

A scenic view of a river flowing through a forest with autumn foliage. The text "In The Name of God" is overlaid in the center.

In The Name of God

Isolation Precautions

CDC Guidelines for
Isolation Precautions in
Hospitals



Objectives

- The purpose of isolation
- Standard Precautions
- Transmission-Based Precautions

The Purpose of Isolation

- The purpose of isolating patients is to prevent the transmission of microorganisms from infected or colonized patients to other patients, hospital visitors, and health care workers.
- Because the process of isolating patients is expensive and time - consuming and may impede the care of the patient, it should be implemented *only when necessary*.

Differential N.I Risk By Patient and Intervention

Minimal Risk of Infection :

- * Not immunocompromised
- * No significant underlying disease
- * Non-invasive procedures

Differential N.I Risk By Patient and Intervention

Intermediate Risk of Infection :

- * Infected patients
- * Patients with some risk factors (age)

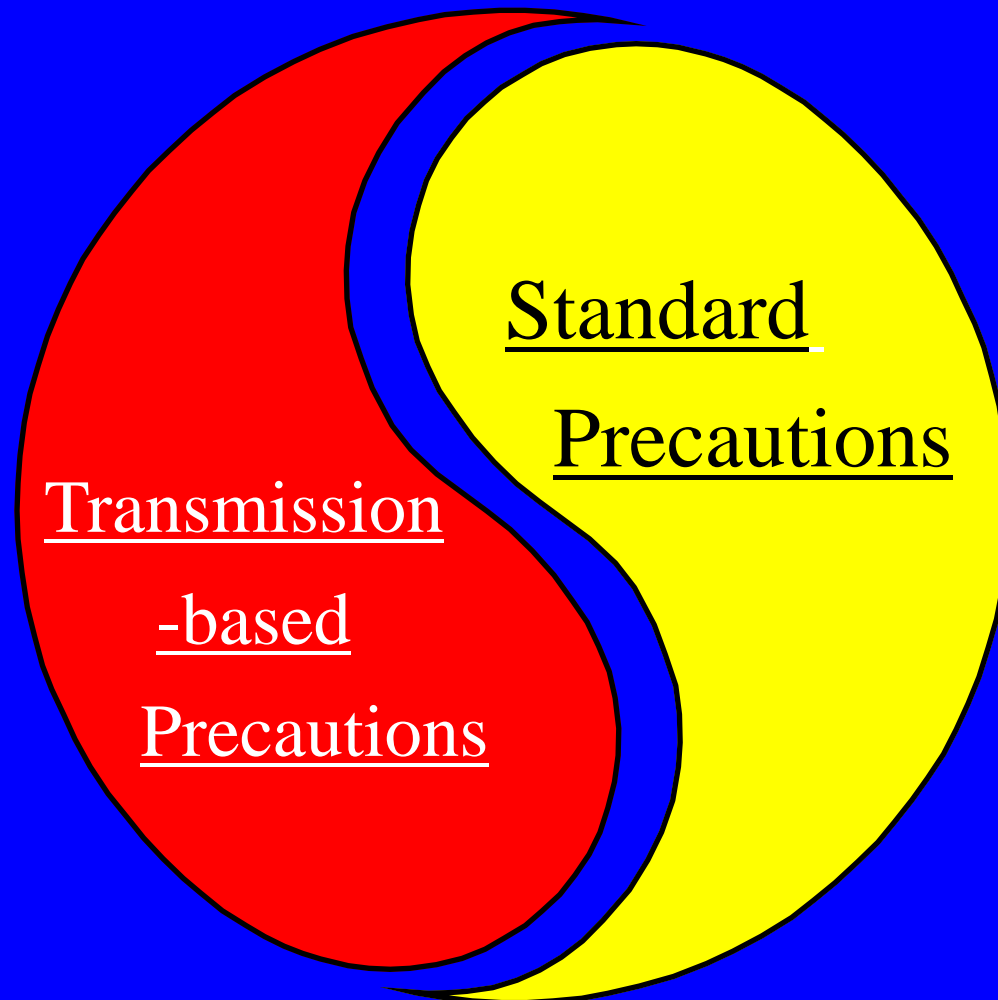
- * Invasive non-surgical procedure
(peripheral venous catheter, urinary catheter insertion)

