Infection Prevention & Control Training

Course Topics

- Hand Hygiene
- Chain of Infection
- Standard Precautions
- Transmission-Based Precautions
- Management of Patients with Active or High Risk for TB
- N95 and Powered Air-Purifying Respirators
- Ultraviolet Lights
- Employee Self-Reporting Responsibilities for Communicable Disease
- Guide to PPE Use

Hand Hygiene

Infection Control

…Starts with hand hygiene

The single most effective means of reducing hospital-associated infections

Why is Hand Hygiene Important?

- ***Infections are a serious problem in healthcare facilities.***

  - Every year, an estimated 2 million patients get a hospital-related infection
    - 90,000 die from their infection

- ***Many infections are transmitted on the hands of healthcare personnel.***

- ***Hand hygiene is part of Standard Precautions. It can reduce the transmission of healthcare-associated infections – to your patients and to you.***

What do the Centers for Disease Control (CDC) Guidelines for Hand Hygiene Say?

- Use **alcohol-based product (foam or gel)** as the PRIMARY method to decontaminate hands.

- Use **antimicrobial soap and water** when:
  - Hands are visibly soiled
  - Before and after eating
  - After toileting
  - Clostridium difficile (C.diff)
  - Norovirus

Antimicrobial Soap and Water

Wet hands, apply soap and rub for at least 15 seconds. Cover all surfaces. Focus on fingertips and fingernails. Rinse, dry & turn off faucet with paper towel.

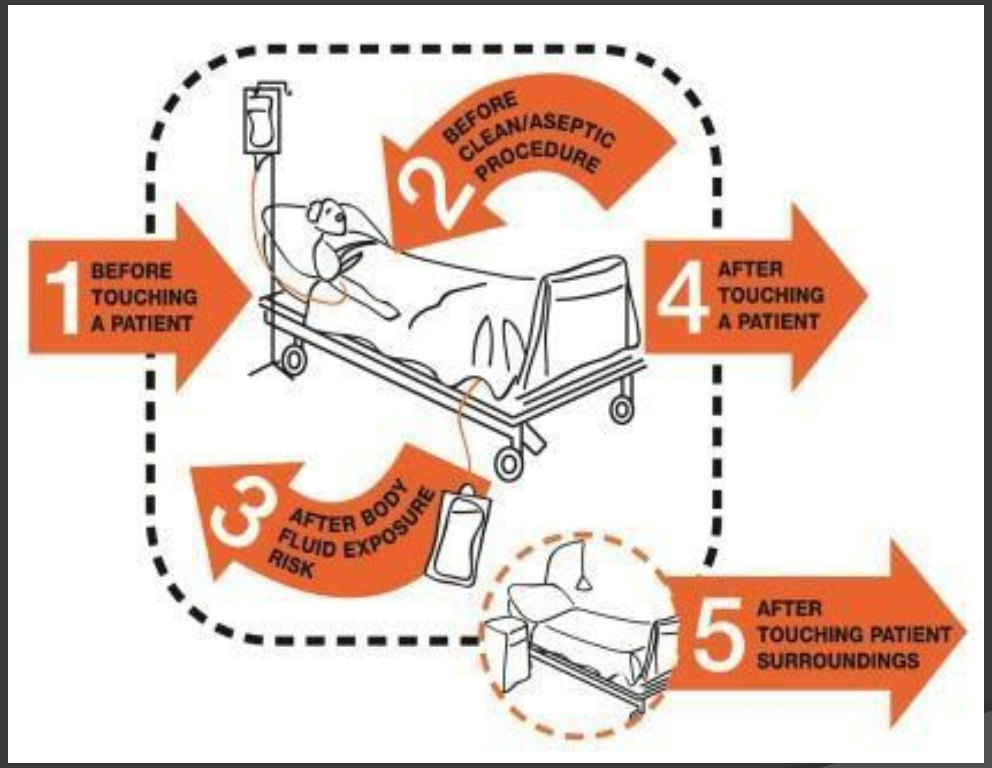
Alcohol Foam and Gel (Foam In/Foam Out)

Apply foam or gel to palm of hands, covering all surfaces, focusing in particular on the fingertips and fingernails. Rub until dry. Use enough rub to require 15 seconds to dry.

Alcohol-Based Hand Rubs are More Effective in Killing Bacteria than Soap and Water

Foam IN - Foam OUT

Use the foam when you enter a patient's room, and, when you exit the room.



This is one habit that is great to have!

Why Should I Practice Hand Hygiene if I Didn't Touch the Patient?

- Bacteria can survive for ***DAYS*** on patient care equipment and other surfaces.
- Surfaces in the patient care environment – including bed rails, IV pumps, and even computer keyboards – are often contaminated with bacteria.
- It's important to practice hand hygiene after you leave the room, even if you only touched patient care equipment or other surfaces.

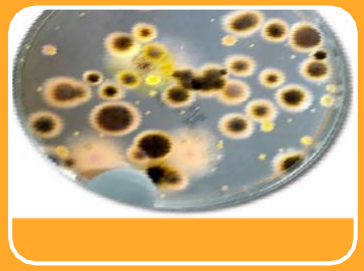
Other Aspects Of Hand Hygiene

- 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 between uses with different patients. Hand contamination may occur as a result of small undetected holes in gloves or during glove removal.
- Always perform hand hygiene after removing gloves.
- Hand lotions or creams may help minimize the occurrence of irritant contact dermatitis associated with hand antisepsis or hand washing.

