



DISINFECTION POLICY JIPMER, 2019



**Prepared by
Hospital infection control committee (HICC)
JIPMER**



DEFINITIONS

Table: Definitions of sterilization and disinfection

Definitions of sterilization and disinfection	
Sterilization	Process by which all living microorganisms, including viable spores, are either destroyed or removed from an article, body surface or medium. <ul style="list-style-type: none"> • It results in reduction of 10^6 log colony forming units of microorganisms and their spores. • It can be achieved by physical agent or a chemical agent.
Disinfection	It refers to a process that destroys or removes most of the pathogenic organisms except bacterial spores. <ul style="list-style-type: none"> • It leads to reduction of at least 10^3 log colony forming units of microorganisms, but not spores. • The primary goal in disinfection is to destroy potential pathogen, but it also substantially reduces the total microbial population.
Asepsis	It is a process where the chemical agents are applied on body surfaces, which kill or inhibit the microorganisms present on the skin. <ul style="list-style-type: none"> • They prevent entry of the pathogens into sterile tissues and thus prevent infection or sepsis • They are generally not as toxic as disinfectants as they must not destroy too much of host tissue.
Decontamination or Sanitization	It refers to reduction of pathogenic microbial population to a level at which items are considered as safe to handle without protective attire. It results in reduction of at least 1 log colony forming units of most microorganisms but not spores

SPAULDINGS CLASSIFICATION

Earle H. Spaulding devised a rational approach to classify the patient-care items and equipment into four categories (table) according to the degree of risk for infection involved in use of the items. This classification scheme is so clear and logical that it has been retained, refined, and successfully used by infection control professionals in the hospital.

Table : Spaulding classification of medical devices

Medical device	Definition	Examples	Recommended sterilization/ disinfection method
Critical device	Enter a normally sterile site	Surgical instruments, cardiac and urinary catheters, implants, eye and dental instruments	Heat based sterilization Chemical sterilant or High-level disinfectant
Semi-critical device	Comes in contact with the mucus membranes or minor skin breaches	Respiratory therapy equipment, anaesthesia equipment, endoscopes, laryngoscope, rectal/vaginal/oesophageal probes	High level disinfectant
Non-critical devices	Comes in contact with intact skin	BP cuff, ECG electrodes, bedpans, crutches, stethoscope, thermometer	Intermediate level or low level disinfectant
Non-critical environmental surfaces	Less direct contact with patient	Surfaces of medical equipment, examination table, computers	Low-level disinfectant



Sterilization of equipment in a hospital is carried out in CSSD. CSSD has been described in detail in chapter 6. In this chapter, the disinfection/sterilization of rest of the hospital items has been described.

Properties of an ideal disinfectant (CDC):

- Broad spectrum: should have a wide antimicrobial spectrum
- Fast acting: should produce a rapid kill
- Not affected by environmental factors: should be active in the presence of organic matter (e.g., blood, sputum, feces)
- Compatible with soaps, detergents, and other chemicals encountered in use
- Nontoxic: should not be harmful to the user or patient
- Surface compatibility: should not corrode instruments and metallic surfaces and should not cause the deterioration of cloth, rubber, plastics, and other materials
- Residual effect on treated surfaces: should leave an antimicrobial film on the treated surface
- Easy to use with clear label directions
- Odorless: should have a pleasant odor or no odor to facilitate its routine use
- Economical: should not be prohibitively high in cost
- Solubility: should be soluble in water
- Stability: should be stable in concentrate and use-dilution
- Cleaner: should have good cleaning properties
- Environmentally friendly: should not damage the environment on disposal

Table: Efficacy of disinfectants

Level of disinfectant	Bacterial spores	Tubercle bacilli	Non enveloped viruses	Fungi	Envelope d viruses	Vegetative bacteria
Low level disinfectant	No	No	No	+/-	Yes	Yes
Intermediate level disinfectant	No	Yes	Yes	Yes	Yes	Yes
High level disinfectant	May be	Yes	Yes	Yes	Yes	Yes
Chemical sterilant	Yes	Yes	Yes	Yes	Yes	Yes

The decreasing order of resistance of microorganisms to disinfectant or sterilizing agents is as follows–

Prions (highest resistance) > Bacterial spores > *Cryptosporidium* oocysts > Mycobacteria >> Small non-enveloped viruses (polio) > Fungi > vegetative bacteria > Enveloped /medium to large size viruses (HIV, HBV, herpes).

Table - Common disinfectants and their spectrum of action

Germicide & their concentrations	Level of disinfectant	Bacteria & envelope d viruses	Fungi	Un-envelope d viruses	<i>M. tuberculosis</i>	Spore	Inactivat ed by organic matter
Glutaraldehyde (2%)	High/CS	+	+	+	+	+	-
Formaldehyde (3-8%)	High/CS	+	+	+	+	+	-
H ₂ O ₂ (3-25%)	High/CS	+	+	+	+	+	+/-
Chlorine (100-1000)	High	+	+	+	+	+/-	+



ppm of free chlorine)							
Isopropyl alcohol (60-95%)	Intermediate	+	+	+/-	+	-	+/-
Phenol (0.4-5%)	Intermediate	+	+	+/-	+	-	-
Iodophore (30-50ppm of free iodine)	Intermediate	+	+	+	+/-	-	+
Quaternary ammonium compounds (0.4-1.6%)	Low	+	+/-	-	-	-	+

CS- Chemical Sterilant, + effectively kills, - Unable to kill, +/- variably kills, ppm-parts per million

