



Hand Hygiene in Healthcare

Basics of Infection Prevention
2-Day Mini-Course
2013



“It was the best of times, it was the worst of times,
it was the age of wisdom, it was the epoch of belief,
it was the season of Light, it was the season of Darkness,
it was the spring of hope, it was the winter of despair,
it was the era of people not washing their hands after
using the bathroom,
it was the era of people eating with their hands and
falling violently ill after transferring bacteria to each other;
in short, it was not a very sanitary period.”

-Charles Dickens and the Allegany Co Health Dept



Objectives

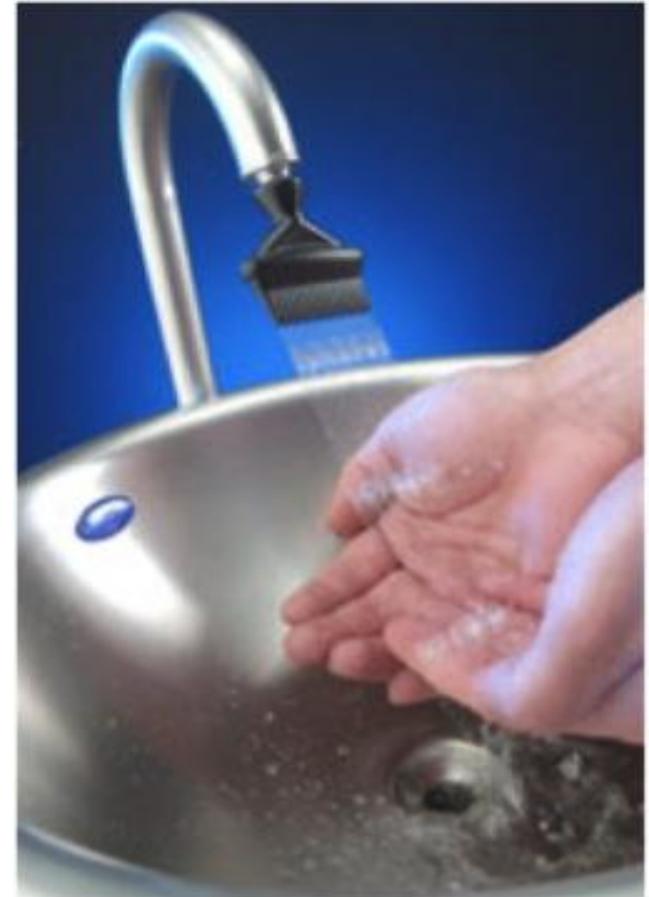
- Describe hand hygiene impact on infection prevention
- Review terminology
- Cite indications for appropriate use
- Select appropriate agents
- Describe proper hand hygiene techniques



Impact of Hand Hygiene on Healthcare-Associated Infections (HAI)

- 2 million patients acquire HAI every year, 88,000 will die
- 4th leading cause of death in US
- **Most common mode of transmission** of pathogens in hospitals is via hands of healthcare workers

20,000 HAI are preventable with the simple act of hand hygiene.



Larson, Boyce & Pittet (2002)

Hand Hygiene Guidelines, Regulations, and Policy Statements

The authorities have spoken!

- World Health Organization (WHO)
- Centers for Disease Control and Prevention (CDC)
- Healthcare Infection Control Practices Advisory Committee (HICPAC)
- Institute for Healthcare Improvement (IHI)
- Association of Professionals in Infection Control and Epidemiology (APIC)
- California Department of Public Health (CDPH)
- The Joint Commission (TJC)





Checkpoint 1: CDC analysis of published studies demonstrated approximately ? percentage compliance with hand washing



1. 25%
2. 40%
3. 60%
4. 75%

Despite that

- Hand hygiene has been known to prevent spread of infection for 150 years...
- CDC and many other authorities have promulgated hand hygiene guidelines...
- Hand hygiene required by TJC (Patient Safety Goal 7)...
- Healthcare facilities write and rewrite hand hygiene policies and procedures...
- Lots of studies, intervention trials, observation and measurement...

Hand hygiene adherence by HCW rarely exceeds **40%**



“Barriers” to Hand Hygiene

Both individual and system factors contribute to poor adherence with hand hygiene

- “Agents cause irritation and dryness”
- “Sinks are inconveniently located” / lack of sinks
- “Too busy” / forgetfulness
- “Patient needs take priority”
- “Low risk of acquiring infection from patients”
- Disagreement with requirements
- Lack of soap and paper towels (not regularly refilled)
- Understaffing / overcrowding
- No consequences for not performing hand hygiene



Pittet D, *Infect Control Hosp Epidemiol* 2000;21:381-386.