No Artificial Nails or Nail Enhancements

Artificial nails and enhancements encourage the growth of fungi and other harmful microorganisms that can be transmitted to patients.

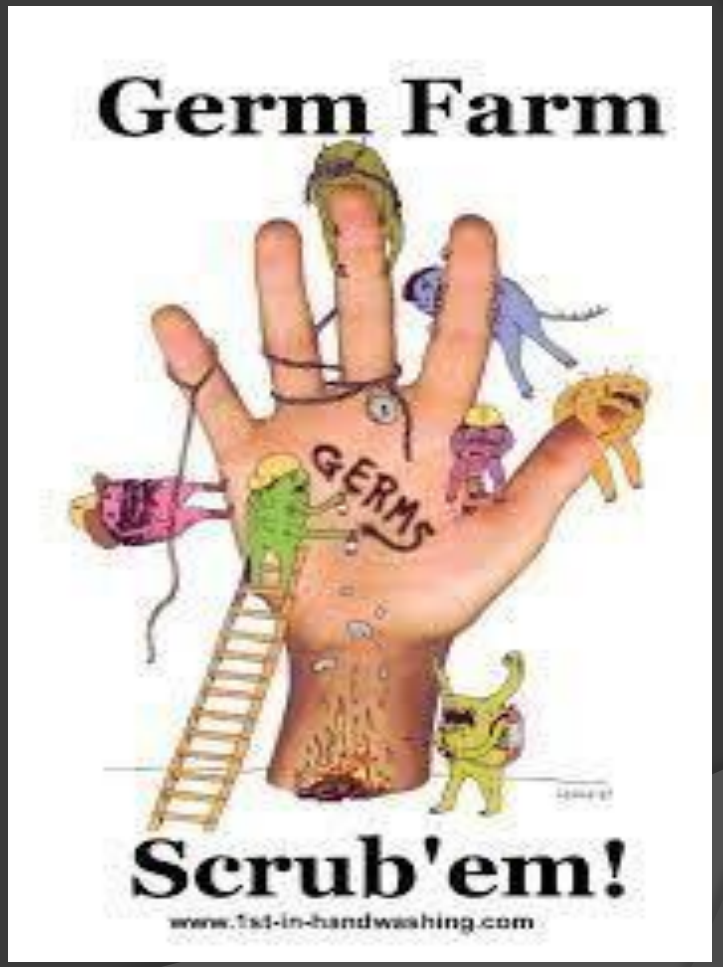
Keep natural nail tips no more than ¼ inch long when providing direct patient care to prevent patient injury and reduce the risk of tearing gloves. Refer to MCM XX-00-62



It is proven that artificial nails and long nails carry more bacteria that short natural nails.

Hand Hygiene Saves Lives

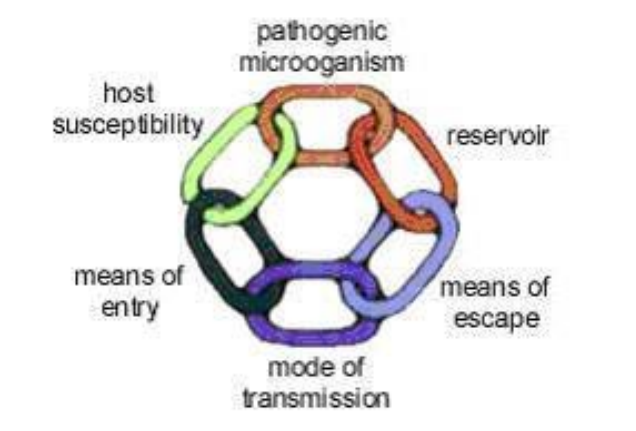
When was the last time you washed *Your* hands?



Chain of Infection

Six Links:

1. Pathogenic Microorganisms - Organism must be present to cause illness
2. Reservoir - Any place the organism can survive and multiply - water, soil, medical equipment, healthcare worker's hands
3. Means of Escape - Path by which an infectious organism leaves the reservoir - body fluids, coughing, sneezing, contact…
4. Modes of Transmission -
    - Contact
        - Direct
        - Indirect
        - Droplet
    - Airborne
    - Ingestion of contaminated food or water
    - Vector- living creature, bugs, animals
5. Means of Entry - Path by which the infectious agent enters the host. Any opening can be a portal - respiratory tract, ears, eyes, GI tract, broken skin
6. Host Susceptibility - Barriers to infection compromised - immunocompromised, age, nutritional status stress, environment, pre-existing conditions



Standard Precautions

- A set of infection control practices that healthcare personnel use to reduce transmission of microorganisms in healthcare settings
- These practices protect **both** healthcare workers and patients from contact with infectious agents

Standard Precautions

- Assume all:
  - Blood
  - Body Fluids
  - Secretions, excretions (except sweat)
  - Non-intact skin
  - Mucous membranes

may contain transmissible infectious organisms.

Standard Precautions

- Who is on Standard Precautions?

  ALL patients, at ALL times, regardless of suspected or confirmed infection status.

