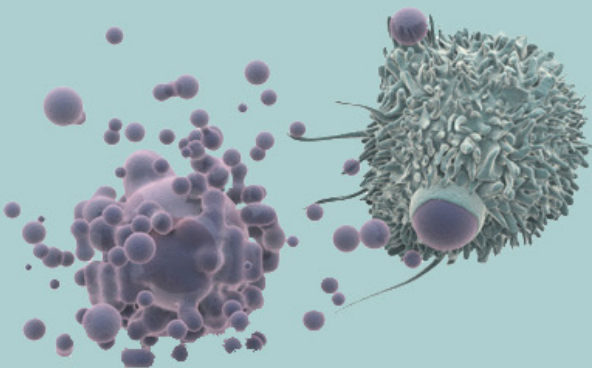


# Infection Prevention and Control



# What is Infection Control?

- Infection Control is the prevention of the spread of clinically significant microorganisms that cause infection; or the potential to cause disease.



# Infection Prevention and Control

## Susceptible host

A person who is potentially vulnerable to an infection



## Portal of entry

Site through which a pathogen can enter the susceptible host and cause infection, such as a urinary catheter or central line



## Infectious agents

Pathogenic (disease-causing) microbes such as bacteria, parasites, viruses, or fungi



## Reservoirs

Hosts or habitats - such as humans, animals, or environment - where infectious agents live and reproduce



Understanding  
the chain  
of infection

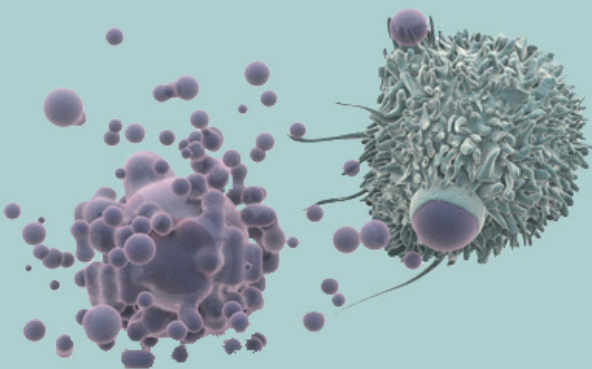
# Definition of Infection

## Presented on Admission ( POA ) (Community Acquired)

Infection that presented or incubating at the time of admission to the hospital at the first 2 calendar days from admission and according to each disease case definition

## Health Care - Associated (*nosocomial*)

It is presented after 2 calendar days of admission or within a defined period after hospital discharge according to the disease incubation period



# Categories of Nosocomial Infection

Surgical Site  
Infection (SSI )

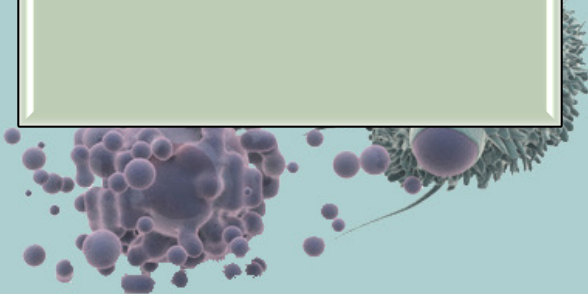
Pneumonia

Urinary Tract  
Infection (UTI )

Bacteremia

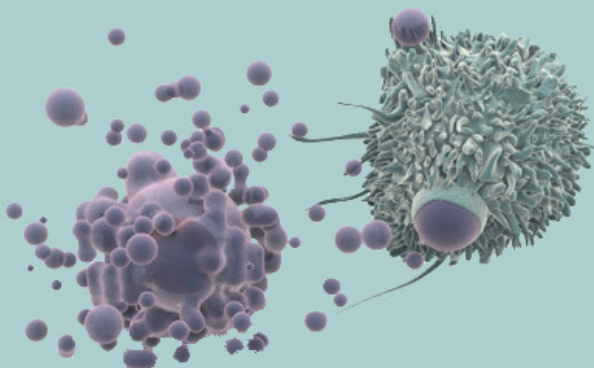
Device Related  
Infection (VAP-  
CLABSI-CAUTI )

Gastro – intestinal  
Tract Infection



## Surgical Site Infection (SSI )

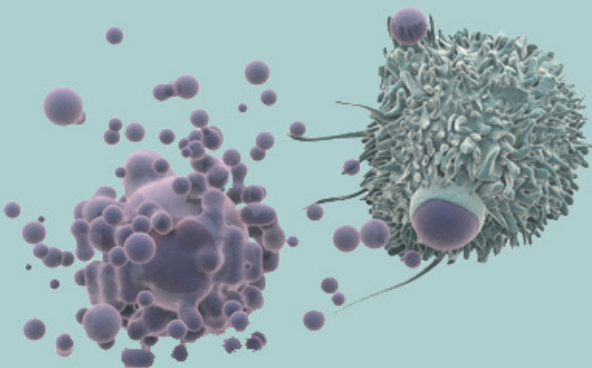
**A surgical site infection is an infection that occurs after surgery in the part of the body where the surgery took place. Surgical site infections can sometimes be superficial infections involving the skin only. Other surgical site infections are more serious and can involve tissues under the skin, organs, or implanted material**



