

# Hand Hygiene in Healthcare Settings: Guidelines Revisited

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It's simple and inexpensive, can save lives by preventing the transmission of infectious pathogens, but why don't healthcare workers do it? Hand hygiene has always been considered as one of the cornerstones of infection control but adherence with recommendations for hand hygiene practices remains extremely low in most healthcare settings. Careful epidemiological investigations have clearly identified some of the key parameters involved and have proposed corrective actions (1). Unsurprisingly, the leading factor for non-compliance is time constraint. In particular, time required for traditional handwashing may make full compliance with previous guidelines unrealistic (1,2).

Guidelines for hand hygiene in healthcare settings have been recently revisited by a group of international experts from the Centers for Disease Control and Prevention (CDC) Healthcare Infection Control Practices Advisory Committee (HICPAC), the Society for Healthcare Epidemiology of America (SHEA), the Association for Professionals in Infection Control and Epidemiology (APIC), and the Infectious Diseases Society of

America (IDSA) who conducted a thorough review of published evidence dealing with hand hygiene (3). Recommended indications for hand hygiene during patient care, classified according to their level of evidence, are listed in the Table 1.

The new guideline recommends that when hands are visibly soiled with blood or other body fluids, or contaminated with proteinaceous material, hands should be washed with either non-antimicrobial soap and water or antimicrobial soap and water (3,4). However, the most revolutionary recommendation concerns the use of alcohol-based handrub formulations as the new standard of care, thus requiring a system change that must be addressed in most hospitals. Easy, immediate access to hand hygiene facilities and agents and rapid antimicrobial action are key elements to improve compliance, and should be achievable in all healthcare settings (2,3). Bedside handrubbing requires only 20 seconds, thus bypassing the time constraint factor (5). Promoting alcohol-based hand rubs was recommended because they require less time to use, are more effective, and are less irritating to skin than traditional handwashing (2,3,5,6).

Additional recommendations include providing staff with hand lotions or creams to minimize the occurrence of hand cleansing-associated irritant contact dermatitis, to avoid wearing artificial fingernails or extenders when having direct contact with high-risk patients, and to keep natural nail tips less than 1/4 inch long (3).

**Table 1. Indications for Hand Hygiene Action During Patient Care\*.**

<p>A. Wash hands with a non-antimicrobial soap and water or an antimicrobial soap and water when hands are visibly soiled or contaminated with proteinaceous material. (IA)</p> <p>B. If hands are not visibly soiled, use an alcohol-based hand rub for routinely decontaminating hands in all other clinical situations described in items 1 through 8 listed below. (IA)</p> <p>Decontaminate hands</p> <ol style="list-style-type: none"> <li>1. <u>Before</u> having direct contact with patients. (IB)</li> <li>2. <u>Before</u> donning sterile gloves when inserting a central intravascular catheter. (IB)</li> <li>3. <u>Before</u> inserting indwelling urinary catheters, peripheral venous catheters, or other invasive devices that do not require a surgical procedure. (IB)</li> <li>4. <u>After</u> contact with a patient's intact skin (as in taking a pulse or blood pressure, or lifting a patient). (IB)</li> <li>5. <u>After</u> contact with body fluids or excretions, mucous membranes, non-intact skin, or wound dressings, as long as hands are not visibly soiled. (IA)</li> <li>6. <u>If moving</u> from a contaminated-body site to a clean-body site during patient care. (II)</li> <li>7. <u>After</u> contact with inanimate objects (including medical equipment) in the immediate vicinity of the patient. (II)</li> <li>8. <u>After</u> removing gloves. (IB)</li> </ol> <p>Wash hands with antimicrobial/non-antimicrobial soap and water if exposure to <i>Bacillus anthracis</i> is suspected or proven (4). The physical action of washing and rinsing hands under such circumstances is recommended because all hand antiseptics have poor activity against spores.</p> <p><b>Footnote to Table 1:</b> The CDC/HICPAC system for categorising recommendations is as follows: <b>Category IA:</b> Strongly recommended for implementation and strongly supported by well-designed experimental, clinical, or epidemiological studies. <b>Category IB:</b> Strongly recommended for implementation and supported by some experimental, clinical, or epidemiological studies and a strong theoretical rationale. <b>Category IC:</b> Required for implementation, as mandated by federal and/or state regulation or standard. <b>Category II:</b> Suggested for implementation and supported by suggestive clinical or epidemiological studies or a theoretical rationale. <b>No recommendation:</b> Unresolved issue. Practices for which insufficient evidence or no consensus regarding efficacy exist. * Adapted from reference (3). The guideline is also available from the following sources: <a href="http://www.cdc.gov/handhygiene/">http://www.cdc.gov/handhygiene/</a> Boyce J, Pittet D. Guideline for hand hygiene in healthcare settings-Recommendations of the Healthcare Infection Control Practices Advisory Committee (HICPAC) and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force. <i>Infect Control Hosp Epidemiol</i> 2002;23:S3-S40. Boyce J, Pittet D. Guideline for hand hygiene in health-care settings-Recommendations of the Healthcare Infection Control Practices Advisory Committee and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force. <i>Am J Infect Control</i> 2002; 30:S1-S46. Useful additional hand hygiene resources: <a href="http://www.handhygiene.org">www.handhygiene.org</a>;<a href="http://www.hopisafe.ch">www.hopisafe.ch</a></p>
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Importantly, hand-cleansing is required regardless of whether gloves are used or changed (1-3,7). Failure to remove gloves after patient contact or between dirty and clean body site care on the same patient has to be regarded as non-compliance with recommendations (1). Furthermore, it is not appropriate to wash and

