

# Hand Hygiene

Kumi Horii, Infection Control Nurse  
Infection Control Office, Deputy Chief Nurse

# Contents of Learning

1. Necessity of hand hygiene
2. Timing of hand hygiene
3. Procedure of hand hygiene

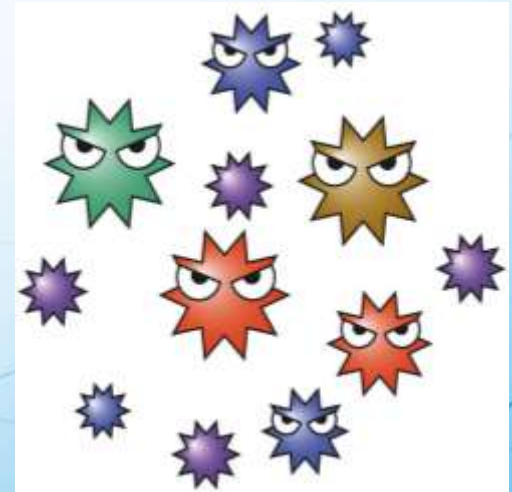
# Resident Flora

## Resident flora of the skin

- Coagulase negative Staphylococcus
- Corynebacterium spp.
- Propionibacterium spp.
- Acinetobacter spp.

## Bacterial growth

- 2 times in 20 minutes
- 4 times in 40 minutes



It is difficult to remove, as it attaches to the deep layer of the skin.

# Transient Flora

## Transient flora

- Escherichia coli
- Pseudomonas aeruginosa
- Candida spp.
- Virus



Bacteria attach while giving care.

They don't grow or colonize on the hand.

They are likely to cause hospital infection.

# Infection Route Via the Hands of Healthcare Professionals

- Pathogen is present on the patient's skin as well as on surrounding environments and goods.
- Pathogens move to the hands of healthcare professionals through care.
- Pathogens survive for several minutes on the surface of hands of healthcare professionals
- Inadequate hand hygiene of healthcare professionals
- Hands contaminated with pathogens directly touch another patient or touch materials that the patient directly touches.

# Necessity of Hand Hygiene

- To protect oneself against pathogens.
- Prevent the transmission / spread of pathogens within hospital via hands

Paying enough attention to hand hygiene to prevent the transmission and spread of pathogens protects not only yourself but also patients and their families against infection.



The principle of hand hygiene is  
“Hand hygiene after each treatment”

# WHO Guidelines on Hand Hygiene

- 2009

“Guidelines on Hand Hygiene in Health Care”

- As hands of healthcare professionals play an important role in transmission of pathogens, hand hygiene is an important infection control measure.

# 6 Timing When Hand Hygiene is Needed

## Before touching patients

When entering patient's room, before temperature taking / consultation

## Before aseptic / cleanliness procedures

Before drip infusion / blood sampling / insertion of catheters / wearing gloves

## Move from a contaminated body part to another part

Touch an intravenous line after putting down an urinary bag  
Suction after genital wash  
Blood sampling after treatment of wounded part