Table: Disinfectant Products Used in JIPMER

Disinfectant	Composition	How To Prepare	Purpose	Contact time
7% Lysol	Benzalkonium chloride solution (80%) and 2.5% w/w deionised water, Lauryl alcohol ethoxylate	15 ml in 1 litre of water Or 60ml in 4 litre of water	Floor surface toilet Cleaning (non-ICU area)	10 mins.
0.5% Bacillocid Extra	Ethylenedioxy dimethanol, Glutaraldehyde, coosion inhibitors & cleansors	5ml in 1 litre of water	Floor surface toilet cleaning in ICU	5 mins.
Bacillol (Wetask) wipes	Propanolol, Ethanol	Pre-soaked wipes	For instant disinfection of patient care equipment , surface cleaning (not floor) Electrical & electronic instruments and high touch area.	5 mins.
Bacillol spray	Propanolol, Ethanol	Spray	For instant disinfection of patient care equipment, surface cleaning (not reachable places of cot, wheels); (not floor).	5 mins.
1% Hypochlorite	When preparing chlorine solutions note that : o Daily preparation- discard after 24 hrs. o Use clear water	28gm (2 table spoon) of calcium hypochlorite (JIPMER supply bleaching powder) in 1 litre of water	Pre- wash soak for 10 to 15 minutes 1. For decontamination of suction jar, suction tubes, ventilator circuits, oxygen mask, nasal prongs. 2. Blood & body fluid stained instruments and linens (spot soak fro 10 min)	15 mins.
2% Hypochlorite	o Avoid direct contact with skin & eyes	56gm(4 table spoon) in 1 litre of water	To decontaminate soiled bed pan, toilet basin, commodes	10 mins.
0.1% Hypochlorite	o Wear PPE o Prepare in well ventilated area Use plastic container covered with lid	28gm(2 table spoon) in 10 litre of water	To disinfect colonized/infected pt. bed in isolation room after cleaning with detergent	10 mins.
STRUMEN Multi Zyme I	Enzymatic complex - QS	5ml in 1 litre of water	To clean instruments, after drying send for sterilization	5 mins.
			scopes & ventilator circuits-soak, after drying send for sterilization	10-20min
Detergent/soap chips		Soak chips in hot water-dilute the concentrate daily	For general cleaning and floor cleaning in non clinical areas	5 mins.



Avagard Handrub	2-Propanolol, 1-propanolol	Dispense 3-5 ml on hand.	For Handrub	15-20 sec.
Avagard Surgical Scrub	Chlorhexidine Gluconate %	Dispense 5ml on hands & scrub thoroughly	Surgical hand scrubbing/ washing, skin preparation	30 sec.
Avagard Surgical Antiseptic	Chlorhexidune Gluconate %, Ethanol with moisturizers	Dispense 2 ml & rub	Surgical Antisepsis	
Glutarex	Glutaraldehyde 2%	Activate by adding Activator vial supplied along with the Glutarex. Colour changes to fluorescent green.	Low	10-20 min .
			Intermediate	30 min .
			High	50 min.
			Sterilisation	10 hrs.

STAFF TRAINING

Staff involved in cleaning and disinfection should be trained in the following

1. All aspects of Standard precaution-
 - Hand hygiene
 - Appropriate use of PPE (personal protective equipment)
 - Cough Etiquette
 - Biomedical waste segregation
 - Needle stick Injury prevention and management
 - Hepatitis B Vaccination
 - Decontamination of instrument & linen contaminated with blood and body fluid.
 - Blood spill management
2. Use of Disinfectants in correct concentration, correct method and for appropriate purpose
3. Dress code
4. Difference between clean & sterile area and items
5. In case of chemical exposure-inform Ward Sister and take action according to MSDS (Material Safety Data Sheet)
6. Aware and follow Check List-daily once daily thrice weekly & monthly cleaning list



STANDARD OPERATING PROCEDURES

SOP FOR CLEANING THE FLOOR & BATHROOM

Before Cleaning:

1. Check for additional precaution and follow precaution as indicated
2. Gather material required for Cleaning and Disinfecting solutions.
3. Clean hands before the cleaning procedures.

During cleaning:

1. Wear appropriate PPE (cap, mask, heavy duty gloves, reusable plastic apron, eye protection if necessary).
2. Progress from the least soiled areas to most soiled areas (high surface to low surface).
3. If any needle or sharps are there in the floor segregate in puncture proof box safely.
4. Use dust control mop prior to wet mop-do not lift dust mop off the floor use swivel motion, never shake the mop, minimize turbulence.

Triple bucket mopping method:

1. Prepare fresh disinfectant solution as indicated in one bucket, water in One bucket one more bucket for rinsing the mop (in heavily soiled floor one bucket with Detergent and warm water before disinfectant mopping).
2. Use separate mop for different areas (patient area, nurses room-store room, varanda-pantry, bathroom-to dry the floor).-
3. Wash the mop under running water before doing wet mopping.
4. Do not double dip mop as dipping it multiple times may recontaminated.
5. Mop 120 square feet before redipping.
6. Change solution after cleaning and area of 240 square feet.
7. Mopping method
 - a. Place 'wet floor' caution sign outside of room or area being mopped.
 - b. Divide the area into sections (e.g. corridors may be divided into two halves, lengthwise so that one side is available for movement of traffic while the other is being cleaned).



- c. Immerse mop in cleaning solution and wring out.
- d. Push mop around skirting's (floor molding- lowest part of an interior wall) first paying particular attention to removing soil from corners.
- e. In open areas use a **figure eight stroke** in open and wide spaces, overlapping each stroke turn mop head over every five or six strokes.
- f. While in small spaces starting in the farthest corner of the room, drag the mop toward you then push it away, working in straight, slightly overlapping lines and keeping the mop head in full contact with the floor.
- g. Repeat until entire floor is done.

After Cleaning:

1. Clean mop head after use with detergent and hot water dry in sun light-mop head up handle down.
2. In high risk areas keep separate set of mops for each shift.
3. Clean the buckets with detergent and water and store it dry

Cleaning bathroom and toilets:

1. Clean from clean area to dirty area (high touch to low surface)-start from door handle ,door , light switch, mirror ,tap, buckets and mugs, wash basin ,side walls, flush out handle,- with detergent by cloth or cleaning pad.
2. Clean commode or toilet basin with detergent and hot water and then with disinfectant As indicated with toilet cleaning brush. (If soiled decontaminate with 2% hypochloride Before cleaning)
3. Clean urinals, bedpan, measuring jug, after use and each shift with detergent and hot Water, and then with disinfectant store dry (tilted down).
4. Clean the shelf daily.
5. Bathroom toilet floors wash with detergent and water then with disinfectant.
6. Dry the floor with dry mop.
7. Change cotton mat daily wash with detergent and hot water and sun dry.



