ALL INDIA INSTITUTE OF MEDICAL SCIENCES, RAJKOT.

HOSPITAL INFECTION CONTROL MANUAL FOR OPD HEALTHCARE SETTINGS

HOSPITAL INFECTION CONTROL COMMITTEE
AIIMS, Rajkot

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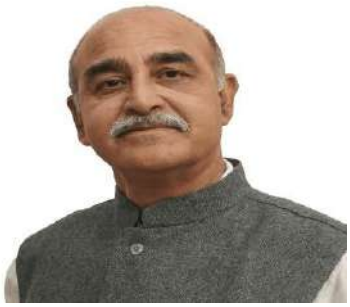


From Executive Director's Desk….

Infection Prevention and Control (IPC) is an essential component of quality patient care in any healthcare setting. Timely implementation of a robust Hospital Infection control programme, regardless of the level of care provided, is mandatory in view of the alarming rates of antimicrobial resistance, ongoing Covid 19 pandemic and increasing vulnerable patient population.

All India Institute of Medical Science, Rajkot commenced OPD services at permanent campus wef 31 Dec 2021. It is heartening to know that Department of Microbiology has come up with this compendium of Standing operating procedures (SOPs) for hospital infection prevention and control specifically for OPD settings.

A swift introduction of IPC strategies laid down in this Hospital Infection control manual in OPD complex of the institute will help us in minimizing the transmission of infection at all levels. The manual should be used as a ready reckoner by all clinicians, residents, hospital administrators, nurses and staff involved in patient care including housekeeping staff.

Best wishes to the entire Department of Microbiology for their effortless contribution.

Sd/-
Dr. (COL) CDS Katoch
Executive Director
AIIMS Rajkot

INDEX

Sr No	Contents	Page No
1	Introduction and Organization of Hospital Infection Control Programme	2
2	Standard Precautions	6
3	Hand Hygiene	12
4	Personal Protective Equipment (PPE)	20
5	Respiratory Etiquette	38
6	Cleaning, Disinfection and Sterilization of Patient Care Items	41
7	Decontamination of Hospital Environment	50
8	Biomedical waste management in OPD settings	58
9	Spillage Management	67
10	Injection Safety, Needle Stick Injury and its Management	80

1. INTRODUCTION AND ORGANIZATION OF HOSPITAL INFECTION CONTROL PROGRAMME

1.1 BACKGROUND:

Healthcare associated infection (HCAI), also referred to as "nosocomial" or "hospital acquired" infection, is an infection occurring in a patient during the process of care in a hospital or other health care facility which was not present or incubating at the time of admission.

As Healthcare-associated infections (HCAI) are one of the most common complications in health care management, effective infection prevention and control is central to provide high quality health care for patients and a safe working environment for staff that work in healthcare settings.

This document outlines the broad principles and practices of Infection Control that are essential for the prevention and management of infection.

The overall aim of this document is to provide evidence-based information in the prevention and control of infection. It intends to provide knowledge to all staff including doctors, nurses, other clinical professionals and managers working in the hospital. This document will be updated as and when required

1.2 PURPOSE:

- To establish standards in prevention, control measures and minimize HAIs in patients, staff and visitors.
- To define policies and procedures for implementing and monitoring of HAIs at the Health care Facility (HCF).
- To establish antibiotic stewardship program with at least yearly updation of evidence based antibiotic policy with monitoring of its adherence by the prescribing authorities and monitoring antibiotic utilisation in various areas of the HCF.

1.3 COMPONENTS OF THE HEALTHCARE INFECTION PREVENTION AND CONTROL PROGRAM:

1. Establishing and regular updating of infection control manual
2. Improvement of hand hygiene compliance
3. Establish sterilization and disinfection protocols and establish mechanisms to monitor the same.
4. Monitoring of staff health to prevent, staff to patient and patient to staff spread of infection.

5. Monitoring and promotion of bio-medical waste management as per government regulations
6. Training of staff in prevention and control of HAI.
7. Managing occupational exposure of blood and body fluids.

1.4 OBJECTIVES OF THE PROGRAM:

i. To minimize healthcare associated infections among patients, staff and visitors
ii. To provide education and training to healthcare workers, patients and visitors regarding policies and procedures to minimise healthcare associated infections

1.5 CONSTITUTION OF HOSPITAL INFECTION CONTROL COMMITTEE (HICC) AIIMS RAJKOT

Name	Designation	Role
Dr (Col) C.D.S. Katoch	Executive Director	Executive Director and Medical Superintendent
Dr. Ashwini Agarwal	Professor& Head Department of Microbiology	Chairperson
Dr. Navneet Kaur	Assistant Professor Department of Microbiology	Member Secretory
Dr. Mayuri Bhise	Assistant Professor Department of Microbiology	Infection Control Officer
Dr. Bhavesh Modi	Professor and Head Department of Community Medicine and Family Medicine	Member
Dr. Sanjay Singhal	Associate Professor Department of Pulmonary Medicine	Member
Dr. Mehul Kaliya	Assistant Professor Department of Medicine	Member
Dr. Pinky Meena	Assistant Professor Department of Paediatrics	Member
Dr. Abhilasha Motghare	Assistant Professor Department of Anaesthesiology	Member
Dr. Yashdeep Singh Pathania	Assistant Professor and Deputy Medical Superintendent Department of Dermatology	Member
Dr. Richa Singh Chauhan	Assistant Professor Department of Radiology	Member
Dr. Mamta Singh	Assistant Professor Department of Ophthalmology	Member
Mrs. Hiral Dhrangu	Infection Control Nurse	Member

1.6 MEETINGS OF HICC:

i. The infection control committee meets at least once in three months or more frequently as necessary. Documentation of meetings and recommendations are kept by the Member Secretary.
ii. Minimum Quorum required: Chairperson, Infection Control Team [ICO and ICNs (at least 50%)] and 50% of other members.

1.7 HOSPITAL INFECTION CONTROL TEAM (ICT):

The infection control team (at the minimum) consists of:

1. Microbiologist (Infection control officer)
2. Infection Control Nurses
3. Technician
4. Data Entry Operator

A) Responsibilities of the Infection Control Team

i. Advise staff on all aspects of infection control and maintain a safe environment for patients and staff.
ii. Provide a manual of all policies and procedures including aseptic, isolation and antiseptic techniques.
iii. Provide relevant information on infection problems and management.
iv. Assist in induction training of all new employees as to the importance of infection control and the relevant policies and procedures.
v. Have written procedures for maintenance of cleanliness.
vi. Biomedical Waste management and disposal.

B) Infection Control Nurse (ICN)

The duties of the ICN are primarily associated with ensuring the practice of infection control measures by healthcare workers.

Duties of infection Control Nurse:

i. The ICN conducts Infection control rounds daily and maintains the registers.
ii. The ICN is involved in education of practices minimising healthcare associated infections and hand hygiene among healthcare workers.
iii. Maintains registers and data of Sharps/Needle stick injuries and Post–exposure prophylaxis.
iv. Initiates and ensure proper immunization for Hepatitis B vaccine, in consultation with microbiologist (Member HICC) in case of suspected exposure to any HCF worker.

v. Track the indicators of infection control and present the data to the HICC meetings on regular basis.
vi. Conducts all tasks given to him/her as per components and objectives of the hospital infection prevention and control.

C) Infection Control Officer (ICO)

The microbiologist serves as Infection Control Officer. In the absence of microbiologist, a trained physician or surgeon may serve as ICO.

Duties of Infection Control Officer:

i. Co-ordinate with the chairperson and HICC in planning infection control programme and measures.
ii. Participate in activities related to infection control practices.
iii. Ensuring safe injection practices to prevent infection in staff.
iv. Monitoring sterilization, disinfection & the environment where necessary.
v. Monitoring cleaning decontamination of patient care equipment.
vi. Monitoring the Biomedical waste disposal activities.

1.8 HIC MANUAL:

The overall aim of this document is to provide evidence- based information in the prevention and control of infection. It is relevant to all staff including doctors, nurses, other clinical professionals and managers working in the hospital. This document will be updated as and when required.

2. STANDARD PRECAUTIONS

2.1 BACKGROUND:

Standard Precautions: Standard precautions are a set of precautions designed to prevent transmission of all pathogens while providing healthcare to all patients regardless of their diagnosis or presumed infective status.

2.2 PURPOSE:

To ensure that staff follows Standard Precautions to minimize the risk of Infection to Hospital Staff and patients

2.3 POLICY:

Standard precaution shall be strictly adhered to all the healthcare staff in all situations as indicated in the document. Infection control committee and team shall monitor the adherence of standard precaution by healthcare staff. Regular training shall be provided by Infection control team on standard precaution.

2.4 SCOPE:

Hospital wide

2.5 RESPONSIBILITY:

- Overall responsibility of implementation of this policy lies on infection control committee.
- Infection control team is responsible for the day-to-day monitoring programme.
- Hospital Management is responsible for availability of personal protective equipment

2.6 PROCEDURE:

The advent of HIV/AIDS epidemic by the mid-1980s, created an urgent need for new strategies to protect health care workers (HCWs) from blood-borne viral infections. In 1985, Centres for Diseases Control and Prevention (CDC) proposed universal blood and body fluid precautions or universal precautions.

Rationale:

- Since medical history and examination cannot reliably identify all patients infected with HIV or other blood borne pathogens, blood and body-fluid precautions should be consistently used for ALL patients (regardless of presumed infectious status), especially including those in emergency care settings in which there is increased risk of blood exposure as infection status of patient is usually unknown.
- As other body fluids may also harbour micro-organisms which can cause cross-infection, e.g., MRSA (*Methicillin Resistant Staphylococcus aureus*), *Clostridium difficile*, VRE (*Vancomycin Resistant Enterococcus).* Hence, **Standard Precautions** have replaced **Universal Precautions.**
- Besides this, additional precautions go beyond standard precautions and are based on the basis of the mode of transmission of microorganisms or infectious agents leading to infection.
- Following are the additional transmission-based precautions:
  1. Airborne precautions
  2. Droplet precautions.
  3. Contact precautions.

"Standard precautions are the precautions to be used by ALL healthcare workers in ALL situations involving the care of patients or contact with the environment."

2.7 Components of Standard Precautions:

1. Hand hygiene
2. Use of Personal Protective Equipment
3. Prevention of Occupational Exposure
4. Decontamination of Patient Care Equipment
5. Environmental Cleaning and Sanitation
6. Laundry and Linen Management
7. Spillage Management
8. Bio-Medical Waste Management

1) Hand Hygiene:

- Perform hand hygiene before and after handling of patient.
- Perform hand hygiene between each direct patient contact.
- It may be necessary to perform hand hygiene and change gloves between tasks on the same patient.
- Hand hygiene with alcohol hand rub is acceptable provided the hands are not visibly soiled. (Refer: Hand hygiene SOP)
- Wash hands immediately after contact with blood, body fluids, secretions, excretions and items contaminated with body fluids.

2) Use of Personal Protective Equipment:

Gloves:

- Gloves are worn for three important reasons in hospitals. First, gloves are worn to provide a protective barrier and prevent gross contamination of the hands when touching blood, body fluids, secretions, excretions, mucous membranes and non-intact skin; the wearing of gloves in specified circumstances to reduce the risk of exposures to blood borne pathogens. Second, gloves are worn to reduce the likelihood microorganisms present on the hands of personnel that can be transmitted to patients during invasive or other patient-care related procedures.
- Wear gloves, (clean, non-sterile gloves are adequate for non-invasive procedures) when in contact with blood, body fluids, secretions, excretions and contaminated items.
- Put on clean sterile gloves just before touching mucous membranes and non-intact skin.
- Change gloves between tasks and procedures on the same patient.
- Remove gloves promptly after use before touching non-contaminated items.
- Perform hand hygiene immediately after removal of gloves.

Apron/Gown/Footwear:

- Wear a clean apron to protect the uniform from:
- Soiling during procedures and patient care activities that are likely to generate splashes or sprays of blood or body fluids.
- Contamination with micro-organisms during direct patient care or direct contact with the environment of an isolated patient.
- After removal of apron, perform hand hygiene.
- Use protective footwear, to prevent contamination of the feet, e.g. during operations. Remove contaminated footwear when procedure is complete.

Mask, Eye protection, Face shield:

- A mask, eye protection or face shield must be worn for protections against splashes or spray of blood or other body fluid.
- Assess the risk of splashing / spraying and need for personal protective equipment before you start any procedure.

3) Prevention of Occupational Exposure:

- Cover all cuts and abrasions with waterproof dressings
- Take care to prevent sharps injuries.
- Use gloves (industrial) when handling sharps.
- Do not reheat or recap needles.
- Never manipulate any sharp that involves directing the point of a needle toward any part of the body.
- Dispose of sharps immediately into a hospital approved container.
- Take a sharp container to the point of use.
- Follow needle stick and sharps injury management guideline in case of injury from needles or sharps.

(**Refer:** SOP on Needle stick injury)

4)Decontamination of Patient Care Equipment:

- Patient-care equipment should be decontaminated as per the 'Management of sterilization and disinfection of instruments
- Wear protective clothing when handling contaminated equipment.
- Patient-related equipment, e.g., pumps, drip stands, etc, must be kept clean.

5) Environmental Cleaning & Sanitization

- Ensure that the clinical areas are clean.
- Particular attention must be paid to cleaning of horizontal surfaces, floors, beds, bed-side equipment and other frequently touched surfaces.

6)Laundry & Linen Management:

- Always wear proper PPE's when handling soiled linen.
- Never place linen (soiled/used or clean) on the floor.
- Do not expose clean linen to potential contamination by storing inappropriately before it is used. (Refer: SOP on Linen Management)

7) Spillage Management:

- Disinfect all blood and body fluid spillages immediately wearing protective clothing (gloves, apron and if risk of splash, goggles) .
- Refer to the SOP on Spill Management.

TABLE 1: STANDARD PRECAUTIONS

COMPONENT	RECOMMENDATIONS
Hand hygiene	After touching blood, body fluids, secretions, excretions, contaminated items; immediately after removing gloves; between patient contacts.
Gloves	For touching blood, body fluids, secretions, excretions, contaminated items; for touching mucous membranes and no intact skin
Gown	During procedures and patient-care activities when contact of clothing/exposed skin with blood/body fluids, secretions, and excretions is anticipated.
Mask, eye protection (goggles), face shield	During procedures and patient-care activities likely to generate splashes or sprays of blood, body fluids, secretions, especially aerosol-generating procedures on patients with suspected or proven infections suctioning, endotracheal intubation. During transmitted by respiratory aerosols (e.g., SARS CoV2), wear a fit-tested N95 or higher respirator in addition to gloves, gown and face/eye protection
Soiled patient- care equipment	Handle in a manner that prevents transfer of microorganisms to others and to the environment; wear gloves if visibly contaminated; perform hand hygiene.
Environmental control	Develop procedures for routine care, cleaning, and disinfection of environmental surfaces, especially frequently touched surfaces in patient-care areas.
Textiles and laundry	Handle in a manner that prevents transfer of microorganisms to others and to the environment
Needles and other sharps	Do not recap, bend, break, or hand-manipulate used needles; if recapping is required, use a one-handed scoop technique only; use safety features when available; place used sharps in puncture proof, leak proof tamper proof container
Safe Injection Practices	Use sterile, single-use, disposable needle and syringe for each injection. Whenever possible, use of single-dose vials is preferred over multiple-dose vials, especially when medications will be administered to multiple patients.
Respiratory hygiene / Cough Etiquette	Instruct all persons to cover mouth/nose when sneezing/coughing; use tissues and dispose in no-touch receptacle; observe hand hygiene after soiling of hands with respiratory secretions; wear surgical mask as and when required and maintain spatial separation >3 feet if possible.

REFERENCES:

- Healthcare facility recommendation for standard precautions, WHO (2007)
- Guideline on Hand Hygiene in Health Care, WHO (2009)
- Sastry A, Deepa Shree R. Essentials of Hospital Infection Control. 1st edition.: 2019

3.HAND HYGIENE

3.1 BACKGROUND:

Hands of health care worker are the most common mode of transmission of hospital acquired infection and 90% of them can be prevented by proper hand hygiene. Therefore, effective hand hygiene practice is important measures in reducing the spread of infection.

3.2 SCOPE:

All the policies and procedures of hand hygiene are applicable to all the health care provider at AIIMS Rajkot.

3.3 RESPONSIBILITIES:

(1) All the doctors, nursing staff, housekeeping staff, laboratory technicians, ward boys, O.T staff are responsible to comply with this policy and procedures.

(2) The Hospital Infection Control Committee is responsible for ensuring and monitoring compliance level of this policy and procedure.

3.4 DEFINITIONS:

i) **Alcohol-based formulation:** An alcohol-containing preparation (liquid, gel or foam) designed for application to the hands for hand antisepsis.

ii) **Body fluids:** Blood; excretions like urine, Faces, vomit; meconium; lochia; secretions like saliva, tears, sperm, colostrum, milk, mucous secretions, wax, vernix; exudates and transudates like lymphatic, pleural fluid cerebrospinal fluid, ascites fluid, articular fluid, pus (except sweat); organic samples like tissues, cells, organ, bone marrow, placenta.

iii) **Clean / aseptic procedure:** Any healthcare activity that implies a direct or indirect contact with a mucous membrane, non-intact skin, an invasive medical device. During such a procedure no germs should be transmitted.

iv) **Critical site:** Critical sites are associated with risk of infection. They either correspond to body sites or medical devices that have to be protected against harmful germs (called critical sites with risk of infection for the patient), or body sites or medical devices that potentially lead to hand exposure to body fluids and bloodborne pathogens (called critical sites with body fluid exposure risk).

v) **Hand hygiene:** Any action of hygienic hand antisepsis in order to reduce transient microbial flora (generally performed either by hand rubbing with an alcohol-based formulation or handwashing with plain or antimicrobial soap and water).

vi) **Indication for hand hygiene:** Moment during health care when hand hygiene must be performed to prevent harmful germ transmission and/or infection.

vii) **Invasive medical device:** Any medical device that enters the body either through a body opening or through a skin or mucous membrane breaking.

