

Infection control

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Outline:

- Principles of infection control..
- Definitions.
- Types of HCAs.
- Cycle of infection.
- Standard & Transmission based precautions.
- Hand hygiene.
- Types of isolation.

This unit of patient safety will focus on Infection Control



Goals of patient safety:

- Prevent and/or minimize the adverse events and eliminate preventable harm in health care.
- All health care professionals including nurses are responsible for ensuring patient safety.

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- Adverse medical events are widespread and preventable (Emanuel et al., 2008) .

What is the infection control:

- **Infection control refers to policies and procedures used to minimize the risk of spreading of infection.**
- **The propose of infection control is to reduce the occurrence of infectious disease.**

DEFINITIONS

Infection: invasion & multiplication of microorganism in a susceptible host, with an associated host response (fever, pus, purulent, discharge, ...).

Endemic: habitual occurrence of disease or usual presence (prevalence) in certain geographic area.

Epidemic: outbreak or in excess of normal expected level of infection by a common agent in a defined population during a defined period.

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- **Pandemic** : refers to worldwide epidemic.
 - **Asepsis**: prevention of microbial contamination of the living tissue or sterile material by removing or killing microorganism.
 - **Disinfection**: process to kill or remove pathogenic microorganism but can't kill bacterial spores.
 - **Sterilization**: a process that kill and destroy all types of microorganism including bacterial spores.

Health care-associated infection (HCAIs)

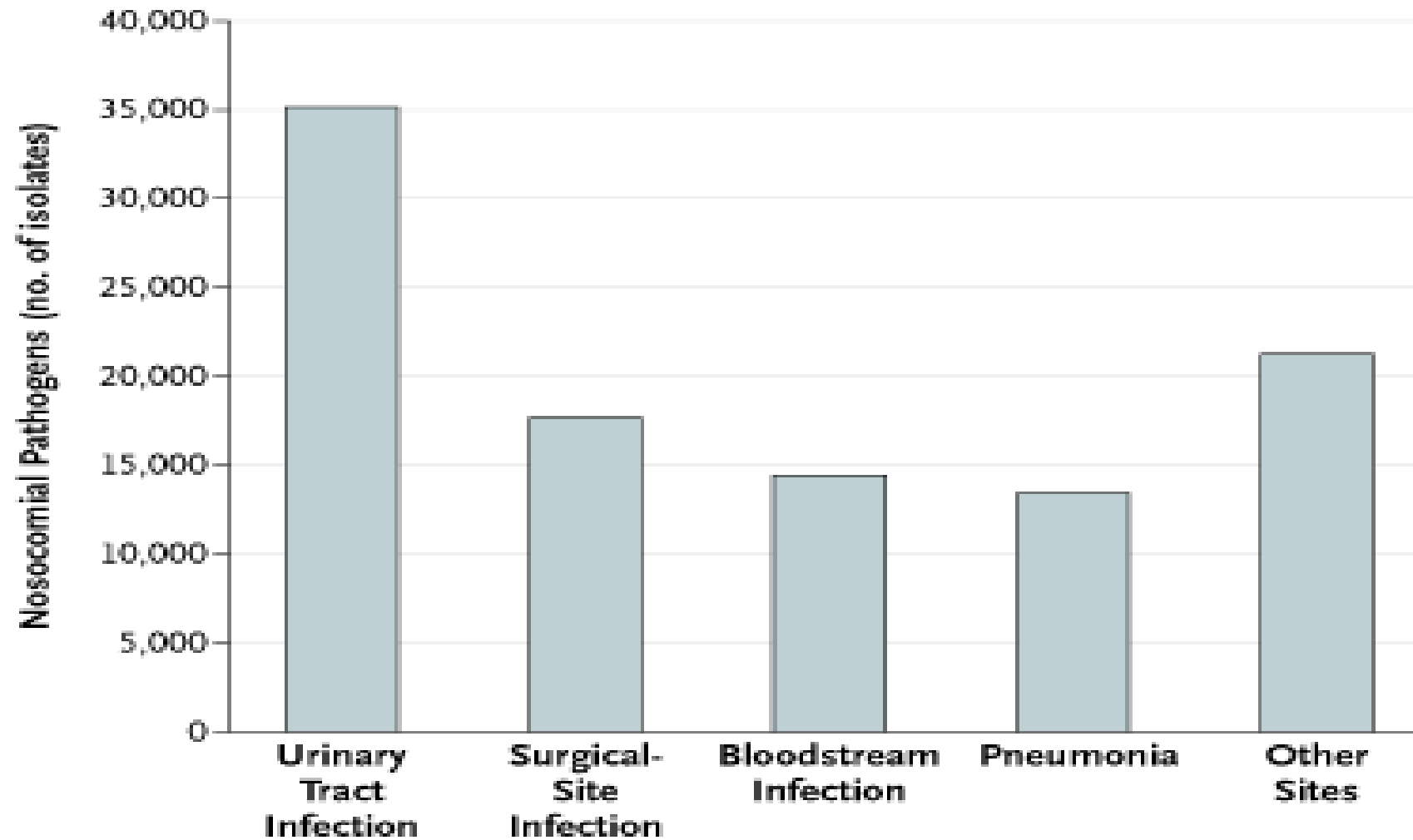
- An infection occurred for the pts during the process of care in a hospital or health care facility which was not present or incubating at the time of admission.
- This includes infections acquired in health care facility but appearing after discharge, and also occupational infection among health care workers of the facility.

