Improving Hand Hygiene

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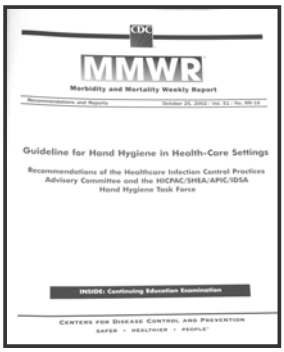
Importance of Hand Hygiene

- **Transmission of healthcare associated pathogens most often occurs via the contaminated hands of healthcare workers**
- **Hand hygiene is considered to be one of the most important measures for reducing the incidence of healthcare associated infections**
- **Numerous studies performed between 1980 and 2000 found that compliance of healthcare workers with recommended handwashing procedures has been unacceptably low, averaging 40%.**

- **In October 2002, the HICPAC/SHEA/APIC/IDSA Guideline for Hand Hygiene In Health-care Settings was Published by the Centers for Disease Control and Prevention in the MMWR**

www.cdc.gov/handhygiene/


CDC
MMWR
Morbidity and Mortality Weekly Report
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
INSIDE: Continuing Education Examination
Centers for Disease Control and Prevention

Boyce JM, Pittet D et al. MMWR 2002;51(RR-16):1-45

Recent Hand Hygiene Guidelines

INSTITUTE FOR HEALTHCARE IMPROVEMENT

How-to Guide:
Improving Hand Hygiene

A Guide for Improving Practices among Health Care Workers

Essential Elements of a Hand Hygiene Promotional Campaign

- **Essential elements of such a program include:**
  - support from high level administrators
  - involving HCWs in the planning process
  - developing new educational/motivational materials
  - monitoring adherence to HH procedures and providing HCWs with feedback on their performance
  - making an alcohol-based hand rub readily available

Boyce JM & Pittet D MMWR 2002;51 (RR-16):1-45

Securing Administrative Support

- **Discuss the rationale for developing a hand hygiene (HH) promotional campaign with the hospital's Quality Improvement (QI) Committee**
- **High level administrators and clinicians such as the hospital Chief Executive Officer (CEO), Head of Nursing, and Department Chairmen should be included in discussions**
- **<u>Comment</u>: Securing administrative support is key to assure that adequate financial and personnel resources are made available** **Pittet D et al. Lancet 2000;356:1307**
  Larson EL et al. Behav Med 2000;26:14

Securing Administrative Support

- **Important points to discuss with hospital administrators and the QI Committee:**
  - high costs of healthcare associated infections
  - importance of contaminated hands in the spread of healthcare associated pathogens
  - poor adherence of healthcare workers (HCWs) to recommended handwashing protocols
  - advantages of alcohol- based hand rubs

Securing Administrative Support

- **Facilities in USA should cite JCAHO's sentinel event alert, issue 28, released in Jan 2003**
  - the alert recommends that hospitals comply with the new HICPAC/SHEA/APIC/IDSA Guideline for Hand Hygiene in Healthcare Settings
- **In other countries, cite recommendations from:**
  - National organizations that inspect/accredit hospitals
  - World Health Organization's Global Patient Safety Challenge
  - Centers for Disease Control and Prevention

http://www.jcaho.org/about+us/news+letters/sentinel+event+alert/sea_28.htm
http://www.who.int/patientsafety/information_centre/
http://www.cdc.gov/handhygiene/

Securing Administrative Support

- **At the Hospital of Saint Raphael, we requested administrative support for:**
  - Forming a multidisciplinary HH committee
  - Holding a contest to select a slogan for HH initiative
  - Installing a new alcohol-based hand gel in all clinical areas
  - resources and approval to post HH cartoon reminders hospital-wide
  - 8 additional hours of time for an existing part-time Infection Control Practitioner to serve as hand hygiene resource person

Program Planning Activities

- **Form a multidisciplinary Hand Hygiene team**
- **Membership should include representatives from:**
  - hospital administration
  - department of nursing
  - infection control program
  - department that supplies/replaces hand hygiene products
  - physician representative(s)
  -
- **Involve team members in developing educational and motivational material and selecting an alcohol-based hand rub**

Selection of an Alcohol-Based Hand Rub

- **Several alcohol-based hand rub products should be evaluated by a group of individuals, including**
  - personnel from Infection Control; Nursing Department
  - nurses, and if possible, physicians from several wards
- **Important product characteristics include:**
  - lightly-scented with fragrance that fades after application
  - agreeable consistency
  - not sticky or greasy feeling
  - little or no skin irritation even with frequent use
- **Evaluate product dispensers, to make sure they reliably deliver an appropriate volume of product**

