

# Infection Prevention & Control (IPC)

REPUBLIC OF KENYA



MINISTRY OF HEALTH



University of Nairobi



KENYA  
PAEDIATRIC  
ASSOCIATION

**KEMRI** | Wellcome Trust



**Keprecon**  
Kenya Paediatric Research Consortium

# Objectives

- Describe the chain of infection and how to break it
- Describe hand hygiene
- Discuss the decontamination of equipment
- Describe waste management

# Introduction

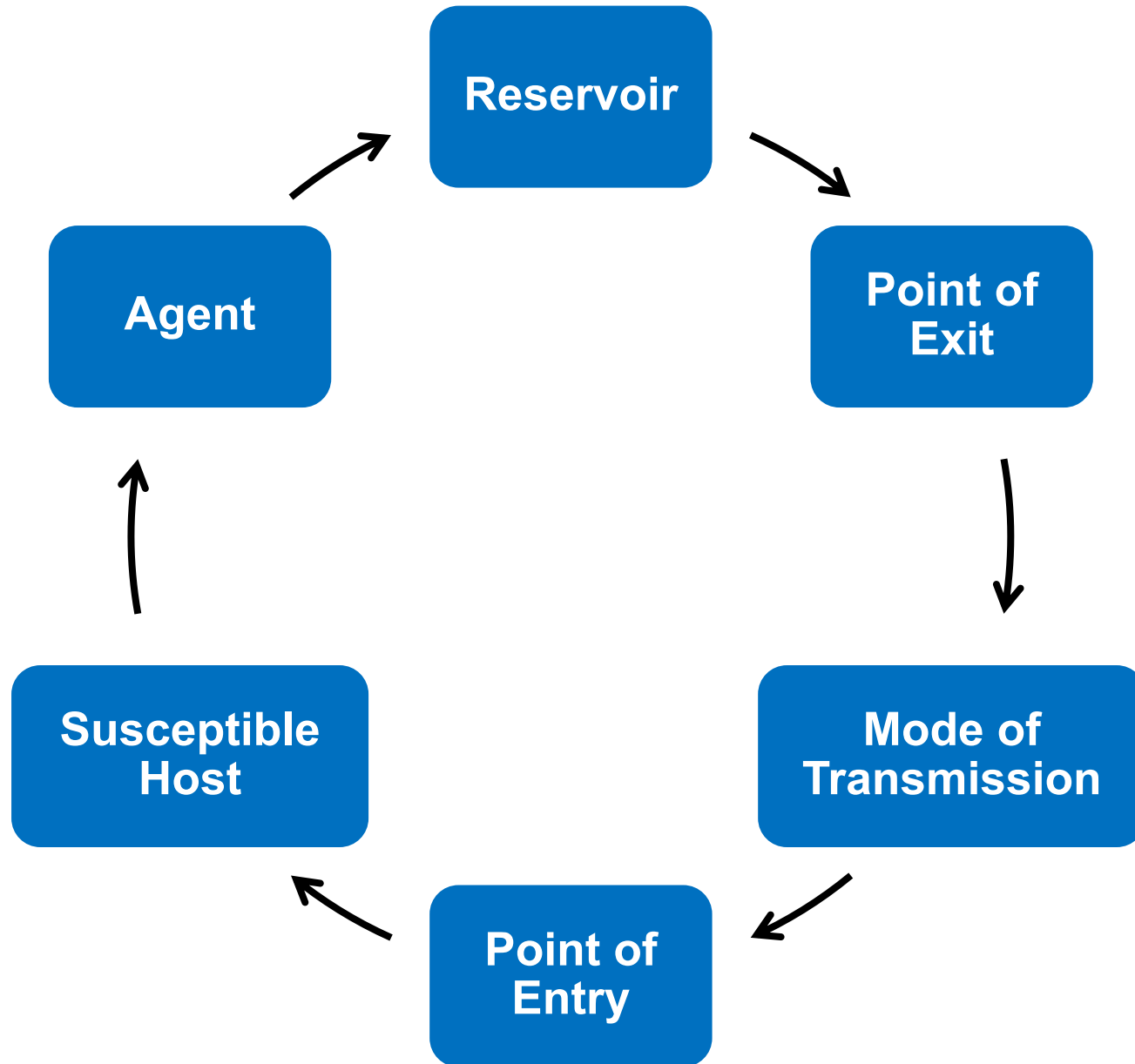
- Sepsis is a leading cause of neonatal mortality in low-resource settings.
- As facility-based births become more common, the proportion of neonatal deaths due to hospital-onset sepsis has increased.
- Simple, relatively low-cost IPC interventions are needed