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- Infections are considered to be hospital acquired if they develop at least **48hrs** after hospital admission without proven prior incubation.
 - 3 days after hospital discharge or within 30 days of an operative procedure.

Main causes of HAI:

- Urinary tract (CAUTI).
- Surgical site (SSI).
- Blood stream (CLBSI).
- Lower respiratory (VAP).

Types of Infections



Impact of nosocomial infections

- Financial costs
- Extend time of hospitalization
- Increase client's time away from work
- Cause disability and discomfort
- Loss of life

Core prevention strategies for SSI:

- ✓ Don't remove hair at the operative site with razor.
- ✓ If hair will interfere with the operation, remove immediately before the operation, preferably with **electric clippers**.
- ✓ Adequately **control blood glucose level** in diabetic pts & avoid hyperglycemia preoperatively.
- ✓ Require pts to shower or **bath with an antiseptic agent** in the morning before surgery.
- ✓ **Antibiotics** should be administered within one hour before surgery.

Core prevention strategies for CAUTIs:

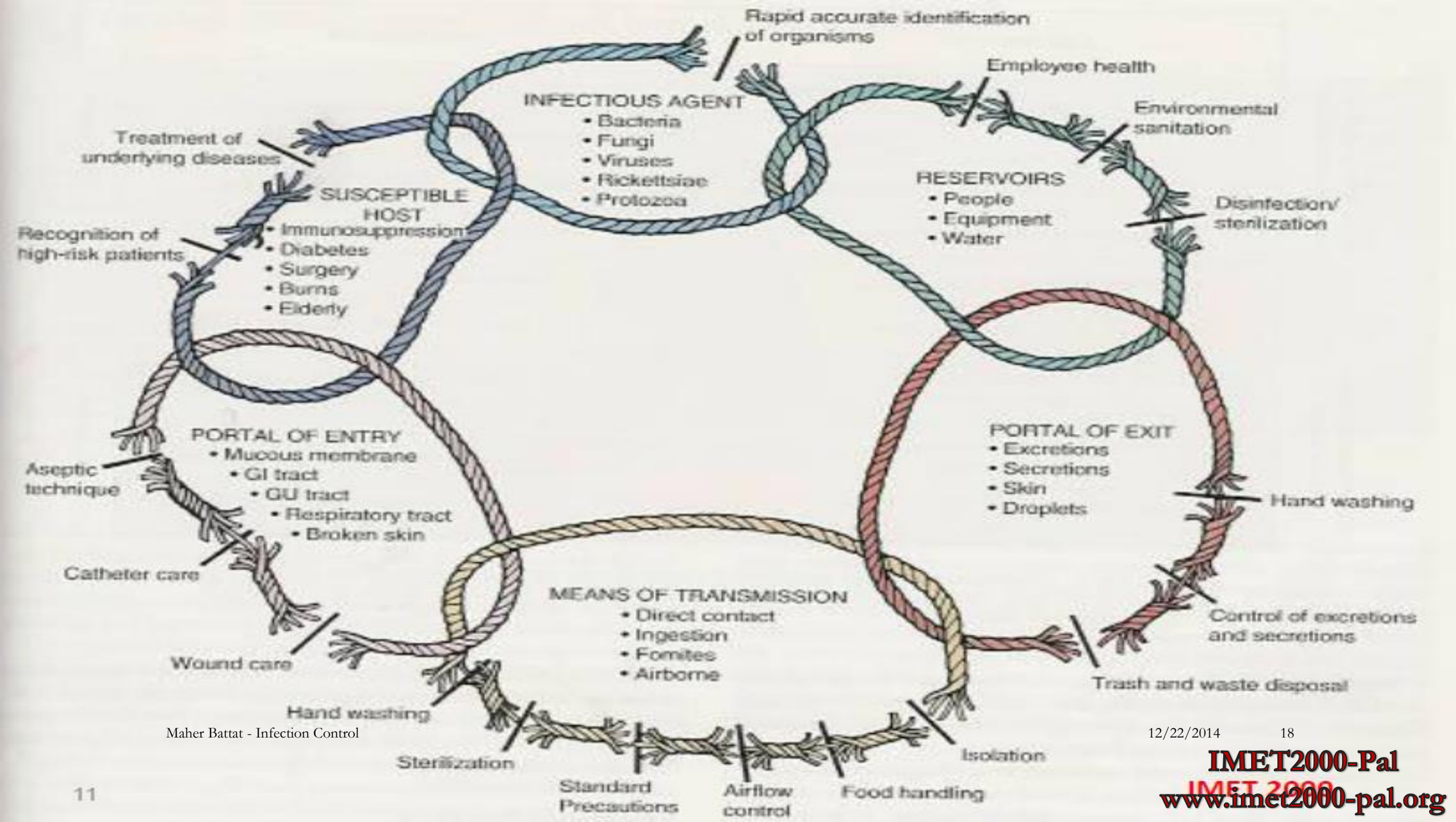
- Insert catheter only for appropriate **indications**.
- **Aseptic insertion** and proper **hand hygiene**. And **gloves** before each catheter care procedure.
- Perform a daily review for the need for the urinary catheter.
- Check the catheter has been **continuously connected** to the drainage system.
- Ensure pts are aware for their role in prevention of urinary tract infection, and perform routine daily **meatal hygiene**.
- **Regularly emptying** urinary drainage bag as a separated procedure, into a clean container and keep bag below bladder level.