3.5 POLICIES:

WHEN TO PERFORM HAND HYGIENE?

FIVE MOMENTS OF HAND HYGIENEO (WHO)
Moment 1: Before touching a patient.
Moment 2: Before clean/aseptic procedures.
Moment 3: After body fluid exposure/risk.
Moment 4: After touching a patient.
Moment 5: After touching patient surroundings.

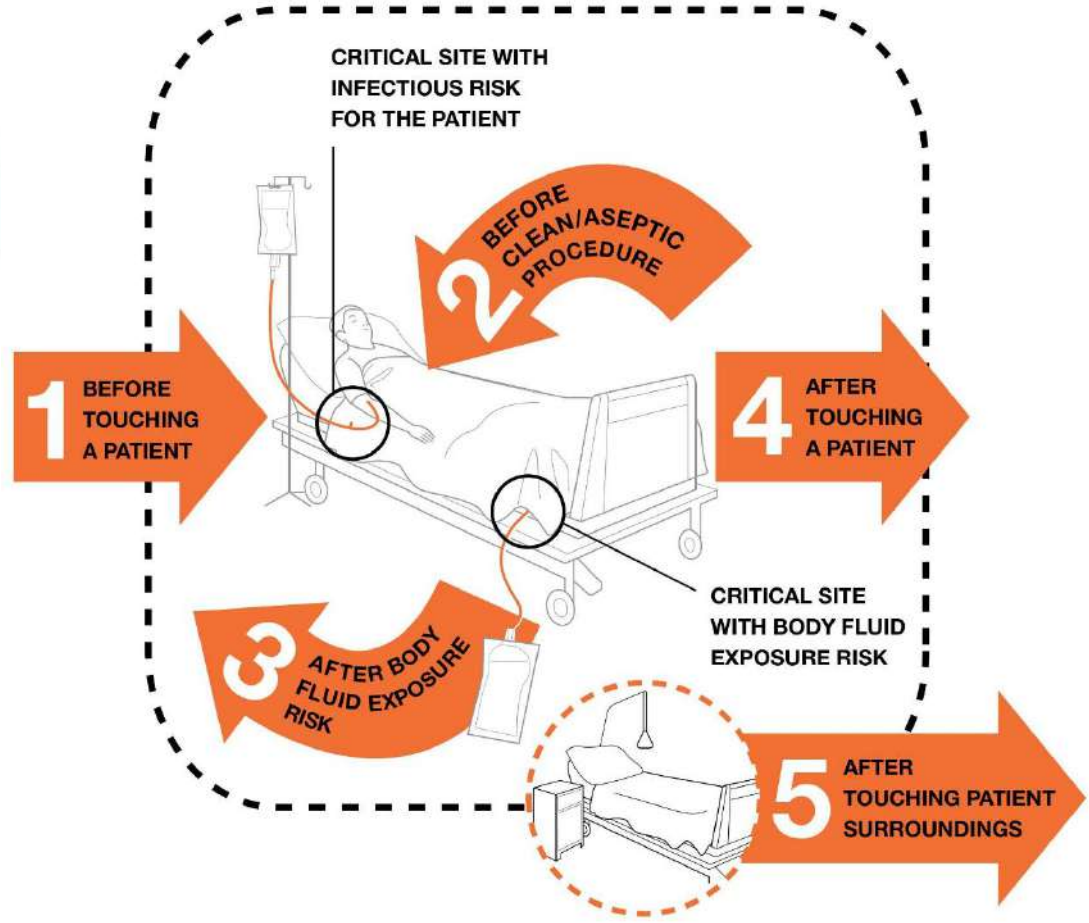


Fig 1: WHO ‘s Five Moments of Hand Hygiene

3.6 PROCEDURES:

A) HOW TO PERFORM HAND HYGIENE?

I. HAND WASHING USING SOAP AND WATER:

Indications:

- If hands are visibly contaminated with blood or body fluid.
- If visibly dirty hands.
- If hands are potentially exposed to spore forming organisms (e.g., *Clostridiodes difficile*), nonenveloped viruses (e.g., *Norovirus, Rotavirus, Enteroviruses)*
- After using washroom.
- Before handling medication or food.
- After blowing your nose, covering a sneeze.
- Handling patients having diarrhoea.

Steps:

- Wet hands under running water.
- Apply enough soap to cover all areas of hand.
- Wash hand for 40-60 seconds vigorously and thoroughly using the six-step technique.
- Rinse hand under running water.
- Dry hands thoroughly with a single use of towel.
- Use towel to turn off faucet.
- Do not recontamination the hands.
- Make sure towels are not used multiple times or by multiple persons.

Fig 2: Steps of Hand Washing using soap and water

II. HAND RUB USING ALCOHOL BASED HAND RUB:

Indications:

- Hand rub should be used during routine clinical rounds and handling the patients
- If hands are not visibly dirty, not contaminated with blood or body fluids.
- Before handling invasive device regardless of whether or not gloves used.
- After contact with inanimate surfaces and objects in the immediate vicinity of the patient.
- Before and after removing sterile or non-sterile gloves.
- Before handling medication or preparing food.

Formulations used for hand rub (Recommended by WHO):

→ Hand rubs should be compatible with any one of the following requirements:

- Any product containing WHO formulation 1 or 2

  Formulation 1: Isopropyl alcohol 70% v/v, glycerol 1.45% v/v, Hydrogen peroxide(H_2O_2) 0.125% v/v
  Formulation 2: Ethanol 80% v/v, glycerol 1.45% v/v, Hydrogen peroxide (H_2O_2) 0.125% v/v.

OR

- Any commercially available alcohol-based hand rub preparation which meets recognised standards for microbiocidal efficacy (ASTM or EN Standards EN 1500).
- Any commercially available alcohol-based hand rub preparation which meets recognised standards for microbiocidal efficacy (ASTM or EN Standards EN 1500).

Steps:

- Apply a palm full of product in cupped hand covering all surfaces.
- Rub hands palm to palm and follow the steps for hand washing technique till hands are dry.
- It takes about 20-30 seconds.

Fig 3: Step for using hand rub

Antiseptic Agents to Be Used for Hand Washing/ Hand Hygiene

a. Plain water and soap: Washing for 30 seconds reduces bacterial load by 1.8 to 2.8 log

b. Antiseptics detergents: The following antiseptic can be used:

- 4% chlorhexidine gluconate (CHG)
- Povidone iodine and iodophors (7.5% to 10%) scrub agent
- 3% Chloroxylenol (does not act rapidly act as CHG and has less persistent activity)
- Hexachlorophene (3%)
- Quaternary ammonium compounds like benzethonium chloride.

c. Alcoholic hand rub products: Alcohol based solution has property of denaturing proteins, thereby destroying microbes; agents with 60-70% alcohol are most efficient and higher concentrations are less effective. Alcohols used are either ethanol or propranolol or isopropanol or combinations of these. Alcohols have excellent activity against gram positive and gram-negative bacilli, fungi and some nonenveloped viruses but they have less residual activity against them. Adding chlorhexidine (0.5% to 1%), quaternary ammonium compounds, or triclosan to alcoholic hand rub increases their persistent activity against microbes. Some examples are:

- 0.5% chlorhexidine or povidone iodine in 70% isopropanol or ethanol,
- 0% isopropanol or 70% ethanol with emollient.

Selection of suitable agents:

- Provide efficacious hand hygiene products with less irritation
- To increase hand hygiene among co-workers, solicit their input regarding skin tolerance, feel and fragrance of any products under consideration
- Solicit information from manufacturer regarding possible contamination, ensure dispensers deliver adequate amounts and are accessible
- Do not add soap or alcohol-based products to a partially empty soap dispenser; if its reused, follow recommended procedures for cleaning *Skin care:*
- Inform HCW regarding use of healthcare practices to reduce risk of contact dermatitis
- Provide alternative products if HCW is allergic to specific product
- Provide hand lotions and creams to minimize occurrence of contact dermatitis
- Soap and alcohol hand rub should not be used concomitantly

Gloves:

- Gloves are not a substitute for hand washing; hand wash/hygiene should be performed before wearing gloves
- Wear gloves when contact with blood or other potentially infectious materials, mucous membranes, and non-intact skin could occur.
- Remove gloves after caring for a patient. Do not wear the same pair of gloves for the care of more than one patient, and do not wash gloves between uses.
- Change gloves during patient care if moving from a contaminated body site to a clean body site of same patients.
- Never reuse gloves, in-case of reuse implement safest reprocessing methods

Other points to be remembered:

- Covering cuts and wounds: Damaged skin should be protected (especially hands and forearms) with dressing /water proof dressing.
- When a bar of soap is used, it should be kept dry in a soap case that facilitate drainage and should not be allowed to be lying in a pool of soapy water.
- If liquid soaps are used, avoid topping-off of the solution and once the soap finishes the containers should be washed and dried before refilling.
- The dispenser should be kept clean.
- Do not wear artificial fingernails or extenders when having direct contact with patients at high risk (e.g., those in intensive-care units or operating rooms)
- Keep natural nail tips cut and clean.

REFERENCES:

- WHO guidelines for hand hygiene in healthcare. First global patient safety challenge, clean care is safer care. World Health Organization, 2009.
- Essentials of Hospital Infection Control by Apurba S Sastry and Deepa Shree R.

4.PERSONAL PROTECTIVE EQUIPMENT (PPE)

4.1 BACKGROUND:

Personal protective equipment, or PPE, as defined by the Occupational Safety and Health Administration, or OSHA, is "specialized clothing or equipment, worn by an employee for protection against infectious materials." PPE interrupt the chain of transmission of organisms from the patient to the health care worker and from the health care worker to the patient, thus reducing healthcare associated infections.

4.2 OBJECTIVE:

The objective of using PPE in healthcare setting is to:

- Protect the skin and mucous membrane of healthcare workers from exposure to blood or body fluid and from healthcare workers hand to patients during sterile and invasive procedures.
- To protect the patients from contracting infections from the healthcare workers.

4.3 SCOPE:

All the policies and procedure for personal protective equipment are applicable to all the healthcare provider at AIIMS Rajkot.

4.4 TYPES OF PPE USED:

- **Gloves:** protect the hands
- **Caps:** protect the hairs
- **Facemasks:** protect the mouth and nose
- **Respirators:** protect respiratory tract from airborne
- **Gowns:** protect skin and clothing
- **Boots:** protect the feet
- **Eyewear:** protect the eyes
- **Face shield:** protect the eyes, nose, mouth and face.

4.5 SELECTION OF APPROPRIATE PPE:

Selection of PPE is based on the type of patient interaction, known or possible infectious agents, and/ or likely mode(s) of transmission.

Following factors may be considered while choosing PPE:

- Probability of exposure to blood or body substances
- Type of body substance involved
- Probable type and probable route of transmission of infectious agents

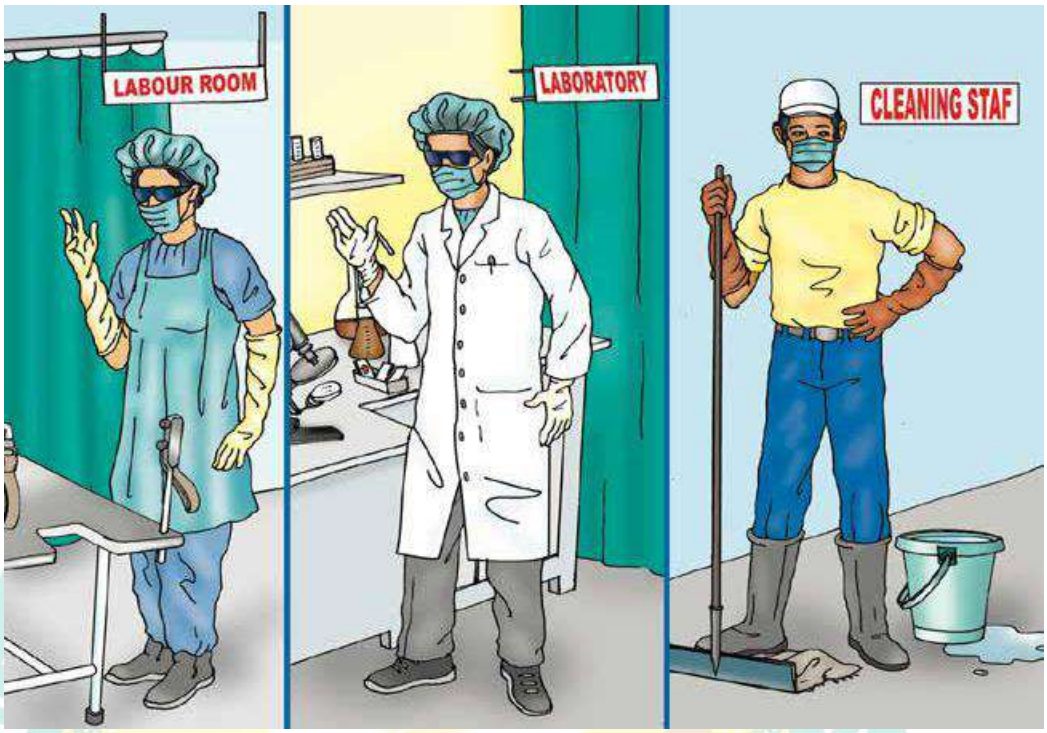


Fig 4: Personal protective equipment for healthcare workers

A) Gloves:

Gloves protect both patients and healthcare workers from exposure to microorganisms that may be carried on hands. It is used as part of standard, contact and droplet precautions.

Indications for use of gloves:

- Before a sterile procedure.
- Before invasive procedure.
- On contact with blood or body fluid regardless sterile conditions
- On contact with non-intact skin and mucous membrane.
- Contact with patient during contact precautions.
- When handling sharp or contaminated devices.

Indications for changing of gloves:

- During use if torn and when heavily soiled
- Between contacts with different patients to prevent transmission of infectious material
- Between tasks/ procedures on the same patient to prevent cross contamination between different body sites.
- If the patient interaction involves touching portable computer keyboards or other mobile equipment that is transported from room to room.

Hand Hygiene:
Before and after the use of gloves proper hand hygiene should be done to prevent the cross contamination.

Disposal:

When removed gloves should be discarded and disposed of into appropriate waste bin (red bag). Gloves should not be washed, reused, decontaminated or reprocessed for any propose.

There should be single use of gloves and no reuse of it in any form.

Table 2: Type of gloves according to their use with examples of clinical situations

Types of gloves	Indication for use	Examples
Non sterile gloves	Used for procedure where there is high risk transmission of infections from patient to health care provider: • Potential exposure to blood, body fluid, secretions or excretions. • Contact with non-intact skin or mucous membrane.	• Venepuncture • Vaginal examination • Dental examination • Emptying urinary catheter bag • Nasogastric aspiration • Management of minor cuts and abrasion
Sterile gloves	Used for procedure where sterile environment is required and to prevent risk transmission of infections from patient to health care provider and vice versa	Surgical aseptic technique procedures: • Urinary catheter site dressings • Central venous line insertion site dressing • Lumbar puncture • Clinical care of surgical wounds or drainage sites • Dental procedure requiring a sterile field
Reusable utility gloves	Indicated for non-patients care activities	• Handling or cleaning contaminated equipment or surfaces • Housekeeping duties • Instrument cleaning in CSSD unit

Table 3: Selection of gloves based on activity

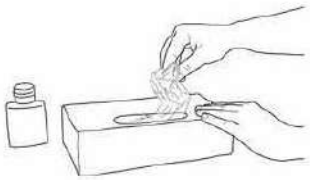
S.no.	Activity	Type of glove
1	Routine handling of patient	No gloves required
2	When touching blood, body fluids, secretions, excretions or mucous membrane	Clean non-sterile
3	Sample handling	Clean non-sterile
4	Invasive procedure including minor procedures & Insertion of sterile devices such as urinary catheters, central lines and endotracheal tubes	Heavy duty rubber gloves
5	Environment cleaning	Heavy duty rubber
6	Waste handling	gloves
7	Instrument processing and cleaning	Heavy duty rubber gloves

Procedure to Wear (Donning) and Remove (Doffing) Sterile and non-sterile Gloves:

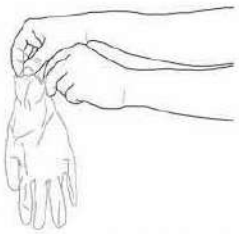
Follow the following illustrations for non-sterile Fig:5 and for sterile Fig:6 and 7

When the hand hygiene indication occurs before a contact requiring glove use, perform hand hygiene by rubbing with an alcohol-based handrub or by washing with soap and water.

