



This slide set “Hand Hygiene in Healthcare Settings-Core” and accompanying speaker notes provide an overview of the Guideline for Hand Hygiene in Healthcare Settings published in 2002.

A second slide set “Hand Hygiene in Healthcare Settings-Supplemental” which can be obtained at [www.cdc.gov/handhygiene](http://www.cdc.gov/handhygiene) provides additional slides that may be used in conjunction with the core slide set.

The target audience for this slide set is healthcare workers in acute care hospitals.



# Hand Hygiene in Healthcare Settings: An Overview



- Background
- Definitions
- Indications
- Selection of Agents
- Techniques
- Surgical
- Other



# So Why All the Fuss About Hand Hygiene?

*Most common mode of transmission of pathogens is via hands!*

- Infections acquired in healthcare
- Spread of antimicrobial resistance



# Evidence of Relationship Between Hand Hygiene and Healthcare-Associated Infections

- Substantial evidence that hand hygiene reduces the incidence of infections
- Historical study: Semmelweis
- More recent studies: rates lower when antiseptic handwashing was performed



# Hand Hygiene Adherence in Hospitals



Year of Study	Adherence Rate	Hospital Area
1994 <sup>(1)</sup>	29%	General and ICU
1995 <sup>(2)</sup>	41%	General
1996 <sup>(3)</sup>	41%	ICU
1998 <sup>(4)</sup>	30%	General
2000 <sup>(5)</sup>	48%	General

1. Gould D, *J Hosp Infect* 1994;28:15-30. 2. Larson E, *J Hosp Infect* 1995;30:88-106. 3. Slaughter S, *Ann Intern Med* 1996;3:360-365. 4. Watanakunakorn C, *Infect Control Hosp Epidemiol* 1998;19:858-860. 5. Pittet D, *Lancet* 2000;356;1307-1312.



# Self-Reported Factors for Poor Adherence with Hand Hygiene



- Handwashing agents cause irritation and dryness
- Sinks are inconveniently located/lack of sinks
- Lack of soap and paper towels
- Too busy/insufficient time
- Understaffing/overcrowding
- Patient needs take priority
- Low risk of acquiring infection from patients



# Definitions



- Hand hygiene
  - Performing handwashing, antiseptic handwash, alcohol-based handrub, surgical hand hygiene/antisepsis
- Handwashing
  - Washing hands with plain soap and water
- Antiseptic handwash
  - Washing hands with water and soap or other detergents containing an antiseptic agent
- Alcohol-based handrub
  - Rubbing hands with an alcohol-containing preparation
- Surgical hand hygiene/antisepsis
  - Handwashing or using an alcohol-based handrub before operations by surgical personnel



# Indications for Hand Hygiene

- When hands are visibly dirty, contaminated, or soiled, wash with non-antimicrobial or antimicrobial soap and water.
- If hands are not visibly soiled, use an alcohol-based handrub for routinely decontaminating hands.





# Specific Indications for Hand Hygiene



- Before:
  - Patient contact
  - Donning gloves when inserting a CVC
  - Inserting urinary catheters, peripheral vascular catheters, or other invasive devices that don't require surgery
- After:
  - Contact with a patient's skin
  - Contact with body fluids or excretions, non-intact skin, wound dressings
  - Removing gloves



# Selection of Hand Hygiene Agents: Factors to Consider



- Efficacy of antiseptic agent
- Acceptance of product by healthcare personnel
  - Characteristics of product
  - Skin irritation and dryness
- Accessibility of product
- Dispenser systems