Core prevention strategies for CLABSI

- **Indication.**
- Perform **hand hygiene** before and after insertion, replacing, accessing, repairing or dressing an intravascular catheter.
- **Aseptic** insertion and care.
- Use **chlorhexidine** >0.5% for skin preparation and on dressing.
- Dressing no more than **7 days**.
- **Alcohol hub decontamination.**

Core prevention strategies for VAP

- Elevation of the head of the bed between 30 to 45 degree.
- Daily sedation vacation and daily assessment of readiness to extubate.
- Daily oral care /hygiene.
- Gentle and sterile suction technique from ETT.



The 2 systems used in infection prevention:

- Standard precaution.
- Transmission based precaution.

Standard precaution:

- Applies for all pts regardless their diagnosis.
- Applied to all body fluids and secretions.
- Applies to contact with mucus membrane.
- Involves:
 1. Hand hygiene.
 2. Use of PPE ...
 3. Aseptic technique.
 4. Environmental cleaning.
 5. Waste management.
 6. Cough and sneeze etiquette.

Hand hygiene:

- Why hand hygiene?
- Types of hand hygiene
- Indications for hand hygiene.
- Technique of effective hand hygiene.

Hand washing (40-60 sec).

Alcohol Hand rub (20-30sec).

STEP 1



Rub palms together.

STEP 2



Rub the back of both hands.

STEP 3



Interlace fingers and rub hands together.

STEP 4



Interlock fingers and rub the back of fingers of both hands

STEP 5



Rub thumb in a rotating manner followed by the area between index finger and thumb for both hands.

STEP 6



Rub fingertips on palm for both hands.

STEP 7



Rub both wrists in a rotating manner. Rinse and dry thoroughly.

5 Moments for Hand Hygiene



Isolation precaution:

- All levels require hand hygiene.
- Higher level of precaution.
- Applied in addition to standard precaution.
- Types of **transmission based precaution**:
 1. **Contact precaution.**
 2. **Droplet precaution.**
 3. **Airborne precaution (-, Mask N95).**
 4. **Protective precaution (+).**

Chlorine concentration:

- Usually 0.1% used in disinfection.
- But in after isolation disinfection is 0.5% concentration should be used.





clean hands
save lives