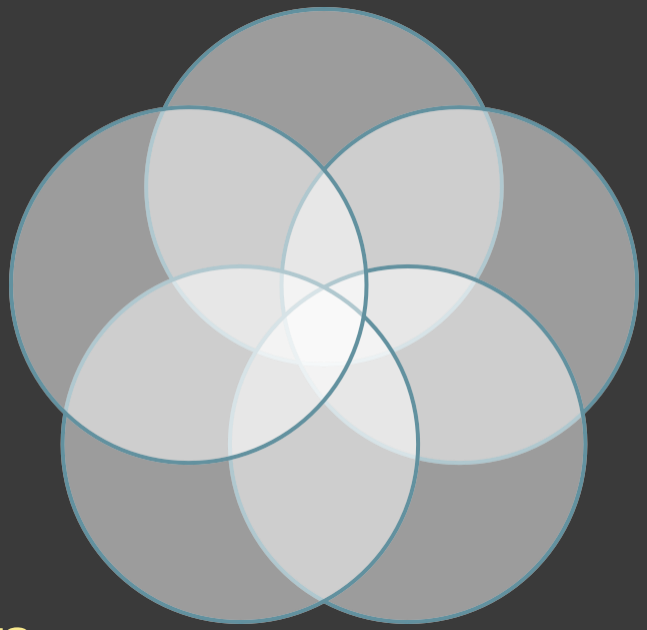
Standard Precautions Include:

- Hand hygiene
- Personal protective equipment (PPE) when exposure to blood, body fluids, excretions, secretions (except sweat), mucous membranes, or non-intact skin is anticipated. PPE includes:
  - Gloves – when hand contamination is anticipated.
  - Masks and eye protection – when splashes may occur.
  - Gowns – when soiling of clothes may occur.

Standard Precautions

Use gloves

Face shields



Gowns

Eye protection

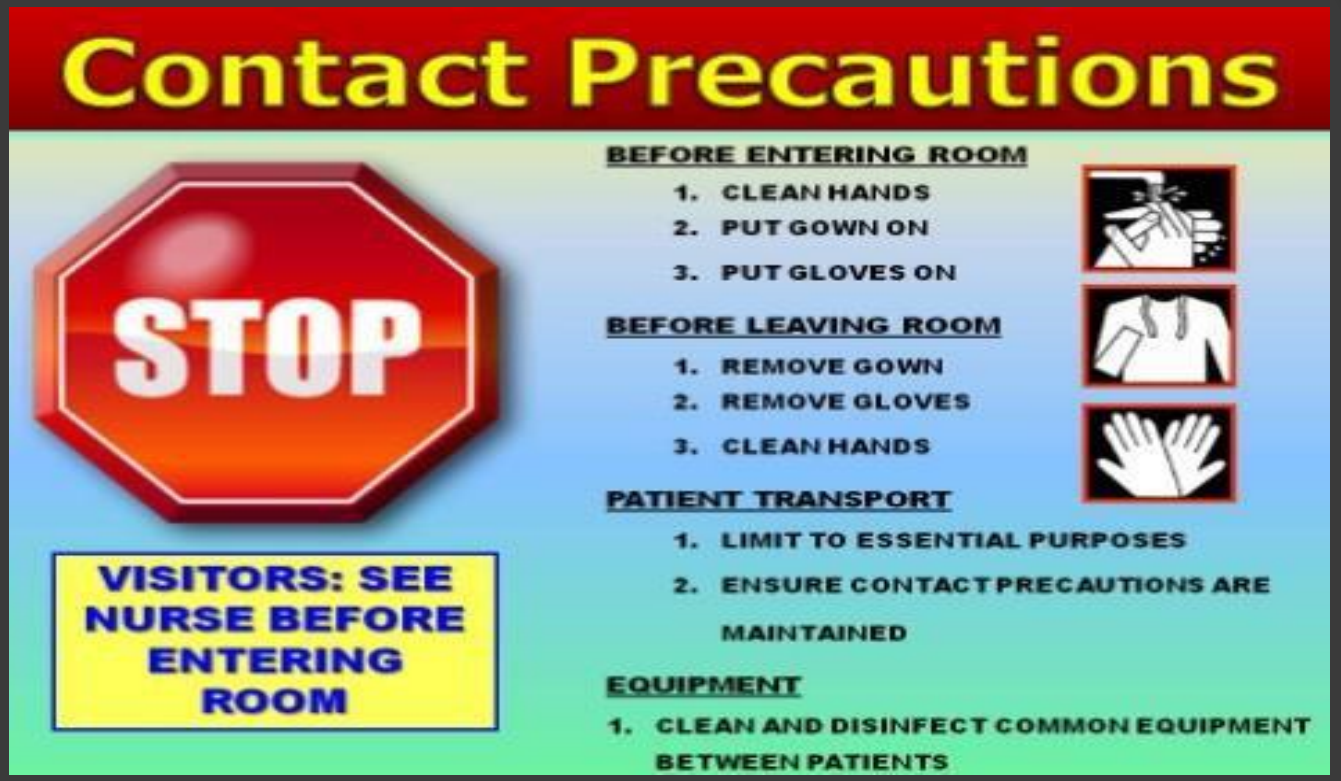
Masks

Transmission-Based Precautions

- Measures used in addition to Standard Precautions when the route of transmission is not completely interrupted by Standard Precautions.
- Measures used for Specific Organisms or Diseases.

Transmission-Based Precautions

- There are the 5 categories of transmission-based precautions:
  - Contact Precautions
  - Special Contact Precautions
  - Droplet Precautions
  - Airborne Precautions
  - Neutropenic Precautions



Measures used to reduce the risk of transmitting pathogenic organisms spread by direct and indirect contact.