## After touching patients

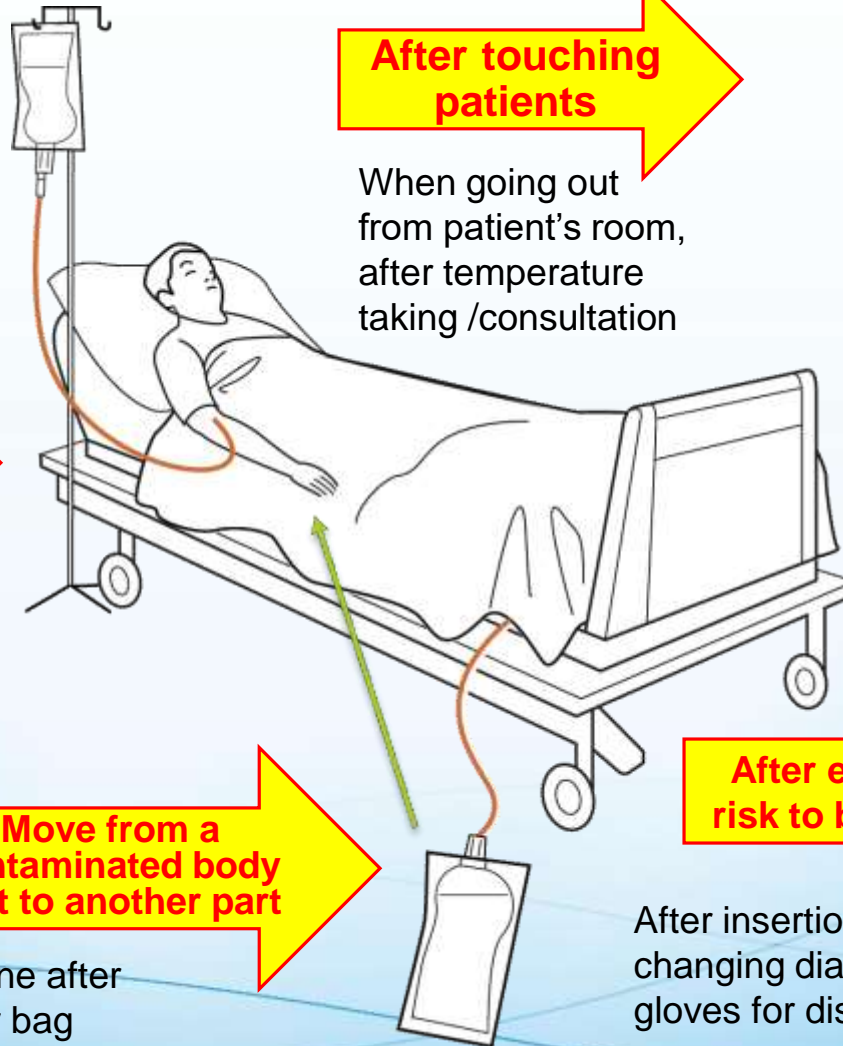
When going out from patient's room, after temperature taking / consultation

## After not touching patients but surroundings

Adjust infusion rate  
Cancel alarm  
Hold on a bed rail  
Improve environment

## After exposure risk to body fluid

After insertion of catheters / changing diapers / removing gloves for disposing of urine





# Types of Hand Hygiene



## Hand-washing with soap under running water

- When hands are visibly contaminated (blood, body fluid, etc.)
  - When microorganisms that have resistance to alcohol (CD, Norovirus, etc.) are expected
- \* Don't top up

## Hand antiseptics with alcohol-based hand-rubs

- Hands are not visibly contaminated
- High effects of sterilization
- Procedure of protecting skin with humectant is simple

# Basic Measure of Infection Control is Hand Hygiene: Correct Technique of Hand-Washing



Wet hand under running water



Dispense soap on the palm



Make a lather with the soap



Wash with right palm over left dorsum and vice versa



Wash well between fingers



Wash fingers well



Wash thumb clasped in the palm of other hand



Wash fingertips and nails well



Wash the wrists



Wash off under running water



Tap with a paper towel to wipe away water

**Key points!**



# Basic Measure of Infection Control is Hand Hygiene: Correct Technique of Hand-Washing



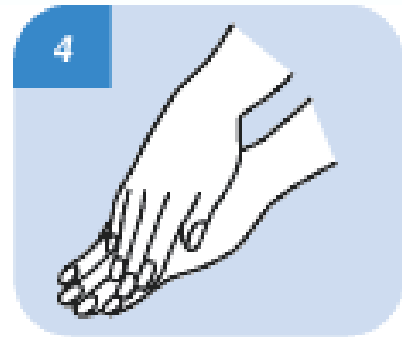
1  
Dispense 1 push of disinfectants on the palm



2  
First, rub fingers of both hands



3  
Then, rub hands palm to palm



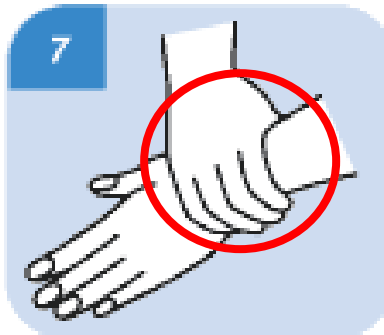
4  
Rub right palm over left dorsum and vice versa