reuse gloves between patient contact and hand hygiene is recommended after glove removal (3). A number of reports have stressed the risk that staff may move from patient to patient without glove change, resulting in the subsequent cross-transmission of nosocomial pathogens. Recommendations are:

1. Wear gloves when contact with blood, body fluids, or other potentially infectious materials, mucous membranes, and non-intact skin can be reasonably anticipated;

2. Remove gloves after caring for a patient;

3. Do not wear the same gloves for the care of more than one patient;

4. Do not wash gloves between patients; and

5. Change gloves during patient care if moving from a contaminated body site to a clean site.

Strategies to improve hand hygiene compliance must be multifaceted and include staff education and motivation, the use of performance indicators, and hospital management support (2,3,7-10). Education is a vital component and must be promoted at all levels of experience-doctors included. Educational programmes need to address issues like availability and awareness of guidelines for hand hygiene, potential risks of transmission of micro-organisms to patients, as well as potential risks of staff colonisation or infection acquired from the patient, knowledge about indications for hand hygiene during daily patient care, awareness of the very low average compliance with hand hygiene practices of most healthcare workers, and recognition of opportunities for hand hygiene associated with high risk for cross-transmission (1,7,11). Coaching should also focus on the relative efficacy of the different hand hygiene agents available and on the appropriateness, efficacy, and understanding of the use of hand hygiene and skin care protection agents (2,12,13). Techniques for hand hygiene should be taught, and include the amount of hand hygiene solution to use, duration of procedure, and reasons for the institutional choice of hand hygiene agents. Teaching must include a discussion of the morbidity, mortality, and costs associated with cross-infections, and emphasise the epidemiological evidence for the definitive impact of improved hand hygiene on nosocomial infection and resistant organism transmission rates. Finally, hand hygiene promotion education should consider active participation at individual and institutional level, as well as enforcement of individual and institutional self-efficacy (2,3,7,8,10).

Monitoring of compliance by ward staff as well as the amount of alcohol-based hand rub used are key indicators to measure staff adhe-

rence and improvement with hand hygiene recommendations (3,7). Performance feedback is strongly recommended.

Behavioural theories and reported experiences, suggest that multifaceted interventions have more chance of success than single actions or promotion programmes focusing on one or two elements only (7-10). These strategies have similarities with principles of societal marketing methods. However, further studies are required to assess the key determinants of hand hygiene behaviour and promotion among different caregiver populations, to develop methods to secure senior management support, and to implement and evaluate the impact of the different components of multifaceted promotion programmes (7,14,15). Some of these targets are clearly related to the institution and would require senior management support and commitment to be successful.

Improving hand hygiene practices can reduce cross-transmission and the spread of antimicrobial resistance (7,8,16). Most importantly, successful hand hygiene promotion campaigns will improve patient safety and quality of care.

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