I. HOW TO DON GLOVES:

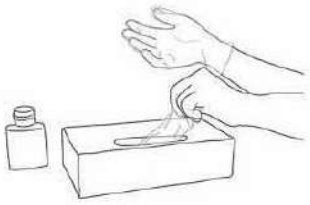


1. Take out a glove from its original box

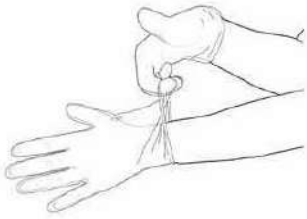


2. Touch only a restricted surface of the glove corresponding to the wrist (at the top edge of the cuff)

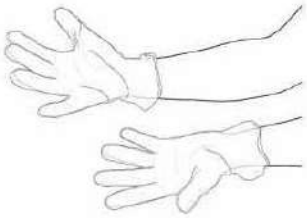
3. Don the first glove



4. Take the second glove with the bare hand and touch only a restricted surface of glove corresponding to the wrist

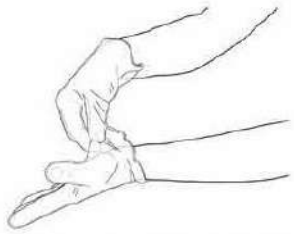


5. To avoid touching the skin of the forearm with the gloved hand, turn the external surface of the glove to be donned on the folded fingers of the gloved hand, thus permitting to glove the second hand

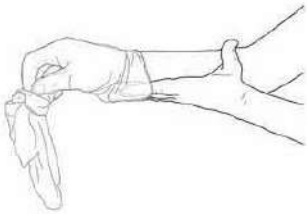


6. Once gloved, hands should not touch anything else that is not defined by indications and conditions for glove use

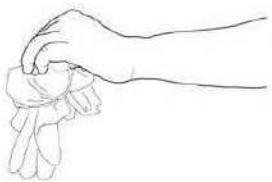
II. HOW TO REMOVE GLOVES:



1. Pinch one glove at the wrist level to remove it, without touching the skin of the forearm, and peel away from the hand, thus allowing the glove to turn inside out



2. Hold the removed glove in the gloved hand and slide the fingers of the ungloved hand inside between the glove and the wrist. Remove the second glove by rolling it down the hand and fold into the first glove



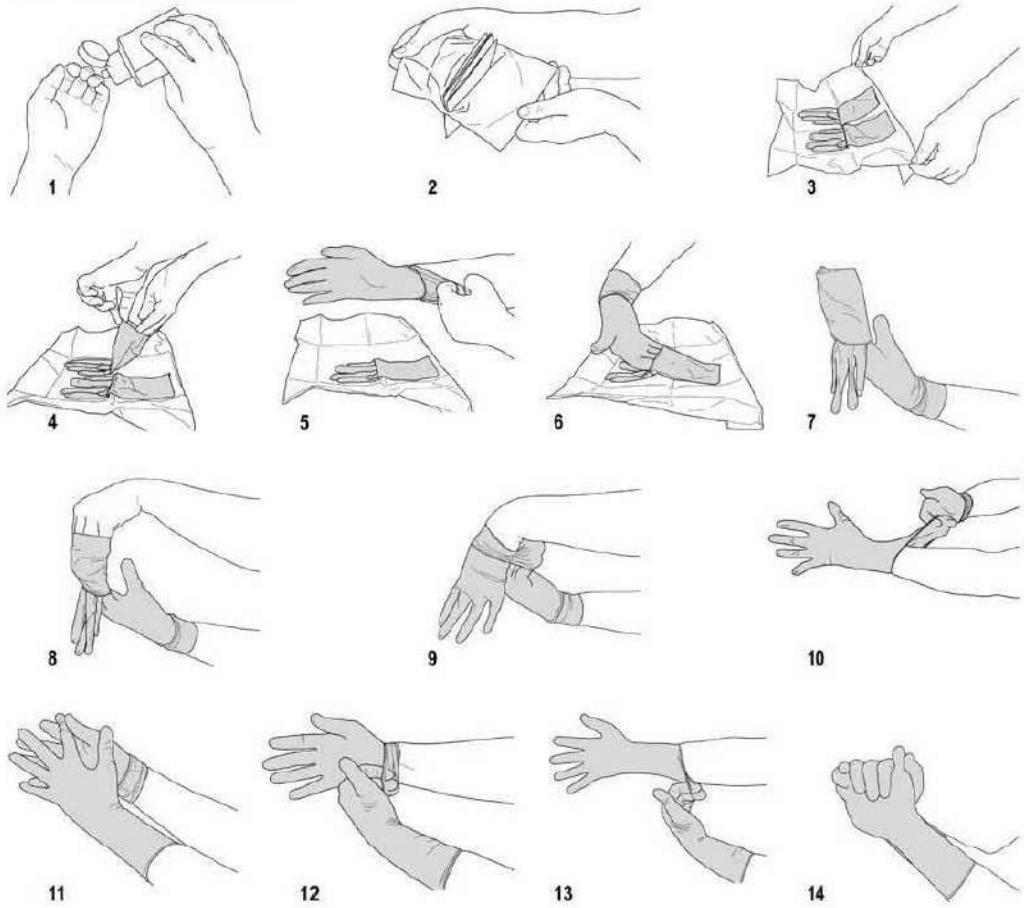
3. Discard the removed gloves

4. Then, perform hand hygiene by rubbing with an alcohol-based handrub or by washing with soap and water

Fig:5 How to Don and Doff Non-sterile Gloves

The purpose of this technique is to ensure maximum asepsis for the patient and to protect the health-care worker from the patient's body fluid(s). To achieve this goal, the skin of the health-care worker remains exclusively in contact with the inner surface of the glove and has no contact with the outer surface. Any error in the performance of this technique leads to a lack of asepsis requiring a change of gloves.

I. HOW TO DON STERILE GLOVES



1. Perform hand hygiene before an "aseptic procedure" by handrubbing or hand washing.
2. Check the package for integrity. Open the first non-sterile packaging by peeling it completely off the heat seal to expose the second sterile wrapper, but without touching it.
3. Place the second sterile package on a clean, dry surface without touching the surface. Open the package and fold it towards the bottom so as to unfold the paper and keep it open.
4. Using the thumb and index finger of one hand, carefully grasp the folded cuff edge of the glove.
5. Slip the other hand into the glove in a single movement, keeping the folded cuff at the wrist level.

6-7. Pick up the second glove by sliding the fingers of the gloved hand underneath the cuff of the glove.

8-10. In a single movement, slip the second glove on to the ungloved hand while avoiding any contact/resting of the gloved hand on surfaces other than the glove to be donned (contact/resting constitutes a lack of asepsis and requires a change of glove).

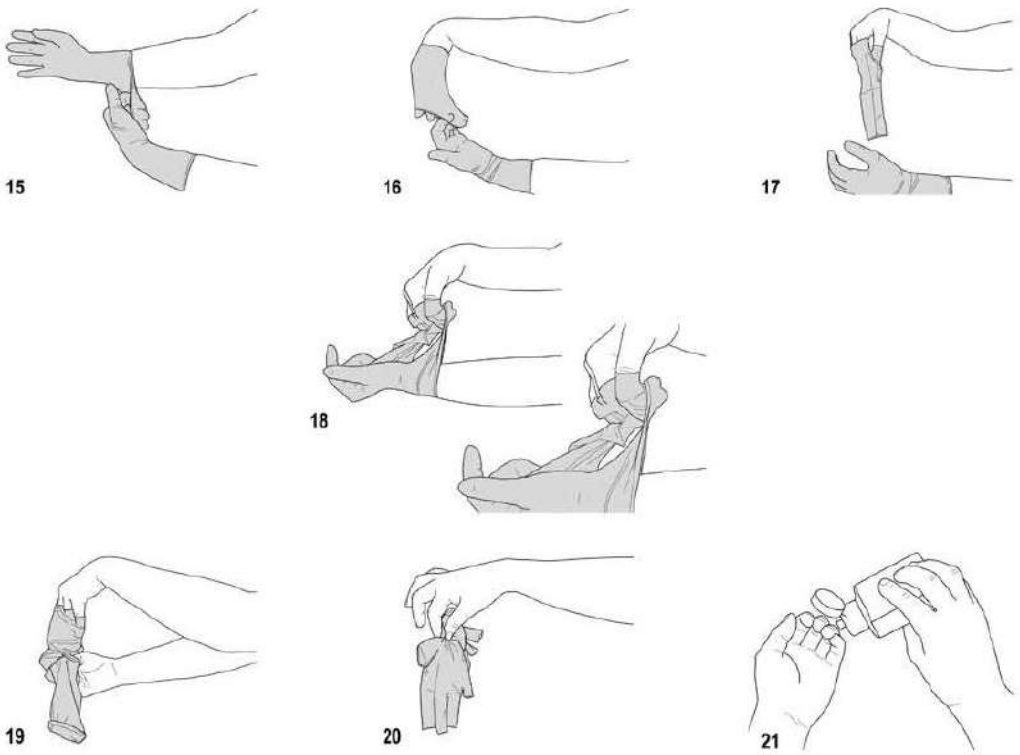
11. If necessary, after donning both gloves, adjust the fingers and interdigital spaces until the gloves fit comfortably.

12-13. Unfold the cuff of the first gloved hand by gently slipping the fingers of the other hand inside the fold, making sure to avoid any contact with a surface other than the outer surface of the glove (lack of asepsis requiring a change of gloves).

14. The hands are gloved and must touch exclusively sterile devices or the previously-disinfected patient's body area.

Fig 6: How to don sterile gloves

II. HOW TO REMOVE STERILE GLOVES



15-17. Remove the first glove by peeling it back with the fingers of the opposite hand. Remove the glove by rolling it inside out to the second finger joints (do not remove completely).
18. Remove the other glove by turning its outer edge on the fingers of the partially ungloved hand.
19. Remove the glove by turning it inside out entirely to ensure that the skin of the health-care worker is always and exclusively in contact with the inner surface of the glove.
20. Discard gloves.
21. Perform hand hygiene after glove removal according to the recommended indication.

NB: Donning surgical sterile gloves at the time of a surgical intervention follows the same sequences except that:
- it is preceeded by a surgical hand preparation;
- donning gloves is performed after putting on the sterile surgical gown;
- the opening of the first packaging (non-sterile) is done by an assistant;
- the second packaging (sterile) is placed on a sterile surface other than that used for the intervention;
- gloves should cover the wrists of the sterile gown.

Fig 7: How to doff sterile gloves

B) Caps:

Caps are used to protect the HCWs against exposure to patient's blood, body fluids, secretions or excretions, which may splash onto hair. They should protect the hair from aerosols that may otherwise lodge on the hair and be transferred to other parts by the hands or onto inanimate objects.

- Use a disposable, waterproof cap of an appropriate size which completely covers the hair.
- Wear before masking and place or tie cap over the head so as to cover hair completely.

Remove cap after removing mask

- Remove by holding inside of the cap lifting it straight off head and folding inside out.
- Discard in proper container.
- Wash hands immediately.

Fig 8: Correct method of wearing caps

C) Facemasks:

It includes surgical masks/triple layer medical masks which are fluid resistant and procedure or isolation masks which are not fluid resistant.

Surgical masks are loose fitting, single use item that cover the nose and mouth.

- Use surgical masks on coughing patients to limit potential dissemination of respiratory pathogens.
- Use surgical masks as a part of standard precautions to keep splashes or sprays from reaching the mouth and nose of person exposed.
- While caring for patients on droplet precautions.

Measures to be taken care of while using surgical masks:

- Disposable mask should be discarded or changed after 4-6 hours of use or earlier if it becomes soiled or wet.
- Disposable masks are for single use only, should never be reapplied after removal.
- Masks should not be left dangling around the neck.
- Touching front of mask should be avoided.
- Avoid talking sneezing and coughing while wearing the mask if possible.
- Mask should not wear with beard or unshaven face.
- Hand hygiene should be performed before donning the mask, upon touching or discarding the used mask in yellow bag

Wearing the mask:

- Wash hand and dry.
- Remove the clean mask from the container with clean hands.
- Ensure the mask is fitted properly.
- If glasses are worn, fit the upper edge of the mask under the glasses. A secure fit will prevent both the escape and the inhalation of micro-organisms around the edges of the mask and fogging of the eyeglasses.

Removing the mask:

- Wash hands and remove mask, keeping outside of the mask in, handle only with strings.
- Discard in a yellow bag and seal the bag.
- Wash hands.

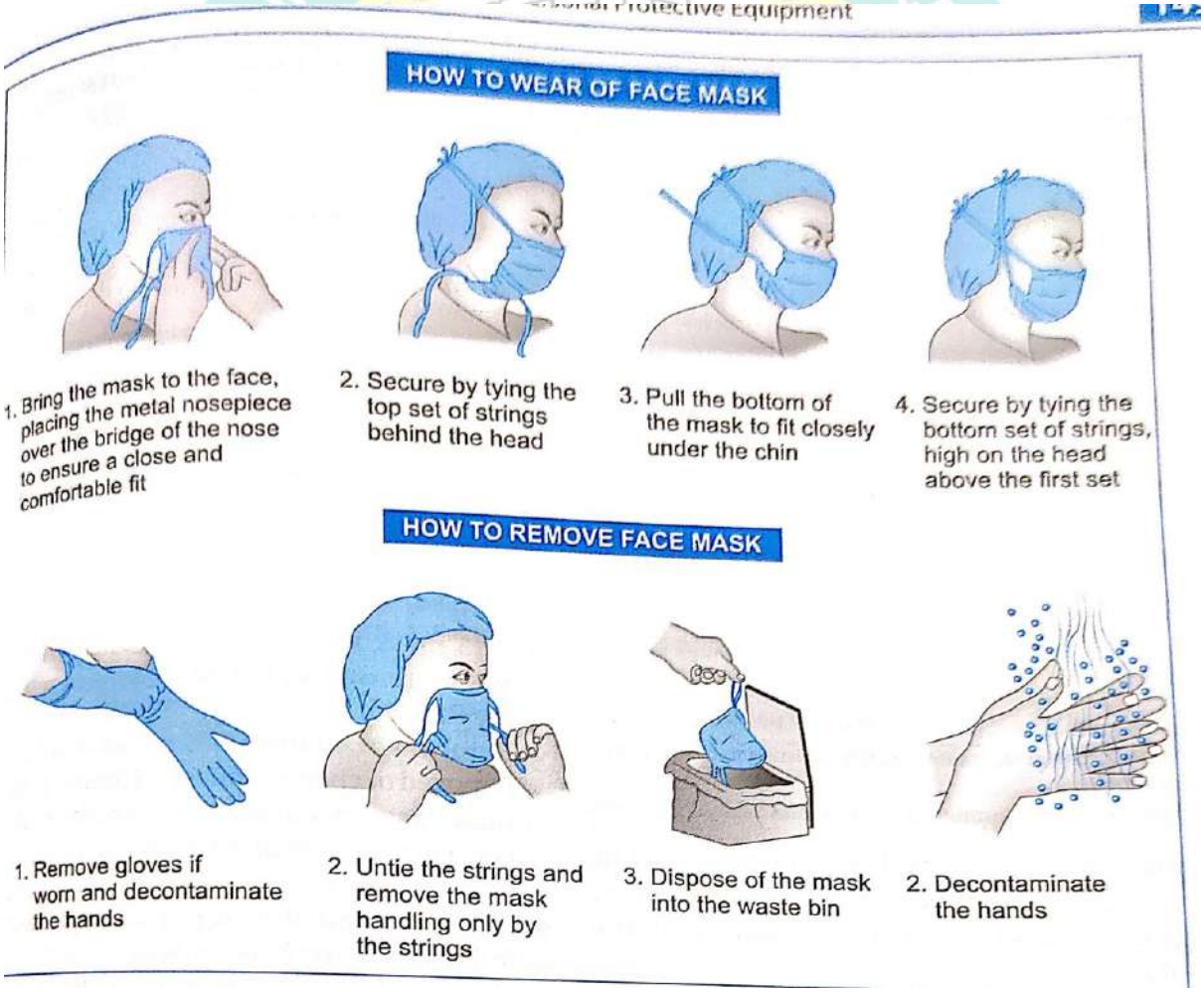


Fig 9: How to don and doff face mask

N95 Respirator:

An N-95 respirator mask is a respiratory protective device with high filtration efficiency to airborne particles. To provide the requisite air seal to the wearer, such masks are designed to achieve a very close facial fit.
Such mask should have high fluid resistance, good breathability (preferably with an expiratory valve), clearly identifiable internal and external faces, duckbill/cup-shaped structured design that does not collapse against the mouth.
If correctly worn, the filtration capacity of these masks exceeds those of triple layer medical masks. Since these provide a much tighter air seal than triple layer medical masks, they are designed to protect the wearer from inhaling airborne particles.

Steps to wear:

- Select a fit tested respirator.
- Place over nose, mouth and chin.
- Fit flexible nose piece over nose bridge.
- Secure on head with elastics.
- Adjust to fit.
- Perform a fit check:
  Inhale—respirator should collapse
  Exhale—check for leakage around face

Steps to remove:

- Always remove it just outside the patient room.
- Lift the bottom elastic over your head first.
- Then lift off the top elastic.
- Discard and perform hand hygiene.