# Pneumonia

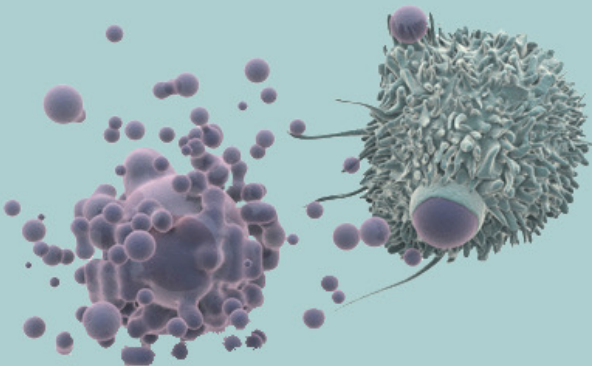
Pneumonia is an infection in one or both lungs. It can be caused by bacteria, viruses, or fungi.

Bacterial pneumonia is the most common type in adults. Pneumonia causes inflammation in the air sacs in your lungs



## Urinary Tract Infection (UTI)

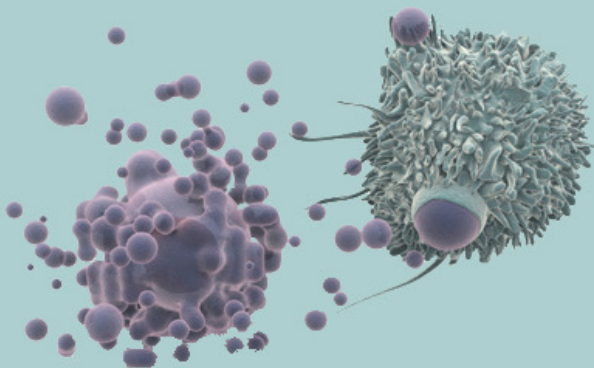
an infection in any part of your urinary system — your kidneys, ureters, bladder and urethra. Most infections involve the lower urinary tract — the bladder and the urethra.





# Bacteremia

**is the presence of  
bacteria in the  
bloodstream**



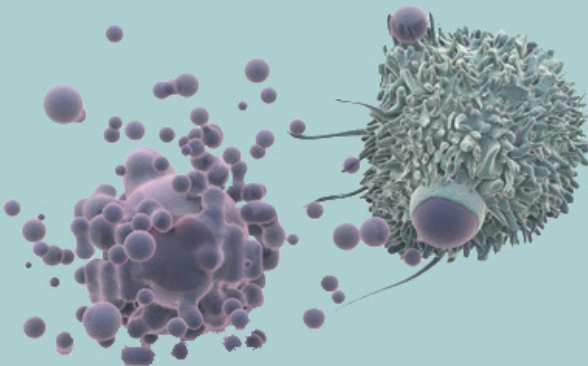
Device Related  
Infection (VAP-  
CLABSI-CAUTI)

An infectious disorder caused by the use of a medical device

VAP (Ventilator-associated pneumonia is a lung infection that develops in a person who is on a ventilator)

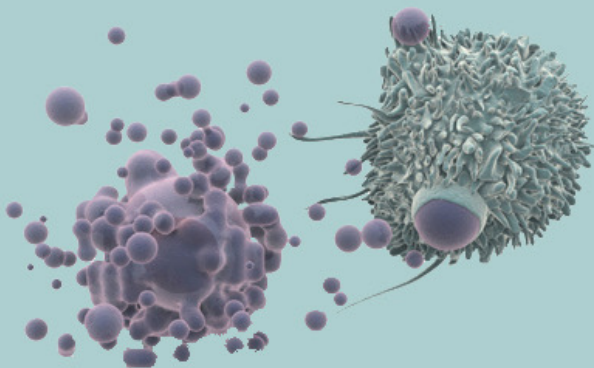
CLABSI (Central line-associated bloodstream infections ,primary laboratory confirmed bloodstream infection in a patient with a central line)

CAUTI (catheter-associated urinary tract infections , is a UTI where an indwelling urinary catheter was in place for more than two days