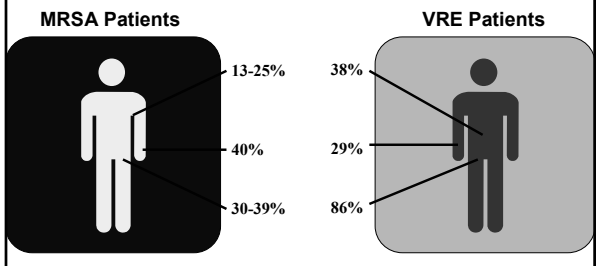
Educational Activities

- **Periodic lectures given by local experts**
  - PowerPoint presentations
  - Interactive audience-response software, if possible
- **Videotape presentations**
  - produced locally
  - by professional organizations (e.g., APIC)
  - product manufacturer
- **Computer-assisted learning sessions placed on hospital's Intranet**

Educational Activities

- **Give examples of clinical activities that can result in contamination of healthcare workers hands**
- **Discuss the advantages and disadvantages of using an alcohol-based hand rub (ABHR) vs washing hands with soap and water**
- **Describe the major indications for hand hygiene**
- **Give instructions about how to clean hands**
  - with an ABHR
  - when washing hands with soap and water

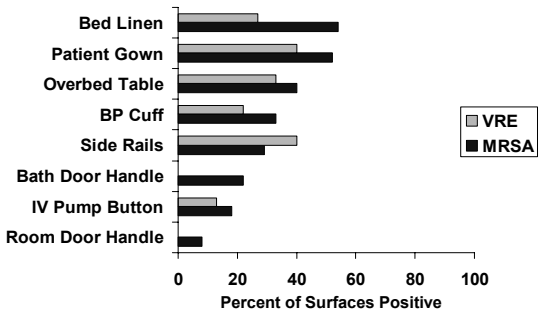
Frequency of Skin Contamination at Various Body Sites



Hill RLR et al. J Antimicrob Chemother 1988;22:377
Sanford MD et al. Clin Infect Dis 1994;19:1123

Bonten MJM et al. Lancet 1996; 348:1615

Environmental Sites Contaminated with VRE or MRSA

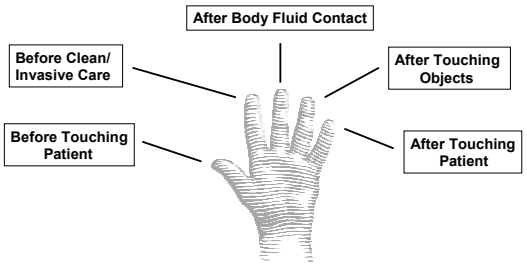


Advantages of Alcohol-Based Hand Rubs

- **Compared to handwashing, alcohol-based hand rubs have the following advantages:**
  - more effective in reducing the number of viable bacteria and viruses on hands
  - require less time to use
  - can be made more accessible near point of patient care
  - cause less hand irritation and dryness with repeated use

Boyce JM, Pittet D et al. Morbid Mortal Wkly Rep. 2002;51:1-45

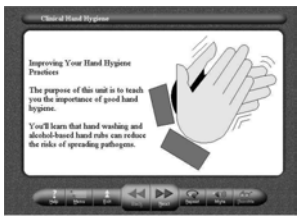
5 Main Indications for Hand Hygiene



Adapted from Sax H and Pittet D

Additional Educational Programs

- **HH training modules are accessible on all hospital computers " 24/7"**
- **Synquest system provides test and immediate feedback to employee taking the test**
- **Synquest records names of personnel who have completed the test**



Motivational Activities

- **Colorful posters emphasizing importance of hand hygiene**
- **Posters with photographs of influential hospital doctors/staff members recommending hand hygiene and use**
- **Drawings designed for children, or drawings by children, in pediatric hospitals**

Motivational Materials

- **At Hospital of Saint Raphael, hand hygiene cartoons were obtained by special arrangement from Dr. D. Pittet in Geneva, Switzerland**
- **Personnel on each nursing unit and clinical dept. were asked to develop a caption for a cartoon**
- **Administration approved painting special background for poster locations**

