HAND HYGIENE AND ASEPSIS

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PROJECT FIRSTLINE

Project Firstline is a national collaborative led by the U.S. Centers for Disease Control and Prevention (CDC) to provide infection control training and education to frontline healthcare workers and public health personnel. The Kentucky Infection Prevention Training Center is proud to partner with the Kentucky Department of Public Health and Project Firstline. Funding for the Kentucky Infection Prevention Training Center (KyIP) is provided through the Centers for Disease Control and Prevention (CDC) Epidemiology and Laboratory Capacity (ELC) Enhancing Detection grant supplement award to the Kentucky Department for Public Health (KDPH). CDC is an agency within the Department of Health and Human Services (HHS). The contents of this simulation skill packets do not necessarily represent the policies of CDC or HHS and should not be considered an endorsement by the Federal Government

OBJECTIVES

AT THE END OF THESE SKILL STATIONS, PARTICIPANTS WILL BE ABLE TO:

1. Identify methods of pathogen transmission by the hands of healthcare workers
2. Demonstrate opportunities to prevent pathogen transmission by appropriate hand hygiene practices
3. Review elements of aseptic technique important in prevention of transmission of pathogens
4. Differentiate between clean and aseptic technique

PRE-BRIEF

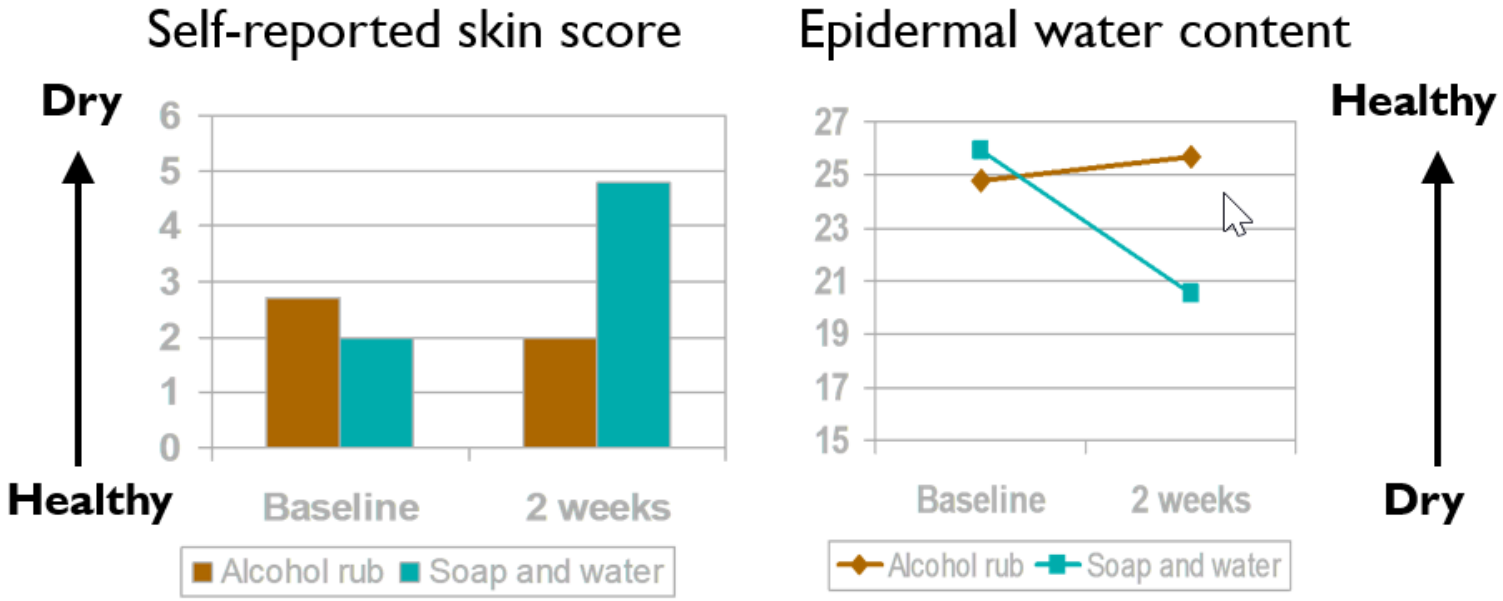
HOW DO I PERFORM HAND HYGIENE

- CDC recommends alcohol-based hand sanitizer unless hands are visibly soiled or you come in contact with a patient with particular illnesses:
  - Soap and water – 20 seconds
  - Hand Sanitizer – 20 seconds