# The Chain of Infection

Consists of 6 interlinked components;

1. **The agent** – micro organisms
2. **The reservoir** carrying the agent – people, equipment, environment,
3. **A point of exit** from the reservoir – the skin, the urinary tract, the respiratory system, decontamination processes, waste disposal
4. **A mode of transmission** to host – contact, droplet, air, water,
5. **A point of entry** on the host – procedures performed on susceptible host
6. **The susceptible host** – prematurity, low immunity, long stay in unit,

# The Chain of Infection



# Breaking the Chain of Infection

- A simple IPC bundle can be used to reduce sepsis and death in neonates hospitalized in high-risk, low-resource settings.
  1. **The agent** – early detection and correct treatment of micro organisms, rational use of antibiotics
  2. **The reservoirs** –
    - People – Hand hygiene (5 moments and techniques) and restricted movement
    - Equipment – Proper cleaning, disinfection and sterilization
    - Environment – Proper cleaning, waste segregation, Gemba Kaizein
  3. **Points of exit** from the reservoir and **points of entry** on the host – Procedures performed on susceptible host should be done using aseptic technique
  4. **The susceptible host** –
    - Preventing Preterm births
    - Reducing length of stay in unit

# People

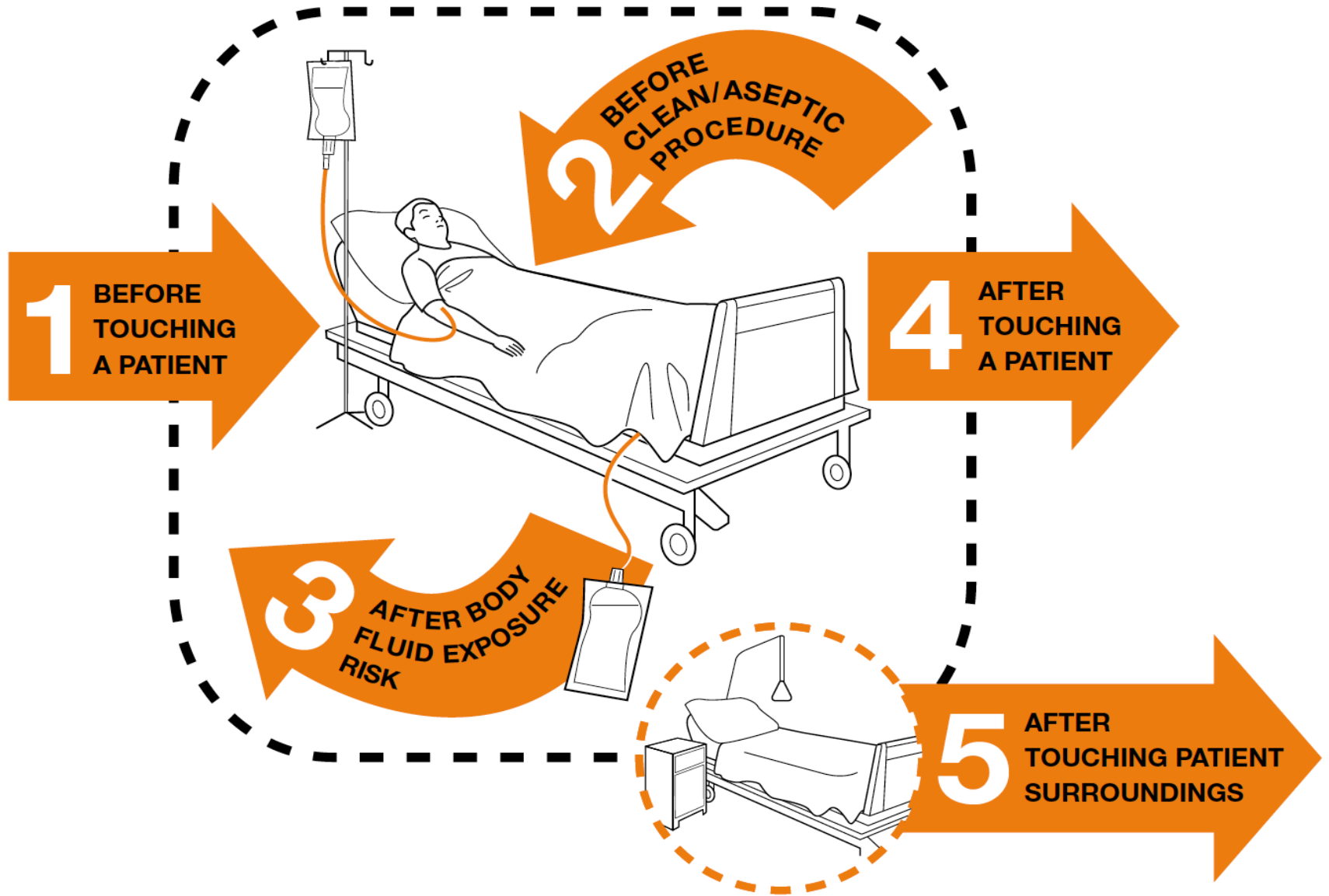


# Hand Hygiene

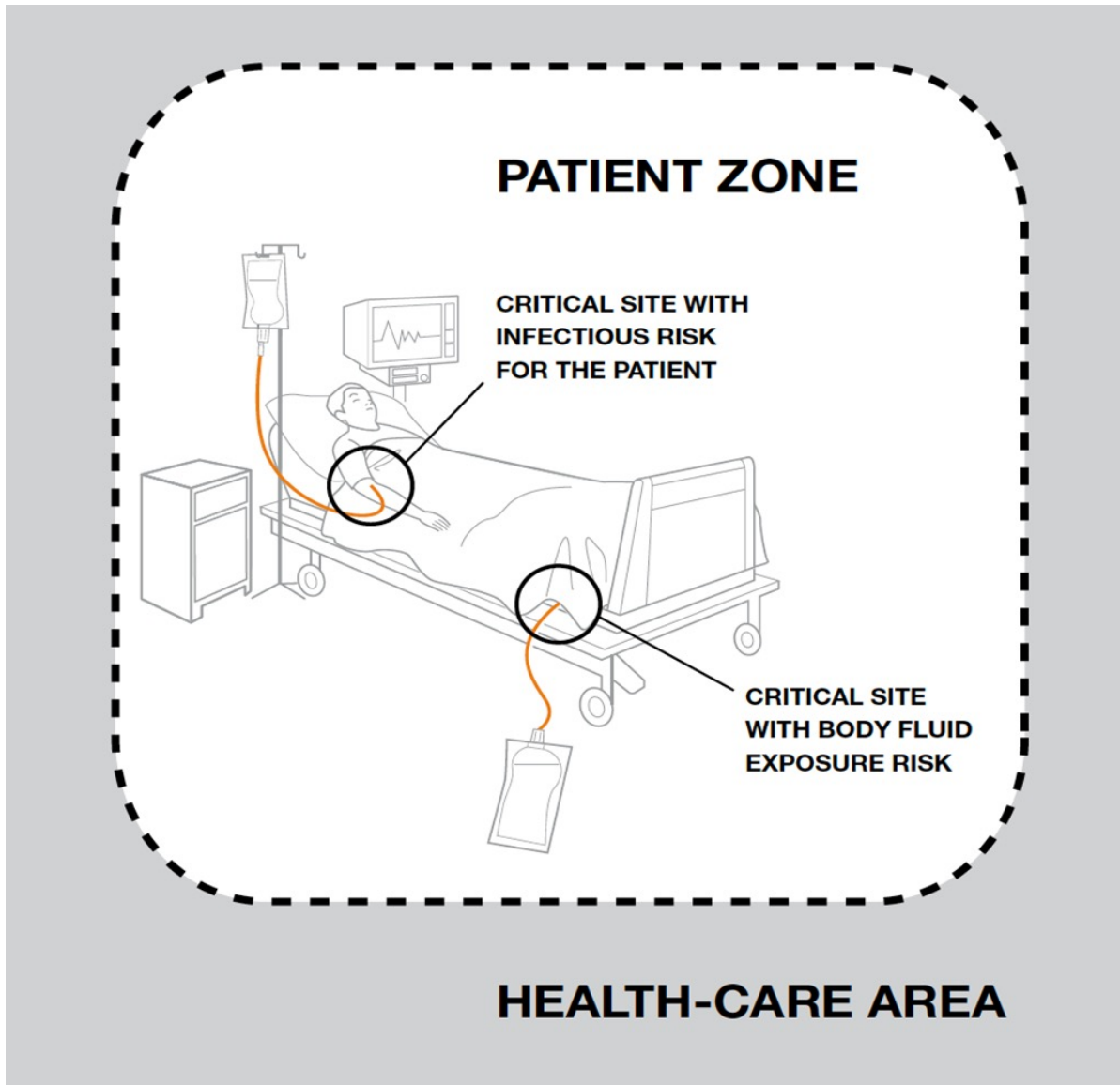
- Hand hygiene is a general term referring to any action of hand cleansing aimed at reducing or inhibiting the growth of micro-organisms on hands.
- Can be achieved by;
  1. Hand rubbing with an alcohol based hand rub
  2. Handwashing with soap and running water
- Health-care workers should demonstrate hand hygiene compliance and participate in hand hygiene promotion, education and training.