Definitions and Terminology

- Hand Hygiene

General term for performing handwashing, antiseptic handwash, alcohol-based handrub, or surgical hand hygiene/antiseptics

- 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/antiseptics

Surgical scrub (extended period handwashing with antiseptic agent) **-or-**
Alcohol-based handrub





Checkpoint #2: If a healthcare worker's hands become visibly soiled, he/she should

1. Wash hands with soap and water
2. Wait until he/she can find an alcohol-base hand rub dispenser for best effect
3. Wipe them off immediately on their uniform to reduce risk





Checkpoint #2: If a healthcare worker's hands become visibly soiled, he/she should

1. Wash hands with soap and water
2. Wait until he/she can find an alcohol-base hand rub dispenser for best effect
3. Wipe them off immediately on their uniform to reduce risk



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 **hand rub** for routinely decontaminating hands
 - except for spore-forming bacteria, e.g., *C.difficile*, certain non-enveloped viruses, e.g., norovirus, protozoan oocysts and prions.

Guideline for Hand Hygiene in Health-care Settings. *MMWR* 2002; vol. 51, no. RR-16.



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

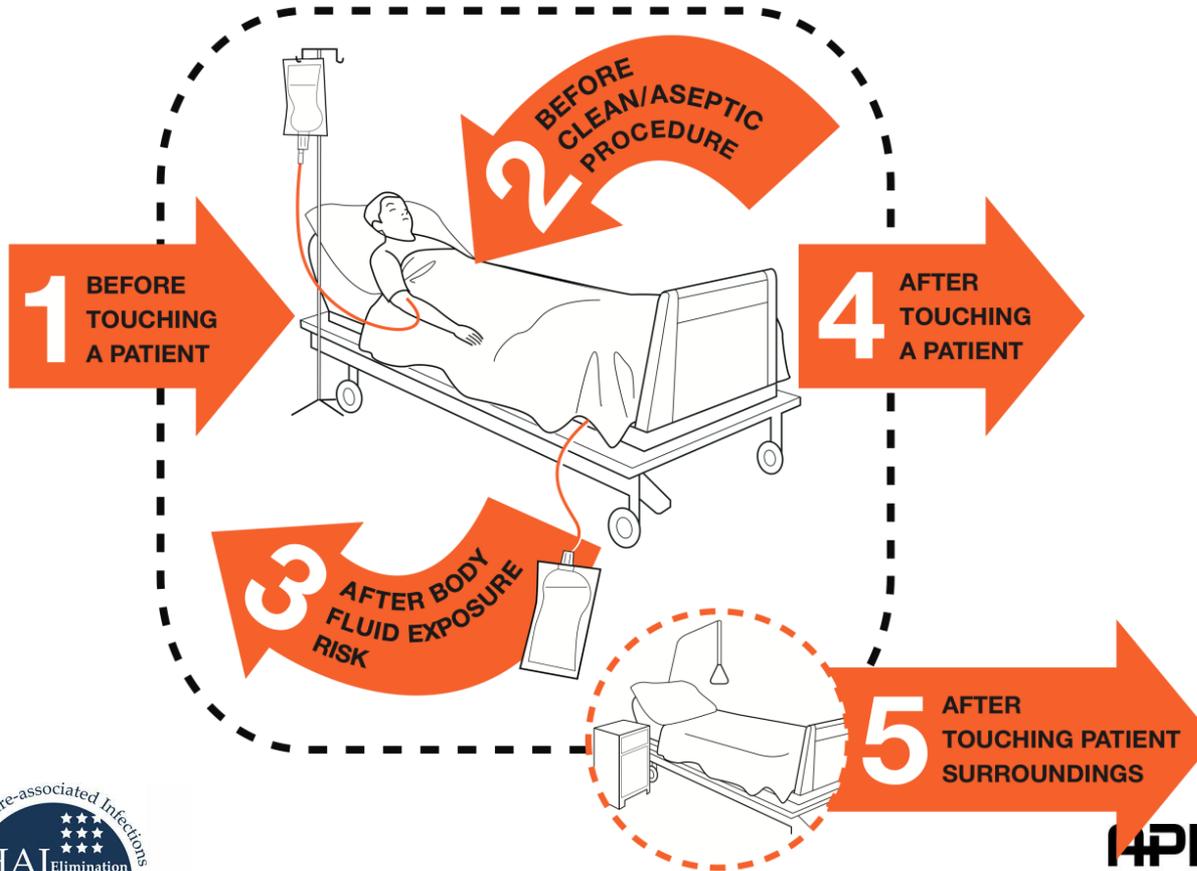
After

- Contact with a patient's skin
- Contact with body fluids or excretions, non-intact skin, wound dressings
- Removing gloves

Guideline for Hand Hygiene in Health-care Settings. *MMWR* 2002; vol. 51, no. RR-16.