Differential N.I Risk By Patient and Intervention

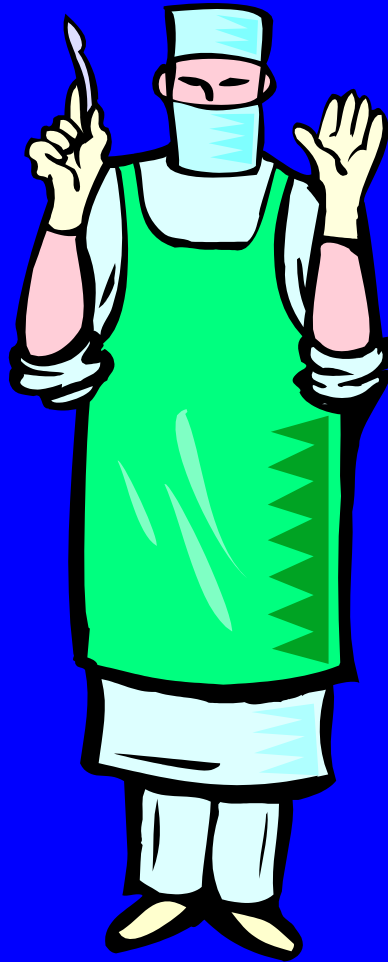
High Risk of Infection :

- * Severely immunocompromised patients (< 500 WBC/ml)
- * Multiple trauma
- * Severe burns
- * Organ transplant
- * Surgery
- * High-risk invasive p. (CV line, intubation)

Isolation Precautions



Standard Precautions



Standard Precautions

- SPs should be used for the care of ***all*** hospitalized patients.
- SPs apply to **blood, all body fluids, secretions, and excretions except sweat** (*regardless of whether or not they contain visible blood*), non intact skin, and mucous membranes.

Standard Precautions

- Hand hygiene
- PPE
- Cough etiquette



Hand Care

1. Routine (minimal) :

- Simple handwashing with non-antiseptic soap
- or
- Quick hygienic hand disinfection by rubbing with alcoholic solution

HANDWASHING

- **After touching** blood , body fluids, contaminated items, *whether or not* gloves are worn
- **Immediately after** gloves are removed
- **Between** patient care









Huntington

Huntington Brand

Wash

Skin Cleanser

For soft, smooth skin
Hytavac pear
No water

ECOLAB

1000000 10.2 fl. oz. / 300 ml















CLEAN YOUR HANDS



Rub hands palm to palm.

1



Rub the back of both hands.

2



Palm to palm, fingers interlaced.

3



Back of fingers to opposing palm, with fingers interlocked.

4



Rotational rubbing of right thumb clasped in left palm. Vice versa.

5



Rotational rubbing backward and forward on right palm with clasped fingers. Vice Versa.

6



Wrap left hand over right wrist using rotational movements up to elbow. Vice versa.

7



Use paper towel to turn off faucet.

8

GLOVES

- WEAR GLOVES :

- * **When touching** blood, body fluids,...

- * Clean gloves **just before** touching mucous membrane and non intact skin



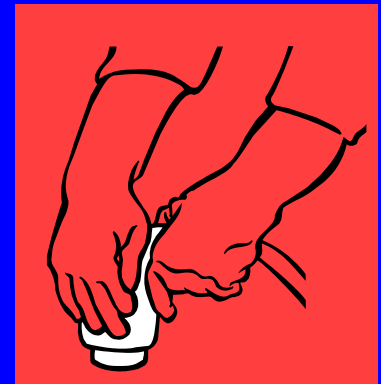
GLOVES

- REMOVE GLOVES :

- * Promptly *after use*

- * *Before touching non contaminated items ,
environment*

- * *Before going to another patient*



HANDWASHING

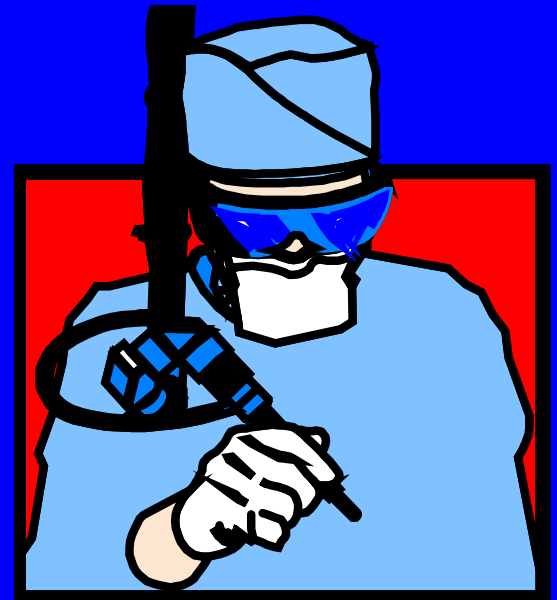
Gloves

Wear *sterile gloves* for :