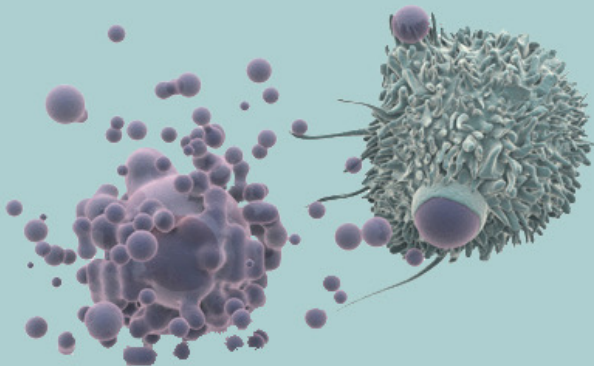
## Gastro – intestinal Tract Infection

**Gastrointestinal infections** are viral, bacterial or parasitic infections that cause gastroenteritis



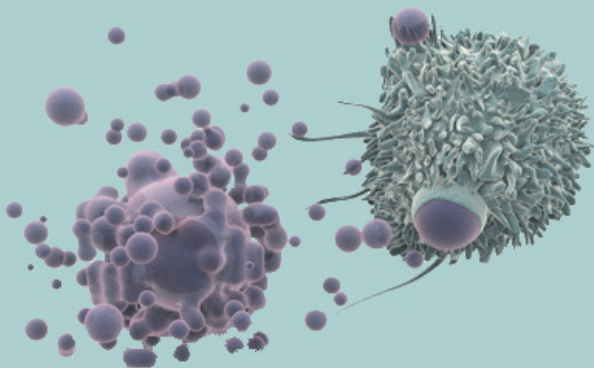
# Patients at risk

1. immuno-compromised patients (oncology, dialysis, diabetic )
2. Prolonged hospital stay (Long stay patients )
3. Use of invasive devices (ICU )
4. Post procedures (Surgical )



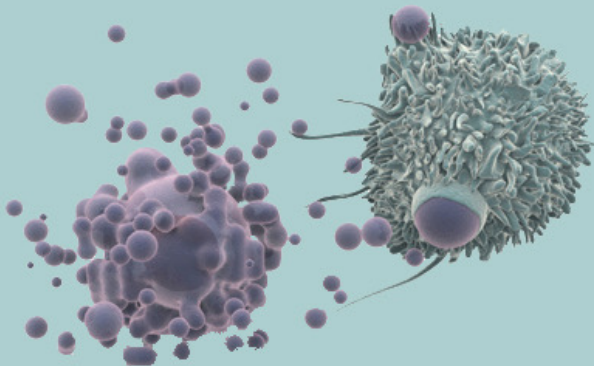
# Standard Precaution

- a group of practices of infection prevention and control based on a principle that all blood, body fluids secretions, excretions (except sweat), non intact skin and mucous membranes may contain transmissible infectious agents regardless of their diagnosis.
- Applied to all patients regardless of the patient diagnoses



# Elements Of Standard Precaution

1. Hand Hygiene
2. Gown
3. Mask
4. Face Protection
5. Gloves
6. Safe injection practices
7. Patient Care Equipment/  
Devices
8. Worker Safety
11. Patient Placement and  
Transport
12. Respiratory Hygiene / Cough  
Etiquette

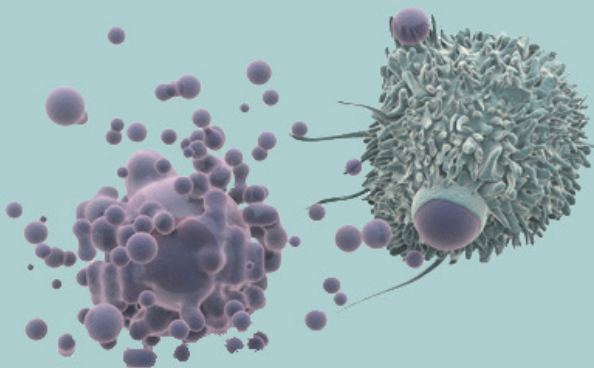


# Hand Hygiene



- Healthcare-associated pathogens are most often transmitted from patient to patient through the hands of healthcare workers.

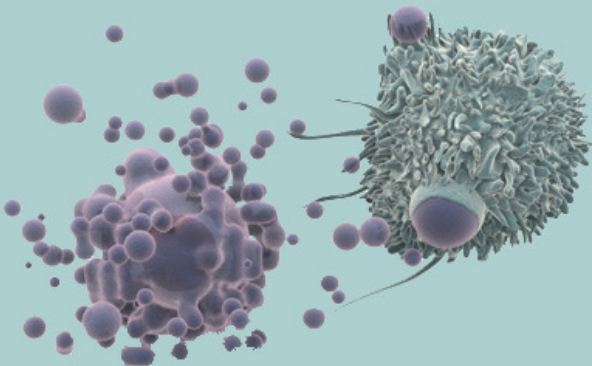
- Hand Hygiene is the single most important measure for preventing the spread of microorganisms in healthcare settings.



