Hand Hygiene

Gonzalo Bearman MD, MPH
Associate Hospital Epidemiologist
MCV-VCU
Outline

• Colonization vs. Infection
  • Implications for hand hygiene and cross transmission.
  • Case of VRE
• Why is hand hygiene so important?
• Important terms
  • Washing vs. decontamination
• Hand hygiene technique
  • Washing
  • Decontamination with alcohol based hand sanitizers
• Artificial Nails
  • Can be the cause of a true fashion ‘victim’
• Conclusion
Colonized or Infected: What is the Difference?

- People who carry bacteria without evidence of infection (fever, increased white blood cell count) are **colonized**
- If an infection develops, it is usually from bacteria that colonize patients
- Bacteria that colonize patients can be transmitted from one patient to another by the hands of healthcare workers

~ **Bacteria can be transmitted even if the patient is not infected** ~
The Iceberg Effect

Infected

Colonized
Recovery of VRE from Hands and Environmental Surfaces

- Up to 41% of healthcare worker’s hands sampled (after patient care and before hand hygiene) were positive for VRE\(^1\)
- VRE were recovered from a number of environmental surfaces in patient rooms
- VRE survived on a countertop for up to 7 days\(^2\)

\(^1\) Hayden MK, Clin Infect Diseases 2000;31:1058-1065.
The Inanimate Environment Can Facilitate Transmission

Contaminated surfaces increase cross-transmission

What is the single most important reason for healthcare workers to practice good hand hygiene?

1. To remove visible soiling from hands
2. To prevent transfer of bacteria from the home to the hospital
3. To prevent transfer of bacteria from the hospital to the home
4. To prevent infections that patients acquire in the hospital
Why Hand Hygiene?

PURPOSE:

• Hand hygiene is a major factor in reducing transmission of microorganisms.
The terminology can be confusing……..

1. **Antimicrobial soap**: Soap containing an antiseptic agent.

2. **Antiseptic agent**: Antimicrobial substances that reduce microbial flora.

3. **Antiseptic handwash**: Washing hands with soap and water or other detergents containing an antiseptic agent.

4. **Antiseptic handrub**: Waterless antiseptic agent applied to reduce the number of microorganisms.

5. **Decontaminate hands**: Reduce the bacterial counts on hands with antiseptic handrub or antiseptic handwash.

6. **Hand antisepsis**: Antiseptic handrub or antiseptic handwash.

7. **Hand hygiene**: General term applied to handwashing, antiseptic handwash, antiseptic handrub, or surgical hand antisepsis.

8. **Handwashing**: Washing hands with plain (non-antimicrobial) soap and water.

9. **Plain soap**: Products that do not contain antimicrobial agents.

10. **Surgical hand antisepsis**: Antiseptic handwash or antiseptic handrub performed preoperatively by surgical personnel to eliminate transient and reduce resident hand flora.

11. **Visibly soiled hands**: Hands with visible dirt or proteinaceous body substances.

12. **Waterless antiseptic agent**: An agent that does not require the use of water.
Hand washing vs decontamination?

What are the indications for these procedures?
A. Indications for handwashing or hand hygiene:
   i. Hands visibly soiled with blood or body fluids:
      wash hands with a non-antimicrobial or antimicrobial soap and water
   ii. Hands not visibly soiled:
      Use an alcohol-based waterless antiseptic agent
   iii. Healthcare workers unable to use waterless antiseptic:
      Use an antimicrobial soap

B. Indications for hand decontaminaton:
   i. after contact with an intact skin
   ii. after contact with blood or body fluids when not visibly soiled
   iii. decontaminate hands after contact with an inanimate object
   iv. before caring for immunosuppressed patient
   v. prior to donning sterile gloves
      after removing gloves
i. Soap and water
   1. Wet hands
   2. Apply 3 to 5 m. of soap (1 pump)
   3. Rub hands together vigorously for at least 15 seconds
   4. Cover all surfaces of hands and fingers
   5. Rinse hands with warm water
   6. Dry thoroughly with disposable towel
   7. Use towel to turn off faucet
Waterless antiseptic (alcohol based hand rub)

1. Apply product to palm of one hand
2. Rub hands together
3. Cover all surfaces of hands and fingers
   Continue until hands are dry (15 to 25 seconds)
Use of artificial nails by healthcare workers poses no risk to patients.

1. Strongly agree
2. Agree
3. Don’t know
4. Disagree
5. Strongly disagree
Use of artificial nails by healthcare workers poses no risk to patients.

1. Strongly agree
2. Agree
3. Don’t know
4. Disagree
5. Strongly disagree
Can a Fashion Statement Harm the Patient?

Avoid wearing artificial nails, keep natural nails <1/4 inch if caring for high risk patients (ICU, OR)

Edel et. al, *Nursing Research* 1998: 47;54-59
Conclusion

• Hand hygiene is a major factor in reducing transmission of microorganisms.
• Cross transmission of microorganisms from colonized or infected patients or from inanimate objects is facilitated by HCW with poor hand hygiene.
• Hand hygiene includes both hand **WASHING** and **DECONTAMINATING**.
• Alcohol based hand sanitizers are quick, easy and effective for hand antisepsis.
• Artificial nails are banned in the workplace because of high microorganism colonization.