Cognitive and Environmental Correlates of Hand Hygiene Compliance Among Health Care Workers

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Background:
Although hand hygiene (HH) has been known to reduce the spread of infections among hospitalized patients for over 150 years, scores of studies demonstrate that the rate of HH compliance among health care workers (HCW) is often 50% or less.

As a member of Trinity Health, SJMH was selected to participate in a nationwide HH compliance study along with six other hospitals and health systems in collaboration with the Joint Commission’s Center for the Transformation of Healthcare (CTH).

Purpose:
The purpose of this study was to identify barriers to HH compliance among HCW, and develop interventions to improve HH compliance by at least 50% from baseline measures on a patient care study unit.

Methods:
The six sigma methodology was used to identify the few critical factors that contribute to low rates of HH among HCW, and to organize and focus the improvement interventions. We surveyed 744 HCW on their beliefs and perceptions about HH.

Interventions to improve rates of HH compliance among HCW on the patient care unit studied were:

1. Encouraging unit staff to modify their HH practices from hand washing, to the use of alcohol based hand rubs (ABHR) where appropriate, to reduce skin irritation.
2. Promoting a better understanding of the WHO 5 Moments for HH among HCW.

**WHO 5 Moments for Hand Hygiene**

<table>
<thead>
<tr>
<th>Moment</th>
<th>Description</th>
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<tbody>
<tr>
<td>1. BEFORE PATIENT CONTACT</td>
<td>WHEN: Clean your hands before touching a patient when approaching him/her. EXAMPLES: shaking hands, helping a patient to move around, or clinical examination.</td>
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<td>2. BEFORE AN ASEPTIC TASK</td>
<td>WHEN: Clean your hands immediately before any aseptic task. EXAMPLES: oral/dental care, secretion aspiration, wound dressing, catheter insertion, preparation of food, medications.</td>
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<td>3. AFTER BODY FLUID EXPOSURE RISK</td>
<td>WHEN: Clean your hands immediately after an exposure risk to body fluids (and after glove removal). EXAMPLES: oral/dental care, secretion aspiration, drawing and manipulating blood, cleaning up urine, feces, handling waste.</td>
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<tr>
<td>4. AFTER PATIENT CONTACT</td>
<td>WHEN: Clean your hands after touching a patient and his/her immediate surroundings, when leaving the patient’s side. EXAMPLES: shaking hands, helping a patient to move around, or clinical examination.</td>
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<tr>
<td>5. AFTER CONTACT WITH PATIENT SURROUNDINGS</td>
<td>WHEN: Clean your hands after touching any object or furniture in the patient’s immediate surroundings, when leaving even if the patient has not been touched. EXAMPLES: changing bed linen, perfusion speed adjustment.</td>
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3. Placement of ABHR dispensers outside patient room doors to improve accessibility and visual cueing.
4. Providing individual feedback to HCW to raise awareness of their own HH compliance.
5. Promoting a greater awareness of the lifespan of bacteria and viruses on environmental objects and surfaces.

Results:
Survey results revealed that both cognitive and environmental factors needed to support HH compliance were absent. Cognitive deficits among some staff included: a lack of commitment to perform HH (due to skin irritation); a lower than expected level of competence (regarding the WHO 5 Moments of HH); and a lower than expected level of cognizance, or awareness, among some staff of their own HH compliance. Visual cues to promote a better understanding of the life span of germs on environmental surfaces and objects were also absent.

Additional barriers included accessibility of ABHR; and a lack of visual cueing in the environment to counteract cognitive lapses (forgetting to perform HH).

The interventions employed resulted in both an increased use of ABHR resulting in reduced skin irritation (see Table 1), and improved HCW compliance with the WHO 5 Moments vs. baseline measures (see Table 2).

Overall compliance with HH by HCW on the patient care unit studied improved from a mean of 68% to 89% and was sustained for a period of 7 months (see Graph 1).

Conclusions:
We conclude that the barriers to HH compliance among HCW include multiple cognitive and environmental factors and that interventions to improve HH compliance rates should therefore be multi-modal.