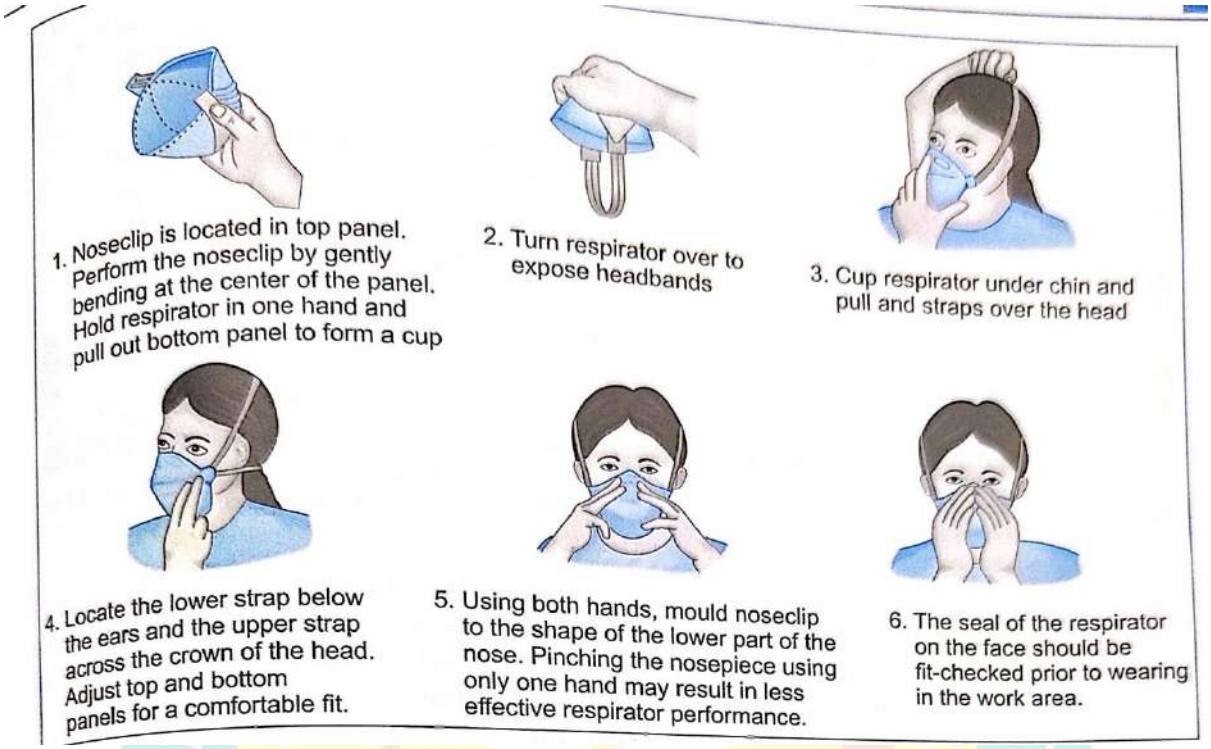


Fig 10: How to don and doff N95 mask or respirator

	 Surgical Mask	 N95 Respirator
Testing and Approval	Cleared by the U.S. Food and Drug Administration (**FDA**)	Evaluated, tested, and approved by **NIOSH** as per the requirements in *42 CFR Part 84*
Intended Use and Purpose	Fluid resistant and provides the wearer protection against large droplets, splashes, or sprays of bodily or other hazardous fluids. Protects the patient from the wearer's respiratory emissions.	Reduces wearer's exposure to particles including small particle aerosols and large droplets (**only non-oil aerosols**).
Face Seal Fit	Loose-fitting	Tight-fitting
Fit Testing Requirement	No	Yes
User Seal Check Requirement	No	Yes. Required each time the respirator is donned (put on)
Filtration	Does NOT provide the wearer with a reliable level of protection from inhaling smaller airborne particles and is not considered respiratory protection	Filters out at least 95% of airborne particles including large and small particles

D) Gowns:

Gowns made of impervious material are to be worn to protect the wearer's clothing/uniform from possible contamination with micro-organisms and exposure to blood, body fluids secretions and excretions.

Wearing on the gown:

- Wash hands, and dry.
- Hold the gown at the neck on the inside permitting to unfold.
- Slide hands and arms down the sleeves.
- Fasten the ties at the neck.
- Overlap the gown at the back as much as possible and secure the waistband.
- Request assistance to fasten the waist ties.

Removing off the gown:

- Remove the gown after removing gloves.
- Untie the waist-band with a gloved hand if it is tied in front before removing the gloves.
- Remove gloves and wash hands.
- Untie the neck-ties (be sure not to touch outside of the gown).
- Slide the gown down the arms and over the hands by holding in inside of the sleeves.
- Hold the gown with both the hands (inside the shoulders) at the shoulder seams.
- Turn the gown inside out (contaminated side in). The hands are then brought together and the gown is rolled and discarded in the container provided.
- Discard appropriately
- If reusable – discard if visibly contaminated. If there is shortage of gowns, they may be reused during one shift for the same patient. Hang gown with outside facing in when not in use. Discard at the end of each shift.
- Wash hands thoroughly before touching anything else.

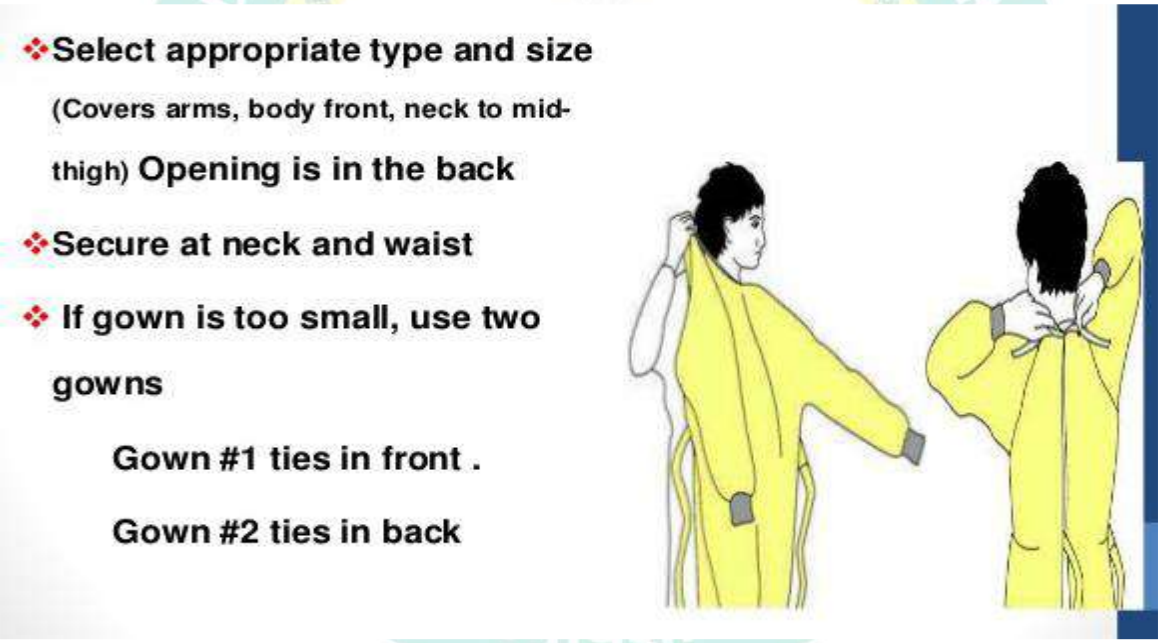


Fig11: How to don gown

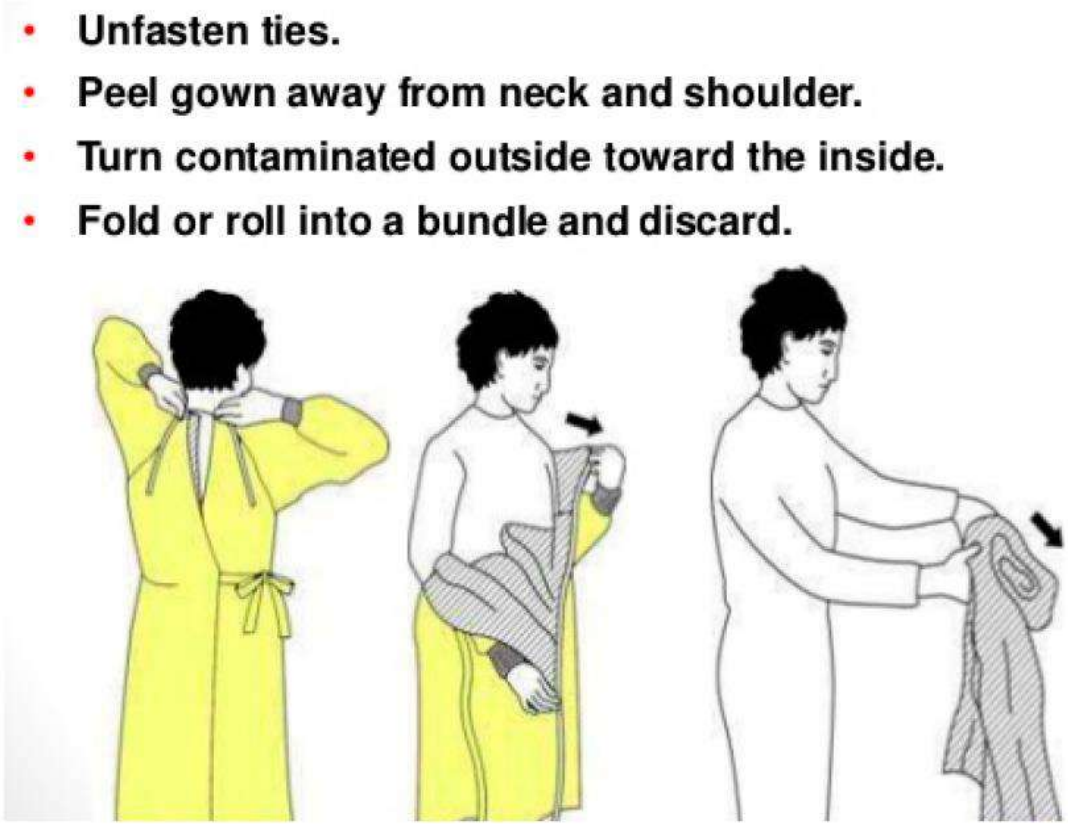


Fig 12: How to doff gown

E) Boots:

- Boots or shoe cover to be used to protect the wearer from splashes of blood, body fluids, and excretions, secretions
- Waterproof boots should be worn for heavily contaminated, wet flooring and floor cleaning.
- Remove boots last, before leaving the room.

F) Eye Wear and Face Shield:

To protect the mucous membranes of the eyes when conducting procedures that are likely to generate splashes of blood, body fluids, secretions or excretions.

Types and Uses:

- Goggles- Used to protect eyes only.
- Face shields- Used protect face, nose, mouth, and eyes.

G) Goggles

- Should fit snuggly over and around eyes
- Personal glasses not a substitute for goggles
- Anti-fog feature improves clarity

H) Face Shields

- Should cover forehead, extend below chin and wrap around side of face.
- Single use/reusable face shields may be used in addition to surgical masks as an alternative to protective eye wear.

Removing Face and Eye Protection:

- Should be removed after gloves have been removed and hand hygiene performed.
- The ties, earpieces and /or headband used to secure the equipment to the head are considered 'clean' and therefore safe to touch with bare hands.
- The front of a mask, protective eyewear or face shield is considered contaminated.

Cleaning Reusable Face and Eye Protection:

- Reusable face shields and protective eyewear should be cleaned according to the manufacturer's instructions, and be completely dry before being stored.
- Disinfection may be done by any low-level disinfectant solution.

4.6 Sequence Of Wearing (Donning) And Removing (Doffing) PPE:

Sequence of Wearing:(Donning)
1. Gown first (wear shoe covers prior if required)
2. Cap/ head cover
3. Mask or respirator
4. Goggles or face shield
5. Gloves

Sequence of Removing (Doffing)
1. Gloves
2. Face shield or goggles
3. Gown
4. Mask or respirator
5. Cap/ head cover
6. Shoe cover

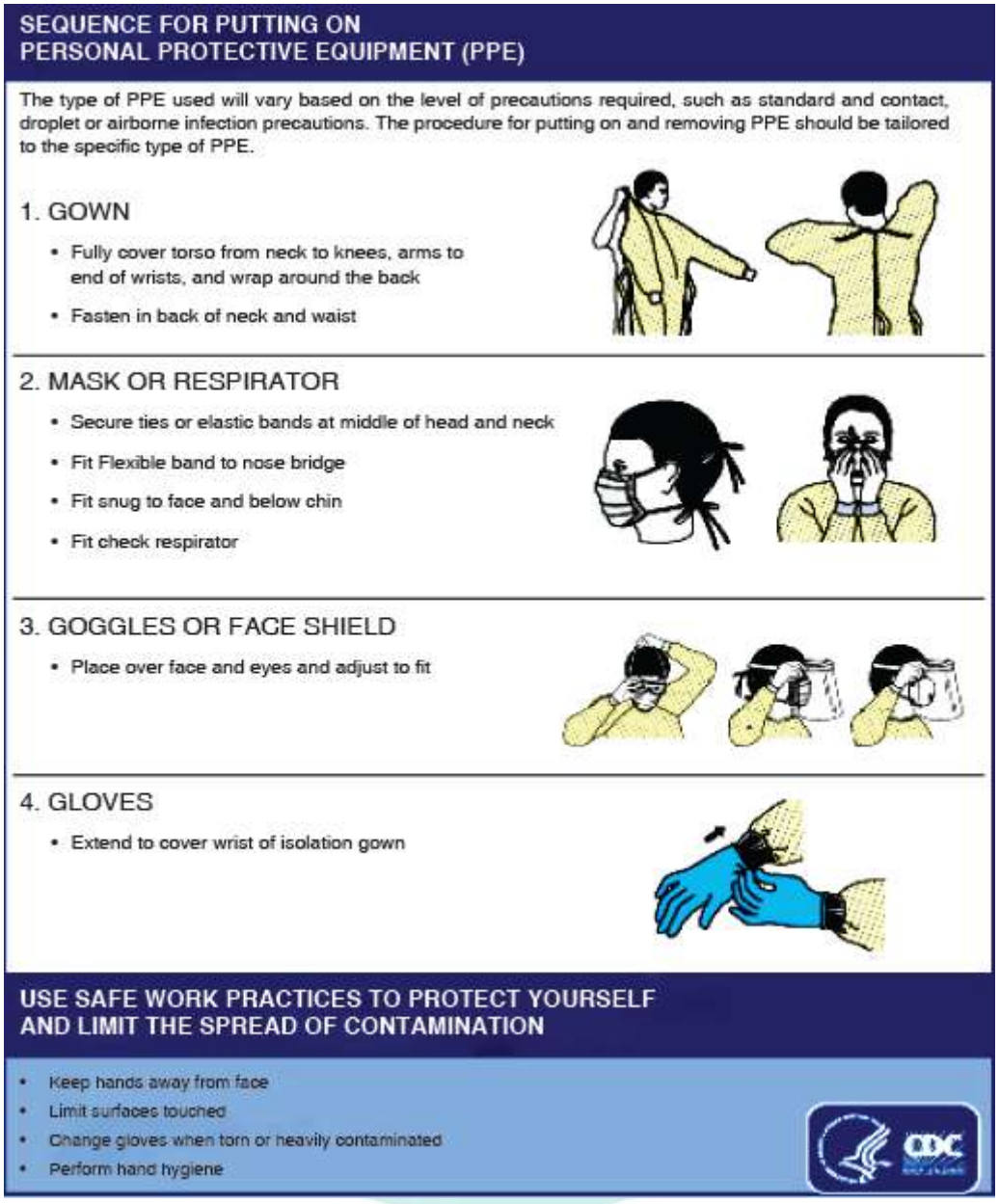


Fig 13: Sequence of donning PPE kit

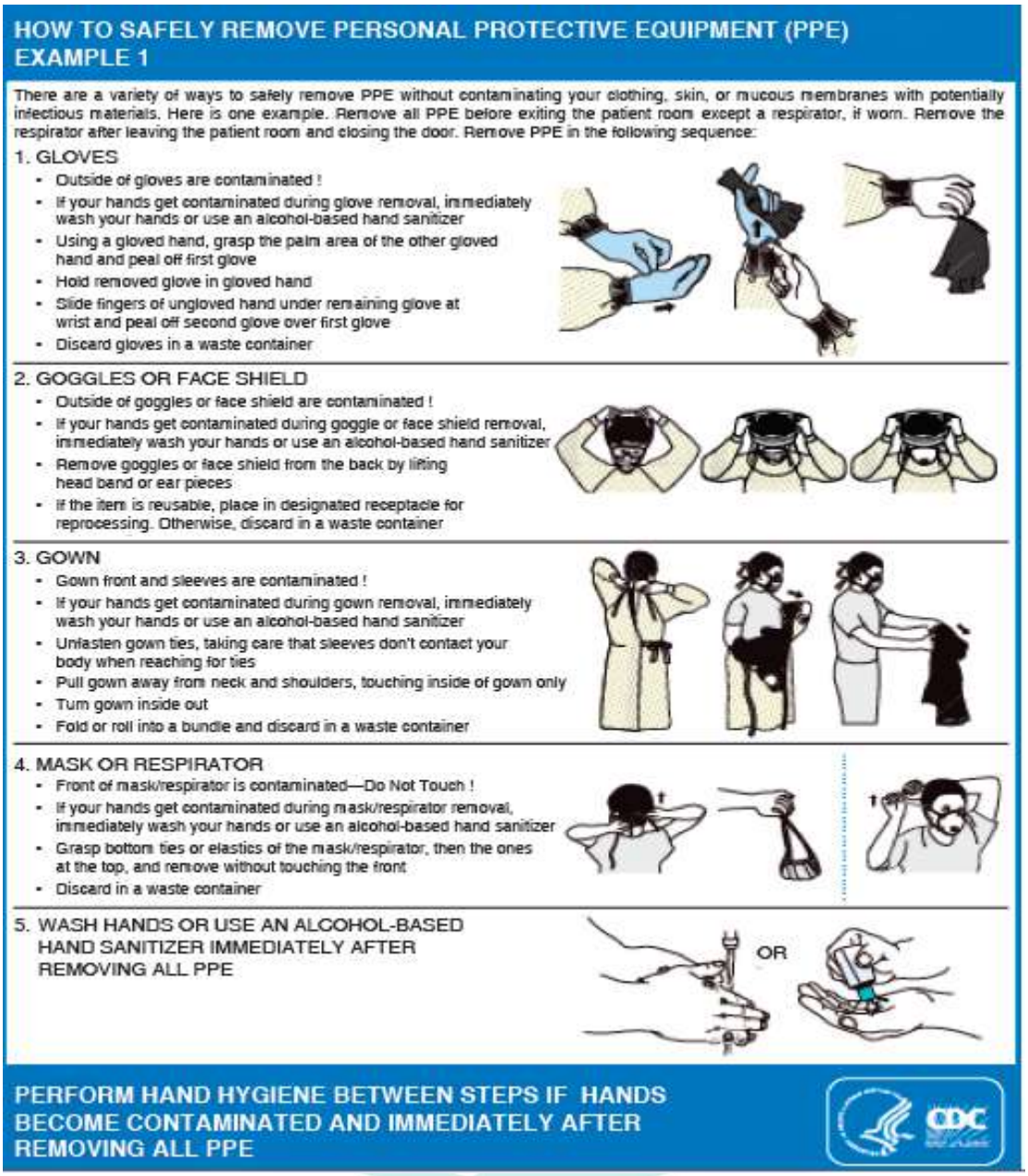


Fig 14: Sequence of doffing PPE kit

REFERENCES:

- Essentials of Hospital Infection Control by Apurba S Sastry and Deepashree R.
- WHO guidelines for hand hygiene in healthcare. First global patient safety challenge, clean care is safer care. World Health Organization, 2009.
- Prevention of hospital acquired infections, A practical guide, 2nd edition, WHO/CDS/CSR/EPH/2002.12
- Guidance for the Selection and Use of Personal Protective Equipment (PPE) in Healthcare Settings. CDC Atlanta. Accessed from https://www.cdc.gov/hai/prevent/ppe.html

5.RESPIRATORY ETIQUETTE

5.1 BACKGROUND:

To prevent the transmission of all respiratory infections in healthcare settings, including *influenza*, the following infection control measures should be implemented at the first point with a potentially infected person.