- MRSA, VRE, MDROs

Contact Precautions

- Hand hygiene, don gown & gloves prior to entry into a patient room.
- Doff gown, gloves, and practice hand hygiene upon exit from a patient room.
- Used for all major wounds, abscesses, decubiti where drainage cannot be contained with a dressing/bandage.

Multi-Drug Resistant Organisms MDROs

- MDROs can live on surfaces for days or years. The organisms have developed resistance to many antibiotics making treating them very difficult.

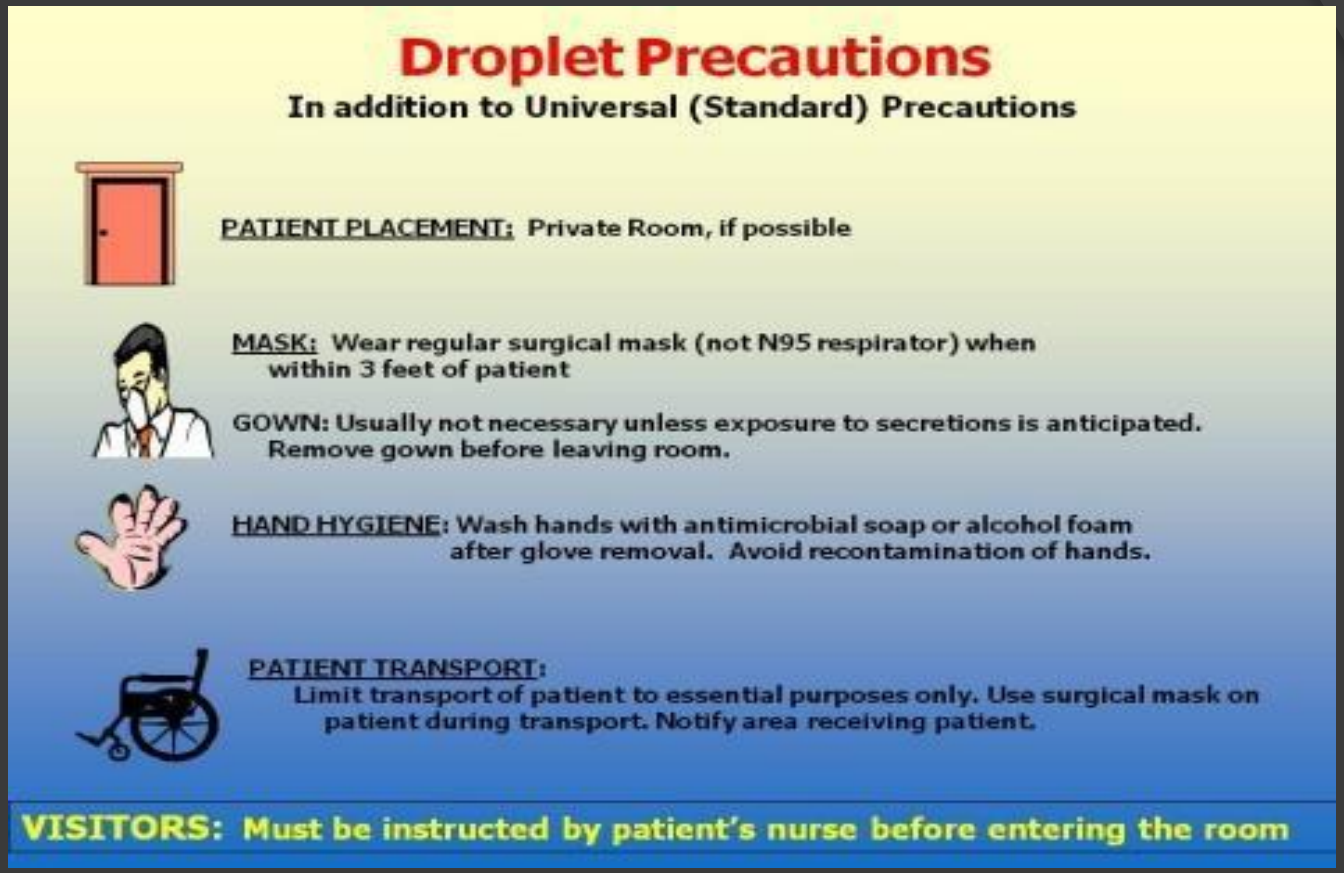
- Common MDROs in the hospital setting are:
  - Methicillin-resistant-staph aureus (MRSA)
  - Vancomycin-resistant enterococcus (VRE)
  - Clostridium difficile (C diff)

Measures used to reduce the risk of transmission of spore forming organisms spread by direct or indirect contact.

- Clostridium Difficile Infection

Special Contact Precautions

- Hand hygiene on entry and exit
- Don gown and gloves prior to entry into the room
- Doff gown and gloves upon exit from room
- Wash hands with soap and water to wash spores down the drain
- Use 10% bleach solution for cleaning rooms



Measures that healthcare workers use to prevent transmission of organisms found in respiratory secretions.