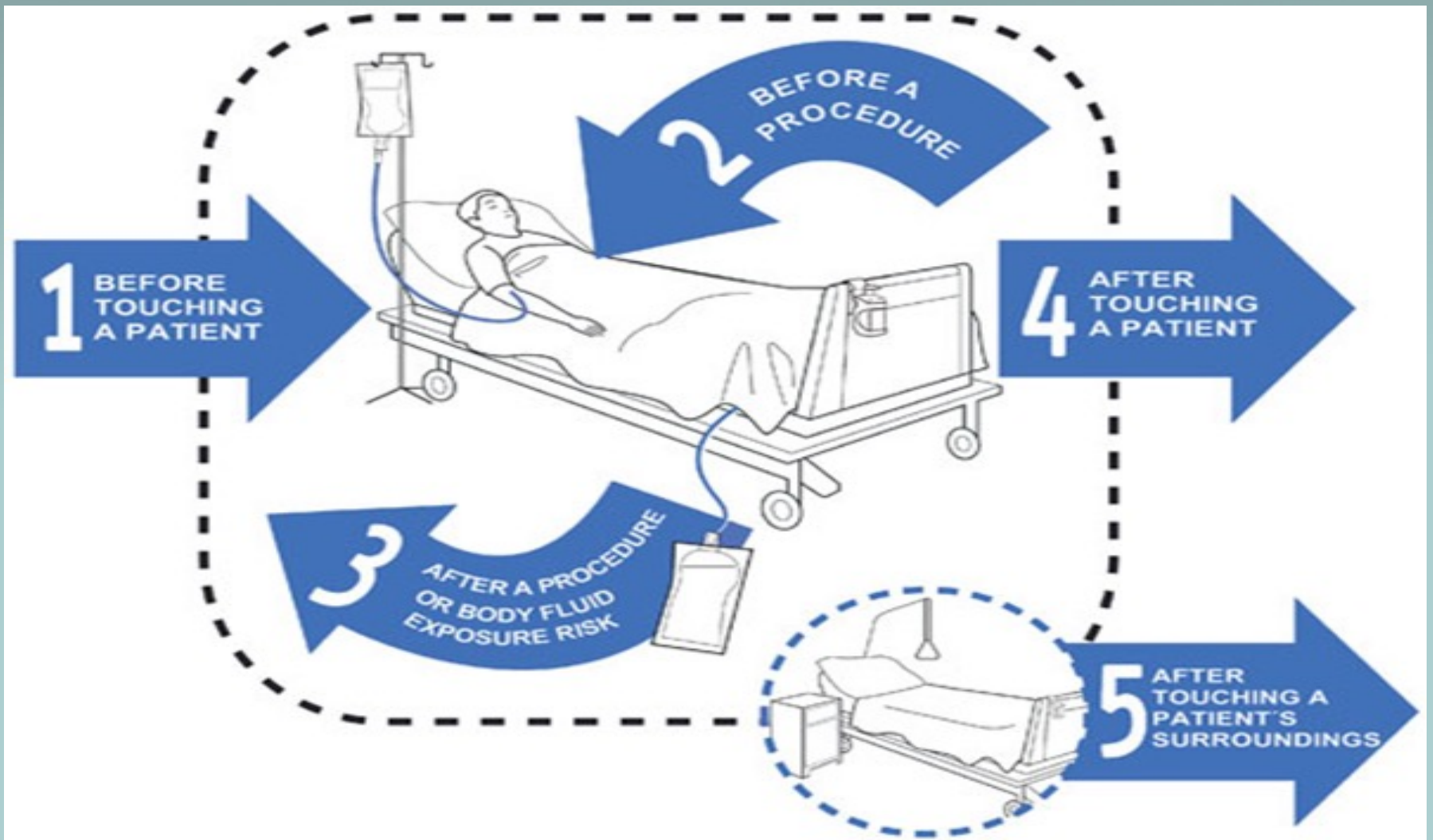
# Hand Hygiene

## WHO “My five (KEY) moments for hand hygiene”

1. Before touching a patient.
2. Before clean/aseptic procedure.
3. After body fluid exposure risk.
4. After touching a patient.
5. After touching patient surroundings.







# What , When, How ?

## What are types of Hand Hygiene?

- **Hand washing.**

**40-60 seconds**

- ✓ for visibly soiled hands & after using alcohol gel several times
- ✓ when handling patients colonized/infected with spore-forming organisms

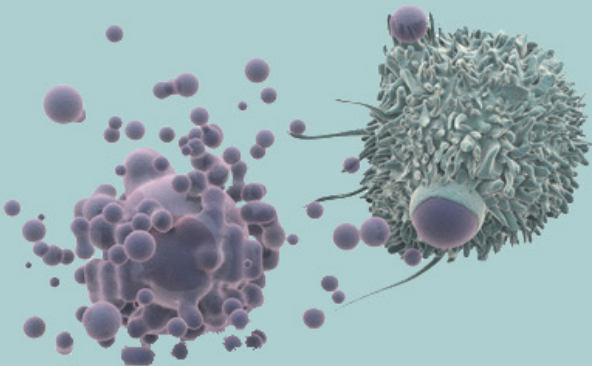
- **Use of alcohol rubs/gels.**

**20-30 seconds**

- ✓ for hands that are not visibly soiled.