Motivational Activities

- **Computer screen savers with hand hygiene reminders**
- **Using opinion leaders as role models**
- **Encourage patients or family members to remind healthcare workers to clean their hands**
- **Encourage competition between wards or hospital services for best hand hygiene compliance**
  - awards for groups with best compliance
    - coffee vouchers, theater tickets, trophies

Motivational Activities

- **Provide feedback to healthcare workers regarding their level of compliance is a very important component of a multi-modal hand hygiene campaign**
- **Compliance rates are generally determined for**
  - each ward
  - hospital clincal services
  - healthcare worker type (nurses, physicians, other HCWs)

Monitoring Hand Hygiene Compliance

- **Currently, the most widely used method of determining HCW hand hygiene compliance rates is by observational surveys conducted by trained personnel**
- **Surveys must use consistent definitions for**
  - hand hygiene opportunities
  - criteria for compliance
  - criteria for lack of compliance
  - criteria for appropriate glove use

Hand Hygiene (HH) Monitoring Tool


HAND HYGIENE MONITORING TOOL

www.handhygiene.org

Palm Based Data Entry

Hand Hygiene Monitoring Tool

Patient Care Unit/Dept.: _____ Month/Year _____

Initials of Monitor: _____

Healthcare Worker (HCW) Type:

1 = Physician	4 = Respiratory Therapist	7 = Continuing Care/Social Worker	12 = Radiology Tech	
2A = House Officer	5A = Registered Nurse	8 = Pastoral Care	13 = Dietitian	HW = Hand Wash
2B = Medical Student	5B = Licensed Practical Nu	9 = Physical Medicine Staff	14 = Tray passer	HR = Alcohol Hand Rub
2C = Physician Assistant	5C = Clinical Technician	10 = Environmental Services Worker	15 = Other	Y = Yes
3 = Physician Support Sta	6 = IV Team	11 = Patient Transporter		N= No

Db	Date	Shift (Day, Eve, Night)	HCW Type (See Key)	Hand Hygiene BEFORE Touching Patient				Hand Hygiene AFTER Touching Patient, Environment, or Objects				Patient on Contact or Contact CD Precautions		Gloves Worn			Gown Worn		
				Yes HR	Yes HW	No	N/A	Yes HR	Yes HW	No	N/A	Y	N	Y	N	N/A	Y	N	N/A
1																			
2																			
3																			
4																			
5																			
6																			
7																			

Example Monitoring Tool from IHI How-To Guide

Appendix 2. Checklist for the Availability of Alcohol-Based Hand Rub and Clean Gloves

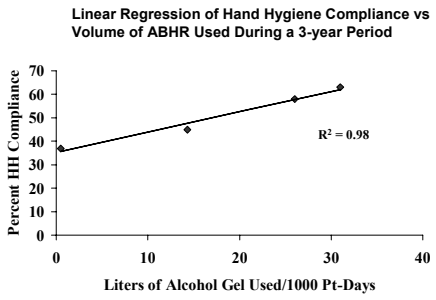
Unit/Dept.: _____ Day of Week: _____ Date: ____/____/____ Time: ____:____AM/PM to ____:____AM/PM Initials _____

	Room #	Bedspace #	Hand rub bottle or dispenser: Near patient	Not empty	Functional	Dispenses correct volume	Clean gloves near patient	Adherence to all elements	Comments
1			Y N	Y N	Y N	Y N	Y N	Y N	
2			Y N	Y N	Y N	Y N	Y N	Y N	
3			Y N	Y N	Y N	Y N	Y N	Y N	
4			Y N	Y N	Y N	Y N	Y N	Y N	
5			Y N	Y N	Y N	Y N	Y N	Y N	
6			Y N	Y N	Y N	Y N	Y N	Y N	
7			Y N	Y N	Y N	Y N	Y N	Y N	
8			Y N	Y N	Y N	Y N	Y N	Y N	
9			Y N	Y N	Y N	Y N	Y N	Y N	
10			Y N	Y N	Y N	Y N	Y N	Y N	
11			Y N	Y N	Y N	Y N	Y N	Y N	
12			Y N	Y N	Y N	Y N	Y N	Y N	
13			Y N	Y N	Y N	Y N	Y N	Y N	
14			Y N	Y N	Y N	Y N	Y N	Y N	
15			Y N	Y N	Y N	Y N	Y N	Y N	
16			Y N	Y N	Y N	Y N	Y N	Y N	
17			Y N	Y N	Y N	Y N	Y N	Y N	
18			Y N	Y N	Y N	Y N	Y N	Y N	
19			Y N	Y N	Y N	Y N	Y N	Y N	
20			Y N	Y N	Y N	Y N	Y N	Y N	
21			Y N	Y N	Y N	Y N	Y N	Y N	
22			Y N	Y N	Y N	Y N	Y N	Y N	
23			Y N	Y N	Y N	Y N	Y N	Y N	
24			Y N	Y N	Y N	Y N	Y N	Y N	
25			Y N	Y N	Y N	Y N	Y N	Y N	
26			Y N	Y N	Y N	Y N	Y N	Y N	
27			Y N	Y N	Y N	Y N	Y N	Y N	
28			Y N	Y N	Y N	Y N	Y N	Y N	
29			Y N	Y N	Y N	Y N	Y N	Y N	
30			Y N	Y N	Y N	Y N	Y N	Y N	