# Hand Hygiene – The 5 Moments



# Hand Hygiene – The 5 Moments



**2 Before Moments**  
Prevent Transmission to the patient/patient zone

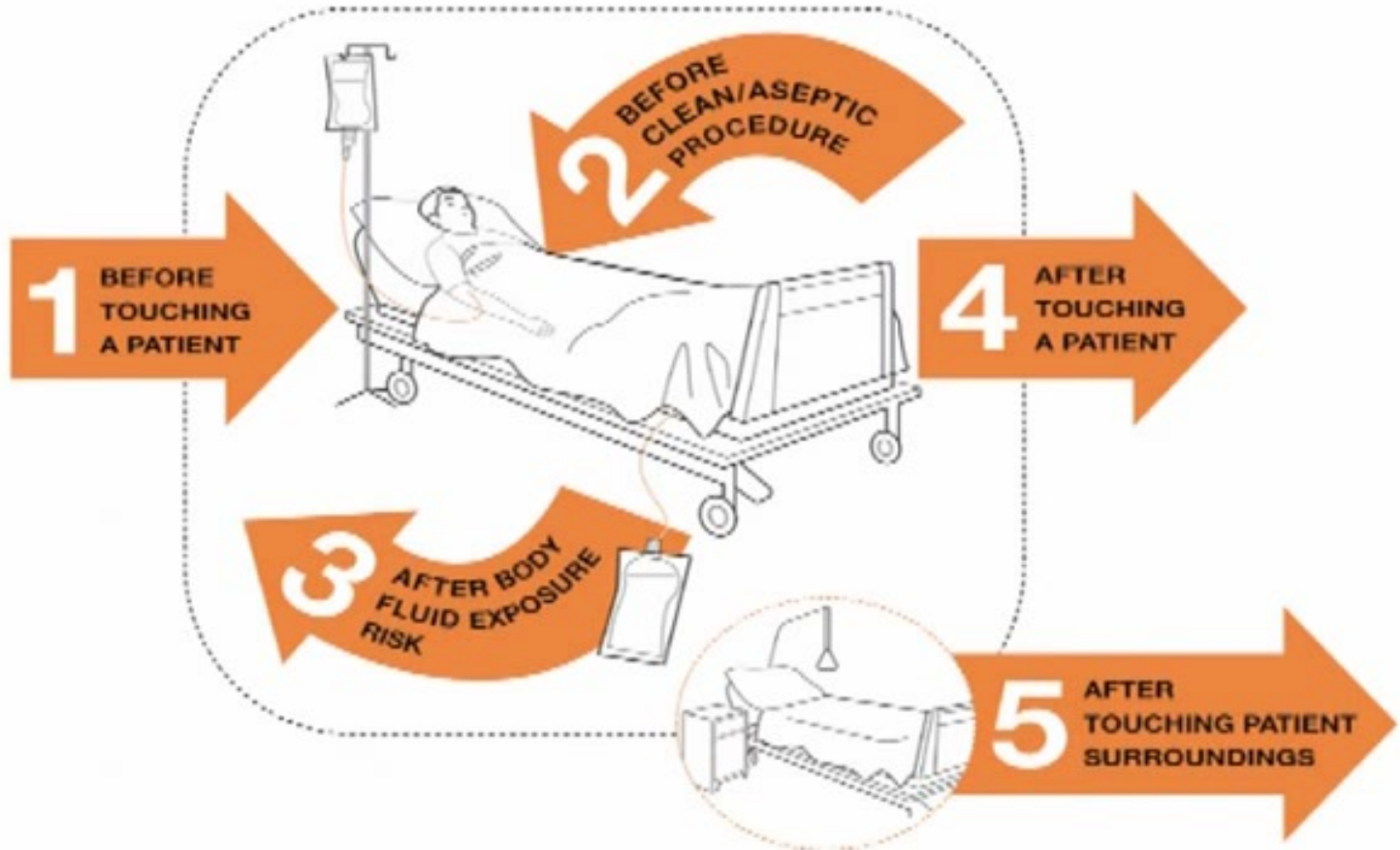
**3 After Moments**  
Prevent transmission to the Health worker/health care zone (nurses desk)

There is an indication for hand hygiene whenever a health-care worker's hands move between patient zones and health care areas.