- Surgery
- Care for immunocompromised patients
- Invasive procedures which enter body cavities

Mask , Eye Protection, Face Shield

- During **procedures** and patient care activities that are likely to generate **splashes** or **sprays** of blood , body fluids ,



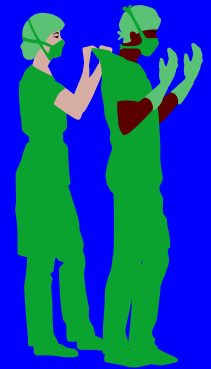
Mask

Wear surgical mask :

- To work in the **operating room**
- To care for **immunocompromised patients**
- To **puncture body cavities**

GOWN

- **Wear** a clean gown to protect skin and prevent soiling of clothing during procedures that are likely to generate splashes or sprays of blood ,
- **Remove** a soiled gown as promptly as possible



HANDWASHING

Sequence* for Donning PPE

- Gown first
- Mask or respirator
- Goggles or face shield
- Gloves

How to Don a Gown

- Select appropriate type and size
- Opening is in the back
- Secure at neck and waist



How to Don a Mask

Place over nose, mouth and chin

Fit flexible nose piece over nose bridge

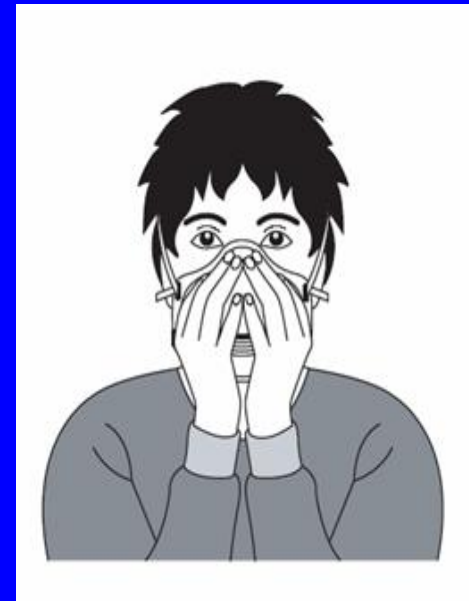
Secure on head with ties or elastic

Adjust to fit



How to Don a Particulate Respirator

- Place over nose, mouth and chin
- Fit flexible nose piece over nose bridge
- Secure on head with elastic
- Adjust to fit



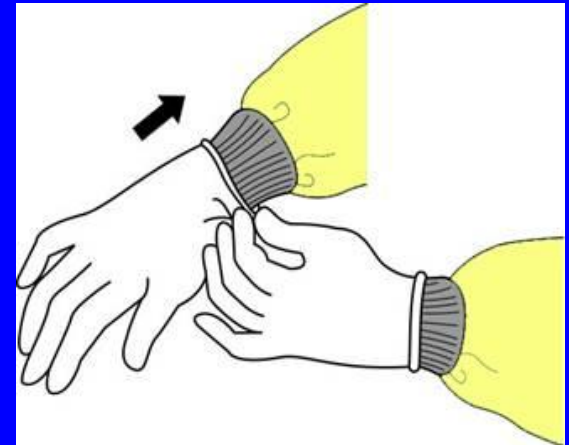
How to Don Eye and Face Protection

- 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



How to Don Gloves

- Don gloves last
- Select correct type and size
- Insert hands into gloves
- Extend gloves over isolation gown cuffs