5.2 SCOPE:

All the policies and respiratory infection control measures are applicable to all the healthcare providers and patients and visitors at AIIMS Rajkot.

5.3 POLICIES:

The strategy is targeted at the patients, accompanying attendants with undiagnosed transmissible respiratory infections, and applies to any persons with signs of illness including cough, congestion, rhinorrhoea, or increased production of respiratory secretions when entering health care facilities.

5.4 MEASURES:

ELEMENTS OF RESPIRATORY INFECTION CONTROL:

(a) Education of healthcare facility staff, patients and visitors.

(b) Post visual alerts in appropriate languages at the entrance to outpatient facilities (emergency departments, physician offices and OPD) instructing patients and persons who accompany them to inform healthcare provider of symptoms of a respiratory infection when they first register care and to practice respiratory hygiene/ cough etiquette.

(c) Respiratory hygiene/cough etiquette:

- Covering the mouth/nose with a tissue when coughing/Sneezing, wiping and blowing nose
- Prompt disposal of used tissues in the nearest receptacle or bin after use.
- If tissues are not available, cough or sneeze into the inner elbow rather than the hand.
- Using surgical masks on the coughing person when tolerated and appropriate.

(d) Hand hygiene after contact with respiratory secretions.

(e) Masks should be provided to the coughing patients to contain dispersion of respiratory secretions into the air from infected patients.

(f) Spatial separation, ideally >6 feet, of persons with respiratory infections in common waiting areas when possible.

(g) Healthcare personnel are advised to observe Droplet precautions (i.e., wear a mask) and hand hygiene when examining and caring for patients with signs and symptoms of a respiratory infections.

(h) Healthcare personnel who have a respiratory infection are advised to avoid direct patient contact, especially with high-risk patients. If this is not possible then a mask should be worn before providing patient care.

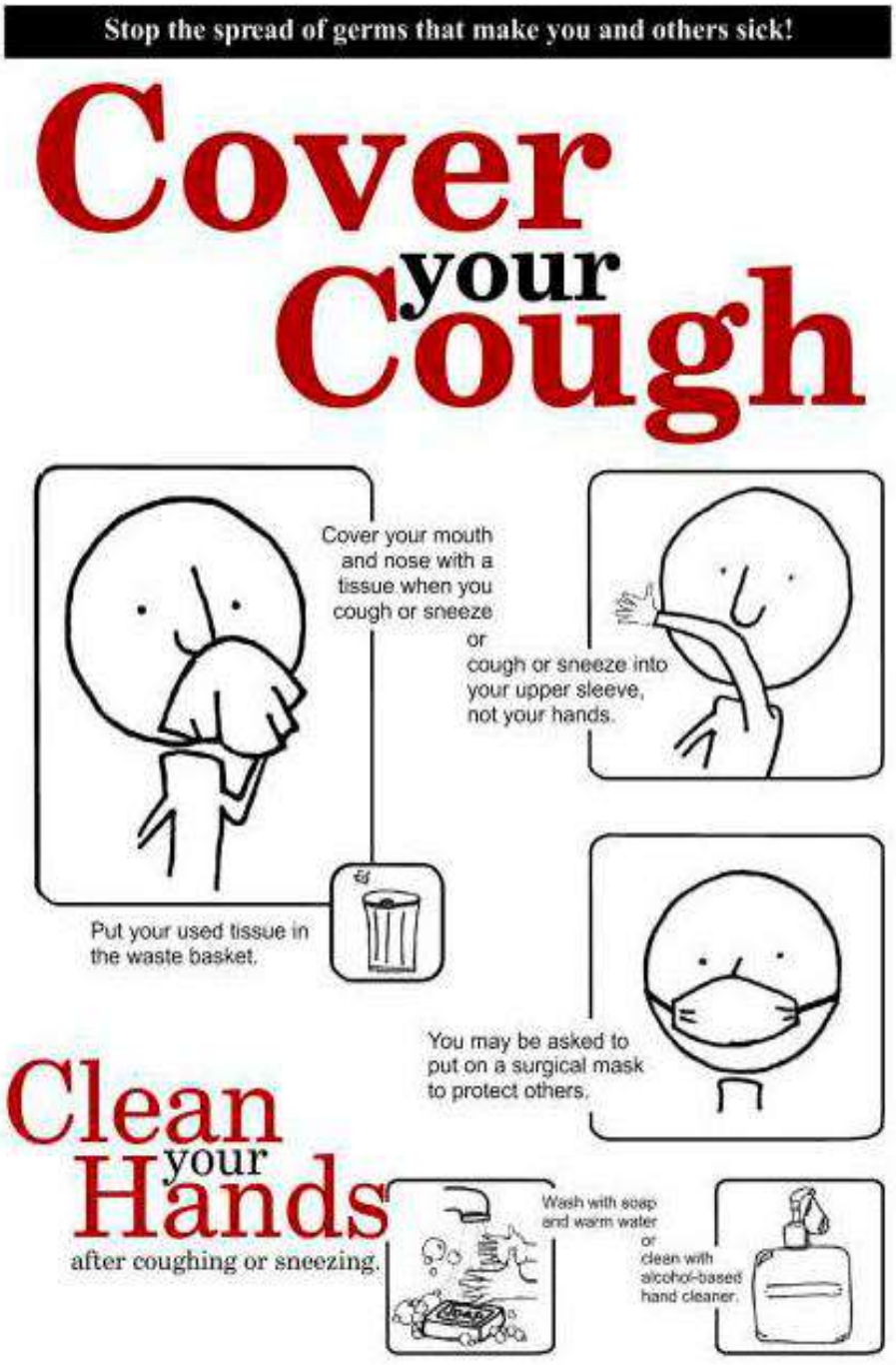


Fig 15: Cough etiquette (Source: CDC)

REFERENCE:

www.cdc.gov/flu/professionls/infectioncontrol/resphygiene.html

6.CLEANING, DISINFECTION AND STERILIZATION OF PATIENT CARE ITEMS

6.1 BACKGROUND:

All reusable instruments and equipment should undergo cleaning, disinfection or sterilization to prevent exposure of patients and health care workers to potentially infectious material. Single-use devices (SUDs) are labelled by the manufacturer for only a single use and do not have reprocessing instructions.

Terminologies:

Cleaning: A process of physical removal of foreign material (e.g., dust, soil) and organic material (e.g., blood, secretions, excretions, microorganisms). It is accomplished with manual or mechanical action using water and detergents. Medical devices must be cleaned thoroughly before disinfection or sterilization.

Disinfection: A process that kills most pathogenic microorganisms. Disinfection does not destroy all bacterial spores. Medical devices must be cleaned thoroughly for effective disinfection. There are 2 levels of disinfection: high and low.

Low-Level Disinfection: A process capable of killing most vegetative bacteria, some viruses and some fungi. This process cannot be relied on to kill micro-organisms such as mycobacteria, including *Mycobacterium tuberculosis*, or bacterial spores. This method is used for processing non-critical medical devices and some environmental surfaces.

High-Level Disinfection: A process capable of killing vegetative bacteria, mycobacteria including *Mycobacterium tuberculosis*, fungi and both enveloped and non-enveloped viruses, and reducing number of bacterial spores. This is considered to be the minimum level of disinfection required for semi-critical medical devices.

Sterilization: A process used to make a product free from living microorganisms including bacterial spores and is required for reprocessing critical medical devices.

6.2 OBJECTIVE:

- To maintain standards in infection control measures and minimize hospital acquired infections in patients and staff.
- To define policy and procedure regarding cleaning, disinfection, sterilization and decontamination of patient care items/ instruments/ equipment

6.3 SCOPE:

This document applies for all the areas of hospital services at AIIMS Rajkot.

6.4 PURPOSE:

To assist the Nursing staff and personal in carrying out the practices and techniques in cleaning, disinfection and sterilization of patient care items.

6.5 RESPONSIBILITY:

The Nursing staff and other personal will follow this SOP strictly.

6.6 CLASSIFICATION OF PATIENT CARE ITEMS

The risk of transferring infection from patient care items is dependent on the following factors:

1. The presence of microorganisms, the number and virulence of these organisms.
2. The type of procedure that is going to be performed (invasive or non-invasive).
3. The body site where the instrument/and or equipment will be used (penetrating the mucosal or skin tissue or used on intact skin).

Contact sites for instruments may be classified as **critical, semi-critical or non-critical** according to "Spaulding Classification" as given below. The level of reprocessing required is based on the classification and level of risk.

6.7 Recommended processing method based on Spaulding Classification

Spaulding Classification categorizes patient care devices/equipment as critical, semi-critical and non-critical based on the intended use. It provides a simplified outline on the recommended processing methods for devices/equipment

Table 4: Recommended processing method based on Spaulding Classification

Intend Use of Items	**Class**	**Level of Risk**	**Level of Disinfection Required**	**Methods Used**
Into vascular system, • Into sterile body cavity, • Into sterile tissues: (e.g., Surgical procedures, instrumentation, arthroscopies, biopsies, etc.)	Critical	High	Sterilization or High level disinfection	Glutaraldehyde (as above), ●Hydrogen peroxide (as above), ●*ortho*-phthalaldehyde (0.55%), ●Peracetic acid with hydrogen peroxide (as above)
Contact with Mucous membrane, non-intact skin. (e.g., gastroscopy etc.)	Semi-critical	Medium	High level disinfection	
Contact with Intact skin or without contact with patient. (e.g., Stethoscopes, BP apparatus, sinks, beds etc.)	Non-critical patient care items	Low	Intermediate level Disinfection	Ethyl or isopropyl alcohol (70%-90%) ●Sodium hypochlorite (1%) ●Phenolic compounds (Phenol, Phenyl, Lysol) ●Iodophors (e.g., Betadine) ●Quaternary ammonium compounds (Chlorhexidine, Savlon)

	Non-critical environmental surfaces	Low	Low level Disinfection	Cleaning and scrubbing with soaps/ detergent water ●Intermediate/ low level disinfectants (as above)

6.8 Key recommendations for cleaning and disinfection or sterilization of medical devices in outpatient settings:

1. Facilities should ensure that reusable medical devices (e.g., blood glucose meters and other point-of-care devices, surgical instruments,) are cleaned appropriately prior to use on another patient.
2. Reusable medical devices to be cleaned and reprocessed (disinfection or sterilization) and maintained according to the manufacturer's instructions.
3. Hands-on training on proper selection and use of PPE and recommended steps for cleaning an instrument.

Whatever may be the method used for cleaning, an equipment/ instrument must undergo disinfection/ sterilization depending upon the intended use on patient

6.9 GUIDELINES FOR USE OF DISINFECTANTS:

Name of Disinfectant	Method of Dilution	Contact Time	In Use Span/ Use
1% Sodium Hypochlorite	**1%:** 80 ml water + 20 ml bleach to make it1%solution **1%:** 90 ml water +10 ml bleach	20-30 minutes	8 hours Used for blood spills. And laboratory decontamination
Calcium hypochlorite Ex.: Bleaching powder (70% available chlorine)	1.4 gms / liter of water for visibly contaminated articles	20-30 min	24hours Disinfection of toilets, bathrooms and may be used if liquid bleach not available.
70% Alcohol	Do not dilute	2-5 min.	24hrs.used for surface disinfectant.
Chlorhexidine (2%) w/v 4% Chlorhexidine w/v	Ready to use	2-3 minutes	2%: Up to 6-8 hours for disinfection of hands
11. (2 propanol- 1 propanol, macetronium ethyl sulfate)	Ready to use	30 seconds	Hand Rub

Table 5: Chemical used for Instrument Sterilization/Disinfection

Name (Concentration)	Recommended Use	Examples
Ethyl Alcohol/ Isopropyl Alcohol (60%–70%)	Intermediate level disinfectant	Alcohols/ alcohol impregnated wipes are used for disinfection of small, smooth, clean surfaces (e.g. trolley tops). Disinfection of rubbers stoppers of medication vials, thermometers, stethoscopes, scissors, ultrasound instrument, and electrical/electronic equipment, which cannot be immersed in disinfectants and medication preparation areas.
Sodium hypochlorite	Intermediate level disinfectant High level disinfectant for selected semi critical devices	Dental equipment, (500 ppm available chlorine x 10 minutes), disinfection of syringes used

Table 6: Common objects/instruments standard procedure for disinfection

	Standard Procedure	**Comments**
Applanator (Tonometer Prisms)	Immersion in 0.05% hypochlorite for 10 min.	A fresh solution to be prepared at the start of each clinic.
Baby weighing scales	Clean tray as necessary with detergent and water.	If contaminated to be wiped with 0.5 % hypochlorite after washing.
Beds and couches Frame	To be cleaned with detergent and waterbetween patients and as required	
Mattresses andpillows	To be cleaned with detergent and waterbetween patients and as required.	Contaminated pillows to be discarded. Torn mattress covers to be replaced before mattress is re-used.
Commodes	Seat and arms to be cleaned withdetergent, water and dried.	If soiled to be wiped with sodiumhypochlorite 2% and dried,

Curtains	To be cleaned by washing with soap and detergent and air dried	
Denture pots	To be cleaned by with detergent and water. Disposable with lid-single use.	
Drainage bottles	Disposable – single use	
Ear Pieces for auroscope	To be cleaned with detergent, water and Dried	
Earphones	To be cleaned with detergent, water and dried	.
Leads and monitors	To be dismantled to smallest components cleaned with detergent, water and dried	
Eye protection	To be cleaned with detergent, water and dried	For blood splashes blood spillage policy should be followed.
Floors	To be cleaned daily. Mop with detergent and water to be used.	For blood splashes blood spillage policy should be followed.
Flower vases	To be cleaned with detergent, waterand dried Should be stored inverted.	
Furniture	To be damp dusted with detergent and water.	
Mops	Disposable use for one day, usable to be laundered in washing machine	Mops must not be stored wet cleaned in disinfectant solutions.
Raised toilet seats	To be cleaned after each use with Detergent	
Soap dispensers	To be cleaned weekly with detergent and water	
Spillages	To be cleaned with detergent.	
Sputum pots	Disposable with close fitting lid.	

	.	
Stethoscopes	To be cleaned with alcohol swab (70% alcohol.)	Each time after use
Telephones	To be wiped with 70% alcohol	
Thermometers	In between patients, should be cleaned and wiped with 70% isopropyl alcohol swab.	Clean after each use
Toilet seat	To be cleaned at least twice a day with detergent.	
Trolleys (dressing)	To be cleaned daily with detergent water and dried. After each use should be wiped with 70% isopropyl alcohol.	
Vomit bowel	Contents must be emptied into sluice than rinsed and washed and disinfected with hot water and detergent.	
Walls	To be cleaned with detergent & water as part of planned preventive maintenance program.	
Wash bowls	After each patients use to be cleaned with detergent.	
Wheel Chairs	Clean between patients with detergent & water.	

REFERENCES:

- Guidelines for Disinfection and Sterilization in Healthcare Facilities, CDC Atlanta, 2008 updated in February 2017.
- Prevention of Hospital Acquired Infections, A Practical Guide, 2nd edition, WHO/CDS/CSR/EPH/2002.12
- Damani N. and Pittet D.: Manual of Infection Control Procedures. 3rd ed. London: Oxford University Press; 2012.

7.DECONTAMINATION OF HOSPITAL ENVIRONMENT

7.1BACKGROUND:

The environment serves as a reservoir for a variety of microorganisms; however, it is rarely implicated in disease transmission except in the immunocompromised population. Cleaning and disinfecting environmental surfaces as appropriate are fundamental in reducing their potential contribution to the incidence of healthcare-associated infections.

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7.2 OBJECTIVE:

To define policy and procedure regarding cleaning, disinfection and sterilization of hospital environment.

7.3 SCOPE:

This document applies for the housekeeping and all personal involved in cleaning and decontamination of hospital environment at OPD AIIMS Rajkot.