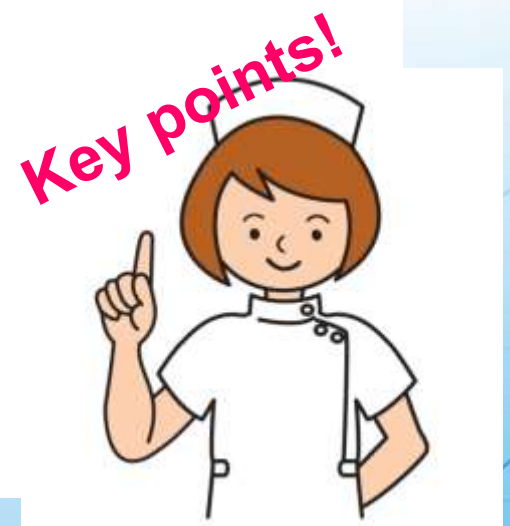
5  
Rub palm to palm with fingers interlaced



6  
Rub thumb clasped in other palm



7  
Remember to rub wrists until they become dry



# Understand the Characteristics of Hand Disinfection / Hand-Washing

**Hand disinfection with alcohol-based handrub is basic:**

- Eliminate most microorganisms (including viruses)
- Able to obtain the effect in a short time (20-30 seconds)
- Likely to protect the skin of the hands

**However, hand-washing with soap under running water is required**

- When hands are visibly dirty
- Immediately after touching a patient with vomiting / diarrhea or after going out of the patient's room
- When microorganisms with resistance to alcohol-based disinfectants are expected  
(Norovirus, Rotavirus, *Cereus* spp., *Clostridium difficile*, etc.)

# Disinfecting Effects of hand hygiene are confirmed in various research results.

## Disinfecting effects of hand hygiene

Hand hygiene technique	Disinfecting effect	
Soap + running water	In case of 15 seconds <b>1/4-1/13</b>	In case of 30 seconds <b>1/60-1/600</b>
Alcohol-based handrub	In case of 30 seconds <b>1/3,000</b>	

# After Cleanliness Care – Ms. A

**Before hand- washing**



**After hand-washing with soap and running water**



# After Cleanliness Care – Ms. D

**Before hand  
antiseptis**



**After hand  
antiseptis**



# Q & A (1)

In order to prevent rough skin on the hands, it was instructed to gently wipe up water with a paper towel and then dry naturally after hand-washing. Is this instruction right?

YES       NO

For protecting hands against roughening, it is important to thoroughly wipe water with a paper towel and dry hands completely.



# Q & A (2)

Even after touching the surroundings of a bed in a patient's room of a patient for whom no MRSA is detected, hand antisepsis is needed.

YES

NO

Regardless of whether or not a patient has an infectious disease, standard preventive measures including hand hygiene must be taken for all patients.

# Q & A (3)

When hands are visibly dirty, do hand-washing with soap under running water.

YES

NO

When hands are not visibly dirty, alcohol-based handrubs should be used.

# Q & A (4)

Hand hygiene is needed not only before wearing gloves but also after removing them.

YES

NO

Because gloves are not perfect and they may have a pinhole, hand antisepsis is needed before wearing and after removing gloves.

# Q & A (5)

As alcohol-based handrubs contain much alcohol, they are likely to be less protective for hands than hand-washing with soap under running water

YES       NO

Alcohol-based handrubs contain skin barriers, and they are likely to be more protective compared to hand-washing with soap under running water.

# Reference

- WHO Guidelines on Hand Hygiene in Health Care: World Health Organization 2009, (modified)  
<http://www.who.int/gpsc/5may/background/5moments/en/>
- Takashi Okubo, Hiroyoshi Kobayashi (supervising translation) “CDC Guideline for Hand Hygiene in Health-Care Settings”, 2003, Medicus Shuppan Publishers
- Guidelines for Infection Control in University Hospitals 2<sup>nd</sup> edition Edited by Japan Infection Prevention and Control Conference for National and Public University Hospitals, amended version, Jiho Inc., 2015
- Miho Uchida “Actual Practice of Infection Control” Ishiyaku Pub, Inc., 2012
- Educational Tool Ver. 3.2 of the Japanese Society for Infection Prevention and Control (partially modified)