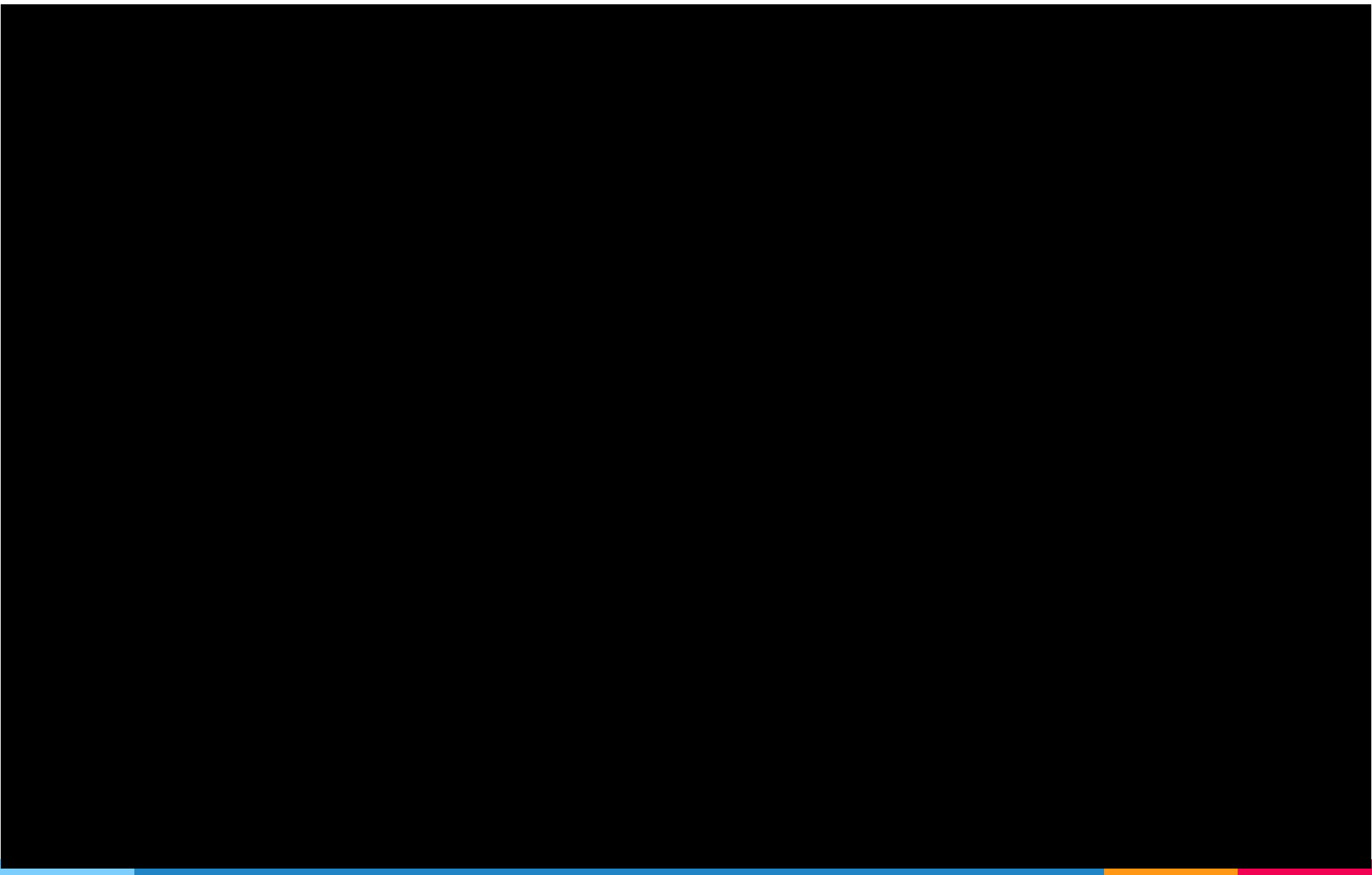
# Hand Hygiene – The Steps

- **Hand Hygiene Demonstration**

# Hand Hygiene – Exercise 1



# Hand Hygiene – Exercise 2



# Hand Hygiene – Exercise 3

**Scene 7a**

# Hand Hygiene – Exercise 4

# Equipment/Patient Care Items





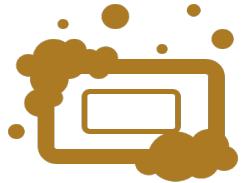
# Patient Care Items

- **Non - critical patient care items** - those which come in contact with intact skin (hat, hat clips, blood pressure cuff, tape measure, foot pulse oximeter)
- **Semi - critical patient care items** - typically contact mucous membranes or non intact skin (Silicon CPAP nasal prongs)
- **Critical patient care items** - penetrate or contact soft tissue, bone, bloodstream or normally sterile tissue (i.e. IV access, surgical instruments).

# Decontamination

- Done to ensure equipment/medical devices are safe to handle, use or disposal
- Depends on type of patient care items
  1. Non critical – Cleaning
  2. Semi critical – Cleaning & Disinfection
  3. Critical – Cleaning & Sterilization

# Decontamination



## Cleaning

**Removal of visible or non visible organic and inorganic material** (e.g. blood, nasal secretions) using water and a detergent or enzymatic product. It's the first level of decontamination.

## Disinfection

**Reduction in the number of viable pathogenic microbes** using **chemical agents** to a level that they do not pose a threat to the normal host defenses.



## Sterilization

A process that **destroys all microorganisms** including bacterial spores. E.g. autoclaving, sterilization in CSSD



# Properties of Detergents

- Can be;
  1. Soap and water
  2. Enzymatic products

# Properties of Sodium Hypochlorite (Jik)

- Used for disinfection
- Its very unstable in heat and light
- Inactivated by organic matter like blood, fecal material
- Reacts easily with other chemicals like detergents hence need for through rinsing
- Corrosive to metals
- Shelf life is only one year from date of manufacturing
- If opened, concentration cannot be assured beyond 4 weeks.

# Low Level Disinfection

- For spraying and/or wiping. Not for immersing.
- Used for wiping floors, surfaces, tables, equipment
- Use **0.05%** of sodium hypochlorite
