Planning and Implementation of A Multidimensional Hand-Hygiene Program To Reduce the Risk of Healthcare Associated Infections (HAI) at Rapid City Regional Hospital (RCRH)

Submitted by Beth Boersma, LPN, CIC, Infection Control Assistant, RCRH, and J. M. Keegan, MD, Chief Medical Officer, Regional Health, RCRH
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About Rapid City Regional Hospital

Rapid City Regional Hospital (RCRH), Rapid City, South Dakota:

• A 326-bed, not-for-profit community acute care hospital + cancer care facility + inpatient rehab facility

• A community not-for-profit healthcare facility providing acute care to a geographically widespread area (250-mile radius)

• Also provides medical training for family practice medicine
The Project Team

- Infection control nurse – project leader
- 8 primary team members
- 8 other intermittent members representing all hospital patient-care departments
The Problem

A multidimensional hand-hygiene program was needed to improve hand-hygiene adherence in accordance with The Joint Commission (TJC) Patient Safety Goal #7: 

Reduce the risk of healthcare associated infections (HAI)
Project Goals

• Initial compliance with hand-hygiene standards: 57% (2004 baseline)
• Improvement goal: 90% or better for the project beginning in 2005
• Initial HAI rate in 2004: 4.3 per 1,000 patient-days
• No specific target rate established – desire was to achieve a level as close to 0.0 as possible
Root Cause Analysis

Direct observations, literature search, and 1:1 interviews with clinical staff identified three primary reasons for non-compliance:

- Takes too much time
- Dry, cracked hands from too much washing and use of soap
- Non-supportive culture
## Addressing Root Causes

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<tr>
<th>ISSUE</th>
<th>TOOLS USED</th>
<th>“SOLUTION”</th>
<th>PERSONNEL</th>
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<tr>
<td>Takes too much time</td>
<td>1:1 interviews; brainstorming</td>
<td>Make alcohol hand rubs available: pocket-size, wall mount, and free standing</td>
<td>Purchasing, infection control, administration, department directors</td>
<td>Initial supplies = 1 day (from warehouse supply); gradual increase in supplies over 3 years</td>
<td>Approx $3300/month</td>
<td>Cost, labor (for installing dispensers)</td>
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<td>Soap is too drying</td>
<td>1:1 interviews; brainstorming</td>
<td>Make alcohol hand rubs available: pocket-size, wall mount, and free standing; increase availability of hospital-approved lotion</td>
<td>Purchasing, infection control, administration, department directors</td>
<td>Initial supplies = 1 day (from warehouse supply); gradual increase in supplies over 3 years</td>
<td>See above, plus additional cost of lotion (roughly $175/month)</td>
<td>Cost, labor (for installing dispensers)</td>
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<td>Non-supportive culture</td>
<td>Brain-storming</td>
<td>Secured administration support; provided education (posters, etc.); 1:1 encouragement; infection control hotline to report non-compliances (non-punitive); hold physicians accountable by informing CMO of non-compliances</td>
<td>Medical staff, infection control, administration, department directors</td>
<td>Continual and ongoing</td>
<td>Data not available – most cost was for assorted posters</td>
<td>Resistance to change</td>
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Results

Hand-washing compliance:
- 2004 = 57%
- 2008 = 91%

21% reduction in Hospital Acquired Infections (rate per 1,000 patient-days):
- 2004 = 4.33
- 2008 = 3.41
Return on Investment

• 2005 average cost of HAI = $15,275 (conservative estimate, national)

• Actual RCRH reduction in HAI from 2004 to 2008 = 30 cases

• 30 cases @ $15,275/case = $458,250 avoided cost

• Total cost of materials and supplies from step 5 for 4 years = $166,800

• ROI = 458,250/166,800 = 2.75 → 275%

NET PROJECT SAVINGS = $291,450
Monitoring and Evaluating Over Time

- Individual departments audited and observed clinical personnel compliance in normal performance of duties
- Data were submitted to a central source for compilation monthly
- This process has been maintained throughout the past four years and is an ongoing activity
- HAI data are collected centrally, on a monthly basis, as part of normal infection control surveillance throughout the hospital
Hand-Washing Monitoring Form

Month of Audit _______________________  Floor/Dept Audit _________________________

Tasks = # of opportunities to wash hands  (If you cannot see it, do not record it) Soap and Water or Alcohol foam
If hand washing occurs place a check mark (√) in the appropriate column. If not, place a (0) in it.

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HAI Decreases

Rapid City Regional Hospital
Hand Hygiene Increases - Hospital-Associated Infections Decreases

FY04 - Baseline
FY05
FY06
FY07
FY08

Rate per 1000 Patient Days

57%
74%
86%
87%
91%

Infection Rate
Hand Hygiene Compliance
Linear (Infection Rate)
Examples of Solutions

HAND HYGIENE TIDBIT # 12
It is a jungle of germs out there.

- Phone 25,127 germs
- Mouse 1,676 germs
- Keyboard 3,295 germs
- Desktop 20,961 germs
- Toilet seat 49 germs

Think about it. Our housekeeping staff cleans toilets regularly, but personal work areas, like desktops, are rarely ever cleaned. We are surrounded by germs, and add more each time we cough or blow our noses. Makes you want to wash, doesn’t it?

PLEASE WASH YOUR HANDS AND CLEAN YOUR WORK ENVIRONMENT TO STOP THE SPREAD OF GERMS IN YOUR WORKPLACE.
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