- **Surgical hand 'scrub.**

- ✓ brush and nail file
- ✓ **5 minutes** (first wash of the day); **2-3 minutes** (in between operations)



# Hand Rub

1



**Rub palm to hand**

2



**Rub left palm over back of right hand then vice versa**

3



**Rub palm to palm with fingers interlaced**

4



**Rub backs of fingers in opposing palms, with fingers interlocked**

5



**Rotational rubbing of left thumbs clasped in right palm, then vice versa**

6



**Rotational rubbing, backwards, and forwards with clasped fingers of left hand in palm of right and vice versa**

# Hand Wash



(a) Wet hands under running water



(b) Apply soap and rub palms together to ensure complete coverage



(c) Spread the lather over the backs of the hands



(d) Make sure the soap gets in between the fingers



(e) Grip the fingers on each hand



(f) Pay particular attention to the thumbs



(g) Press fingertips into the palm of each hand



(h) Dry thoroughly with a clean towel

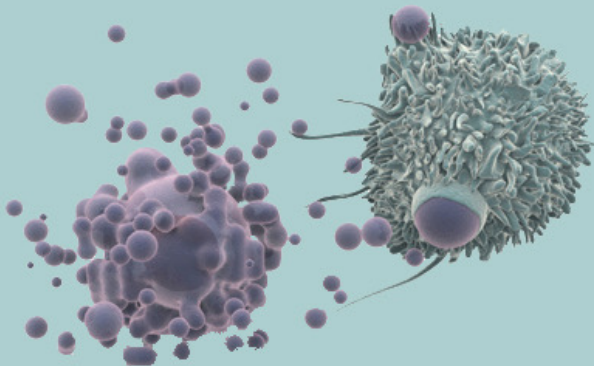
# Personal Protective Equipment

- A variety of barriers to protect both the patient and HCW's from the potential risks of cross infection whenever blood/body fluid splashes are expected to come in contact with mucous membranes, airways, skin and clothing



# Safe Injection Practices

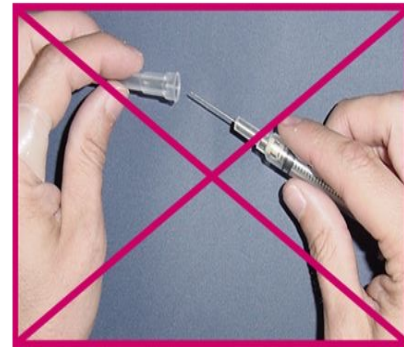
- Do not recap, bend, break, or hand-manipulate used needles.
- If recapping is required, use a one-handed scoop technique only.
- Place used sharps in puncture-resistant container.





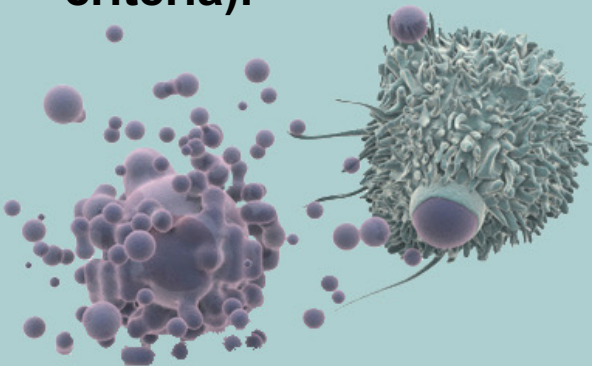
## Finishing the Procedure

- Discard the needle in sharps container
- NEVER REUSE!!!
- NEVER RECAP!!
- Remove gloves and wash your hands!!!



# Patient Care Equipment

- Handle used patient care equipment soiled with blood, body fluids in a manner that prevents transfer of microorganisms to one's self, other patients and environments.
- Single use, disposable items must be disposed properly.
- Reusable items have to be been cleaned and reprocessed appropriately, prior to use on another patient based on the manufacture recommendation and the intended use (Spaulding criteria).