SOP FOR CLEANING PATIENT CARE ENVIRONMENT

1. Surface Cleaning:

- a. Prepare fresh disinfectant solution as indicated in the cleaning basin.
- b. Use separate cloth/disposable pad for different areas. (equipments and high touch surfaces as mentioned in the check list.
- c. Cleaning from clean to dirty areas
 - d. Use separate cloth for cleaning each patient bed and surroundings.
 - e. Do not double dip cloth soak once only do not shake cloths.
 - f. When soiled, put the cloth in a separate container for laundering, if it is a disposable pad, discard it in yellow bag.
 - g. After cleaning, wash the cloth with detergent and sun dry. Wash the basin with detergent and water and store dry.
2. Mattresses and pillows to be covered with plastic covering for easy cleaning And disinfection in between patient use.
3. After discharge or transferring the patient, Clean thoroughly the patient bed and Surroundings with detergent and water and then with disinfectant as indicated.
4. Cleaning instruments, ventilator brething circuite-immediate pre wash- (rinsing with water) then soak in Enzomatic solution as indicated then wash and dry-sterilze.
5. Cleaning all equipments -refer to disinfection policy.

SOP FOR CLEANING OPERATING ROOMS

Environmental cleaning in surgical settings minimizes patients' and health care providers' exposure to potentially infectious microorganisms. The ultimate responsibility for ensuring a clean surgical environment rests with the peri-operative registered nurse. Environmental cleaning must be performed by trained staff. A regular cleaning schedule must be established check list to be documented. Responsibility for cleaning anaesthetic machines and carts should be clearly defined.

Cleaning Operating Rooms in between Cases:

- Place a cautionary 'Wet Floor' sign at the entrance of the room.
- Prepare fresh disinfectant solution as indicated.
- Clean hands and put on gloves.
- Collect and remove waste.
- Collect and remove all soiled linen.
- Remove gloves and clean hands.



- Use a cloth dampened in hospital-grade disinfectant solution to clean and disinfect surfaces that have come in contact with a patient or body fluids, including tops of surgical lights, blood pressure cuffs, tourniquets and leads.
- Clean suction canisters, reflective portion of surgical lights.
- Clean and disinfect OT table.
- Clean electronic equipment (i.e., monitors) according to manufacturer's instructions.
- Damp mop floor in a 1 to 1.3 metre (3 to 4 feet) perimeter around the OT table (larger area if contamination present).
- Insert colour coded bags in waste bins.
- Damp-dust equipment from other areas such as X-ray machines, C-arm etc. before being brought into the operating room and prior to leaving.
- When cleaning is complete, remove gloves and clean hands.

Adapted from House keeping protocol, from Kayakalp National Guideline for clean hospitals; 2015.

SOP for Terminal Cleaning of Operating Rooms

- Place a cautionary 'Wet Floor' sign at the entrance of the room.
- Prepare fresh hospital-grade disinfectant solution
- Clean hands and put on gloves.
- Collect and remove waste.
- Collect and remove all soiled linen.
- Clean hands and change gloves.
- Clean and disinfect lights and ceiling-mounted tracks.
- Clean and disinfect all door handles, push plates, light switches and controls.
- Clean and disinfect telephones and computer keyboards.
- Spot-check walls for cleanliness.
- Clean and disinfect all exterior surfaces of machines and equipment (e.g., anaesthesia carts), allowing adequate drying time for the disinfectant before storage.
- Clean and disinfect all furniture including wheels/ casters.
- Clean and disinfect exterior of cabinets and doors, especially around handles.
- Clean and disinfect all surfaces.
- Clean scrub sinks and surrounding walls.
- Mop floor, making sure the OT Table is moved and the floor is washed underneath;
- move all furniture to the centre of the room and continue cleaning the floor; apply a sufficient amount of disinfectant/ detergent to ensure that the floor remains wet for 5 minutes; use a fresh mop/ mop head and fresh solution for each room.
- Replace all furniture and equipment to its proper location.
- Wash the colour coded bins, dry them and put colour coded bags once it is dried.
- Report any needed repairs.
- Clean and store cleaning equipment.
- Remove gloves and clean hands.

* Adapted from House keeping protocol, from Kayakalp National Guideline for clean hospitals; 2015.



Scheduled Cleaning in Operating Room Suites

Item to be cleaned and their cleaning frequency

Twice yearly

Ceilings, including air conditioning and ventilation grills/vents and light
Fixtures

Monthly

Walls, including all doors and windows
Floors, including skirtings, corners and edges
Store rooms and storage areas
Exterior surfaces of machines and equipment

Weekly

Refrigerators
Furniture, including wheels/casters
Sterilizers, cabinets and doors (interior and exterior)

Daily

All horizontal surfaces (all shelving, computers, keyboards etc.)
Offices, lounges and locker rooms

Guideline for pre-treatment of specimens from Laboratories

Cleaning and disinfection procedures as per high risk areas.

- Decontamination of remaining blood and body fluid
 1. Blood – to be discarded in 1% hypochlorite contact time 15 mins.
 - Container – if it is glass – to be discarded in Blue bag
 - If it is plastic – to be discarded in Red bag
 - Blood culture –
 - BACTECT – Glass –after autoclaving – discard in blue
 - BACTE ALERT - Plastics – after autoclaving discard in yellow bag
 2. Sputum - to be discarded in 5 % phenol contact time 24 hrs.
 3. Urine - to be discarded in 1% hypochlorite contact time 15 mins.
 4. Stool - to be discarded in 2% hypochlorite contact time 15 mins.

The fluid can be drained into STP and containers can be discarded according to biomedical waste rule.

Pest control

Pest control should be done by sanitary department at least once in six months.



DISINFECTION PROCEDURE FOR INDIVIDUAL ITEMS OR EQUIPMENT

(Adapted from CDC, Damani's Manual of infection prevention & control and Local policy, JIPMER)