Your 5 Moments for Hand Hygiene



Poster, WHO



Factors to Consider When Selecting Hand Hygiene Products

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

Guideline for Hand Hygiene in Health-care Settings. *MMWR 2002*; vol. 51, no. RR-16.





Checkpoint #3: Which hand hygiene method is best at killing most pathogens and least drying to most skin?

1. Plain soap and tap water
2. Antimicrobial soap and tap water
3. Alcohol-based hand rub



Guideline for Hand Hygiene in Health-care Settings.
MMWR 2002; vol. 51, no. RR-16.





Checkpoint #3: Which hand hygiene method is best at killing most pathogens and least drying to most skin?

1. Plain soap and tap water
2. Antimicrobial soap and tap water
3. Alcohol-based hand rub

Efficacy of Hand Hygiene Preparations

Good

Better

Best



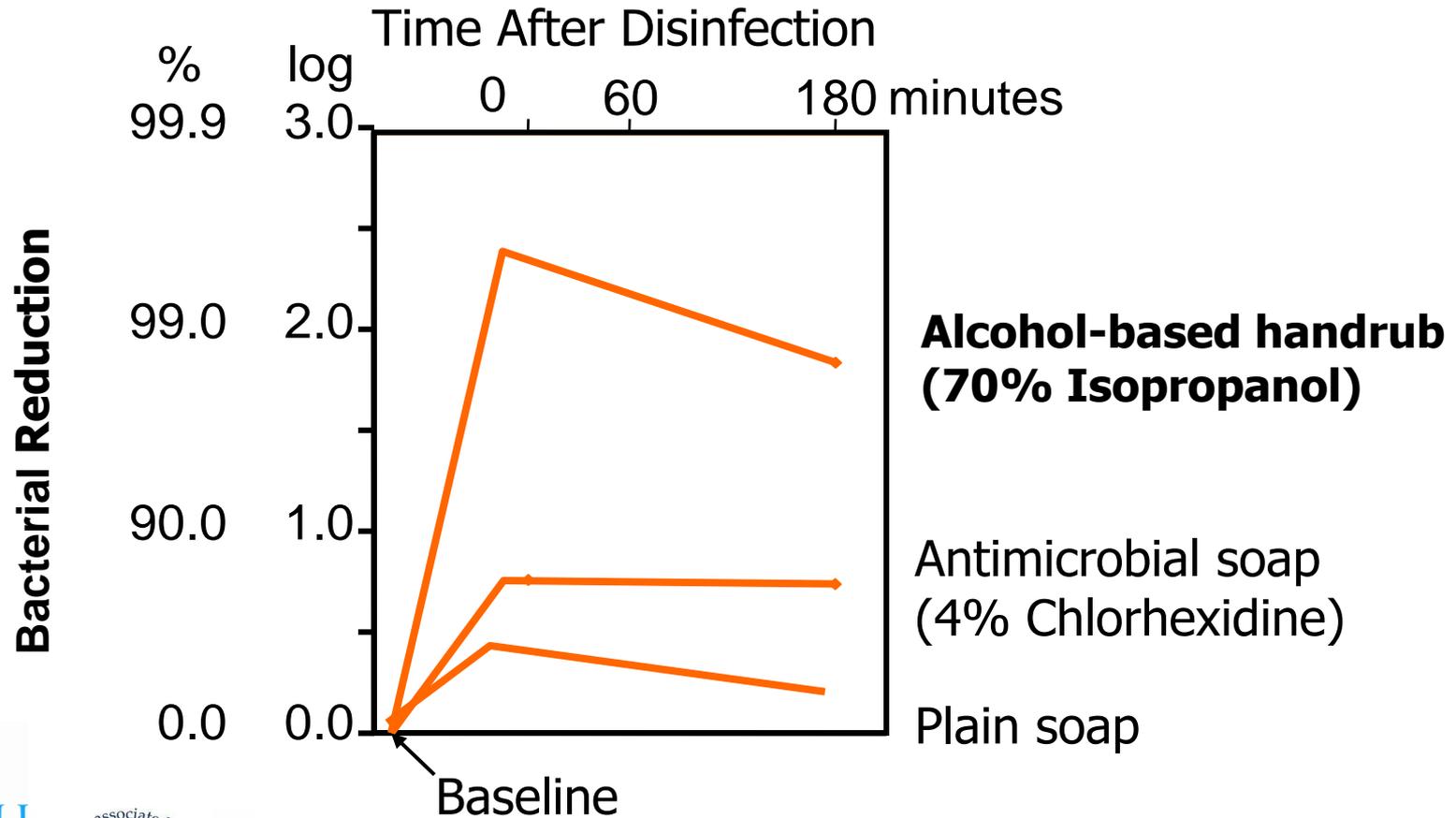
Plain Soap

**Antimicrobial
Soap**

**Alcohol-based
handrub***

* less effective in presence of organic material, soil soil

Comparison of Hand Hygiene Products on Bacterial Reduction



Recommended Hand Hygiene Technique

Hand rubs

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

Hand washing

- 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

Guideline for Hand Hygiene in Health-care Settings. *MMWR* 2002; vol. 51, no. RR-16.