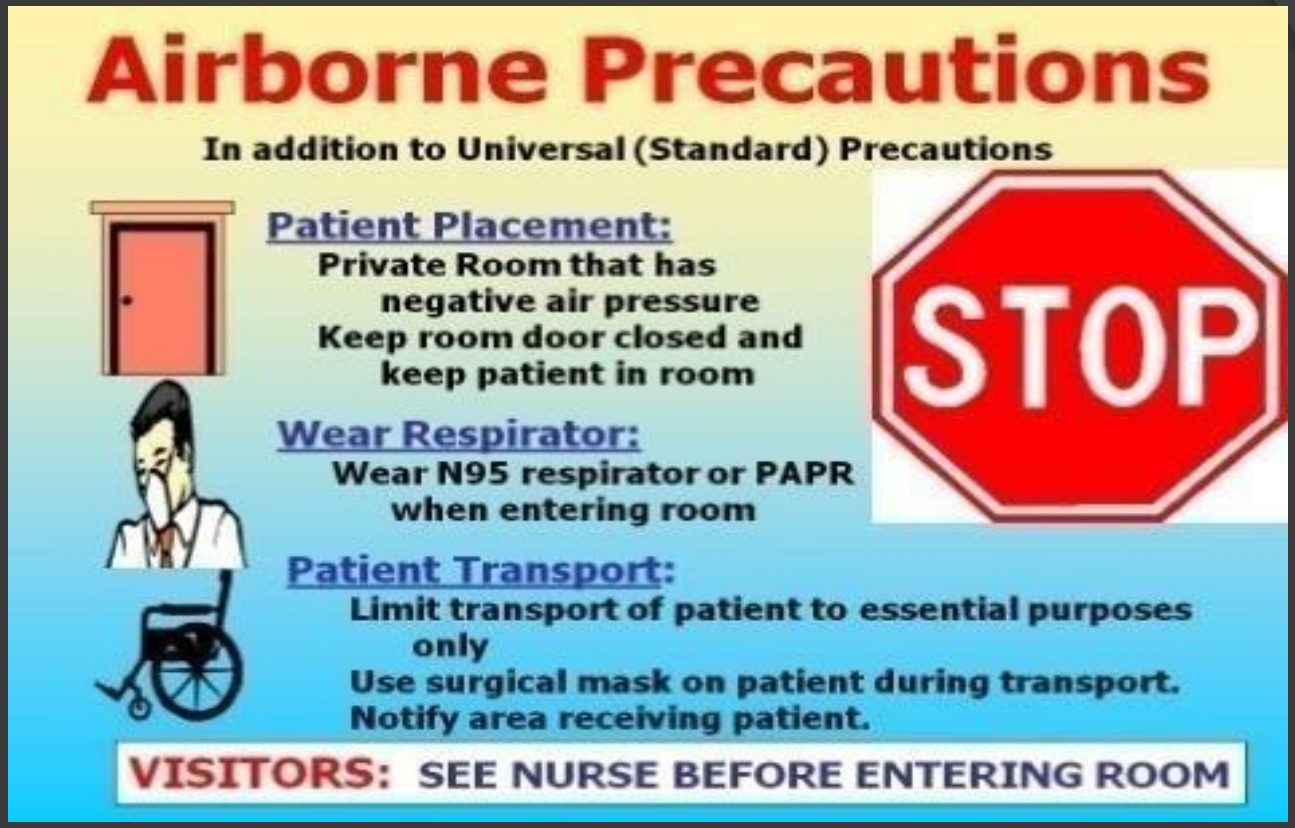
- Influenza, Pneumococcal Pneumonia, Pertussis, Meningitis

Droplet Precautions

- Droplets are spread by coughing and sneezing, talking, yelling, singing etc.
- Droplets travel short distances (3 to 6 feet)
- Used for specific organisms or diseases found in MCM 2019-002-05 Universal (Standard) and Transmission-Based Precautions and Quick Reference Guide

Droplet Precautions

- Wear a *surgical mask* when entering the patient's room
- Place a *surgical mask* on the patient for transport
- Gown if exposure to secretions is anticipated
- Face shield or goggles if anticipated exposure



Measures used to prevent the transmission of organisms spread via respiratory secretions that remain infectious over long distances when suspended in the air.

- Rubeola virus (measles), varicella virus (chicken pox), H1N1 Flu, Mycobacterium tuberculosis (MTB)

Airborne Precautions

- Patient placed in airborne isolation room (negative pressure room)
- Wear N95 respirator when in the patient's room
- Keep door closed
- Use UV lights
- Place a surgical mask on the patient when transporting