7.4 PURPOSE:

To assist the housekeeping and personal in carrying out the practices and techniques in cleaning and decontamination of hospital environment

7.5 RESPONSIBILITY:

The Housekeeping Staff and other personal will follow this SOP strictly

7.6 RISK CATEGORIZATION OF OPD AREAS:

Different functional areas represent different degrees of risk and, therefore, require different cleaning frequencies, and levels of monitoring and evaluation. A functional area refers to any area in a healthcare facility that requires cleaning. Accordingly, hospital areas can be categorized as:

Areas of No patient contact -Normal domestic cleaning is recommended (for example, administration, and library).

Areas involved in patient care-All patient care areas is assigned in one of the following three categories:

- High risk areas
- Moderate risk areas
- Low risk areas.

Table 7: Categories of Patient Care Area in OPD Settings of AIIMS Rajkot

Category	Frequency	Level of Cleaning Required	Method of Cleaning
Registration and waiting area, pharmacy, medical store, all offices and departmental areas and cafeteria (Low Risk)	For areas working at least once in a shift or in areas having general shift at least twice in the shift and Spot cleaning as required	Only cleaning	Physical removal of soil, dust or foreign material followed by cleaning with water and detergent
All OPD's, collection center, all laboratories,	Once in four hours and spot cleaning as required	Cleaning and low-level disinfection	Cleaning with soap and detergent plus disinfection with phenolics

7.7 CLASSIFICATION OF ENVIRONMENTAL SURFACES FOR CLEANING PURPOSES:

Environmental surfaces carry the least risk of disease transmission and can be safely decontaminated using less rigorous methods than those used on medical instruments and devices. Environmental surfaces can be further divided into:

Medical equipment surfaces (e.g, X-ray machines, instrument carts, and dental units) and

Housekeeping surfaces (e.g., floors, walls, and tabletops).

o *Low Touch Surfaces*: Surfaces with minimal hand-contact

o *High Touch Surfaces:* Surfaces with frequent hand-contact

Examples:

Low Touch Surfaces	High Touch Surfaces
Floors, ceilings, mirrors, window sills, walls	Doorknobs, bedrails, light switches, elevator buttons, telephone, call bells, computer keyboards, monitors, hemodialysis machines, edges of privacy curtains, wall areas around the toilet in the patient's room

7.8 GENERAL CONSIDERATIONS WHILE CLEANING:

The housekeeping staff need to ensure strictly the following activities to be followed while cleaning:

- No visible dirt/grease/stains in any area of the hospital including roof top, floors and walls
- No cobwebs/bird nests and other incubations due to pests and animals
- No seepage on the roofs and walls of the hospital
- No foul smell in any area of the in hospital
- Clean the floor in each shift and as an when required with detergents and water
- When wet mopping is used, appropriate safety measures need to be adopted by the hospital like use of signage (Wet Floor)
- Use of scrubber for washing using detergent and water wherever visibly dirty
- All work surfaces to be cleaned daily
- All washrooms and toilets to be cleaned with brush using a detergent twice daily. Disinfection to be done using phenol. Stain removing liquid to be used for removing stains
- Clean wash basins with cleaning powder every morning and stain removing liquid as and when required
- Strict monitoring of cleanliness activities to be done at pre-defined intervals and corrective actions to be taken when needed
- The drainage and sewage to be well maintained to avoid any leakage, blockage and easy flow through the drain.

Before Cleaning

- Remove clutter before cleaning
- Visibly check and ensure all cleaning equipment are clean and dry
- Disinfectant dilutions and floor cleaning solutions to be prepared freshly and used it for optimum contact time and concentration
- All containers used for cleaning solutions should be clean, dry and labelled with name of the product, concentration, dates of preparation and expiry
- Appropriate PPE to be worn

During Cleaning

- Cleaning to be done from the least soiled areas to the most soiled areas and from high surfaces to low surfaces
- Remove gross soil (visible to naked eye) prior to cleaning and disinfection
  Mops not to be shaken, and brooms not to be used
- Use dust control mop prior to wet/damp mop.
- Wash the mop under running water before doing wet mopping
- Mop buckets

→ Two-bucket system (routine cleaning): one bucket contains a detergent or cleaning solution and the other contains rinse water
→ Three-bucket system (for disinfection): one bucket contains the detergent or cleaning solution, second bucket contains rinse water and the third bucket contains disinfectant solution

- Mop in a figure-8 pattern with overlapping strokes, turning the mop head regularly (e.g., every 5-6 strokes)
- Do not **'double-dip'** mops (dip the mop only once in the cleaning solution, as dipping it multiple times may re contaminate it)
- An area of 120 square feet to be mopped before re-dipping the mop in the solution Cleaning solution to be changed after cleaning an area of 240 square feet
- Intermediate to low level disinfectant to be used for floor mopping'
- Wipe all the table tops, examination table, dressing trolleys with 1 % hypochlorite
- Change more frequently in heavily contaminated areas, when visibly soiled and immediately after cleaning blood and body fluid spills
- Be alert for needles and other sharp objects. Safely handle and dispose sharps into puncture proof container. Report incident to supervisor

After Cleaning

- Tools used for cleaning and disinfecting should be cleaned and dried between uses
- Clean mop heads daily, at the beginning and at the end of the day and laundered daily
- All used wet mops, buckets and trolleys to be washed with soap and water at least once at the end of the day
- All washed mop heads should be dried thoroughly before re-use

Area/Surface	Area wise Frequency of Cleaning			Method of Cleaning
All work surfaces/table tops	High Risk: Every two hourly	Moderate Risk: Every four hourly	Low Risk: Daily	Cleaning with detergent and water followed by Disinfection with 7% Lysol or Sodium hypochlorite 0.1%
All high touch objects (Doorknobs, Bed rails, Light switches, elevator buttons, telephone, call bells, computer keyboards, monitors, machines, edges of privacy curtains, and surfaces in and around)	Every two hourly	Every four hourly	Daily and after discharge	Clean with detergent and water followed by disinfection with 7% Lysol or Sodium hypochlorite 0.1%.
Wash basins	Twice daily and after discharge	Twice daily and after discharge	Daily and after discharge	Clean with detergent / vim powder and water. Use HCL to remove stains.
Toilet seats	Twice daily Clean contact sites after every use	Twice daily Clean contact sites after every use	Daily	Clean with brush and detergent then disinfect (7% Lysol). Use Hydrochloric acid (HCL) to remove stains
Floor of bathroom	Twice daily	Twice daily	Daily	Clean with broom and detergent then

Walls	Twice daily and after discharge	Twice daily and after discharge	Daily and after discharge	Clean with detergent and water with brush
IV stands	Twice daily Clean contact sites after every use	Twice daily Clean contact sites after every use	Daily	Clean with detergent and water
Cupboards, shelves, lockers, stools and other fixtures	Daily	Daily	Weekly	Clean with detergent and water
High dusting	Weekly	Weekly	Weekly	Wet mop
Cleaning of corners	Weekly	Weekly	Weekly	Clean with detergent and water
Curtains	Weekly or after discharge	Monthly	Biannually	Change and send for laundering
Window blinds	Weekly or after discharge	Monthly	Biannually	Damp dusting
Fans and light	Weekly	Weekly	Monthly	Soap and water

7.9 THE FOLLOWING CLEANING AND DISINFECTING MATERIALS TO BE USED COMMONLY IN HEALTHCARE SETTINGS:

- Soap
- Alcohols 60-90% ethyl or isopropyl alcohol/denatured ethyl alcohol
- Quaternary Ammonium Compounds (‘QUATs’)
- Calcium Hypochlorite
- Sodium Hypochlorite (‘bleach’)
- Phenolic solutions

1. Preparation of Chlorine solution using Hypochlorite Solution

Concentration of commercially available hypochlorite solution	Required chlorine Concentration	To prepare 1000 ml	
		Solution in ml	Add water in ml
5%	2%	400	600
	1%	200	800
	0.50%	100	900
10%	0.50%	50	950
	1%	100	900
	2%	200	800

7.10 PERSONAL SAFETY PRACTICES DURING ENVIRONMENTAL CLEANING:

Healthcare staff involved in environmental cleaning must adhere to routine practices while carrying out cleaning. These include:

- Hand hygiene
- Before initial patient/patient environment contact
- After potential body fluid exposure (e.g., after cleaning bathroom, handling soiled linen, equipment or waste etc.).
- After patient/patient environment contact (e.g.; after cleaning equipment, after changing mop heads etc.).

7.11 USE OF PERSONAL PROTECTIVE EQUIPMENT (PPE):

Appropriate PPE should be used wherever indicated for protection from microorganisms, chemicals used in cleaning and to prevent transmission of microorganisms from one patient environment to another.

- Appropriate use of PPE to be done
- Strict adherence to hand hygiene
- Heavy duty gloves to be used for cleaning
- All required PPE should be worn before and after cleaning
- Clean and disinfect all reusable PPE at least once a day

PPE include,

- Heavy duty gloves
- Impermeable plastic apron
- Gum boots
- Disposable mask and caps
- Eye protection wherever required

7.12 MONITORING OF CLEANLINESS ACTIVITIES:

Monitoring of cleanliness activities at regular intervals by the BMW in charge

Designated Personnel for Monitoring:

- Sanitary inspector to ensure carry out the activities of monitoring of cleanliness
- Daily rounds after each cleaning cycle to ensure proper cleanliness and identify any areas for improvement in the cleaning practices.
- Sanitary inspector will supervise housekeeping activities by counter signing the checklists used for monitoring.

Use of Checklists

- Checklists to be maintained floor wise, area wise for routine cleaning of floor and for cleaning of male and female washrooms
- The housekeeping personnel after completing the activity, as listed in checklist, need to sign or mark the activity which is then monitored by SI and is countersigned if found satisfactory.
- All the checklists to be displayed at relevant areas and maintained regularly

References

- Guidelines for environmental infection control in healthcare facilities; recommendations of CDC and healthcare infection control practices advisory committee (HICPAC), CDC Atlanta, 2003.
- Guidelines for disinfection and sterilization in healthcare facilities, CDC Atlanta, 2008.
- Practical guidelines for infection control in healthcare facilities, WHO, SEARO Regional Publication No. 41, WHO, 2004.Prevention of Hospital Acquired Infections, A Practical Guide, 2nd edition, WHO/CDS/CSR/EPH/2002.12
- 'Kayak alp' —National guidelines for clean hospitals. Ministry of Health and family welfare, Government of India, 2015.

8.BIOMEDICAL WASTE MANAGEMENT IN OPD SETTINGS

8.1 BACKGROUND:

Bio-medical waste means waste that is generated during the diagnosis, treatment or immunization of human beings or animals or in research activities pertaining there to or in the production or testing of biological or in health camps, including the categories mentioned in schedule I appended to these rules

Application: These rules are applicable to all the persons who generate, collect, receive, store, transport, treat, dispose or handle bio medical waste in any form including hospitals, nursing homes, clinics, dispensaries, veterinary institutions, animal houses, pathological laboratories, blood banks, Ayush hospitals, clinical establishments, research or educational institutes, health camps, medical or surgical camps, vaccination camps, blood donation camps, first aid rooms of schools, forensic laboratories and research labs.

Implementation of Bio Medical Waste Rules, 2016 & 2018 (Amendment)

BMW management rules were revised through a gazette notification by the Central Government in 2016 & 2018 (Amendment) and it has become mandatory for health facilities to manage bio medical waste generated from the health facilities as per the new rules.

8.2 PURPOSE:

The purpose is to provide a framework for management of Biomedical waste generated in OPD areas of AIIMS Rajkot to improve efficiency and healthcare of all staffs

8.3 OBJECTIVES:

a. To prevent infection by maintaining good hygiene and sanitation.
b. To protect the patient, patient attendants and all health care personnel from avoidable exposure to infection.
c. To prevent injuries and other health hazards from biomedical waste
d. To manage waste in a clean, healthy, economical and safe manner.
e. To minimize waste

8.4 RESPONSIBILITY:

- The BMW committee is responsible for overall management of BMW of OPD
- It is the responsibility of Heads /Nursing in charges of respective OPDs to ensure that it is strictly followed for BMW segregation at their places
- The BMW committee is responsible for regular training of all faculties, residents, nursing staff, technicians, housekeeping staff and all other staff of hospital

8.5 SEGREGATION OF WASTE IN THE HOSPITAL:

Infectious waste is segregated in 4 bins, Red, yellow, Blue, White coloured puncture proof containers

Red bin: All Infected plastics like gloves, vacutainer vials, syringes without needles, rapid card kits

Yellow bin: Cotton, gauze dressing, bedding soiled with blood and body fluids, used caps and masks, out dated medicines, microbiology and other clinical laboratory waste

Blue Puncture proof container and cardboard box: Intact glass vials, broken glass bottles and vials (metallic body implants)

White Puncture proof container: Needles, syringes with fixed needles, Needles from needle tip cutter /hub cutter, blades, scalpels, lancets, slides, stylet of IV cannula which are capable of producing injury or cuts.

Non-Infectious waste to be discarded in green and blue colour bag.

- **Green Bin-**Wet general waste like remains of food, fruit peels etc.
- **Blue Bin**- Dry general waste like paper, plastics, injection or medicine wrapper

Fig 16: Designated Color-coded Bins and Bags near the Laboratory

8.6 STEPS IN WASTE MANAGEMENT:

1. Segregation
2. Collection
3. Storage.
4. Transportation
5. Final disposal

Segregation: Segregation to be done at point of generation. It is responsibility of generator of waste to discard the waste in appropriate bins. Bio-Medical waste not be mixed with other general wastes.

Sharps to be mutilated and needles to be cut with needle destroyer and then stored in tamper proof, leak proof and puncture resistant sharp containers

Collection: Collection of BMW waste once bags are ¾ full by BMW staff,

Appropriate PPE to be worn by BMW staff while collecting the waste.

General waste to be collected separately

Storage: These BMW bags are to be stored in large BMW bins away from patient and staff areas till the final transportation for not more than 48 hours

Transportation -These color-coded BMW bags are transported in fully covered GPS tracked vehicle to CBWTF (Distromed Bioclean Pvt Ltd). A record of vehicle registration no, date & time and quantum of waste handed to be maintained

Final Disposal of BMW-Handover of BMW waste to the Common Biomedical Treatment Facility Plant, located at which is 35 Km from AIIMS Rajkot. And final disposal of these waste are done as per rules and regulation by Central Pollution Control Board, and BMW rule 2016, amendment done on March 2018 and 2019

Treatment and disposal of liquid waste Liquid waste, chemical waste and used disinfectants to flushed in drains with excessive water.

Authorization AIIMS Rajkot has applied for License for GPCB authorization (Gujarat Pollution Control Board) as per BMW rules 2016 and 2018(amendment)

Contract with Distromed Bio Clean PVT LTD (CBMWTF)

GPCB ID –GOV 260

Alternate Day Waste Collected by the GPS Tracked Transportation vehicle (Mon/ Wed/ Fri)

8.7 BMW STAFF:

- Total 3 BMW staff currently working in hospital biomedical waste management services. 1 BMW supervisor ensures collection, segregation and transport of waste.
- For BMW handling, BMW staff to use PPE like Gown, heavy duty gloves, Gum boots, cap, and mask.
- There complete health check-up and immunization to be ensured by BMW in charge.
- BMW in charge take regular round of OPD and ensure proper segregation and collection of BMWs in the OPD premises.
- In charge also organize BMW training classes for all Healthcare workers in the hospital

8.8 EQUIPMENTS AND REQUIREMENTS

i. Colour coded non-chlorinated plastic bags: Bags with biohazard symbol
ii. Colour coded non-chlorinated plastic bins: Foot operated bins with lids and biohazard symbol
iii. Colour coded waste trolleys: Bins with lids with biohazard symbol,
iv. Syringe and Needle mutilators.
v. Sharp Containers: Leak proof, Tamper proof, Puncture resistant, white translucent with biohazard symbol.
vi. Sharp Containers: Puncture proof Cardboard boxes with blue coloured markings, with biohazard symbol

vii. PPE (caps, masks, heavy duty gloves, plastic aprons full sleeves, shoes/rubber boots, protective goggles).
viii. Disinfectants (Sodium hypochlorite 1%)

8.7 BIOMEDICAL WASTE MANAGEMENT COMMITTEE:

Waste Management committee is responsible for making HCF specific action plan for HCF waste management and its implementation, supervision and monitoring.

Composition of the Committee

Name	Designation	Role
Dr. (Col) C.D.S Katoch	Executive Director	Executive Director and Medical Superintendent
Dr. Ashwini Agarwal	Professor Department of Microbiology	Chairperson
Dr. Mayuri Bhise	Assistant Professor Department of Microbiology	Member Secretory
Dr. Sanjay Singhal	Assistant Professor Department of Pulmonary Medicine	Member
Dr. Bhavesh Modi	Professor and Head Department of Community Medicine and Family Medicine	Member
Dr. Ragini Singh	Assistant Professor Department of Biochemistry	Member
Dr. Mehul Kaliya	Associate Professor Department of Medicine	Member
Dr. Abhilasha Motghare	Assistant Professor Department of Anaesthesiology	Member
Dr. Pinky Meena	Assistant Professor Department of Paediatrics	Member
Dr. Gaurav Sharma	Assistant Professor and Deputy Medical Superintendent Department of Physiology	Member
Dr. Anil Chaudhary	Assistant Professor Department of Microbiology	Member
Dr. Richa Singh Chauhan	Assistant Professor Department of Radiology	Member
Dr. Garima Anandani	Assistant Professor Department of Pathology	Member
Ms. Vanita Trivedi	Nursing Staff	Member
Mr. Avinash Agravat	Sanitary Inspector	Member

8.9 MEETINGS:

1. The BMW committee meetings to be held at least quarterly or more frequently, if necessary.
2. This committee to liaise & coordinate with HIC Committee.