Surgical Hand Hygiene /Antisepsis

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



Guideline for Hand Hygiene in Health-care Settings. *MMWR* 2002; vol. 51, no. RR-16.



Alcohol Rub vs. Surgical Scrub

- Evaluation compared SSI rates of traditional surgical scrub with alcohol rub performed by surgeon and surgical team prior to operation
- Each study arm >2100 procedures (clean, clean-contaminated)
- Handrubs not associated with increased risk of SSI compared with traditional handscrubs (SSI rates of 2 study groups equivalent)*
- Alcohol-based handrub better tolerated by surgical teams, and improved compliance with hand hygiene guidelines

* Only significant difference observed: SSI rate *higher* for clean-contaminated procedures was among the hand scrub group



Skin Care

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



Guideline for Hand Hygiene in Health-care Settings. *MMWR* 2002; vol. 51, no. RR-16.



Fingernails and Artificial Nails

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

Guideline for Hand Hygiene in Health-care Settings. *MMWR* 2002; vol. 51, no. RR-16.

Unresolved Issues

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



Guideline for Hand Hygiene in Health-care Settings. *MMWR* 2002; vol. 51, no. RR-16.

Gloving and Hand Hygiene

- Always wear gloves when contact with blood or infectious materials is possible
- Remove gloves after caring for *each* patient
- Perform hand hygiene upon removing gloves
- Do not wash gloves
- Do not reuse gloves nor wear same gloves for multiple patients



Guideline for Hand Hygiene in Health-care Settings. *MMWR* 2002; vol. 51, no. RR-16.





Checkpoint #4: A healthcare worker will improve behavior best when

1. Singled out as a poor performer within the group
2. Singled out as the best performer within the group
3. Provided practical and positive reasons for a desired behavior
4. Given clear and persuasive consequences to poor behavior



Checkpoint #4: A healthcare worker will improve behavior best when

1. Singled out as a poor performer within the group
2. Singled out as the best performer within the group
3. Provided practical and positive reasons for a desired behavior
4. Give clear and persuasive consequences to poor behavior



Hand Hygiene Improvement

- Make hand hygiene facility priority
- Multidisciplinary hospital team
- Encourage patients and families to remind healthcare workers of hand hygiene
- Make hand rubs easily available
 - Place at entrance to patient room, at bedside
 - Provide HCWs with pocket-sized containers
- Monitor adherence to hand hygiene. Give feedback!



Inside of Elevator Door

Monitoring Improvement

Process measures

- Monitor and record adherence to hand hygiene
 - Use “secret shopper” method, iScrub app
- Monitor volume of alcohol-based hand rub used per 1,000 patient days
- Monitor adherence to policies on wearing artificial nails
- Provide feedback to HCWs individually, by service, department, or unit
 - Comparisons to other units can create healthy competition



Guideline for Hand Hygiene in Health-care Settings. *MMWR* 2002; vol. 51, no. RR-16.



References and Resources

Boyce, J. M. and Pittet, D. (2002). *Guideline for Hand Hygiene in Health-Care Settings*. [Electronic Version]. Retrieved on February 3, 2004 from the CDC website: <http://www.cdk.gov/mmwr/preview/mmwrhtml/rr5116a1.htm>

Centers for Disease Control and Prevention. Hand Hygiene in Healthcare Settings. 10/9/11. <http://www.cdc.gov/handhygiene/training.html>

Centers for Disease Control and Prevention. 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. MMWR 2002;51. 10/9/11. <http://www.cdc.gov/mmwr/PDF/rr/rr5116.pdf>

Institute of Health Improvement (IHI). (n.d.). *How-to-guide: Improving hand hygiene*. Retrieved on January 31, 2007 from: <http://www.IHI.org>

Lankford, M.G., Zemblower, T.R., Trick, E.W., Hacek, D.M., Noskin, G.A., and Peterson, L.R. (2003). Influence of role models and hospital design on hand hygiene of health care workers. *Emerging Infectious Diseases*, 9(4), 217-222.

Larson, E., Boyce, J. and Pittet, D. (2002). Hand Hygiene: Cleaning up our act. *Self Learning Packet*, pp 1-2

World Health Organization. WHO Five Moments for Hand Hygiene Poster. 10/9/11. http://www.who.int/gpsc/5may/tools/workplace_reminders/en/index.html



Questions?

For more information, please contact any
HAI Liaison Team member

Thank you