- Be sure to scrub around nails, between fingers, and on the backs of hands

CLEAN HANDS COUNT

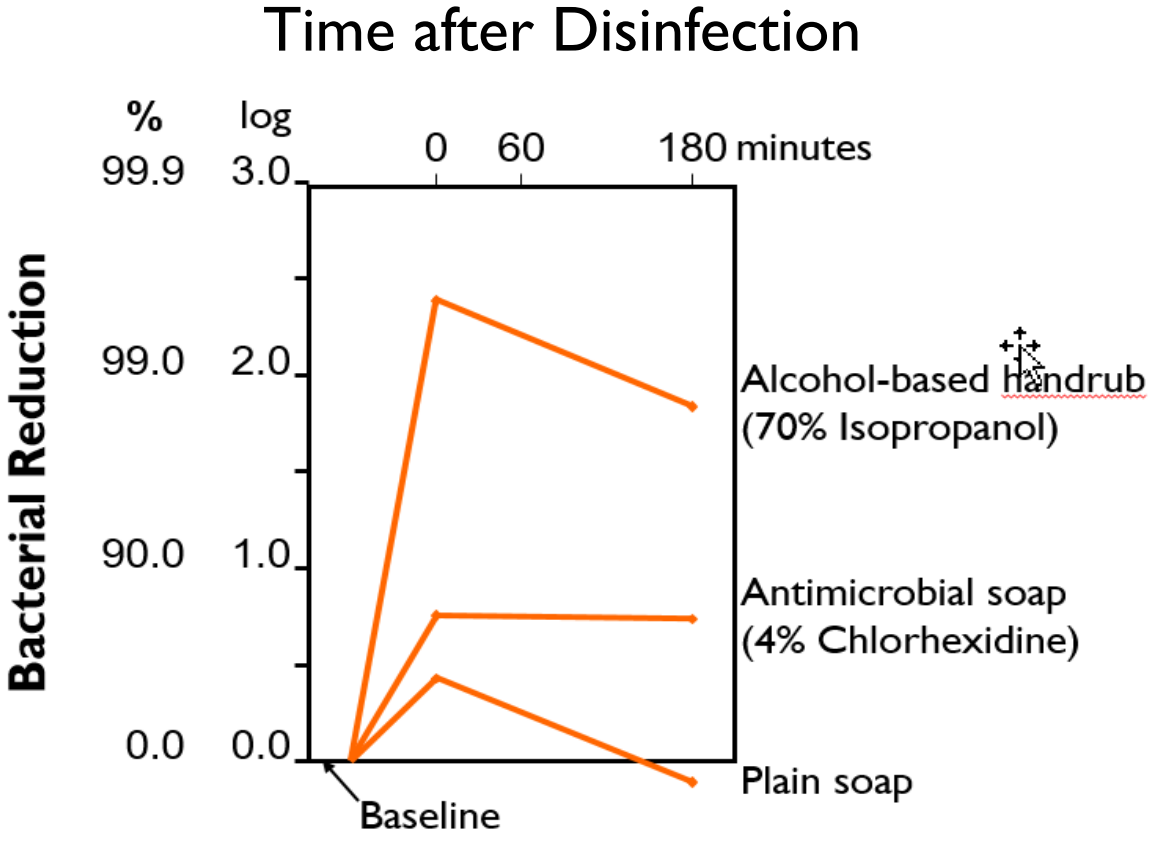
EFFECT OF ALCOHOL-BASED HANDSRUBS ON SKIN CONDITION



Alcohol-based handrub is less damaging to the skin

(Boyce, J, 2000)

ABILITY OF HAND HYGIENE AGENTS TO REDUCE BACTERIA ON HANDS



Adapted from: *Hosp Epidemiol Infect Control, 2nd Edition, 1999*

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

Voss, A & Widmer, AF, 1997)

PRE-BRIEF

Alcohol-based hand sanitizer	Soap and water
• Before and after taking off gloves • Before touching the patient • When moving from a soiled body part to a clean body part • After contact with blood or body fluids • After touching a patient or their environment • Before performing aseptic technique	• Before eating • After using the restroom • After caring for patients with diarrheal illnesses • When hands are visibly soiled

PRE-BRIEF

Asepsis

Asepsis or 'sterile' technique refers to measures taken to get the microbial count as low as it can go.

(Crow, 1989)

<u>Procedures requiring asepsis include:</u>

- Inserting a urinary catheter
- Puncturing the skin
- Inserting IVs
- Changing dressings *
- Administering IV medication
- Suctioning a tracheostomy

PRE-BRIEF

Principles of Asepsis

Keeping clean, dirty, and sterile separate

- Select appropriate attire for the procedure
- Ensure sterile technique when donning and wearing sterile gloves
- All items on the sterile field should be sterile, and open and transferred to the sterile field in a way that maintains sterility
- Sterile field should be continuously monitored for contamination
- Trash should not be placed near the sterile field
- Any contact from a non-sterile item renders the entire sterile field contaminated

SIMULATION STATION 1

Healthcare personnel may be rushed, increasing the likelihood that they will not follow hand hygiene guidelines.

After staff enters this patient's room, notice the opportunities for contamination and pathogen transmission you can see when the lights are off and the organisms make themselves known through fluorescence.

The following video depicts examples that contain deviations from standard infection prevention and control practices and are to be used for training purposes only.

SIMULATION STATION 1

- What infection prevention breeches did you identify?
- Why is lack of appropriate hand hygiene an infection risk?
- What actions should the healthcare worker have taken to prevent contamination?
- What are the risks you can anticipate impacting patient safety?

Germs are everywhere, including on surfaces and devices in the healthcare environment.

