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HAND HYGIENE ESSENTIAL PREVENTIVE TOOL

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Health care organizations, businesses involved in food handling and preparation, processing facilities, hotels, schools, and day care centers are among institutions that have an opportunity to initiate proactive hand-hygiene initiatives designed to dramatically reduce the spread of bacteria.

According to the U.S. Centers for Disease Control and Prevention (CDC), "the single most important thing we can do to keep from getting sick and spreading illness to others is to clean our hands."

More than 2 million people become ill each year as a result of hospital-acquired infections, making hospitals a primary target for aggressive hand hygiene practices. In addition to the CDC,[1] most health care facilities rely on the World Health Organization (WHO)[2] and the Joint Commission on Accreditation of Health Care Organizations for guidance. These organizations provide detailed recommendations for best practices.

The Joint Commission's 2008 *Disease-Specific National Patient Safety Goals Implementation Expectations*[3] states that "compliance with the WHO Hand Hygiene Guidelines or CDC hand hygiene guidelines will reduce the transmission of infectious agents by staff to patients, thereby decreasing the incidence of health care-associated infections."

Basic Rules for Hospitals

Hand hygiene is a general term that applies to routine hand washing with some form of antiseptic hand wash and friction-based hand rubbing, or surgical hand antisepsis. Hand hygiene substantially reduces potential pathogens on the hands and is considered a primary measure for reducing the risk of transmitting organisms among patients and health care workers (HCW). Studies show that hand washing can prevent the spread of serious and potentially fatal infections.

The basic hand hygiene rules of hospitals are to cleanse hands before and after each patient contact.

The CDC and other experts recommend washing hands with clean water and soap for a period of 20 seconds. This is a simple and sensible hand hygiene strategy. When soap and clean water are not available, alcohol-based hand hygiene products are recommended. The CDC states that alcohol-based hand rubs (ABHR) are "more effective in reducing bacteria on hands, cause less skin irritation/dermatitis, and save personnel time."

Because hand hygiene compliance is directly associated with convenient access to hand washing or alcohol-based hand rub dispensing stations, the CDC notes that "the highest possible adherence to hand hygiene practice is achieved when ABHR dispensers are in readily accessible locations such as the corridor near the patient room entrance and inside patient rooms."

The CDC's stated benefits about alcohol-based hand rubs in health care facilities have been confirmed by a variety of sources. For example, a study on *Improving adherence to hand hygiene practice: A multidisciplinary approach*[4] concludes that ''alcohol-based hand rub, compared with traditional hand washing with unmedicated soap and water or medicated hand antiseptic agents, may be better because it requires less time, acts faster, and irritates hands less often.''

The relationship between improved adherence to recommended hand hygiene practices and ABHRs is also found in studies such as *Availability of an alcohol solution can improve hand disinfection compliance in an intensive care unit*.[5]This study found that compliance with hand hygiene best practice rates rose from 42.4 percent before ABHR use to 60.9 percent after the introduction of ABHRs. All categories of health care providers, including nurses and physicians, as well as patients showed increased hand hygiene compliance practices.

Another study, *Effectiveness of a hospital-wide programme to improve compliance with hand hygiene*[6] also demonstrated an increase in compliance with hand hygiene practices that was directly related to the use of ABHRs. In this study, compliance rates rose from 47.6 percent to 66.2 percent over a three-year period. One of the measures of usage is an increase in the volume of rubs used. During the three-year period, the annual amount of ABHR use increased from 3.5L per 1,000 patients to 10.9L per 1,000 patients.

Ensuring Compliance

However, despite their seemingly strong compliance rates, ABHRs are still considered to be an adjunct, rather than a primary source, of compliance in the ongoing quest for hand-washing compliance.

This raises the question: How does one know for sure if health care personnel are washing as recommended for the full 20 seconds? Studies have shown that most individuals rush through the wash process in less than 20 seconds, yielding a higher surface bacterial count on further evaluation. Even when compliance is

encouraged, accurate measurements of hand hygiene effectiveness is difficult and costly to compile because it is labor-intensive, cumbersome, and subjective.

The CDC guideline offers two options for measurement of hand hygiene compliance:

1. Periodically monitoring and recording adherence as to the number of hand-hygiene episodes performed by personnel/number of hand-hygiene opportunities by ward or by service, then providing feedback to personnel regarding their performance.
2. Monitoring the volume of alcohol-based hand rub (or detergent used for hand washing or hand antisepsis) used per 1,000 patient-days.

Although both methods may be considered acceptable for routine monitoring, the Joint Commission's criteria for corrective action recognize only the first method - direct observation. (See related article for information on an automated system for tracking and monitoring compliance.)

Related Benefits

In addition to the obvious health and safety benefits associated with good hand hygiene, when analyzing the effectiveness of hand-hygiene practices, consideration also should be given to legal defensibility in the event that a lawsuit alleging negligence is filed. In most instances the burden of proof falls squarely on the observer, while defense costs are borne by the health care facility and its practitioners.

Documentation of specific, verifiable facts that substantiate consistency in hand-washing processes, the use of quality control systems, and credibility of the observer is essential.

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References

1. Hand Hygiene in Healthcare Settings: www.cdc.gov/handhygiene
2. WHO Guidelines on Hand Hygiene in Healthcare: www.http://www.who.int/gpsc/tools
3. 2008 Disease-Specific National Patient Safety Goals Implementation Expectations: www.jointcommission.org/patientsafety
4. Improving adherence to hand hygiene practice: A multidisciplinary approach; D Pittet; *Emerging Infectious Diseases;* March-April, Vol. 7, No. 2, 2001.
5. Availability of an alcohol solution can improve hand disinfection compliance in an intensive care unit; E Maur, et al.; *American Journal of Respiratory and Critical Care Medicine*, Vol. 162:324-327, 2000.
6. Effectiveness of a hospital-wide programme to improve compliance with hand hygiene; D Pittet, et al.; *Lancet,* Vol. 356, 1307-1312, 2000.

Automated Hand Washing Stations Support Compliance, Documentation

Alpha Protection Solutions LLC, an internationally recognized hand hygiene compliance and training company, has designed a turn-key solution to help health care organizations track hand hygiene according to CDC best practices with the use of an electronic hand wash monitoring and compliance system.

The AlphaClean™ Compliance System utilizes a touch-free soap dispenser and water faucet at each hand-wash station. When an individual initiates the hand-wash cycle by wetting his or her hands, an easy-to-read LCD display prompts the user to "Place hands under water faucet to rinse hands." The second prompt is to "Place hands under soap dispenser," which emits a programmable aliquot of soap. The training display then directs the individual to "Rub hands together with soap for 20 seconds." This step is key because it is directly in compliance with CDC guidelines.

During the 20-second hand wash, the water source is electronically disabled, essentially forcing the individual to lather their hands properly for the complete 20-second interval. After the 20 seconds has elapsed, the display says, "Rinse hands under water faucet," and lastly, "Wash is complete."

Each completed wash is automatically recorded. If the individual does not complete the full 20-second hand wash cycle or bypasses the rinse cycle, the wash is not recorded as complete. Information on each wash is downloaded to a portable data logger or sent directly to the health care facility's infection control administrator's record-keeping system via the internet.

This automated, standardized system ensures greater consistency in hand-hygiene practices, reduces costs associated with manual monitoring, and increases legal defensibility. The lack of a standardized approach to measuring hand hygiene performance made it difficult for health care organizations to determine whether overall hand hygiene performance was improving, deteriorating or staying about the same, according to Alpha Protection Solutions.

The company also distributes touch-free dispensers containing alcohol-based hand rubs provide an alternative to soap and clean water washing stations.

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