Monitoring Hand Hygiene Compliance

- **Problems associated with observational surveys of hand hygiene compliance include**
  - time-consuming
  - may be problems with inter-rater reliability
  - Hawthorne effect
  - lack of standardization makes comparison with other hospitals very problematic

Monitoring Hand Hygiene Compliance

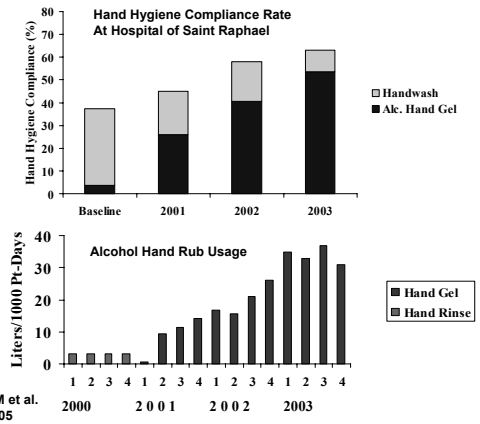


Monitoring the volume of ABHR used

Monitoring Hand Hygiene Compliance

- **Electronic voice prompts to remind HCWs to perform hand hygiene**
- **Electronic counters installed in ABHR dispensers**
- **Observational surveys done by ward personnel**
  - reliability may be problem
- **Self- assessment of compliance is unreliable**

Swoboda SM et al. Crit Care Med 2004;32:358
Larson EL et al. Amer J Crit Care 2005;14:304



Boyce JM et al.
SHEA 2005

Hand Hygiene for *Clostridium difficile*-associated Disease (CDAD)

- **Alcohol-based hand rubs are recommended for routine cleaning of hands before/after patient care as long as hands are not visibly dirty**
- **However, alcohol-based hand rubs are not very effective against spore-forming organisms**
  - Weber DJ et al. JAMA 2003;289:1274
- **As a result, there has been considerable debate recently regarding what type of hand hygiene is most appropriate when caring for CDAD patients**

Plain Soap vs Chlorhexidine Gluconate Soap for Removing *C. difficile* from Hands

- **> 6 $\log_{10}$ CFUs of *C. difficile* were applied to hands of 10 volunteers; baseline counts were performed**
- **Half of the volunteers washed with plain soap, the other half used 4% CHG soap**
- **The number of *C.difficile* remaining on hands after handwashing was determined**
- **Each volunteer repeated the procedure 1 week later using the alternate preparation**
- **No significant difference in efficacy of the two preparations in removing *C. difficile* from hands**

Bettin K et al. Infect Control Hosp Epidemiol 1994;15:697

Effect of Alcohol Hand Gels and Chlorhexidine Hand Wash in Removing Spores of *Clostridium difficile* from Hands

- **5 x 10^5 CFUs of non-toxigenic *C. difficile* (Cdiff) spores were applied to hands of 10 volunteers**
- **Hand hygiene was performed by using**
  - Chlorhexidine gluconate (CHG) soap and water
  - 3 different alcohol-based hand rubs (ABHRs)
- **Hands were cultured before/after hand hygiene**
- **After using ABHR, volunteers shook hands with non-inoculated volunteers to assess frequency of hand transfer of Cdiff spores**

Leischner J et al. ICAAC 2005, Abstr LB-29

Effect of Alcohol Hand Gels and Chlorhexidine Hand Wash in Removing Spores of *Clostridium difficile* from Hands