- Dilution **1:69** i.e. 1 part 3.5% sodium hypochlorite in 69 parts of water
- Common household use

# High Level Disinfection

- Must use immersion, cannot be sprayed or wiped.
- Immerse semi critical patient items in **0.5%** of sodium hypochlorite
- Dilution **1:6** i.e. 1 part 3.5% sodium hypochlorite in 6 parts of water
- Provide 10 - 60minute contact time

# Steps in High Level Disinfection – 0.5% sodium hypochlorite

For non  
metallic items

- Scrub/Thoroughly Clean**
1. Wear appropriate PPE
  2. Immerse all items in soapy water or enzymatic solution
  3. Scrub under the water to avoid splashing
  4. Rinse in clean water

- Soak in 0.5% Sodium hypochlorite**
1. Immerse in opaque bucket for 10 - 60min
  2. Rinse with clean water
  3. Drip dry/air dry
  4. Discard the sodium hypochlorite immediately after use

- Store in a clean dry area**
1. Store in clean dry plastic bags
  2. Label date



# Properties of Alcohol

- Good on external metallic surfaces.
- For high level disinfection, recommended 70 - 90% alcohol
- Can result in discoloration, hardening and cracking of rubber and plastics
- Inactivated by organic material
- Kills organisms by drying

# High Level Disinfection – 70% alcohol

## Clean

1. Clean any visible organic or inorganic material

For metallic items

Thoroughly wipe with 70% Alcohol and let it dry completely

## Store in clean dry area

1. Store in clean dry plastic bags
2. Label date

# Environment



# Waste Management



KENYA

## SEGREGATION OF MEDICAL WASTE

**PREVENTION OF NEEDLE STICK INJURIES AND RISK OF DISEASE TRANSMISSION STARTS WITH YOU!**



**IT IS THE RESPONSIBILITY OF HEALTH PERSONNEL TO SEGREGATE WASTE IMMEDIATELY ACCORDING TO TYPE**

**This segregation chart should be placed above the segregation bins**

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This material was developed by MMIS and has been revised by PSI in collaboration with PATH.  
PATH's, HCWM project has received support for printing from the U.S. Centers for Disease Control through PEPFAR



Treatment plus admission

# Questions

# Summary

1. Observe hand hygiene – 5 Moments & Steps
2. Clean, disinfect and sterilize equipment
3. Manage waste
4. Train everyone