# Respiratory Hygiene / Cough Etiquette

**COVER UP** **COUGHING AND SNEEZING**

- • Turn your head away from others  
• Use a tissue to cover your nose and mouth
- • Drop your tissue into a waste bin
- • No tissues? Use your sleeve
- • Clean your hands after discarding tissue using soap and water or alcohol gel for at least 15 seconds

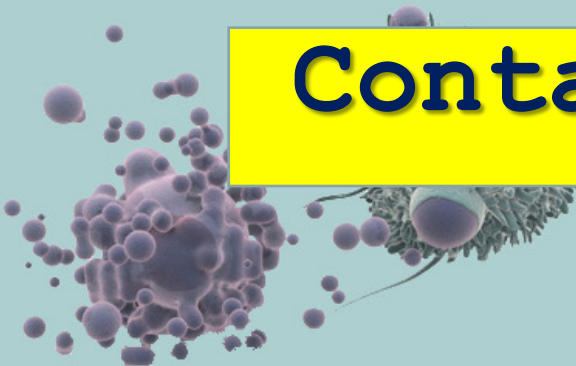


# TRANSMISSION-BASED PRECAUTIONS

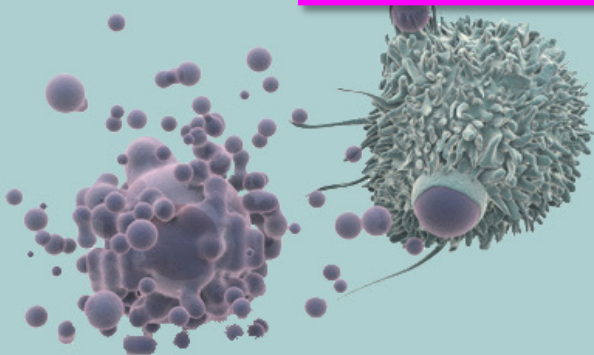
**Airborne Precautions**

**Droplet Precautions**

**Contact Precautions**



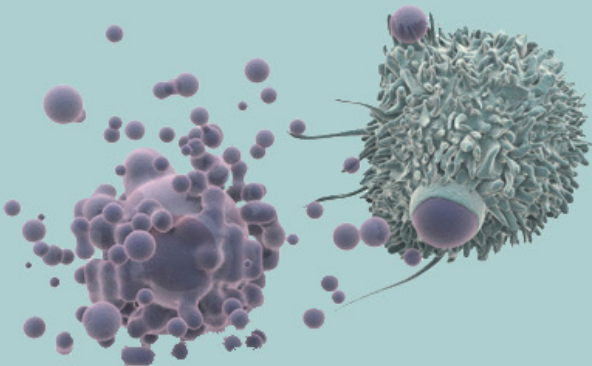
# Airborne precautions



Causative agents of diseases under airborne precaution are **less than 5  $\mu\text{m}$** , thus can be carried away by air currents

# Diseases under airborne precaution

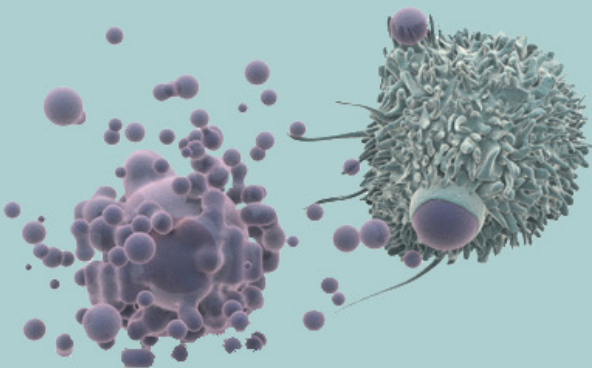
- **Measles**
- **Tuberculosis (Pulmonary/Laryngeal)**
- **Varicella**



# Airborne Precautions

## Patient Placement

- Single room with negative air pressure
- 12 air changes per hour
- Room door closed



# Airborne Precautions



Protection for HCW (health care worker)

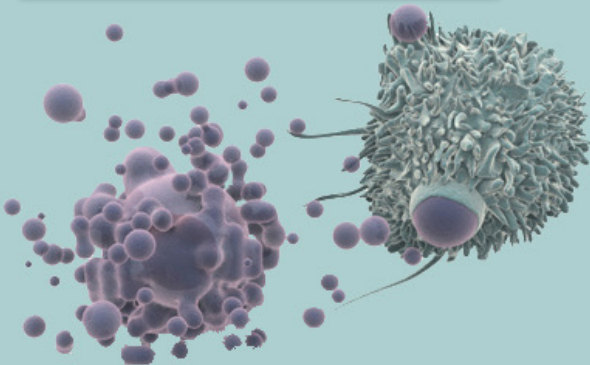
✓ Standard  
Precautions

✓ N95 respirator

Patient Transport

✓ Limit movement

✓ Mask the patient  
with surgical mask



# ISOLATED Patient Transfer

**STOP**

sufficient information  
on the patients  
infection status  
must be given to  
the receiving area.

Following transport,  
trolleys/ chairs  
should be disinfected.

## AIRBORNE PRECAUTIONS



Hand Hygiene

Mask the patient  
With surgical mask  
before transfer.