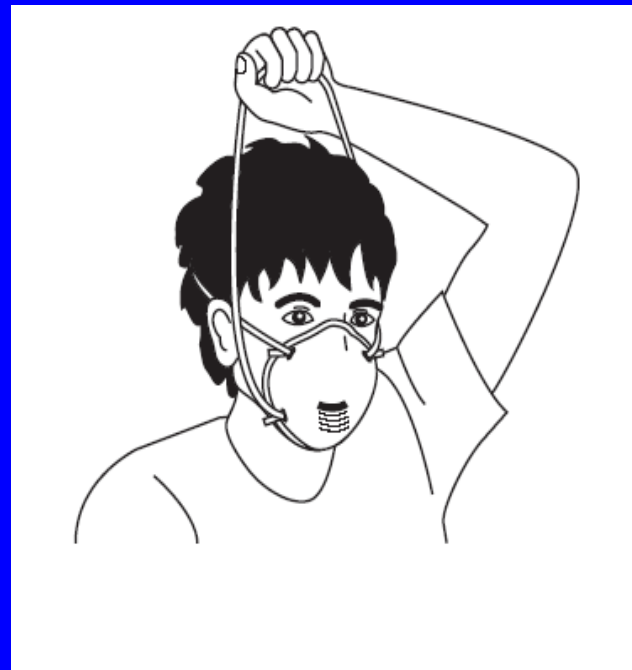
**PPE Use in Healthcare
Settings:
How to Safely Remove PPE**

Sequence for Removing PPE

- Gloves
- Face shield or goggles
- Gown
- Mask or respirator

Removing a Particulate Respirator

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



Hand Hygiene

- rub Perform hand hygiene immediately after removing PPE.
 - If hands become visibly contaminated during PPE removal, wash hands before continuing to remove PPE
 - Wash hands with soap and water or use an alcohol-based hand
- * Ensure that hand hygiene facilities are available at the point needed, e.g., sink or alcohol-based hand rub

Respiratory Hygiene/ Cough Etiquette



Respiratory Hygiene/ Cough Etiquette

- Targeted at **patients** and accompanying **family members** and friends with transmissible respiratory infections

Respiratory Hygiene/ Cough Etiquette

- Applies to **any person** with signs of illness including **cough**, **congestion**, **rhinorrhea**, or **increased production of respiratory secretions** when entering a healthcare facility.



The Elements of Respiratory Hygiene/Cough Etiquette

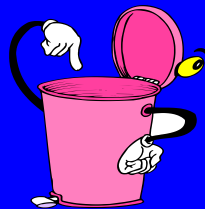
- 3) **Source control measures** (e.g., **covering the mouth/nose with a tissue** when coughing and **prompt disposal** of used tissues, using **surgical masks on the coughing person** when tolerated and appropriate)
- 4) **Hand hygiene after contact** with respiratory secretions

Respiratory hygiene and cough etiquette

- Cover the nose/mouth when **coughing** or **sneezing**



- Use tissue paper to contain respiratory secretions and dispose in the waste receptacle



- Perform hand hygiene if contact respiratory secretions and contaminated objects



- Put on a **surgical mask**



The Elements of Respiratory Hygiene/Cough Etiquette

- 5) **Spatial separation, ideally >3 feet**, of persons with **respiratory infections** in **common waiting areas** when possible.

Transmission - Based Precautions

- Supplement to Standard Precautions
- For use with *patients documented* or *suspected* to be *infected* or *colonized* with *highly transmissible* or *epidemiologically important* pathogens

Transmission-Based Precautions

Airborne P.

Droplet P.

Contact P.

1. Airborne Precautions

- Airborne precautions should be used in addition to Standard P. for patients **known or suspected** to be **infected with microorganisms** transmitted by airborne droplet nuclei (*5 microns or smaller*) :
 - ***Patient placement**
 - ***Respiratory protection**
 - ***Patient transport**

1. Airborne Precautions

- **TB**
- **VZV**
- **Measles**
- **SARS**
- **Avian flu**

Patient Placement

- Place the patient in a ***private room*** that has
 - 1) ***negative*** air pressure
 - 2) 12 air exchange or more
 - 3) appropriate discharge of ***air outdoors***/ HEPA
- Keep the room ***door closed***, and the ***patient in*** the room