Airborne Precautions

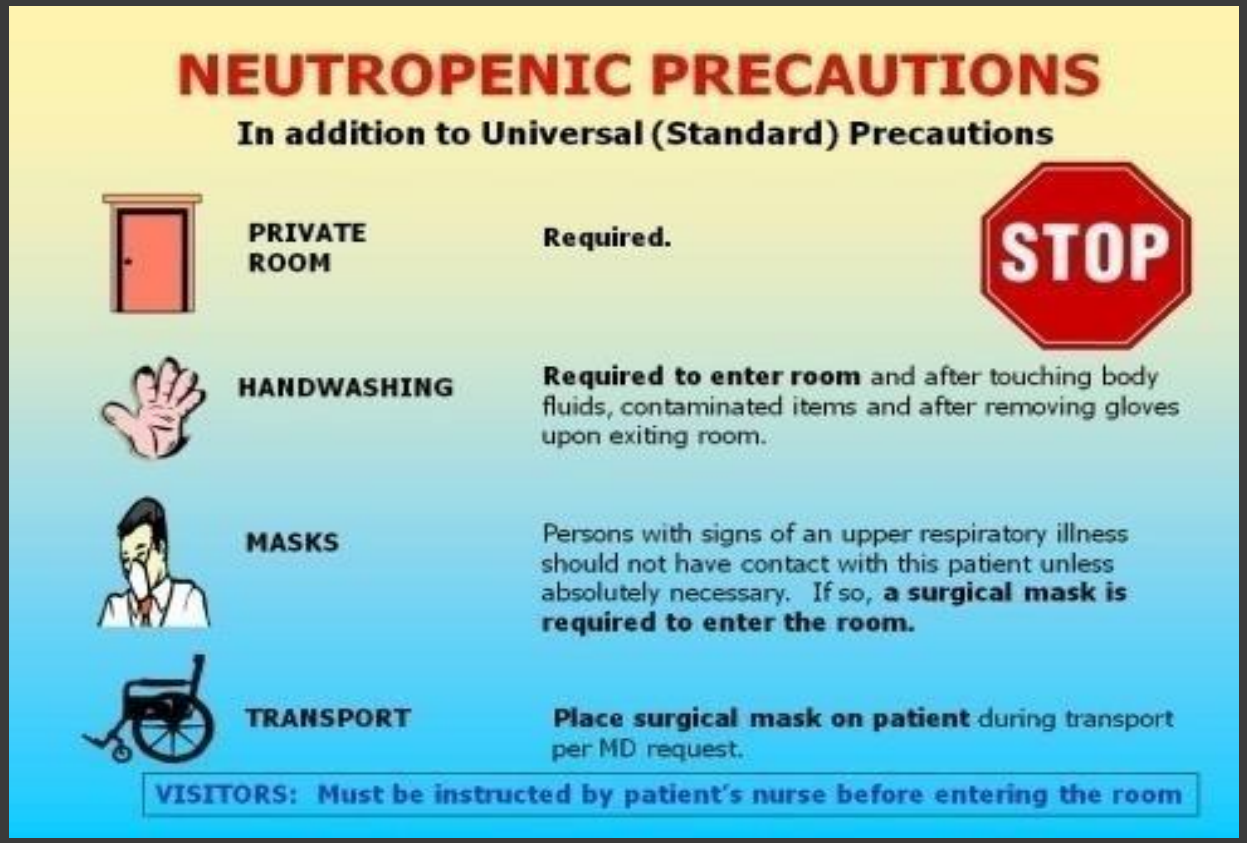
- When does a patient wear an N95 Respirator?
  - NEVER

  The N95 Respirator is designated to protect the person wearing the respirator against breathing in very small particle aerosols that may contain viruses or TB.

Respiratory Hygiene/Cough Etiquette

- Very Important to teach patients about this, especially in flu season

- Cover coughs and sneezes
- Cough in your sleeve
- Frequent Hand Hygiene
- Surgical mask availability



Measures that Healthcare workers use to reduce the risk of transmission when caring for patients who are immunosuppressed.

- Cancer, immunosuppressive medications, AIDS

Neutropenic Precautions

- Hand hygiene prior to room entry and exit
- Per physician orders

Management of Inpatients Who Have Suspected or Confirmed Tuberculosis

- Prompt identification and treatment of people with active TB or at high risk of disease using the Tuberculosis "Assessment" template.
- Patients with suspected or confirmed active laryngeal or pulmonary tuberculosis will be placed on Airborne Precautions.
- Only employees trained and fit-tested with approved TB respirator (N95 or Powered Air-Purifying Respirator (PAPR)) can enter the Airborne Precautions room. The employee shall wear the respirator at **ALL** times when in the patient's room.
- Engineering controls – TB patients will be placed in special negative pressure rooms. The door must be kept closed as much as possible. Ultraviolet lights in the room must be kept on continuously while the TB patient occupies the room.

Management of Outpatients Who May Have Active TB (Tuberculosis)

- Patients will be assessed on each visit for symptoms and risk of TB using "Tuberculosis Assessment" template.
- If the patient answers "Yes" for any of the questions, the provider will determine if further evaluation is needed.
- Patients will be evaluated promptly to minimize the time spent in the outpatient area.
- Patient movement will be restricted or confined if they have symptoms suggestive of TB.
- Movement of the patient outside of the room shall be for medically essential procedures only. Procedures, such as drawing blood, electrocardiogram (EKG), etc. will be performed in the room, whenever possible.
- Outpatients in Emergency Department will be placed in a negative pressure room and will be given a facial mask.
- Outpatients seen at the **Community Based Outpatient Clinics (CBOCs)** will be placed in a single examination room and will be given a facial mask (not the N95 respirator) with instructions to keep it on and remain in the room.
- Employees do not have to wear a respirator or mask as long as the patient is wearing a mask.
- The above procedures shall be followed until a physician determines that the patient does not have active TB or until a physician admits the patient to a negative pressure room for further evaluation. If there is no negative pressure room available for inpatient care, the physician will make arrangements for transfer to another facility capable of instituting Airborne Precautions.
- Known TB patients undergoing curative treatment who come to the medical center for follow-up appointments and have not completed therapy should wear a facial mask (not a N95 respirator) until they are documented to be non-infectious.