Items	Procedure	Comments
Airways	Clean with soap and water and gas (EtO) sterilization (CSSD) or use disposable	
Ampoules/vials	Wipe neck or rubber top with 70% isopropyl alcohol and allow to dry before opening or piercing. <i>Do not</i> immerse ampoules/vials in disinfectant solution	
Auroscope tip	Use single-use disposable tips. If reusable tips are used then send to CSSD for sterilization. Chemical disinfectant should be used only when other methods are unavailable.	
Oxygen –masks	Clean with soap and water send to (ETO)	
Ambubag	Should be cleaned with detergent and water, dried and sterilized. (ETO)	
Arterial catheters	Sterile, single use only, must be discarded after use.	
Baby equipment feeding bottles & teats PALADAI to be used for baby feeding	Not recommended Autoclaving	
Baby weighing scales A fresh liner should be used (or) baby towel for each baby.	Clean tray as necessary with detergent and water.	If contaminated should be wiped with hypochlorite 1000ppm after washing
Baths/showers/shower chairs	Not recommended	
Baby bath	Separate basins for each baby	
Beds and couches Frame (or) sofa	Refer to housekeeping section	If contaminated with body fluids, see spillage management policy. If used in isolation room after cleaning, should be wiped with a disinfectant <i>Colonized/infection patients.</i> After cleaning with detergent, disinfect with hypochlorite 1000 ppm solution
Bowls (Surgical)	Primary wash and Return to CSSD	
Bowls (Washing)	Wash with detergent and water and decontaminate with 1% hypochlorite solution/ bleaching solution, rinse and dry after each use. Store inverted and separated	
Mattresses and pillows should be covered with rexine sheet 6 months check for durability	Refer housekeeping section	If contaminated with body fluids, the blood spillage management policy should be implemented. Should not be used if cover is damaged. Contaminated pillows must be discarded. Torn mattress covers must be replaced before mattress is re-used
Bedpans and urinals	Refer housekeeping section	Bedpan holders, and storage racks/shelves must be cleaned with detergent on a daily basis.
Buckets	Refer housekeeping section	



Breast pumps	For single patient use -Should be washed with detergent and water,immersed in sodium hypochlorite 125 ppm av Cl ₂ for 30 min, freshly made up from tablets according to manufacturer's instructions.	Heat sterilize before use by subsequent patients
Brushes Nail Toilet	Refer housekeeping section	
Cardiac and urinary catheters, IV devices, and all other invasive devices. i.e. needles, syringes	Use sterile single-use disposable item only. If re use according to the local policy	
Cardiac monitors, defibrillators, and ECG	Use single-use disposable ECG pads. Clean and disinfect ECG leads and machine with 70% alcohol	
Carpets	Refer to housekeeping section	Should be shampooed or steam cleaned in isolation rooms as part of terminal cleans
Commodos & Toilet surface	Refer to housekeeping section.	If soiled or used in isolation, should be wiped with sodium hypochlorite 2%and dried, after cleaning
Cheatle forceps	Do not use. If used autoclave daily and stored in sterile container Use separate dressing packs for dressing	
Cleaning equipment	Refer to housekeeping section	
Couches (examination)	Refer to hose keeping section	
Cots	Refer to hose keeping section	
Cradles	Refer to housekeeping section	
Crockery and cutlery (spoons and utensils)	Should be heat disinfected in dishwasher. If washed in sink, with water and detergent	
Curtains	Refer to housekeeping section	
Curtains(between patients)	Refer to housekeeping section	
Drainage bottles	1.Disposable – single use 2. Reusable- rinse andreturn to CSSD	Wash with detergent and water, put jars in the disinfectant solution. Leave for contact time, rinse and store dry, or send to CSSD. Weekly autoclaving or HLD is highly recommended
Drip Stands Uro bag stands	Refer to housekeeping section	
Ear Pieces for auroscope and after use in isolation	Should be cleaned with detergent and water and dried.	To be returned to CSSD after use in isolation
ECG leads and machines	Wash with detergent and water, then 70% alcohol wipe.	
Leads and monitors	Should be dismantled to smallest components and cleaned with detergent and water and dried.	
Endoscopes-invasive	Refer endoscope treatment policy	
Endoscopes - non-invasive	Refer endoscope treatment policy	
Endotracheal tubes	Single use only	
Eye protection	Should be cleaned with detergent and water and dried.	For blood splashes blood spillage policy should be followed
Fixtures, fittings and ledges	Refer to housekeeping section	
Floors	Refer to housekeeping section	For blood splashes blood spillage policy should be followed.



Furniture	Refer housekeeping section	
Haemodialysis machines	Thoroughly clean between patients and disinfect at the end of the day per manufacturer's recommendations. <i>Colonized/infected patients:</i> after cleaning with detergent, disinfect with hypochlorite (1000 ppm av Cl ₂) solution or other appropriate disinfectant as per manufacturer's recommendations.	
Hoist/sling	Refer to housekeeping section	
Humidifiers	Should be cleaned and sterilized at low temperature.(ETO)	Drain atleast once each day, clean with detergent and water Refill with sterile water and label the humidifiers or follow Manufacturer's instructions. Humidifiers which are not in use should be cleaned and kept dry.
Infant Incubators	Should be cleaned with detergent and water and switch on to dry.	Terminal sterilization with ethylene oxide gas may be required after some infections.
Infant incubators	Routinely wash with detergent and dry with disposable wipe in a daily basis. <i>Colonized/infected patients:</i> after cleaning, wipe with 70% isopropyl alcohol impregnated wipe or use hypochlorite (125 ppm av Cl ₂) solution. When the baby is discharge, dismantle incubator and wash <i>all removable parts</i> and clean with detergent and then disinfect with hypochlorite (125 ppm av Cl ₂) solution or other disinfectant as per manufacturer's recommendation and allow to dry. . The cleaning and disinfection should be done in a separate area.	
Intravenous monitoring pumps (and feedpumps)	Should be cleaned with detergent and water and dried.	After use in isolation wipe with sodium hypochlorite 2% and dry, after cleaning
Instruments	After single use to be returned to CSSD	
Linen	Refer laundry section	
Laryngoscope	Decontaminate with 0.5% bleaching solution if blood stained. Clean with detergent and water and HLD is done with glutaraldehyde 2%. Bulb of the laryngoscope should be removed and cleaning with spirit swab.	
Locker tops	Damp dust daily with detergent solution and allow to dry. <i>Colonized/infected patients:</i> after cleaning with detergent, disinfect with hypochlorite 1000 ppm av Cl ₂ solution or other appropriate disinfectant and allow to dry.	
Medicine trays	To be cleaned with detergent and water weekly	If blood spillage see blood spillage policy
Peak flow	Disposable – single patient use.	
Proctoscope	Disposable - single use. Reusable to be rinsed in hypochlorite and returned to CSSD.	
Nebulizers	Cleaning and low temperature sterilization	Send for cleaning and reprocessing