# Efficacy of Hand Hygiene Preparations in Killing Bacteria



**Good**

**Better**

**Best**

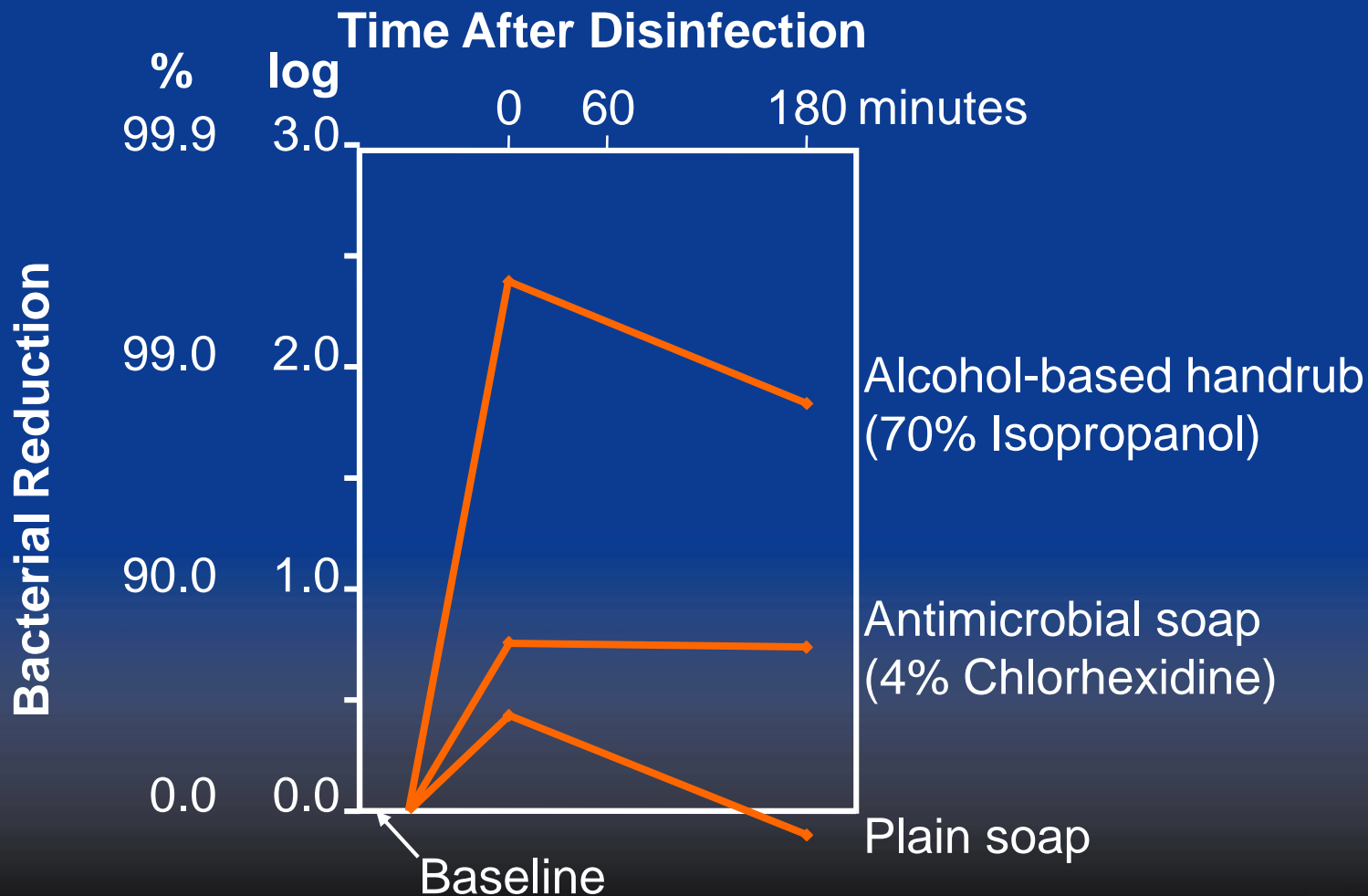


**Plain Soap**

**Antimicrobial  
soap**

**Alcohol-based  
handrub**