TB Respirators (N95) and Powered Air-Purifying Respirators (PAPR)

- Respiratory protection using National Institute for Occupational Safety and Health (NIOSH) approved respirators (disposable N95 or powered air-purifying respirators) for tuberculosis, measles, varicella or other respiratory illness such as H1N1 flu, will be provided for any employee performing tasks that increase their risk of exposure. The employee must be medically evaluated and cleared to wear the respirator and then trained and fit-tested prior to wearing the respirator. Employees will only wear the type of respirator for which he was medically cleared and fit tested.
- Respirators are required for the following
  - When entering an Airborne Precautions room
  - When performing autopsies on patients highly suspected or diagnosed with active TB at the time of death
  - While performing certain high risk medical procedures (diagnostic sputum inductions, bronchoscopies, etc.) on persons who have suspected or confirmed tuberculosis

Using Powered Air-Purifying Respirators (PAPR)

- Respirators shall be inspected for worn or deteriorated parts prior to each use.
- Check the airflow using the “egg float” each time the respirator is used.
- Respirators shall be wiped clean after each use with a damp cloth or special cleaner-disinfectant wipe designed for respirators. (Note: Do not use alcohol on respirator or parts)
- Respirators shall also be stored in a sealed bag to maintain cleanliness.

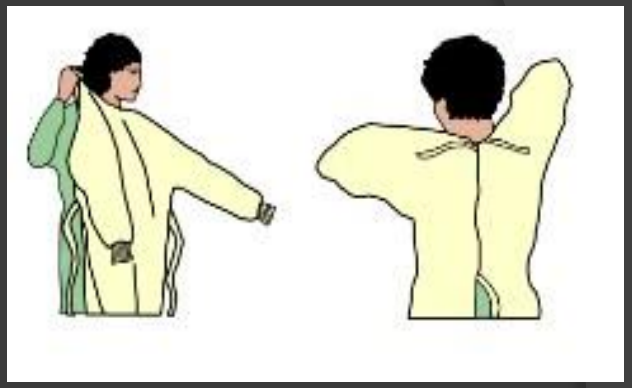
Ultraviolet Lights

- Ultraviolet (UV) germicidal irradiation is an engineering measure for the control of tuberculosis transmission.
- UV lights are currently being used in the morgue, Laboratory Biological Safety Cabinets (BSCs) and the negative pressure isolation rooms (ED, 2B and ICU). UV lights in the morgue will remain on all the time.
- UV lights in the BSCs are turned on for 30 minutes daily for additional decontamination of the cabinet. The sliding window must be closed while the light is on; UV rays will not penetrate ordinary glass.
- Nursing service staff will turn the UV light on when the negative pressure room in ED, 2B, or ICU is being used for a patient with rule out or active tuberculosis. The UV lights should be turned off when the room is not in use for TB isolation.
- Warning signs are posted at each UV light.

Employees are Responsible for Reporting Signs and Symptoms of Communicable Illnesses to His or Her Supervisor and Employee Health

- Illness (Work-related or Community Acquired) and Exposures that should be reported:
  - Generalized rash or skin lesions that are vesicular, pustular, or weeping
  - Jaundice
  - A cough that persists for greater than two weeks
  - Gastrointestinal illness lasting more than two days
  - Febrile illness with fever of greater than 103 ºF lasting more than two days
  - Hospitalizations resulting from febrile or other contagious diseases or physician diagnosis of infectious diseases.

To Don Gowns & Gloves

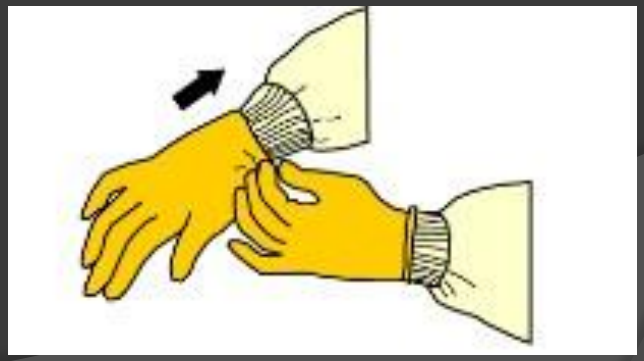


To put the gown on

- ✓ Fasten the opening of the gown in the back at the neck and waist.
- ✓ The gown should cover the torso from the neck to the knees.
- ✓ The arms of the gown should end at the wrist.

To put the gloves on

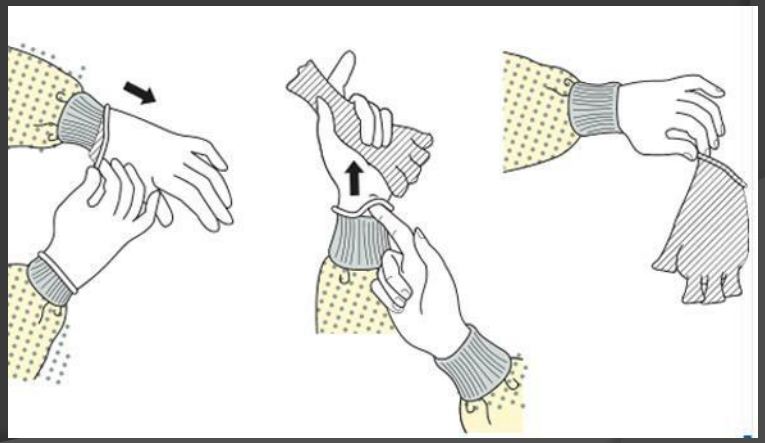
- ✓ Pull gloves on so that they cover the end of the gown.