	(ETO)betweenpatients.Fill with sterile water only.	to CSSD
Nebulizer Tubing	Wash with detergent and waterand send toCSSD.(ETO)	
Pressure relieving devices	Should be cleaned withdetergent and water anddried.	
Razors Hair removal for OT preparation	NOT Recommended Clippers should be used	
Rooms	Refer housekeeping section	
Scissors	Surface disinfect with a 70% alcohol impregnated wipe before use. If visibly soiled clean first with a detergent solution for sterile use (high level disinfection)	
Shaving brush	Should not be used unless supplied by the patients fortheir own use. Rinse under running water and stored dry.	
Skin disinfection	Showers are preferred to bath or bed baths.	
Soap dispensers	Should be cleaned weekly with detergent and waterand dried.	
Sphygmo-manometer cuffs (BP apparatus)	Use dedicated items in high-risk areas (eg. ICU) or patients known to be <i>colonized/infected</i> . Wash sleeve with soap and water once aweek In between patients Disinfect with 70% alcohol impregnated wipe to clean tubing and inflation bladder.	After use in isolation, should be laundered in washing machine
Spillages	Refer to spillage management policy	
Splints and Walking frames	Wash and clean with detergent and allow to dry.	
Sputum pots	Disposable with close fitting lid. Should be discarded into clinical waste for incineration	Pre-treat with 15ml hypochlorite then toilet flush
Stethoscopes	Surface disinfect with 70% alcohol impregnated wipe between patients. Use dedicated stethoscope in high-risk area eg. ICU. NNU or patients with infection or colonized with MDROs.	
Suction bottles	Disposal liners. Must be sealed when 75% full and placed in yellow plastic bag. Re-usable (jar and tubings), should be cleaned with 1%sodium hypochlorite and dried. Must be changed daily and in between each patient. To be stored drywhen not in use.	Atleast weekly autoclaving of suction jars should be done, wherever applicable. Minimum 1-2% sodium hypochloritesolution should be kept in jar in volume which is 1/10 volume of the jar. After use,add equal quantity of hypochlorite fordisinfection at sourcebefore discarding thecontent.
Surgical instruments	Transport safely in a closed rigid container to CSSD for sterilization. Clean manually or use thermal washer – disinfectant and then steam sterilize all instruments in CSSD.	
Surgical instruments	Steam sterilize if heat tolerant. Single use items may be used. Instruments	
Thermometers	<i>Oral: Single-patient use thermometers</i> must be dedicated for infection patients and patients in high-risk areas, e.g. ICU. They should be cleaned and	



	<p>wiped with a 70% isopropyl alcohol impregnated wipe after each use and stored dry. On discharge of patient, wash bot thermometer and thermometer holder with detergent, immerse in 70% alcohol for 10 min. Wipe and store dry.</p> <p>Communal thermometers: wipe clean, wash in a cold neutral detergent, rinse, dry and immerse in 70% isopropyl alcohol for 10 min. Wi and store dry.</p> <p>Rectal: clean and wash in detergent solution after each use, wipe dry and immerse in 70% alcohol for 10 min. Wipe and store dry</p> <p>Electronic: where possible use a single-use sleeve. If not possible, use either single-use thermometer or clean and disinfect between use. Do not use without sleeve or on patents with an infectious disease. Single-use sleeve, single-patient use in high-risk areas or infected patient. Clean, then wipe with a 70% isopropyl alcohol impregnated wipe after each use.</p> <p>Tympanic: single-use sleeve.</p>	
Telephones	To be wiped with 70% alcohol	
Toilet seats	Refer housekeeping section	
Toilet seats and	Refer housekeeping section	
Toilet seats	Refer hose keeping section	
Tonometer Prisms (Applimators)	Immersion in 0.05% hypochlorite (500 parts per million available chlorine) for 10 minutes	A fresh solution should be prepared at the start of each clinic.
Toys	<p><i>Soft toys:</i> avoid use of soft toys</p> <p><i>Hard toys:</i> wash with detergent and disinfect with alcohol impregnated wipe or use hypochlorite (1000 ppm av Cl₂) solution</p> <p>For children with infectious diseases do not use communal toys or those which cannot be easily disinfected</p>	
Trolleys (Dressing)	<p>Clean and wipe trolley top with a 70 % isopropyl alcohol impregnated wipe before use.</p> <p>If contaminated, clean with detergent and then disinfect with a 70% isopropyl alcohol impregnated wipe and dry.</p>	
Ultrasound machine	<p>Damp dust with detergent solution and allow surface to dry before use.</p> <p>Draw up local protocol for cleaning and disinfection based on the manufacture's recommendations.</p>	
Vaginal speculae	After use immerse in hypochlorite for 15-30 min and Send to CSSD for sterilization or use single- use	
Ventilator and Breathing circuits	<p>Use single-use or heat disinfect/sterilize in CSSD.</p> <p><i>Infected patients:</i> for patients with respiratory infection and other serious infection use disposable tubing.</p> <p>Never use glutaraldehyde to disinfect respiratory equipment.</p>	



Ventilators	After every patient, clean and disinfect ventilators. Dismantle and sterilize/disinfect (high-level) all re-usable components as per the manufacture's recommendations	
Ventilators	Daily cleaning and disinfection of tubing must be done. After 72hrs of use autoclaving should be done for autoclavable tubings. Humidifier water must be changed atleast every 8hrs. Daily autoclaving of humidifiers is recommended where autoclavable.	After removing of ventilator tubes wash it with detergent and water and send to CSSD for autoclaving
Vomit bowls	Contents must be emptied into sluice then rinsed and washed and disinfected with hot water and detergent and dried.	
Walls	Refer hose keeping section	
Wash bowls	Patients must have own dedicated bowl. After each patient's use, should be cleaned with detergent.	
Wheel chairs	Patient's own – should be cleaned with detergent and water as necessary. Hospital – clean between patients with detergent and water, rinse and dry.	
Medicine Trolley	Wash at least weekly with hot soapy water. Ensure spillages are cleaned promptly	



HOUSEKEEPING POLICY AT JIPMER

General rules for Housekeeping at JIPMER

1. Man power must be adequate for regular cleaning of walls, ceiling fan once in a month.
2. Manpower to supervise housekeeping works.
3. Adequate base materials (buckets, detergent, disinfectant) should be made available to maintain a proper housekeeping policy.
4. Washing of the mop should be done in between cleaning.
5. Fumigation is not recommended on a routine basis, It is done only during outbreak, after new constructions .
6. Personal protective equipment must be provided to the housekeeping workers during work
7. Use a single damp cloth per patient. If the damp cloth is reusable soak the damp cloth in detergent/ disinfectant and dry before use
8. Damp dusting rather than dry dusting/ sweeping shall be performed.
9. Wet mopping should be done by double bucket technique which extends the life of the solutions because fewer changes are required. When a single bucket is used solutions should be frequently changed because of increased bio load.