# Ability of Hand Hygiene Agents to Reduce Bacteria on Hands

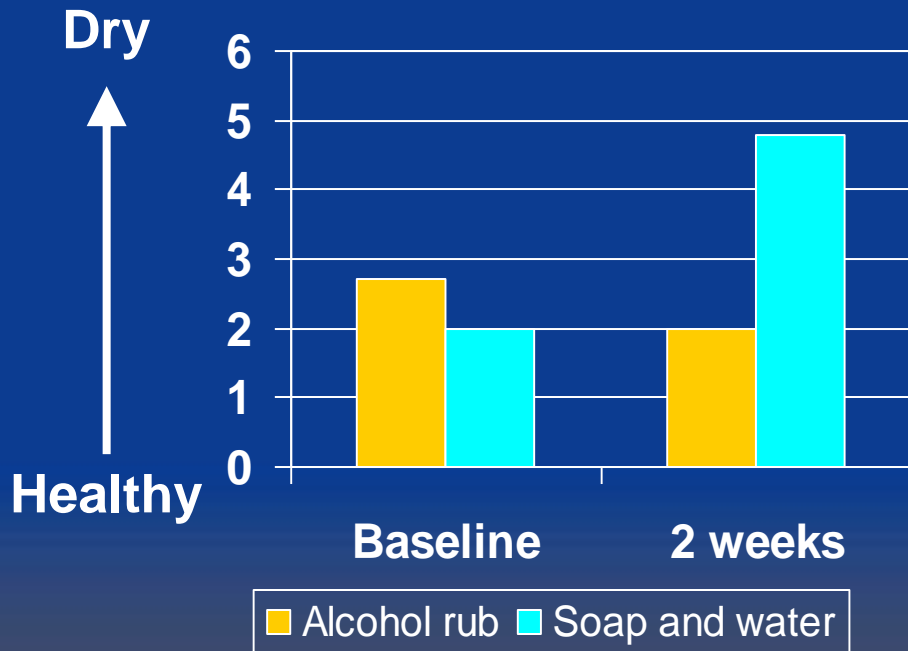


Adapted from: *Hosp Epidemiol Infect Control*, 2<sup>nd</sup> Edition, 1999.

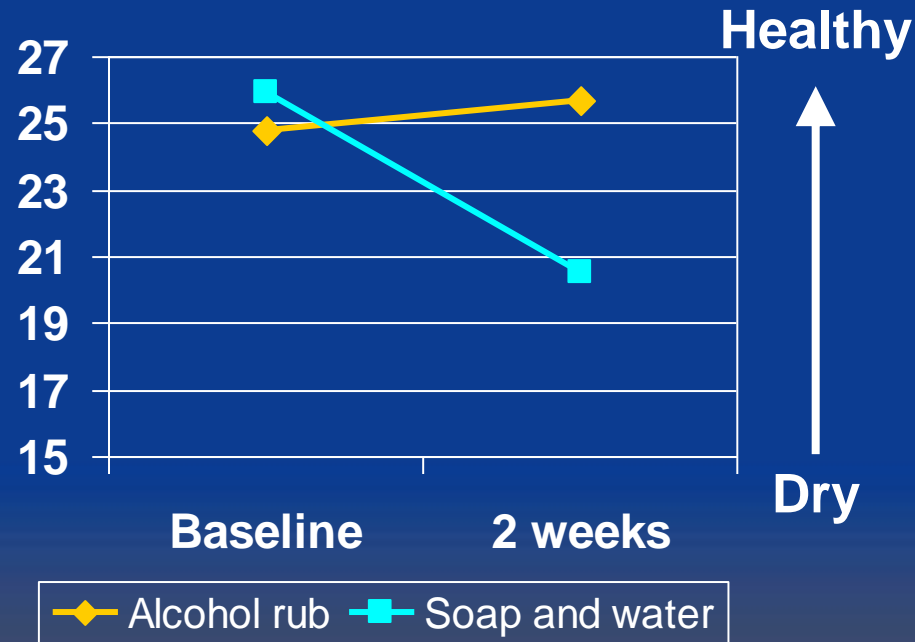
# Effect of Alcohol-Based Handrubs on Skin Condition