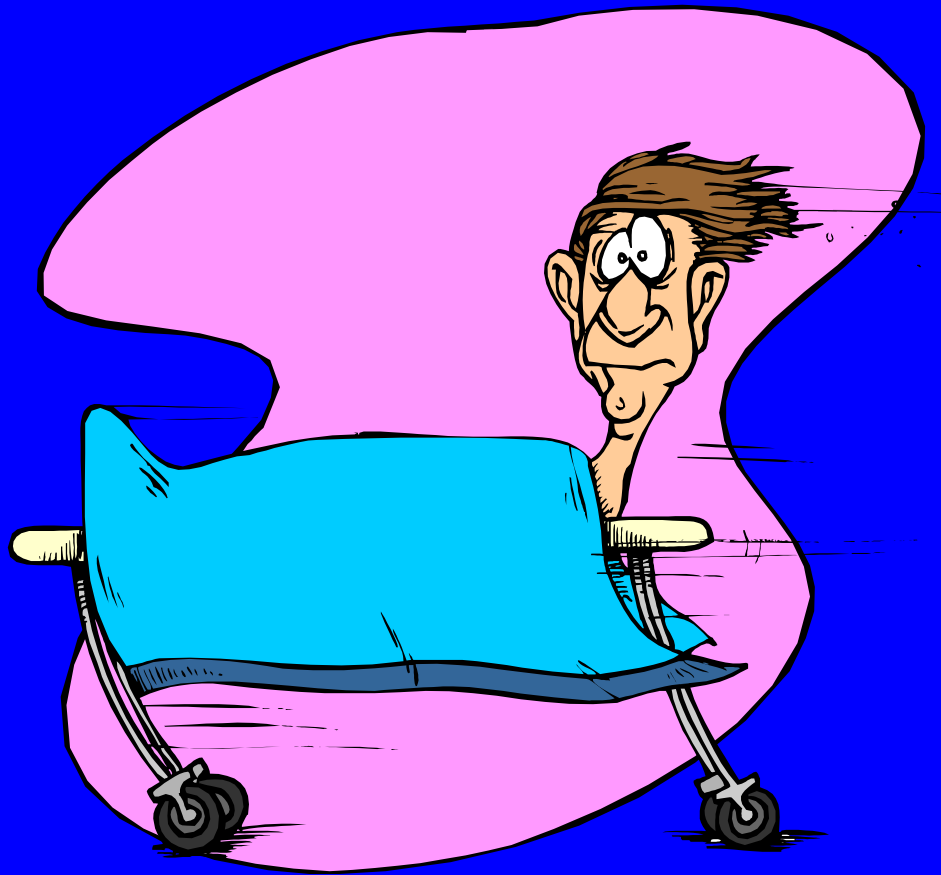


Types of Protective Masks

- **High-filtration respiratory mask**
 - Special microstructure filter disc to flush out particles bigger than 0.3 micron. These masks are further classified:
 - oil proof
 - oil resistant
 - not resistant to oil
 - For example, a N95 mask has 95% efficiency in filtering out particles greater than 0.3 micron under normal rate of respiration.



Patient Transport



2. Droplet Precautions

Droplet precautions should be used in addition to Standard Precautions for a patient known or suspected to be infected with microorganisms transmitted by droplets *larger* than 5 microns that can be transmitted by *coughing, sneezing, talking*, or by the performance of procedures such as *suctioning*.

Droplet Precautions

- **Patient placement :**
 - * **Private room** or
 - * **Cohorting** or
 - * **Separation of at least 3 feet** between the infected patient and other patients and visitors
- **Masking** when **working within 3 feet** of a patient
- **Patient transport**





2. Droplet Precautions, Examples

- **Diphtheria**, pharyngitis
- **Hib** : Pneumonia: infants and children;
Meningitis, Epiglottitis,...
- **Influenza**: Pandemic, Seasonal,
- **N. meningitidis** : Pneumonia, Meningitis,
Sepsis

2. Droplet Precautions, Examples

- Mumps
- Mycoplasma p.
- Parvovirus B 19
- Pertussis
- Plague, pneumonia
- **Adenovirus: Pneumonia**

2. Droplet Precautions, Examples

- S. pneumonia
- **Strep. A** pharyngitis, scarlet fever in infants or young children
- **Strep. A** : Pneumonia; Serious invasive disease; Major skin wound or burn; TSS
- Rubella

2. Droplet Precautions, Examples

- Respiratory Infectious Disease:
 - Rhinovirus
 - SARS
- TSS : S.A
- Viral Hemorrhagic Fevers:
Lassa,...; CCHF

3. Contact Precautions

Contact precautions should be used in addition to Standard precautions for a patient *known* or *suspected* to be *infected* or *colonized* with epidemiologically important microorganisms that can be transmitted by *hand* or *skin-to-skin* contact or *indirect* contact with environmental surfaces or patient-care items in the patient's room.