Wear PPEs  
N95 RESPIRATOR

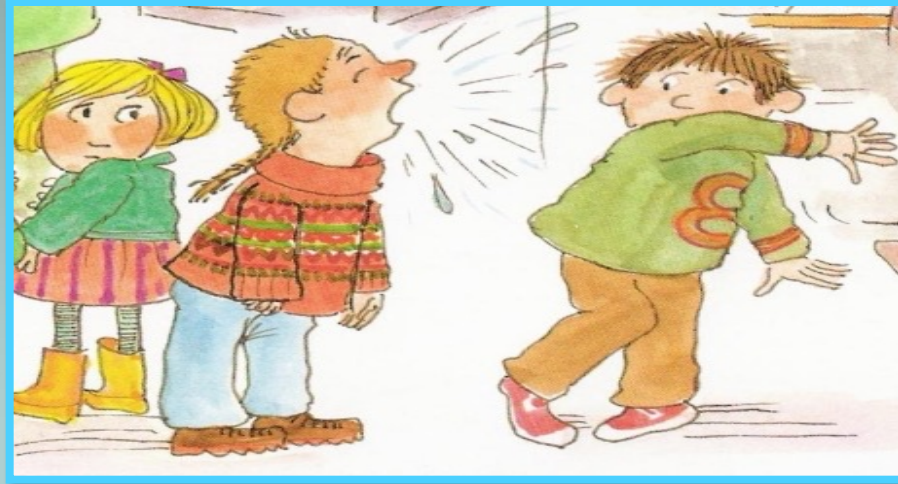


جامعة  
الملك سعود  
King Saud University

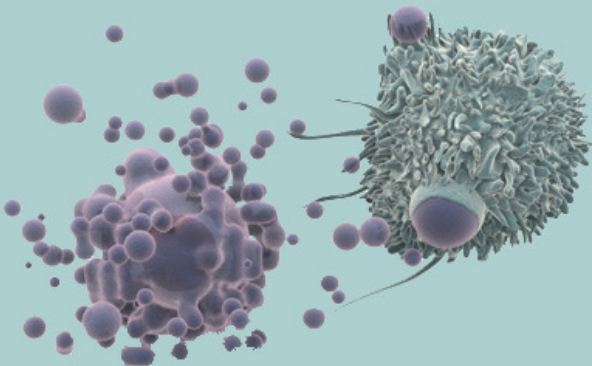


Infection Control Department  
KSUMC

# Droplet Precautions



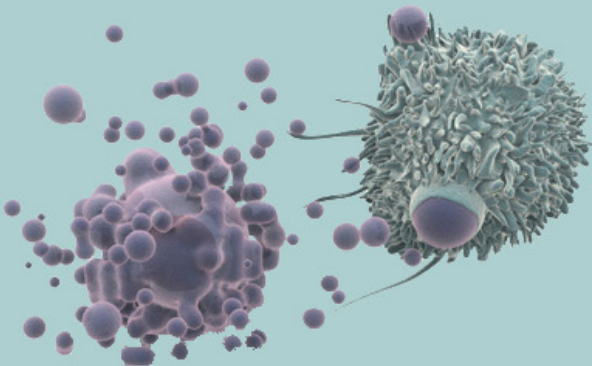
Causative agents of diseases under droplet precaution are **greater than 5  $\mu\text{m}$** . They can travel up to 3 feet (1mtr)





# Diseases under droplet precaution

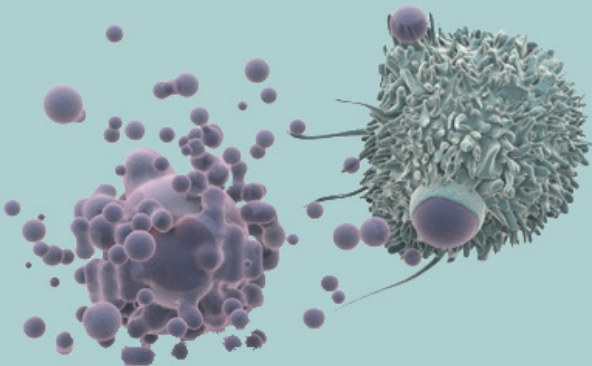
- ***Haemophilus influenzae* type B disease, including meningitis, pneumonia, sepsis**
- ***Streptococcal* (group A), scarlet fever in infants and young children**
- **Influenza, Mumps**



# Droplet Precautions

## Patient placement

- Private room
- Cohort nursing



# Droplet Precautions

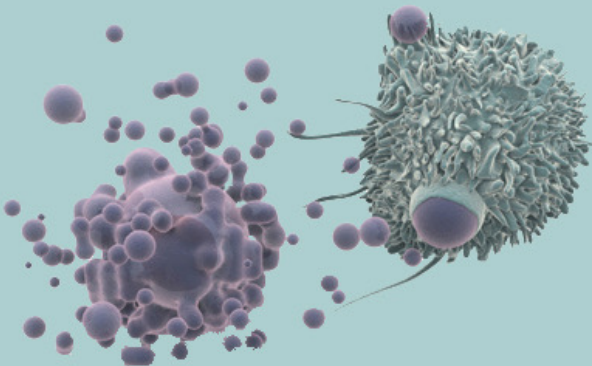


## Protection for HCW

- Standard precautions
- Surgical mask if working within 3 feet of the patient

## Patient Transport

- Limit movement
- Mask the patient with surgical mask



# ISOLATED Patient Transfer

**STOP**

sufficient information  
on the patients  
infection status  
must be given to  
the receiving area.