Classification of housekeeping areas:

The cleaning procedure adopted at JIPMER which is described in the table below is dependent on the type of area. For housekeeping purpose, JIPMER has been divided into the following zones.

<i>Very High Risk areas</i>	Outbreak in high risk areas
<i>High Risk Areas</i>	ICU, HDU, burns unit, Transplant units, operating suits, post op wards, laboratories
<i>Moderately areas</i>	General wards , OPDs
<i>Low Risk area</i>	Rehabilitation centers, long term care, office based

CDC recommends to use disinfectant for environmental surfaces of critical area and detergent for non-critical area except when the patient is on isolation where disinfectant is preferred. The reason is explained in table below.

The following detergents/disinfectants are used for housekeeping at JIPMER

1. Detergent- e..g. soap chips/ liquid soap
2. Disinfectants
 - Lysol (benzalkonium chloride 80%)-Detergent
 - Floor and bathroom surface: use one capful in half a bucket of water. Gently mop the surface. No need to rinse. (4 litres)
 - Kitchen: Use undiluted. Apply on dirty area and leave for ten min and rinse
 - Glutarex (glutaraldehyde 2% plus benzalkonium chloride 5%)-Disinfectant

Table: Comparison of disinfectants and detergents for use on noncritical environmental surfaces

Features	Disinfectants	Detergent
For surfaces contaminated by blood and other potentially infective material	More effective	Less effective
In reducing microbial load on floors	More effective	Less effective
Antibiotic-resistance	Yes	No
Cost	High	Lower costs
Odour	Unpleasant	More aesthetically pleasing floor
Occupational exposure	Side effects can occur	No side effect
Environmental impact (aquatic or terrestrial) issues with disposal	May be seen	No



CDC recommendation		
For all critical area Non critical area, if patients on isolation precautions	Recommended by CDC	Not recommended
For non-critical area	Advantage of using a <i>single product</i> for decontamination of noncritical and critical area	<ul style="list-style-type: none"> • Noncritical surfaces contribute minimally to endemic HAIs • No difference in HAI rates when floors are cleaned with detergent

Risk Categorization of Hospital areas

High risk functional areas typically include operating theatres (OTs), ICUs, HDUs, Emergency department, post operative units, surgical ward, labour room, haemodialysis unit, Central sterile supply department (CSSD)/Theatre sterile supply unit (TSSU) and other facilities whereinvasive procedures are performed or where immuno-compromised patients are receiving care. Bathrooms, toilets, staff lounges, offices and other areas adjoining high-risk functional areas should be treated as having the same risk category, and receive the same intensive levels of cleaning.

Moderate -risk areas may include Medical wards, Laboratory areas, Blood bank, Pharmacies, Dietary services, Laundry services, Mortuary, Nurses/ Doctors rest rooms, Rehabilitation Areas and Psychiatric wards. Bathrooms, toilets, staff lounges, offices and other areas adjoining high-risk functional areas should be treated as having the same risk category and receive the same regular levels of cleaning

Low-risk functional areas may include administrative areas, faculty and doctors offices, seminar rooms, stores, staff rooms, non- sterile supply areas, record storage and archives etc. Additional internal areas bathrooms, staff lounges, offices and other areas adjoining low-risk functional areas should be treated as having the same risk category and receive the same level of cleaning.



HOUSEKEEPING POLICY AT JIPMER

(Adapted from National Patient Safety Agency, UK, April 2007 and Local policy, JIPMER)

ITEMS	VERY HIGH RISK AREA	HIGH RISK AREA	MODERATE RISK AREA	LOW RISK AREA	METHOD
Bed	Clean frame daily	Clean frame daily	Clean frame daily	N/A	Detergent Detergent + disinfectant for MDRO
	Clean underneath weekly	Clean underneath weekly	Clean underneath weekly		
	Clean whole on discharge	Clean whole on discharge	Clean whole on discharge		
Bed rails	Clean twice daily & after discharge	Clean daily & after discharge	Clean daily & after discharge	Clean weekly & after discharge	Detergent Detergent + disinfectant for MDRO
Bedside table	Clean twice daily & after use	Clean daily & after use	Clean daily	Clean weekly	Detergent Detergent + disinfectant for MDRO
Catheter stand / bracket	Clean daily & after use	Clean daily & after use	Clean before initial use, after use & monthly	Clean before initial use, after use & monthly	Detergent and Disinfectant
Ceiling/ High dusting	Spot clean	Spot clean	Spot clean	Spot clean	Detergent / Damp dust Damp cloth
	Monthly	Monthly	Monthly	Monthly	
Chair	Clean twice daily	Clean twice daily	Clean daily	Clean weekly	Detergent Detergent + disinfectant for MDRO
Chair, dental and surrounds	NA	NA	NA	Clean daily & when visibly soiled	Detergent
Cleaning equipment	Clean after use	Clean after use	Clean after use	Clean after use	Detergent Detergent + disinfectant for MDRO
Chappals	Wash once daily and dry	Wash once daily and dry	NA	NA	Detergent
Clipboard	Clean daily & between patient	Clean daily & between patient	Clean daily & between patient	Clean weekly	Detergent
Commodes & toilet surface	Use Daily twice	use Daily twice	use Daily twice	Daily	Detergent and disinfectant
Curtains and blinds (ICU entrance should not have any curtains)	Bed curtains — change or clean weekly upon discharge	Bed curtains— change or clean monthly	Bed curtains — change or clean 3 months	Bed curtains — change or clean annually	Replace with laundered curtains or steam clean while in place.
	Patient with	Patient with	Patient with	Patient	Replace with