- **Log reduction in Cdiff spore counts (CFUs/cm^2)**
  - CHG handwashing = 2.5 $\log_{10}$
  - ABHRs = 1.7 – 1.9 $\log_{10}$ (significantly lower than CHG)
- **After using ABHR, an average of 36% of Cdiff spores were transferred by hand shaking**
- **Conclusions:**
  - Handwashing with CHG is signifcantly more effective than using an ABHR
  - Reduction of Cdiff on hands by ABHR was better than expected; residual spores can be transferred by handshake

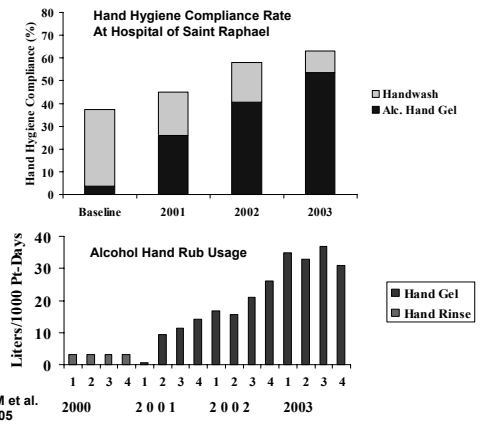
Leischner J et al. ICAAC 2005, Abstr LB-29

Alcohol-Based Hand Rub Use vs Incidence of CDAD

- **A hospital-wide hand hygiene program resulted in use of > 2200 bottles of ABHR during one year, but CDAD incidence decreased slightly**
  - Gopal Rao et al. J Hosp Infect 2002;50:42
- **During a 3-year period following hospital-wide installation of ABHR and employee hand hygiene education, the incidence of CDAD remained the same as during the 3 years before ABHR use**
  - Gordin FM et al. Infect Control Hosp Epidemiol 2005;26:65

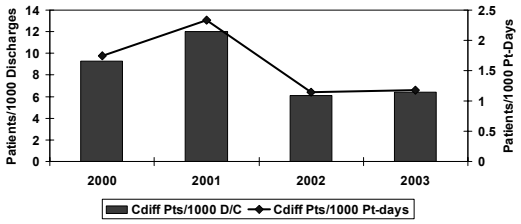
Alcohol-Based Hand Rub Use vs Incidence of CDAD

- **During a 27-month period following hospital-wide installation of ABHR and employee hand hygiene education, the incidence of CDAD remained the same as during the 18 months before ABHR use**
  - Leischner J et al. SHEA 2005, abstr 288
- **Following introduction of ABHRs and hand hygiene education in four healthcare institutions, the incidence of CDAD decreased in 2 hospitals, and remained the same in the other 2 facilities**
  - Elward AM et al. SHEA 2005, abstr 294



Boyce JM et al.
SHEA 2005

Number of Patients with One or More Stools Positive for C. difficile Toxin, per 1000 Discharges and per 1000 Patient-Days, HSR, 2000 - 2003



Boyce JM et al. Infect Control Hosp Epidemiol 2006;

Summary

- **To improve hand hygiene compliance, a multi- modal campaign is required**
- **Important elements of a successful program:**
  - **Administrative support**
  - **Provide HCWs with a well-tolerated alcohol-based hand rub near points of patient care**
  - **New educational and motivational materials are needed**
  - **Monitor hand hygiene compliance and provide HCWs with periodic feedback regarding their performance**

Web Resources

- **www.cdc.gov/handhygiene/**
  - Centers for Disease Control and Prevention
- **www.WHO.int/patientsafety/information_centre**
  - World Health Organization Patient Safety Campaign
- **www.handhygiene.org**
  - Hand Hygiene Resource Center, Hospital of Saint Raphael
- **www.hopisafe.ch**
  - University of Geneva Hospitals, Geneva, Switzerland
- **www.IHI.org**
  - Institute for Healthcare Improvement

The Next Few Teleclasses

October 25 ***Urinary Tract Infections in Long Term Care***
… with Dr. Chesley Richards, Atlanta VA Medical Center

November 9 ***The Physics of Flying Feces – Can We Do Better?***
… with Jim Gauthier, CIC, Providence Continuing Care

November 16 ***Exploration and Advantages of New Test Methods for Tuberculosis***
… with Dr. Michael Gardham, University of Toronto

November 21 ***Catheter Associated Urinary Tract Infections***
… with Lauren Tew, Bard Ltd.

For the full teleclass schedule – www.webbertraining.com
For registration information www.webbertraining.com/howtoc8.php