiene Resources

The Centers for Disease Control, World Health Organization and many other organizations have developed resources and tools to help bring awareness about the importance of hand hygiene and implement proper hand hygiene technique and compliance.

For more information please visit:

**Centers for Disease Control Hand Hygiene in Healthcare Settings:**

http://www.cdc.gov/handhygiene/index.html

http://www.cdc.gov/handhygiene/Resources.html#Resources

**World Health Organization Save Lives: Clean Your Hands Campaign:**

http://www.who.int/gpsc/5may/en/index.html

http://www.who.int/gpsc/5may/tools/en/

**For free educational video on proper hand hygiene, please visit:**

http://www.nejm.org/doi/full/10.1056/NEJMvcm0903599

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