8.10 TRAININGS:

All categories of staff & HCW handling BMW to be carried out at least:

1. At the time of induction and at least once in a year thereafter.
2. Record of the trainings to be maintained.
3. BMW posters to be displayed at strategic points (collection centre, triage area Laboratory OPDs.)

8.11 HEALTH CHECK-UPS & IMMUNIZATION:

1. At the time of joining & at least once a year.
2. Immunisation (Hepatitis B, Tetanus) of all the categories of staff.
3. Record to be maintained & regular updates must be provided to HIC Department.
4. Availability of Post Exposure Prophylaxis whenever required.

8.12 COVID 19 BIOMEDICAL WASTE MANAGEMENT:

- BMW collection staff wear appropriate PPE like Gown, heavy duty gloves, Gum boots, cap, goggles and mask.
- Four-Color-coded bins/bags/containers- yellow bin, red bin, blue bin and white puncture proof containers to be used for segregation of COVID-19 waste
- Double-layered bags used to prevent leakage, spillage of soiled we
- Dedicated collection bin labelled as “COVID-19” - in separate temporary storage area
- Bags/bins/trolleys labelled “COVID-19 Waste” for transporting waste from collection area to disposal site.
- All COVID 19 waste are handed over to CBMWTF.
- Records of waste are maintained by Supervisor
- Disinfection of Trolley and bins with 1% Sodium Hypochlorite

Color coded bags	Type of waste disposed
Yellow	Triple layered mask,N95 mask, non-plastic or semi-plastic coverall, disposable head cove/cap, shoe cover, disposable linen/gown used masks, tissues and toiletries/ diapers by COVID-19 patients
Red	Goggles, face-shield, splash proof apron, Plastic Coverall, Hazmat suit, nitrile gloves
White/translucent puncture proof, leak proof plastic container	Sharp waste
White/translucent puncture proof, leak proof plastic container with blue marking	Glassware, metal implants

Standard operating procedure for biomedical waste:

Management of COVID-19 waste

Collection and segregation of COVID-19 waste as per guidelines at the point of generation **(Double layered bags and bins with "COVID-19 Waste" label)**

↓

The (inner and outer) surface of bags/containers/collection bins/trolleys used for storage of COVID-19 waste -disinfection with 1% sodium hypochlorite solution

↓

Handing over the collected waste to BMW Worker in designated bins/trolley with "COVID-19 Waste" label

↓

Transport of COVID-19 Waste to the central storage area

↓

Handing over of all COVID-19 waste to the CBWTF

↓

Maintain separate records of waste generated from COVID-19.

8.13 STANDARD PRECAUTIONS TO BE FOLLOWED BY HEALTH CARE WORKER'S :

For COVID-19

1. Hand hygiene.
2. Use of personal protective equipment (e.g., water resistant apron, gloves, masks, eyewear).
3. Clean and Disinfect environmental surfaces with 1% Sodium Hypochlorite solution; allow a contact time of 30 minutes, and then allowed to air dry.

REFERENCES

- Guideline for Handling, Treatment and Disposal of Waste Generated during Treatment / Diagnosis/ Quarantine of COVID-19 Patients. CPCB. March 2020.
- Guidelines for health care workers for waste Management and infection control in community Health Centre by Ministry of health and family welfare, Govt. of India.2016, amended on 2018, 2019

9.SPILLAGE MANAGEMENT

9.1 BACKGROUND:

Spillage of blood, body fluids or chemicals can occur at any time either as a result of broken or faulty equipment or human error. It is therefore essential for the hospital to have the designed spill management kit, a standard operating procedure for spill management along with well trained staff for immediate spill management.

9.2 SCOPE:

Applies to all the nursing staff and housekeeping staff of Aiims Rajkot for spill management.

9.3 RESPONSIBILITY:

It is the responsibility of all faculty and staff to be aware of and adhere to the standard operating procedure for spill management.

9.4 DEFINITIONS:

Spillage: Spillage of blood or body fluids out of container
PPE: They are protective gears designed to safeguard the health of workers by minimizing the exposure to a biological agent.

9.5 POLICIES:

1.Isolate or seal off the area (if necessary, put out the caution sign)

↓

2.Wear gloves and other appropriate PPE as per requirement

↓

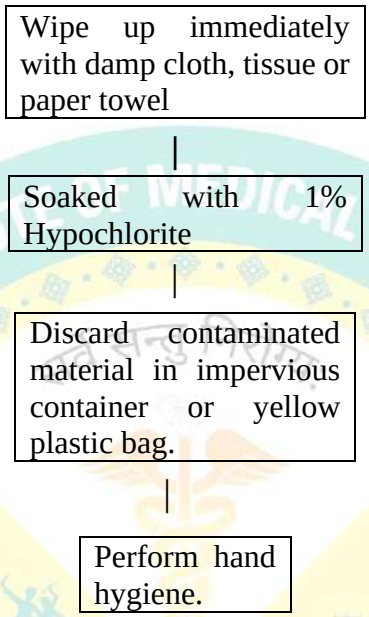
3.If there is any broken glass & sharps, collect it with pair of forceps
(In case of mercury spill, use syringe or dropper to draw up the mercury beads)

↓

4. Identify and manage the SPILL

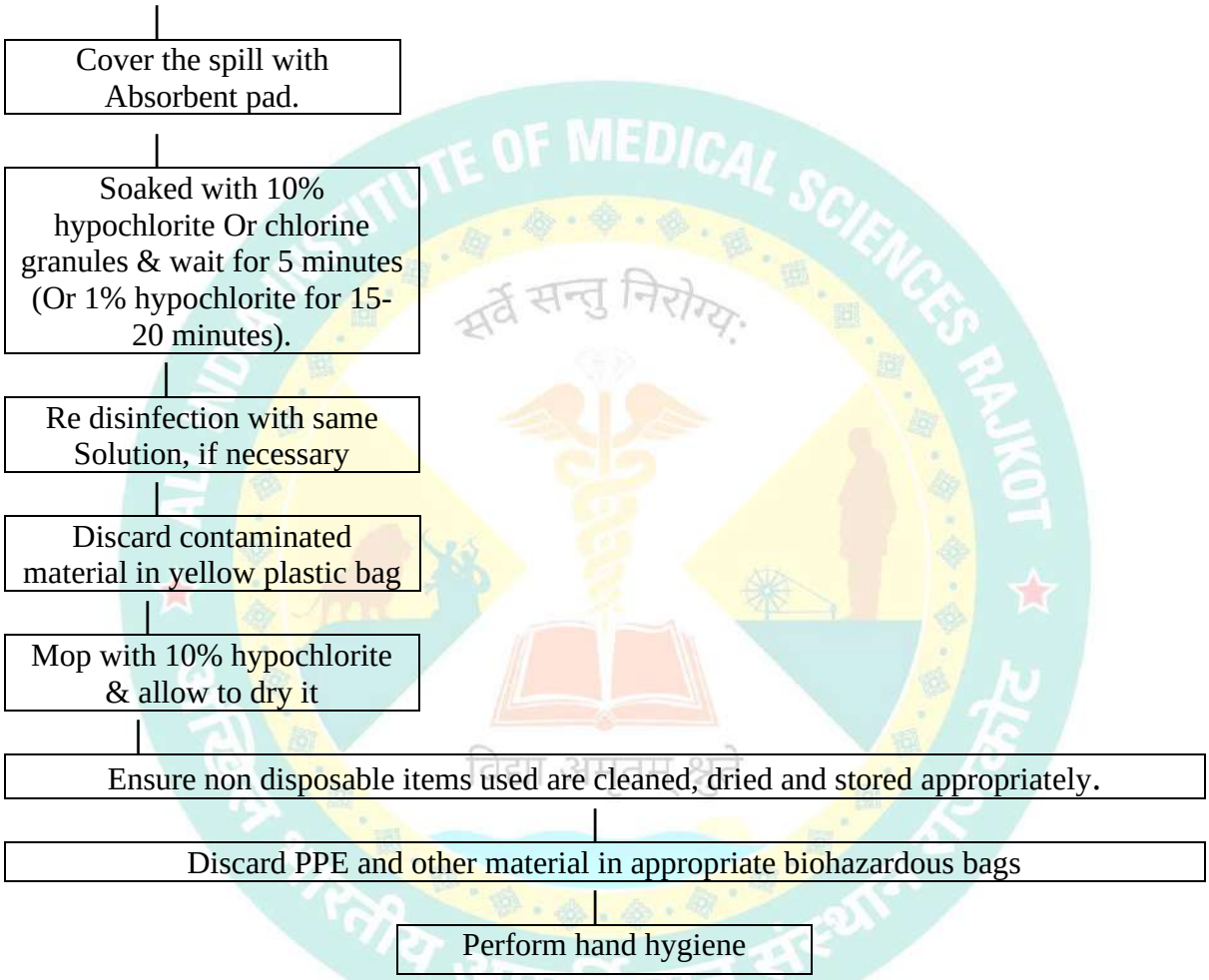
Blood & Other Potentially Infectious Material (OPIM) spill management:

- **Spot/Small (up to 10 cm)**



- **Large (>10 cm)**

Blood and blood stained body fluids



- **Large (>10 cm)**

Pus/Sputum/Vomitus/Faeces

|

Visible blood?

YES

As for blood, absorb with cloth or tissue pour 1% hypochlorite solution.

|

Discard contaminated materials in yellow plastic bag.

NO

Wipe up with cloth or tissue

|

Discard waste in yellow plastic bag

|

Mop with general purpose detergent

|

Ensure non disposable items used are cleaned, dried and stored appropriately.

|

Discard PPE and other material in appropriate biohazardous bags

|

Mop with 1% hypochlorite & allow it to dry

|

Perform hand hygiene

Fig 17: Pictorial Flow chart for Spill Management

Fig 18: Spill Kit with its Contents

Contents of spill management kit:

- Personal Protective Equipment
  - o Gloves
  - o Plastic Apron
  - o Face masks
  - o Caps
  - o Goggles
  - o Shoe Covers
  - o Forceps
- Absorbent Material (Cotton/ Blotting Paper/ Tissue Paper)
- Yellow Biohazard bag
- Small card board Sheets

9.6 PROCEDURE:

MANAGEMENT OF SPILLS OF BLOOD AND OPIM (OTHER POTENTIALLY INFECTIOUS MATERIAL):

>In case if spillage comes in contact with skin, mucous membrane, eyes or open wounds; the first step of spill management is to irrigate continuously and to follow appropriate first aid measures.

1. Isolate the area:
- Cordon off the area. If possible, close off the area by closing windows and doors. Turn off any fans which may spread the spill/aerosols.
- Move patients away from the area of the spill.

2. Obtain spill kit and don protective clothing:
- Open the spill kit and put out the caution sign.

Freshly prepared Sodium hypochlorite solution (use Phenol/ Lysol in case of spill clean-up of urine)
- Shelf life of sodium hypochlorite: 8 hours

To prepare 100ml solution of sodium hypochlorite:

Concentration of commercially available Hypochlorite solution	Concentration Required for Working	Hypochlorite Solution(ml)	Add water (ml)
5%	1%	20 ml	80 ml
10%	1%	10 ml	90 ml

Buckets and mops of spills should be different from the regular mops and buckets and should be cleaned separately.

Don PPE in the following order.
- Shoe covers
- Disposable impermeable long-sleeved gown
- Mask, Goggles
- Gloves (two pairs).

3. Clean up the spill:

- Promptly clean and decontaminate spills of blood and other potentially infectious materials.
- Using a pair of forceps and gloves, carefully retrieve broken glass and sharps if any, and use a large amount of folded absorbent paper to collect small glass splinters. Place the broken items into the puncture proof sharps container.

a) SMALL VOLUMES OF SPILLS (Few drops OR up to 10 cm):

- Cover spills of infected or potentially infected material on the floor with paper towel/ blotting paper/newspaper. Pour freshly prepared sodium hypochlorite (1% dilution containing minimum 10,000 ppm chlorine)
- Place all soiled absorbent material and contaminated swabs into a designated waste container.
- Then clean the area with gauze or mop with 1% hypochlorite solution and then allowed to dry off naturally.

b) LARGE VOLUMES OF SPILLS (>10 cm):

- Cover spills of infected or potentially infected material on the floor with paper towel/ blotting paper/newspaper. Pour freshly prepared 10% sodium hypochlorite. Alternatively, chlorine granules can be sprinkled on the spill first and then the paper can be placed over it.
- Waiting period of 5 minutes should be allowed. Then the absorbent pad is removed and discarded.
- If we use 1% hypochlorite, contact time for that should be 15-20 minutes.
- Place all soiled absorbent material and contaminated swabs into a designated waste container.
- Then clean the area with gauze or mop with 10% hypochlorite solution and then allowed to dry off naturally.

4. Dispose of waste:
Remove protective clothing in the following order and place in the clear bag

- Shoe covers
- Gown – ask another nurse to untie the gown at the back so as
- not to contaminate your hair and neck.
- Mask
- Goggles - If the goggles have been contaminated, discard into
- the bag, otherwise, wash wearing non-sterile gloves in warm
- soapy water. Dry with paper towels; discard paper towels into
- Yellow bag. Place goggles back in the spill kit.
- Outer gloves

All contaminated items used in the clean-up should be placed in a biohazardous bag for appropriate disposal.

5. Appropriate authority should be notified.

MANAGEMENT OF MERCURY SPILL:

Procedure of Mercury Spill Clean Up:
1.Isolate the area:

● Remove all items near the mercury spill area. Switch off the fan and Exhaust fan if in use.

● Children and pregnant women to be evacuated from that space.

2. Spilled mercury should be collected with a "Mercury spill kit":

Contents of a Mercury Spill Kit:
1. Gloves
2. Mask
3. Goggles
4. Syringe 5 ml or dropper
5. Plastic container with lid that seals
6. Adhesive plaster strips
7. Cardboard strips or chart paper pieces
8. Thick plastic bag
9. Torch

Remove the jewellery and watch from hands, then wear gloves and mask. Wear old clothes for safety purpose.

3. Clean up the spill:

- Locate all Mercury beads, then carefully use the cardboard strips or Chart Sheet to gather them together.

- Use the syringe or dropper to draw up the Mercury beads, transfer them into the water filled plastic container and close and seal airtight.

- Small and hard-to-see beads can be located with the flashlight, after removing the larger beads, use adhesive tape to collect those beads.

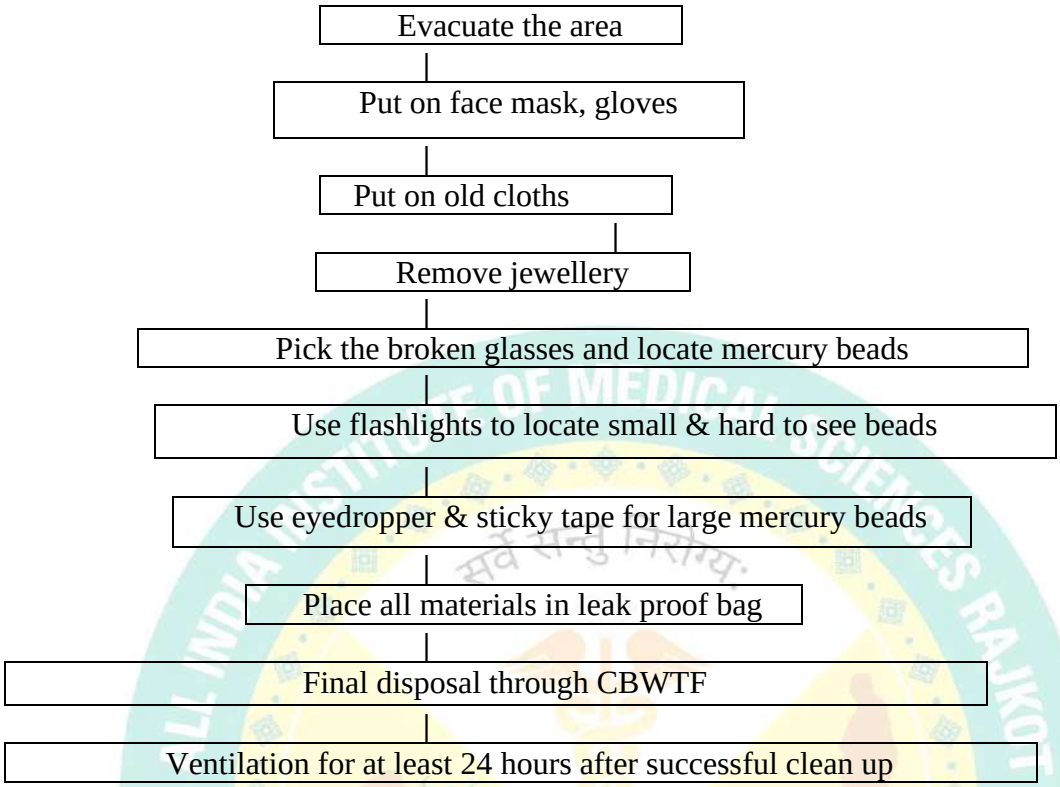
- If Mercury spilled on linen, that portion to be cut and removed.

4. Dispose the waste:

- All the materials used for Mercury spill to be placed in the plastic bag and to be labelled as "CONTAMINATED WITH MERCURY".

- Doors and windows of the room to be kept open for 24 hours.

5. Appropriate authority should be notified.



DON'Ts:

- Do not put contaminated items in the washing machine.
- Do not vacuum.
- Do not use a broom or brush.
- Do not pour mercury down the drain.
- Do not throw mercury or contaminated items in the garbage.
- Never continue Wearing shoes and clothing that might have been contaminated in the mercury spill.
- Never burn shoes, clothing, fabric or anything that has been contaminated with mercury.