Following transpotion,  
trolleys/ chairs  
should be disinfected.

## DROPLET PRECAUTIONS



Hand Hygiene

Mask the patient  
With surgical mask  
before transfer..



Wear PPEs.  
Surgical Mask



جامعة  
الملك سعود  
King Saud University

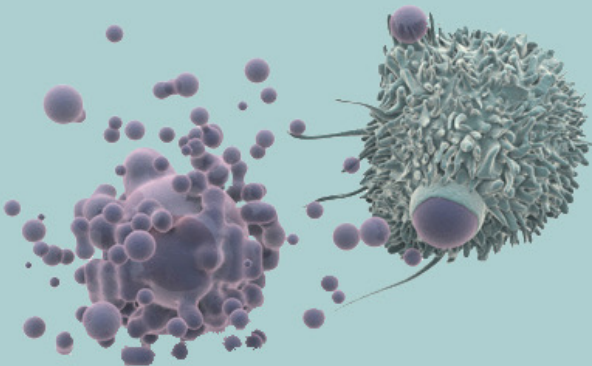


Infection Control Department  
KSUMC

# Contact Precautions

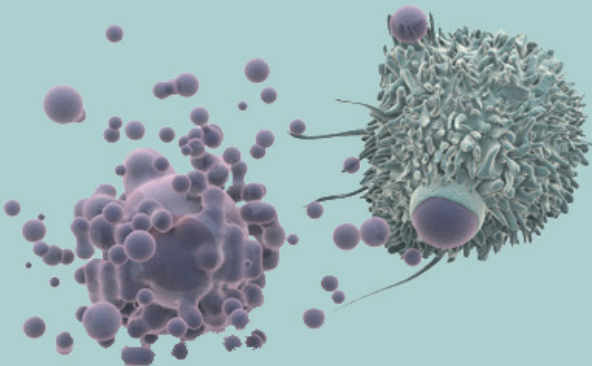


Use In addition to standard precaution, for patients known or suspected to have serious illness transmitted through contact



# Diseases under contact precaution

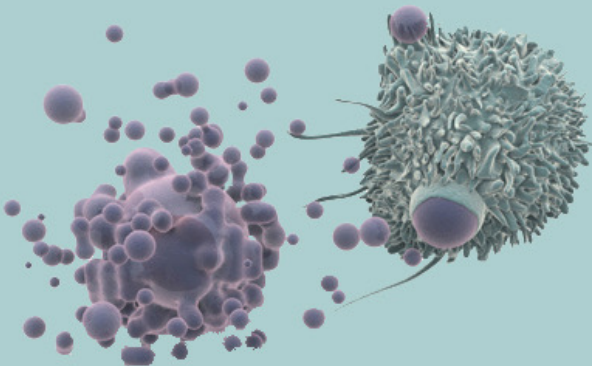
- **Multi-drug resistant microorganisms (MDRO's), VRE, MRSA, ESBL, *B.cepacia***
- **RSV infection in infants, young children and immunocompromised patients**
- **Clostridium defficile enterocolitis**



# Contact Precautions

## Patient placement

- Private room
- Cohort nursing



# Contact Precautions

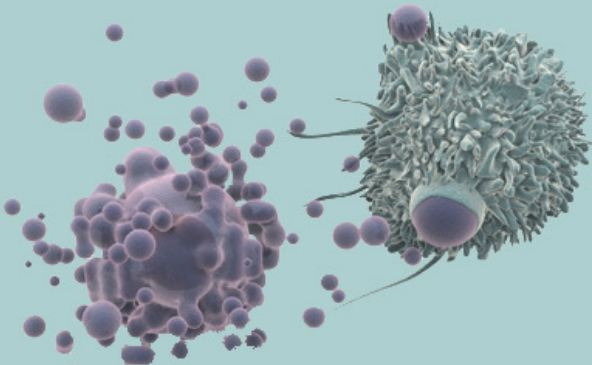


## Protection for HCW

- Handwashing
- Gloves
- Gown

## Patient Transport

- Limit movement





# ISOLATED Patient Transfer

**STOP**

sufficient information  
on the patients  
infection status  
must be given to  
the receiving area.

Following transportation,  
trolleys/ chairs  
should be disinfected.

Wear PPEs.  
Gown & Gloves



Hand Hygiene

## CONTACT PRECAUTIONS



contain the patient's  
source of infection  
before transfer.

جامعة  
الملك سعود  
King Saud University



Infection Control Department  
KSUMC

Thank You