Learn how to stop their spread:
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SIMULATION STATION 1

Take away points

- When patients and healthcare personnel interact with the environment, surfaces become opportunities for contamination.
- Contaminated surfaces that are touched by the hands of healthcare personnel and patients allow opportunities for movement of organisms from surfaces to hands, and from hands to surfaces.
- Pathogens may be directly deposited onto the patient when hand hygiene is not performed.
- Pathogens cannot be seen, so standard practices must be part of a patient safety approach.

SIMULATION STATION 2

Contamination of a surface

- Hand hygiene and other infection control practices must be followed by all healthcare personnel.
- Pathogens may be left behind by others who are not following the recommendations.

GERMS LIVE ON THE SKIN.

WHERE IS THE RISK?

Know where germs live to stop spread and protect patients

Germs spread through touch.

- Many germs grow on healthy skin.
- Germs on skin can get onto surfaces, other people, and things that will touch other people.
- Skin – especially hands – carries many germs and spreads them easily.
- When one's hands touch surfaces, germs can spread from those surfaces to that person and to others.

Germs spread by bypassing or breaking down the body's defenses.

- Healthcare tasks often involve breaking the skin.
- Breaking the skin – from putting in an IV, drawing blood, surgery, or trauma – creates a pathway for germs to spread into the body.

Germs That Live on Skin

- Staphylococcus aureus (staph, including MRSA)
- Streptococcus (strep)
- Candida (including *C. auris*)

Healthcare Tasks Involving Skin

- Anything that involves touch
- Needlesticks
- Surgery

Infection Control Actions to Reduce Risk

- Hand hygiene
- Appropriate glove use
- Injection safety
- Cleaning and disinfection
- Source control (covering cuts and wounds)

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Developed by the Kentucky Infection Prevention Training Center (KyIP, 2022). Used with permission.

SIMULATION STATION 2

- What infection prevention breeches did you identify?
- Why is lack of appropriate hand hygiene an infection risk?
- What actions should the healthcare worker have taken to prevent contamination?
- What are the risks you can anticipate impacting patient safety?

SIMULATION STATION 2

Take away points

- Pathogen transmission can occur with any breach in infection prevention protocol.
- Following hand hygiene recommendations can prevent the spread of bacteria and reduce infection.
- All healthcare personnel must follow infection control guidelines.

ACTIVITY

Match the agar plates to the description.

After touching face

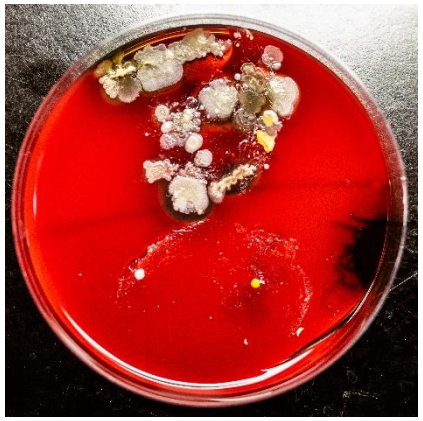
Washed but didn't dry

Cracker on floor for 10 seconds

Cough

Didn't wash hands

Good wash



A Cracker dropped on floor 10 seconds

B Cough

C After touching face

D Good wash

E Wash but no dry

F Didn't wash

ACTIVITY

Take away points

- Pathogens are everywhere in our environment, even when not visible.
- Hand hygiene and other infection control practices can help reduce the risk of pathogen transmission.

SIMULATION STATION 3

Setting up a sterile field

- Some procedures require additional pathogen-reduction techniques in order to prevent transmission of micro-organisms.
- Aseptic technique is used to decrease pathogens to an irreducible minimum.
- Healthcare staff use sterile supplies, taking care not to contaminate the sterile field.
- While watching the video, note the opportunities for contamination and pathogen transmission.

SIMULATION STATION 3

- What infection prevention breeches did you identify?
- Why is aseptic technique important in the reduction of pathogen transmission?
- What actions should the healthcare worker have taken to prevent contamination?
- What are the risks you can anticipate impacting patient safety?

SIMULATION STATION 3

Take away points

- Hand hygiene should be performed prior to performing any sterile technique
- Healthcare personnel should remove any items that may contaminate the sterile field
- There should only be sterile items on the sterile field
- Sterile, clean, and dirty items should be kept separated
- If a non-sterile item comes in contact with the sterile field, it is no longer sterile
- Aseptic technique is required when performing a high-risk procedure in an effort to decrease pathogen transmission directly into the body of a patient, therefore any breaches in the sterile field or technique can be life threatening for the patient


Everyone uses and shares devices in healthcare.
Shared devices like pulse oximeters can spread germs.
Recognize the risks.
Take action to stop the spread of germs.
Learn more at CDC.GOV/PROJECTFIRSTLINE
U.S. Department of Health and Human Services
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DE-BRIEF

Take away points

- Hand hygiene and asepsis are patient safety responsibilities of healthcare personnel as pathogens may be transmitted to patients and staff.
- Infection prevention guidelines must be followed by all healthcare personnel in order to reduce pathogens on surfaces and equipment.
- Aseptic technique is used during higher risk procedures in order to avoid transmitting pathogens directly into the patient's body.

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