MANAGEMENT OF CHEMICAL SPILL:

1. Isolate the area. Safety should be assessed and source of spill should be contained.

2. Follow the MSDS guidelines for specific instructions on different chemical spillage.

3.Clean the area with help of chemical spill kit

Contents of chemical spill kit:
1.Absorbant pads and rolls
2.chemical neutralizer
3.PPE kit

- Chemical resistant safety gloves
- Safety goggles
- Apron
- Footwear
- Shoe cover
- Dust mask or respirator

4.clean up material for spill

- Broom, plastic dustpan and plastic tongs or scoop
- Chemical resistant bin with closed fitting lid
- Heavy duty plastic bags for wrapping contaminated PPE.

5. Neutralization: depending upon the nature of chemical,

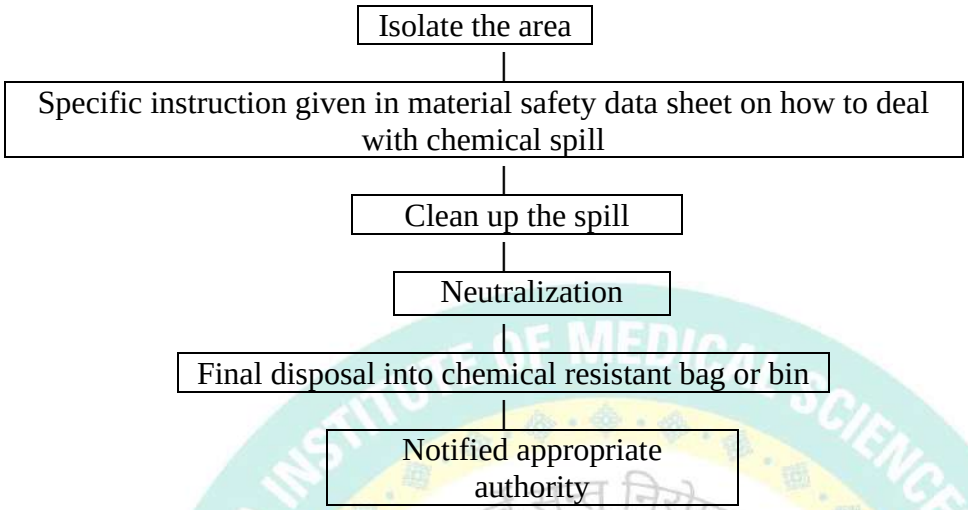
Universal spill absorbent: good for all solvents, bases and acids (exception – hydrofluoric acid)

Acid spill neutralizers: sodium carbonate, sodium bicarbonate or Calcium carbonate

Alkali spill neutralizers: boric acid, Sodium bisulphate or oxalic acid

Solvent or organic liquid absorbent: inert absorbent such as clay and sand

6. Inform the appropriate authority



REFERENCE:

- Essential Of Hospital Infection Control by Apurba S Sastry and Deepashree R
- Hospital Infection Prevention And Control Guidelines On ncdc.Gov.In

10. INJECTION SAFETY, NEEDLE STICK INJURY AND ITS MANAGEMENT

10.1BACKGROUND:

Injection safety or safe injection practices are practices intended to prevent transmission of infectious diseases. Patients and healthcare providers must both insist on nothing less than *One Needle, One Syringe, Only One Time* for each and every injection

10.2 PURPOSE:

To ensure safe injection practice for healthcare worker

10.3 SCOPE:

All medical & nursing staff

10.4 RESPONSIBILITY:

- Overall responsibility of implementation of this policy shall lie with nursing in charge of respective department.
- Infection control team is responsible for day-to-day monitoring of the program.

10.5 PROCEDURE:

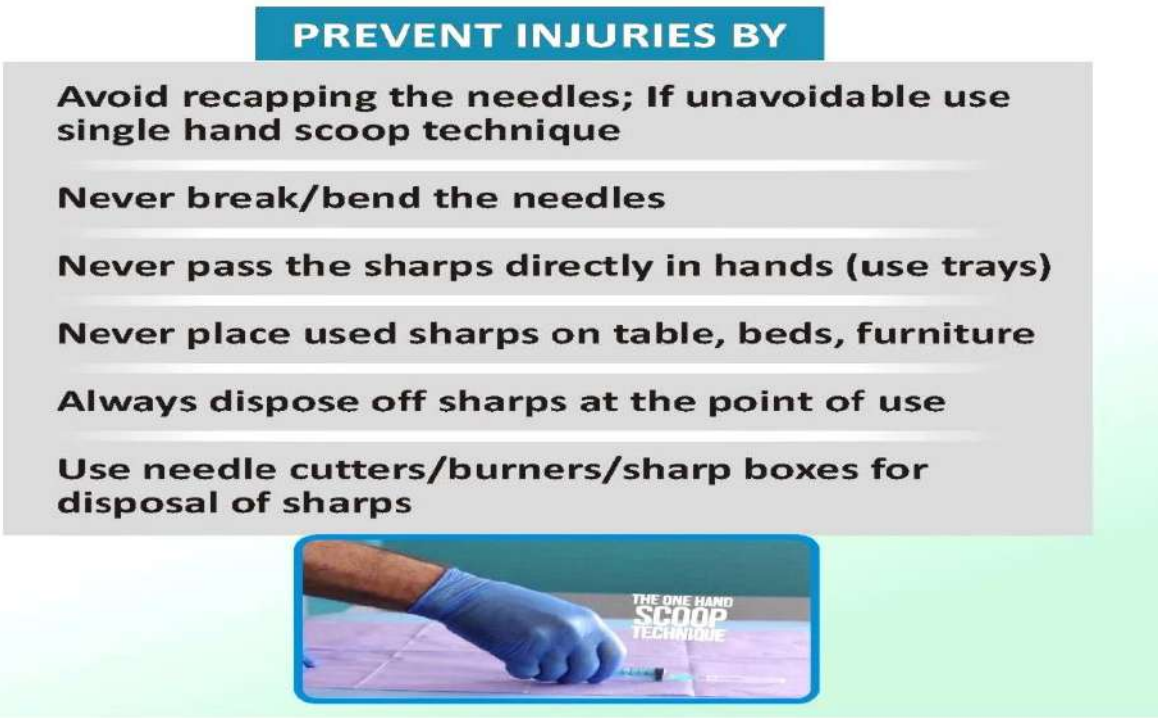
Table 8: Handling of Syringes and Needles

Do's	Don'ts
• Maintain hand hygiene (Use soap & water or hand rub).	• Pass syringes and needles hand to hand, preferably cut it with needle Cutters at the point of use.
• Use alcohol swab to clean the site for injection and plain sterile swab for vaccination.	• Do not bend / or break used needle with hands.
• Pass syringes and needles in a tray preferably cut it with needle Cutters.	• Never test the fineness of the needle's tip before use with bare or gloved hand.
• Remove cap of needle near the point of use.	• Never pick up open needle by hand
• Pick up open needle from tray/drum with forceps.	• Do not recap the needle

• Discard needle in disposable sharp container	
• Destroy syringes by cutting their nozzle & discard in red bin.	

Needle Cutter

Needle Destroyer



Precautions to be taken to avoid Needle Stick Injury (NSI)

- Never administer medications from the same syringe to more than one patient, even if the needle is changed.
- After a syringe or needle has been used to enter or connect to a patient's IV it is contaminated and should not be used on another patient or to enter a medication vial.
- Never enter a vial with a used syringe or needle.
- Never use medications packaged as single-dose vials for more than one patient.
- Assign medications packaged as multi-dose vials to a single patient whenever possible.
- Do not use bags or bottles of intravenous solution as a common source of supply for more than one patient.
- Follow proper infection control practices during the preparation and administration of injected medications.
- Wear a surgical mask when placing a catheter or injecting material into the spinal canal or subdural space.

10.6 INJECTION SAFETY CHECKLIST NEED TO KEEP IN MIND:

- Injections are prepared using aseptic technique in a clean area free from contamination or contact with blood, body fluids or contaminated equipment.
- Needles and syringes are used for only one patient (this includes manufactured prefilled syringes and cartridge devices such as insulin pens).
- The rubber septum on a medication vial is disinfected with alcohol prior to piercing Medication vials are entered with a new needle and a new syringe, even when obtaining additional doses for the same patient.
- Single dose (single-use) medication vials, ampoules, and bags or bottles of intravenous solution are used for only one patient.
- Medication administration tubing and connectors are used for only one patient.
- Multi-dose vials are dated by HCP when they are first opened and discarded within 28 days unless the manufacturer specifies a different (shorter or longer) date for that opened vial.
- Note: This is different from the expiration date printed on the vial multi-dose vials are dedicated to individual patients whenever possible.
- Multi-dose vials to be used for more than one patient are kept in a centralized medication area and do not enter the immediate patient treatment area (e.g., operating room, patient room/cubicle).

Note: If multi-dose vials enter the immediate patient treatment area they should be dedicated for single-patient use and discarded immediately after use

10.7 PROCEDURE TO BE FOLLOWED AFTER NEEDLE STICK INJURY:

DO's

- Stay calm.
- Do not panic.
- Do not place the pricked finger into the mouth reflexively.
- Do not squeeze blood from wound.

For Injuries On Skin:

- Remove gloves, if appropriate.
- If the skin is broken after a needle stick/sharp instrument.

OR

If there is splash of blood or bodily fluid on unbroken skin
immediately wash the wound and surrounding skin with soap and water & rinse

- Do not scrub
- Do not use antiseptics or skin washes (e.g., bleach, chlorine, alcohol)

For Exposure of Eyes:

- Immediately irrigate the exposed eye thoroughly with water or normal saline
- If wearing contact lenses, leave them in place while irrigating
- Once the eye is cleaned, remove the contact lens and clean them in a normal manner
- Do not use soap or disinfectant on the eye

For mouth

- Spit fluid out immediately.
- Rinse the mouth thoroughly using water or saline and spit again
- Repeat the process several times
- Do not use soap or disinfectant in the mouth

Whom to Report:

Nodal Officer, Department of Microbiology, Room no. 111,1st floor, OPD Block

10.8 ROLE & RESPONSIBILITIES:

- Assess the health care worker as per the NSI reporting Performa.
- Pre-test counselling.
- Blood sample (5 ml) to be collected for baseline investigations-: HIV, HBV, HCV, CBC &LFT.
- Release the report at the earliest.
- Give 1 dose of PEP for HIV if required after taking consent and blood sample.
- Ask exposed person for OPD slip generation from OPD counter.
- Assess requirement for HBIG, HBV vaccination, Tetanus Toxoid, history of any other diseases or drug intake which may have interaction with post exposure prophylaxis and record them.
- Refer to physician for further assessment if required.
- Call for Serological follow up after 1,3,6 months
- Clinical follow up

10.9 SHARP/NEEDLE STICK INJURY REPORTING PROFORMA:

HOSPITAL INFECTION CONTROL COMMITTEE, AIIMS Rajkot **NEEDLE STICK INJURY REPORTING PROFORMA (To be filled in Micr obiology)**
Exposure ID: **Date & time of exposure:**
Time passed since incident
Health care worker name: Age Sex
AIIMS ID No.
Mobile no: Email ID:
Hepatitis B vaccination status **Anti-HBs titres in past**
Job description of HCW: Department/Unit
Place where the incident occurred:
Was the source patient identifiable and location? Yes/No/Unknown
If identifiable, what is the status of HIV/HBV/HCV of source? Known case/Unknown/Negative

Further details of injury:

1. Type of injury: Percutaneous or Mucosal

2. Site of injury

3. Was the injury? Superficial *(little or no bleeding)*/Moderate *(skin puncture, some bleeding)*/ Severe *(deep or profuse bleeding)*

4.What type of device caused the injury? Needle (hollow-bore/plain) or instrument or glass

5. Was there blood on the device? Yes/no/unknown

6. Procedure (Inj/sampling/Blood glucose/I.V. Access/suturing/Garbage bag/others specify)

7. Did the injury occur?

a. Before use of item *(item broke/slipped, assembling device, etc.)*
b. During use of item *(item slipped, patient jarred item, etc.)*
c. While recapping used needle
d. Device left on the floor, table, bed or other inappropriate place
e. From item left on or near disposal container
f. While putting item into disposal container
g. After disposal, stuck by item protruding from opening of disposal container
h. Other: specify……

8. If injury was to the hand, then – Gloves used (single pair or double pair) or no gloves used

9. Wound care after injury:

PEP Management Checklist: For Exposed and Source person

- **Exposed Blood taken for testing (Yes/No):- ……**
- **Source Blood taken for testing (Yes/No):- ……**
- **Consent for HIV testing taken (Yes/No):- ……**
- **HBV Vaccine: -** (Indicated & given /Not Indicated/ Indicated &not given):- **……**
- **HBIG** (required /Not required) **……**
- **HIV** PEP offered/Not offered **……**
- **If yes, Time of 1st dose since Injury and drug details** (Time in Hrs.):- **……**
- **Referral & Counselling: - ……**

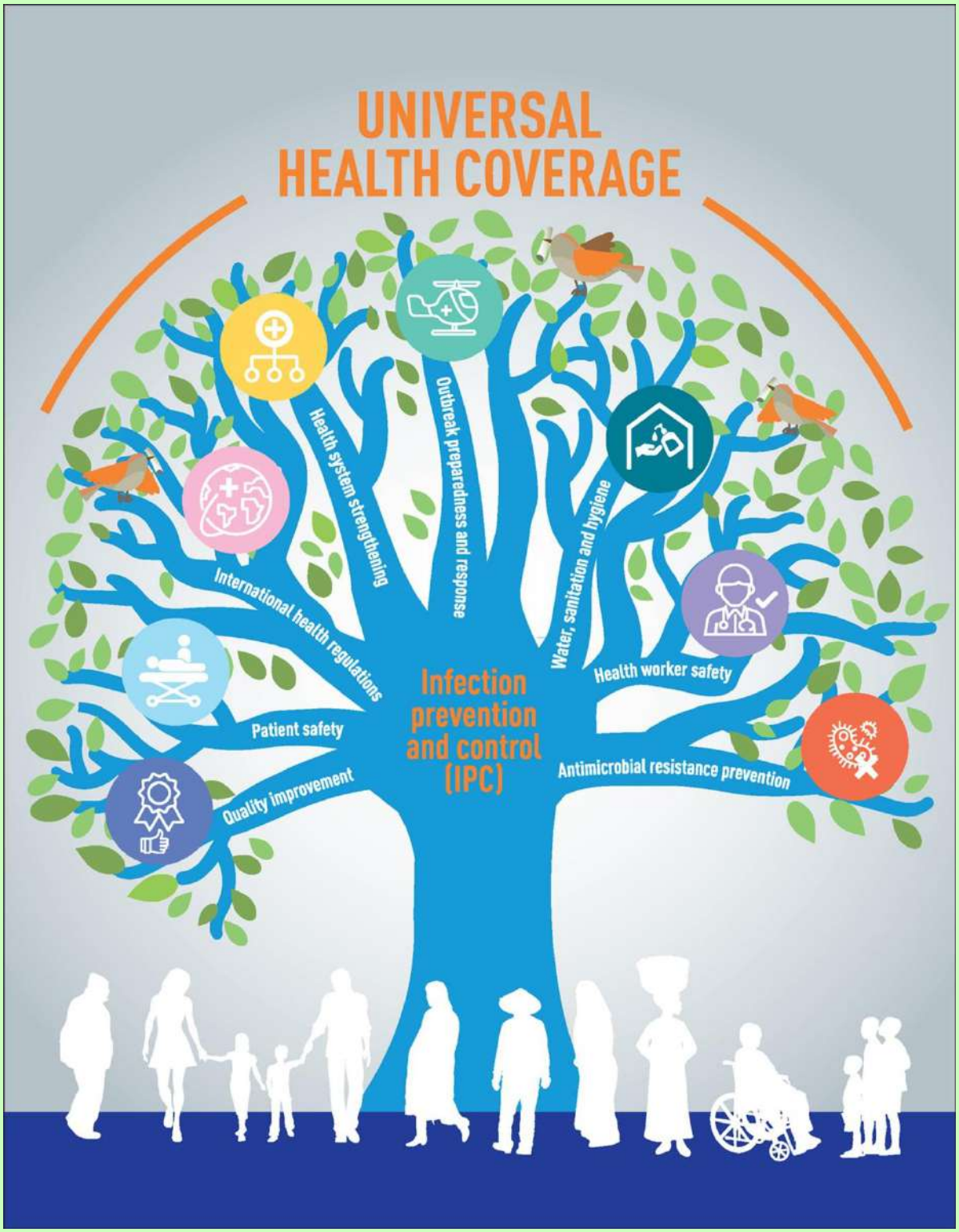
1	**STATUS: -**
2	**SOURCE HIV/HBV/HCV STATUS: - ……..**
3	**EXPOSED BASELINE HIV/HBV/HCV STATUS: -……**
4	**HBV VACCINATION DETAILS: -……**
5	**ANTI-HBS TITRES: -……**
6	
7	**FOLLOW UP: -**

- **HIV/HBV/HCV testing of exposed at <u>four weeks (Date)</u> :-……**
- **HIV/HBV/HCV testing of exposed at <u>Three months (Date)</u> :-……..**
- **HIV/HBV/HCV testing of exposed at <u>six months (Date)</u> :-……**

Signature of the Doctor

REFERENCES:

- Handbook on safe injection practices, Ministry of Health & Family Welfare, Govt of India.
- Injection Safety Guidelines, Centre for Disease Control, USA.



HOSPITAL INFECTION CONTROL COMMITTEE
AIIMS, Rajkot