Contact Precautions

- Patient placement
- Gloves and hand washing
- Gowns
- Patient transport

Contact Precautions

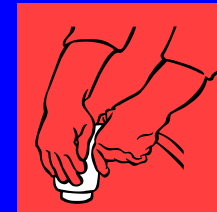
Patient Placement :

- Private room ,or
- Cohorting



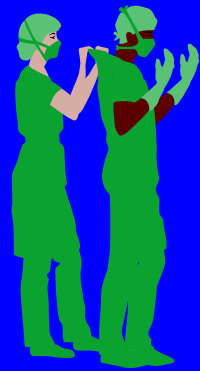
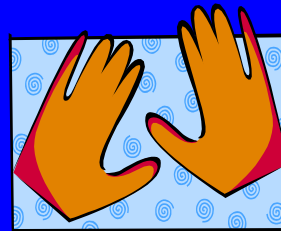
Contact Precautions

- **Gloves and hand washing :**
 - **Wearing gloves** when entering the patient's room
 - **Removing gloves before leaving** the patient's room and ,
 - **Scrub hands** with an antimicrobial agent



Contact Precautions

- **Wearing a gown** when entering the patient's room if :
 - **Clothing will have substantial contact** with the patient , surfaces, items
 - **The patient is incontinent,has diarrhea, an ileostomy,or wound drainage not contained by dressing**
- **Removing the gloves before leaving the patient's environment**



Contact Precautions

- **Environmental control :**
Ensure that **patient care items, bedside equipment, and frequently touched surfaces** receive daily cleaning

Contact Precautions

Patient care equipment :

When possible, use non critical patient-care equipment and items (stethoscopes, bedside commodes , sphygmomanometers , or electronic rectal thermometers) to a single patient.

If use of common equipment is unavoidable, items must be adequately cleaned and disinfected before use with another patient.



3. Contact Precautions, Examples

- Acute diarrhea with likely infectious cause
in incontinent or diapered patient:

E.coli 0157:H7 , HAV , HEV, Rotavirus ,
Shigella, Y.enterocolitica, Enterovirus, ...

- Diarrhea : C. difficile
- Rotavirus GE

3. Contact Precautions, Examples

- **Respiratory infections in *infants and young children*** : Parainfluenza infection , RSV infection (and immunocompromised),...
- **Bronchiolitis in *infants and young children***
- **Conjunctivitis, acute viral hemorrhagic** : Adenovirus , Enterovirus 70, Coxsackie A

3. Contact Precautions, Examples

- SARS
- Human metapneumovirus
- Pneumonia: Adenovirus; B. cepacia in C.F

3. Contact Precautions, Examples

- Vesicular rash
- HSV (neonatal; disseminated; severe primary mucocutaneous)
- Varicella
- Zoster (disseminated or immunocompromised)

3. Contact Precautions, Examples

- Scabies
- Monkeypox
- Smallpox
- Vaccinia

3. Contact Precautions, Examples

- Hemorrhagic fevers (Lassa, Marburg, Ebola, CCHF)
- Rubella, congenital
- Enteroviral infections (*infants, young children*)

3. Contact Precautions, Examples

- History of **infection or colonization** with **MDR organisms**, MDR bacterial infection or colonization (MRSA, VISA, VRE, GNB,..)
- **Skin, wound, or urinary tract infection** in patient with recent hospital or nursing home stay **in facility where MDR are prevalent**

3. Contact Precautions, Examples

- Abscess or draining wound that cannot be covered(Major)
- Cellulitis, uncontrolled drainage(major)

3. Contact Precautions, Examples

- **Anthrax**, cutaneous,
- **Diphtheria**, cutaneous
- **Impetigo**
- **Extrapulmonary TB**, draining lesion

3. Contact Precautions, Examples

- **Furunculosis, S.A** (*infants, young children*)
- **SSSS**
- **Strep. Group A , S. aureus** major skin, burn, or wound infection
- **C. perfringens**, extensive W. drainage

Conclusion

Isolation precautions can **protect only** if they are used **consistently** and **properly** .





**Thank you
for your attention**