To Doff Gown & Gloves

To remove the gown

- ✓ First take the gown off by untying the neck and waist then peel the gown off by grasping each shoulder and pulling.
- ✓ Wrap the outside of the gown up by turning it inside out as you remove it.



To remove the gloves

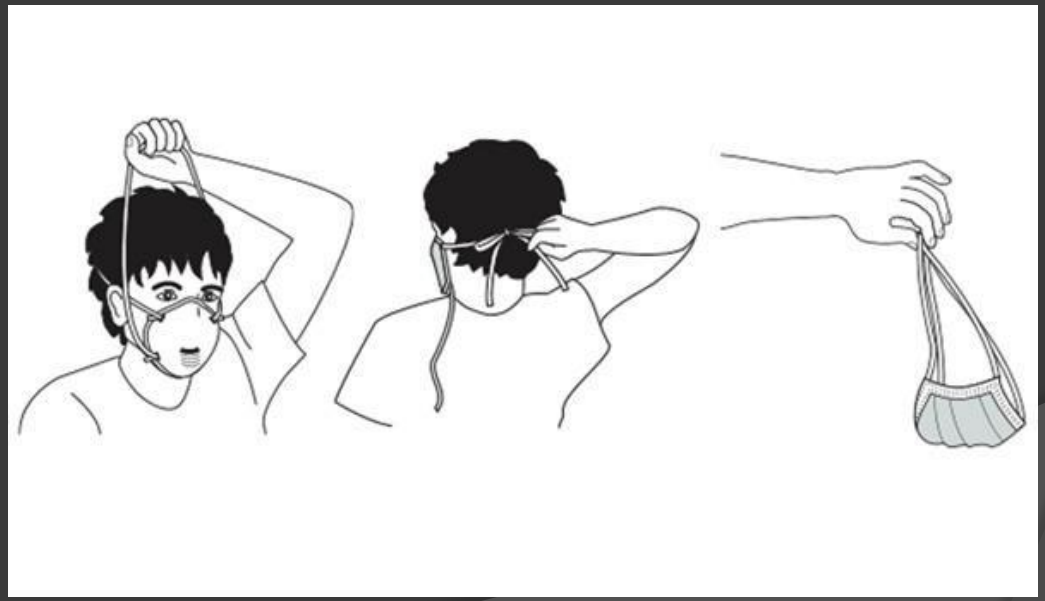
- ✓ Remove the gloves by grasping the outside of the glove with the opposite gloved hand and peel off.
- ✓ Slide the fingers of the ungloved hand under the remaining glove and pull off. discard in the garbage.

To Don Mask

- ✓ Put a mask on
- ✓ Place over nose, mouth and chin
- ✓ Fit flexible nose piece over nose bridge
- ✓ Secure on head with ties or elastic
- ✓ Adjust to fit

To Doff Mask

- ✓ Untie the bottom, then top tie
- ✓ Remove from face
- ✓ Discard



To Don Eye & Face Protection

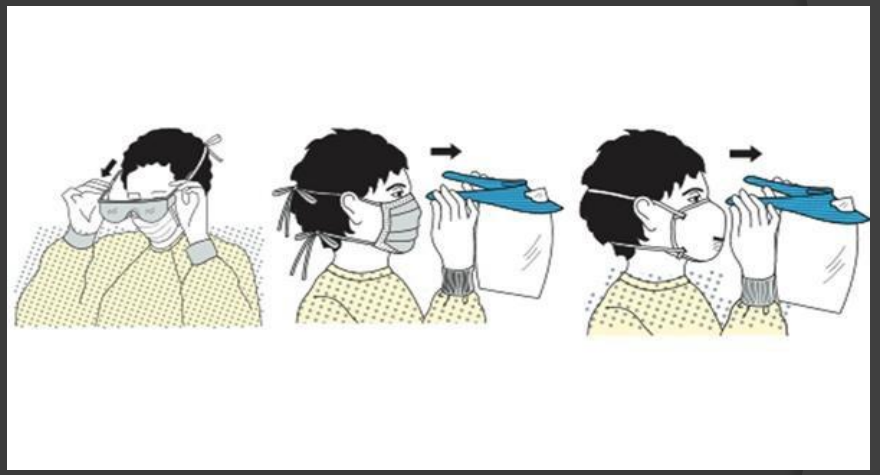
- Position goggles over eyes and secure to the head using the ear pieces or headband

- Position face shield over face and secure on brow with headband

- Adjust to fit comfortably

To Doff Goggles Or Face Shield

- Grasp ear or head pieces with ungloved hands
- Lift away from face
- Place in designated receptacle for reprocessing or disposal



How To Don an N95 Particulate Respirator

- ✓ Place over nose, mouth and chin
- ✓ Fit flexible nose piece over nose bridge
- ✓ Secure on head with elastic
- ✓ Adjust to fit
- ✓ Perform a fit check –
  - Inhale – respirator should collapse
  - Exhale – check for leakage around face

To Doff an N95 Particulate Respirator

- ✓ Lift the bottom elastic over your head
- ✓ Then lift off the top elastic
- ✓ Discard

Congratulations, you are almost finished!

Please sign the training record form.