Self-reported skin score



Epidermal water content




~ Alcohol-based handrub is less damaging to the skin ~




# Time Spent Cleansing Hands: one nurse per 8 hour shift

- Hand washing with soap and water: 56 minutes
  - Based on seven (60 second) handwashing episodes per hour
- Alcohol-based handrub: 18 minutes
  - Based on seven (20 second) handrub episodes per hour

**~ Alcohol-based handrubs reduce time needed for hand disinfection ~**



# Recommended Hand Hygiene Technique



## ■ Handrubs

- Apply to palm of one hand, rub hands together covering all surfaces until dry
- Volume: based on manufacturer

## ■ Handwashing

- Wet hands with water, apply soap, rub hands together for at least 15 seconds
- Rinse and dry with disposable towel
- Use towel to turn off faucet



# Surgical Hand Hygiene/Antisepsis

- Use either an antimicrobial soap or alcohol-based handrub
- Antimicrobial soap: scrub hands and forearms for length of time recommended by manufacturer
- Alcohol-based handrub: follow manufacturer's recommendations. Before applying, pre-wash hands and forearms with non-antimicrobial soap





# Infection Rates: Surgical Handscrub vs. Handrub

<u>Class of Contamination</u>	<u>No. SSI/No. Handscrub</u>	<u>Operations (%) Handrub</u>	$\chi^2$ Test of Equivalence (p-value)
Clean	29/1485 (1.9)	32/1520 (2.1)	16.0 (<0.001)
Clean-Contaminated	24/650 (3.7)	23/732 (3.1)	1.9 (0.09)
All	53/2135 (2.5)	55/2252 (2.4)	19.5 (<0.001)



# Skin Care

- Provide healthcare workers with hand lotions or creams
- Get information from manufacturers regarding effects that hand lotions, creams, or alcohol-based handrubs may have on the effectiveness of antimicrobial soaps



# Fingernails and Artificial Nails

- Natural nail tips should be kept to  $\frac{1}{4}$  inch in length
- Artificial nails should not be worn when having direct contact with high-risk patients (e.g., ICU, OR)



# Unresolved Issues

- Routine use of *non*alcohol-based handrubs
- Wearing rings in healthcare settings



# Gloving

- Wear gloves when contact with blood or other potentially infectious materials is possible
- Remove gloves after caring for a patient
- Do not wear the same pair of gloves for the care of more than one patient
- Do not wash gloves



# Education/Motivation Programs

- Monitor healthcare workers (HCWs) adherence with recommended hand hygiene practices and give feedback
- Implement a multidisciplinary program to improve adherence to recommended practices
- Encourage patients and their families to remind HCWs to practice hand hygiene



# Administrative Measures to Improve Hand Hygiene

- Make improved hand hygiene an institutional priority
- Place alcohol-based handrubs at entrance to patient room, or at bedside
- Provide HCWs with pocket-sized containers



# Alcohol and Flammability

- Alcohols are flammable
- Alcohol-based handrubs should be stored away from high temperatures or flames
- Europe: fire incidence low
- U.S.: one report of flash fire
- Application is key: Let It Dry!





# Performance Indicators

- Monitor and record adherence to hand hygiene by ward or service
- Provide feedback to healthcare workers about their performance
- Monitor the volume of alcohol-based handrub used per 1,000 patient days
- Monitor adherence to policies on wearing artificial nails



# Summary

## Alcohol-Based Handrubs: What benefits do they provide?

- Require less time
- More effective for standard handwashing than soap
- More accessible than sinks
- Reduce bacterial counts on hands
- Improve skin condition



# PREVENTION IS PRIMARY!

*Protect patients...protect healthcare personnel...  
promote quality healthcare!*

**SAFER • HEALTHIER • PEOPLE™**