	MDRO or other infectious disease— change bed curtains or clean upon discharge	MDRO— change bed curtains or clean upon discharge	MDRO— change bed curtains or clean upon discharge	with MDRO— change bed curtains or clean upon discharge	laundered curtains or steam clean while in place
Door mat	Weekly/ Whenever it gets fully wet	Weekly/ Whenever it gets fully wet	Weekly/ Whenever it gets fully wet	Weekly/ Whenever it gets fully wet	Detergent and water Dry in sunlight
Elevators/ Lit	Damp cleaning daily	Damp cleaning daily	Damp cleaning daily	Damp cleaning daily	Detergent
Door knob/ handle/fridge handle/ general	Clean daily	Clean daily	Clean daily	Clean weekly	Detergent
Drip/ intravenous stands	Clean contact points after use	Clean contact points after use	Clean contact points after use	Clean contact points after use	Detergent Detergent + disinfectant for MDRO
Fan, patient	Clean weekly & between patient use	Clean weekly & between patient use	Clean weekly once	Clean weekly once	Detergent
Floor, non-slip	Damp mop twice daily	Damp mop twice daily	Damp mop daily	Damp mop daily	Detergent Detergent + disinfectant for MDRO
Floor, polished	Dust removal by dry mop clean twice daily	Dust removal by dry mop clean daily	Dust removal by dry mop clean daily	Dust removal by dry mop clean weekly	Detergent for routine Consider electrostatic mops Detergent + disinfectant for MDROs
Fridge (drug)	Clean weekly	Clean weekly	Clean weekly	Clean weekly	Detergent
Hoist/Sling	Clean contact points after use	Clean contact points after use	Clean contact points after use	Clean contact points after use	Detergent
IV stand & poles	Clean daily & after use	Clean daily & after use	Clean weekly & after use	Clean monthly & after use	Detergent Detergent + disinfectant for MDRO
Light switch	Clean daily	Clean daily	Clean weekly	Clean weekly	Detergent
Locker	Clean contact points twice daily	Clean contact points twice	Clean contact points daily	N/A	Detergent Detergent +



		daily			disinfectant for MDRO
Mattress preferably covered by rexine (every 6 months check for durability)	Clean weekly & after discharge	Clean weekly & after discharge	Clean weekly & after discharge	Clean weekly & after discharge	Detergent Detergent + disinfectant for MDRO Preferable that entire mattress has waterproof cover
Medical equipment	Clean daily	Clean daily	Clean daily	Clean weekly	Detergent
Microwave	Clean three times daily	Clean three times daily	Clean daily	Clean daily	Detergent
Case sheet folder	Clean daily	Clean daily	Clean weekly	Clean weekly	Detergent
Oxygen equipment Oxygen Masks, Tubings	Clean daily & after use	Clean daily & after use	Clean weekly & after discharge & before initial use	Clean weekly & after discharge & before initial use	Detergent
Patient slide/cover bed table	Clean daily & after use	Clean daily & after use	Clean daily & after use	Clean daily & after use	Detergent Detergent + disinfectant for MDRO
Pillow (waterproof cover)	Clean weekly & after discharge	Clean twice monthly & after discharge	Clean & after discharge	Clean monthly & after discharge	Detergent Detergent + disinfectant for MDRO
Rubber sheet	Change when soiled and between patients	Change when soiled and between patients	Change when soiled and between patients	Change when soiled and between patients	Detergent and dry in sunlight if reusable
Sharps bin	Clean daily	Clean twice weekly	Clean weekly	Clean monthly	Detergent
Shower	Clean daily & after use	Clean daily & after use	Clean daily	Clean daily	Detergent Detergent + disinfectant for MDRO
Sink (hand washing)	Clean twice daily	Clean daily &	Clean daily	Clean daily	Detergent
Surfaces (general) in patient room e.g. ledges, counter, writing table, shelf	Clean twice daily & after discharge	Clean twice daily & after discharge	Clean daily & after discharge	Clean weekly & after discharge	Detergent Detergent + disinfectant for MDRO
Telephone	Clean twice Daily	Clean twice daily	Clean daily	Clean weekly	Detergent+ 70% isopropyl alcohol
Toilet	Clean thrice daily	Clean thrice daily	Clean thrice daily	Clean daily OPD-	Detergent + disinfectant



				Frequent cleaning	
Trolley, dressing	Clean before & after use	Clean before & after use	Clean before & after use	Clean before & after use	Clean and wipe with 70 percent isopropyl alcohol Impregnated wipes .If contaminated clean with detergent and then disinfect with 70% isopropyl alcohol
Trolley, linen/medicine/food	Clean contact points daily	Clean contact points daily	Clean contact points daily	Clean contact points weekly	Detergent
	Clean whole trolley weekly	Clean whole trolley weekly	Clean whole trolley weekly	Clean whole trolley weekly	
Trolley, resuscitation	Clean daily	Clean twice weekly	Clean weekly	Clean weekly	Detergent
TV	Clean weekly	Clean weekly	Clean weekly	Clean weekly	Detergent
Walls/windows/dodo	Spot clean and regular cleaning once a month	Spot clean and regular cleaning once a month	Spot clean and regular cleaning once a month	Spot clean and regular cleaning once a month	Detergent / Damp dust
Washbowl, patient (each patient should have a dedicated bowl)	Clean between patient use	Clean between patient use	Clean between patient use	Clean between patient use	Detergent + Detergent disinfectant for MDRO
Waste receptacle	Clean weekly & spot clean as required	Clean weekly & spot clean as required	Clean weekly & spot clean as required	Clean weekly & spot clean as required	Detergent
Wheelchair	Clean daily & after use	Clean daily & after use	Clean weekly & after use	Clean weekly & after use	Detergent



ENDOSCOPES REPROCESSING

Even though incidence of infection following endoscope use is very low (about 1 in 1.8 million procedures), contaminated endoscopes account for significant HAIs more compared to any other medical device.

- Depending up on area of involvement, scopes can be disinfected by either
 - Chemical sterilants (for scopes entering sterile or critical sites)
 - High-level disinfectants (for scopes entering semi-critical areas i.e. in contact with mucous membrane).
- Endoscopes belong to category of Semi-critical device as they come in contact with mucosa.
- CDC approved the following disinfectants to process heat sensitive medical devices such as flexible endoscopes are:
 - $\geq 2.4\%$ glutaraldehyde
 - 0.55% ortho-phthalaldehyde (OPA)- not known to irritate the eyes and nasal passages, does not require activation or exposure monitoring, and has a 12min contact period, e.g. of high level disinfectant
 - 0.95% glutaraldehyde with 1.64% phenol/phenate
 - 7.35% hydrogen peroxide with 0.23% peracetic acid
 - 1.0% hydrogen peroxide with 0.08% peracetic acid
 - 7.5% hydrogen peroxide
 - EtO sterilization (less preferred as longer time and toxic)

Endoscope reprocessing can be done by two methods. Manual and automated

Manual reprocessing of endoscope

Endoscope disinfection or sterilization with a liquid chemical sterilant involves five steps after leak testing:

1. *Clean*: After the endoscopy procedure, the external surface of the insertion cord of the endoscope is wiped with gauze.
 - Endoscope is connected to suction and internal channels are flushed with water and then the air is let out to remove any block.
 - Then it is flushed with enzymatic solution once and then it is again flushed with water.
 - Then the insertion cord of the endoscope is immersed in enzymatic solution and flushed with enzymatic solution twice.
 - Then insertion cord of the endoscope is immersed in water and flushed with water twice.
2. *Disinfect*: Endoscope is immersed in 2% glutaraldehyde and then the glutaraldehyde is perfused into all the channels. Then the endoscope is kept immersed for 20 minutes.
3. *Rinse*: Endoscope is washed and all channels are flushed with tap water.
4. *Dry*: The insertion cord and inner channels are dried with forced air after disinfection and before storage.
5. *Store*: Store the endoscope in a way that prevents recontamination and promotes drying (e.g., hung vertically). Drying the endoscope (steps 4 and 5) is essential to greatly reduce the chance of recontamination of the endoscope by microorganisms that can be present in the rinse water.

Automated endoscope reprocessors (AER)

They are increasingly been used now a days. They offer several advantages over manual reprocessing:

- They automate and standardize several important reprocessing steps
- Reduce the likelihood that an essential reprocessing step will be skipped
- Reduce personnel exposure to high-level disinfectants or chemical sterilants.



BLOOD AND BODY FLUID SPILLS MANAGEMENT

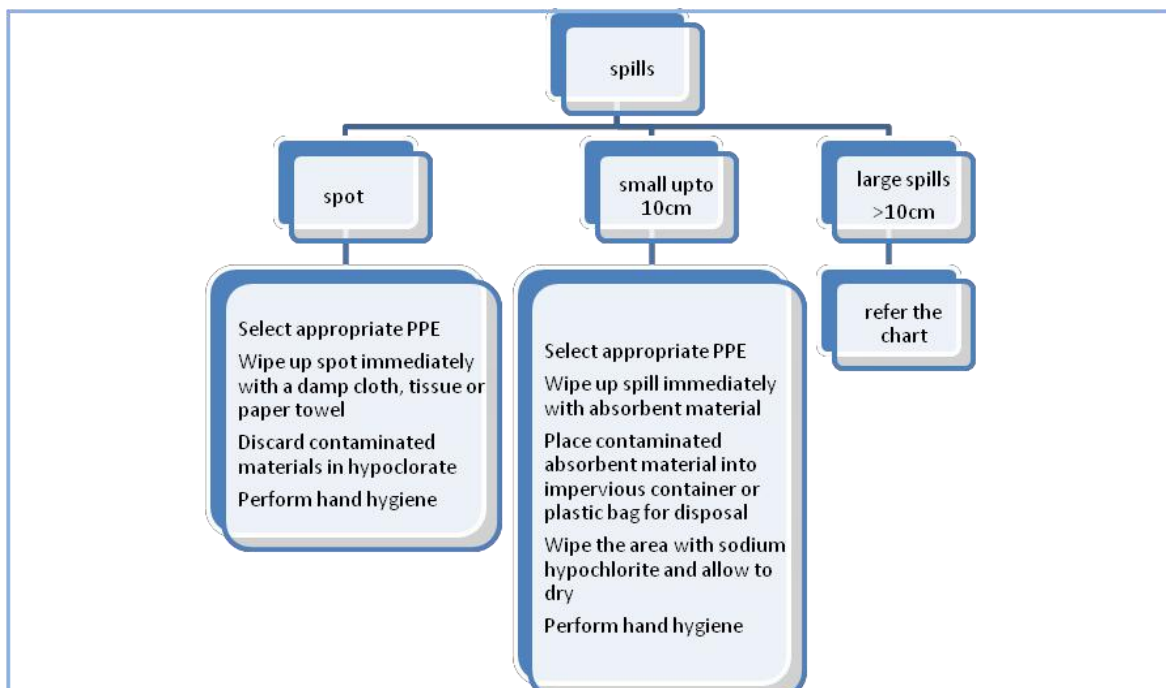
- Blood and body fluid spillages should be dealt with immediately or as soon as it is safe to do so.
- Other persons should be kept away from the spillage until the area has been cleaned and dried.
- Care should be taken if there are sharps present and should first be disposed of appropriately into a sharps container.
- Spills should be removed before the area is cleaned.
- Area should be well ventilated if using chlorinating agents.
- Adding liquids to spills increases the size of the spill and should be avoided.
- Chlorinating agents should be used (10% hypochlorate) in a well ventilated area and are generally only recommended on a small spill.
- Chlorinating agents should not be placed directly on spillages of urine.
- Chlorinating agents are not suitable for use on soft furnishings.
- It is recommended that supplies of personal protective equipment, paper towels and healthcare risk/yellow waste bags are available for spills management.
- If non-disposable cloths/mops are used to clean spillage area they must be thermally or chemically disinfected.

Spill Kit

A spill kit should be readily available in each clinical area and should include the following.

Scoop and scraper	Absorbent agent	Rough cloth
Single-use gloves	Clinical waste bags and ties	Bleach
Protective apron	Disposable forceps	Two cardboard pieces
Surgical mask and eye protection	Detergent.	Instruction chart
Buckets and mops of spills should be different from the regular mops and buckets and should be cleaned separately		

All parts should be disposable to ensure that cross-contamination does not occur



HOW TO CLEAN UP A MERCURY SPILL

CONTENTS OF A SPILL KIT:-

1. Gloves.
2. Mask.
3. Goggles.
4. Syringe 5ml 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.

PROCEDURE:-

1. Remove all items near the mercury spill area. Switch off the fan and Exhaust fan if in use.
2. Children and pregnant women to be evacuated from that space.
3. Wear face mask and goggles.
4. Remove the jewellery and watch from hands, then wear gloves.
5. Locate all Mercury beads, then carefully use the cardboard strips or chat 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.
6. Small and hard-to-see beads can be located with the flashlight, after Removing the larger beads, use adhesive tape to collect those beads.
7. If Mercury spilled on linen, that portion to be cut and removed.
8. All the materials used for Mercury spill to be placed in the plastic bag and To be labelled as “CONTAMINATED WITH MERCURY”.
9. Hand over the kit to BMWM.
10. Doors and windows of the room to be kept open for 24 hours.

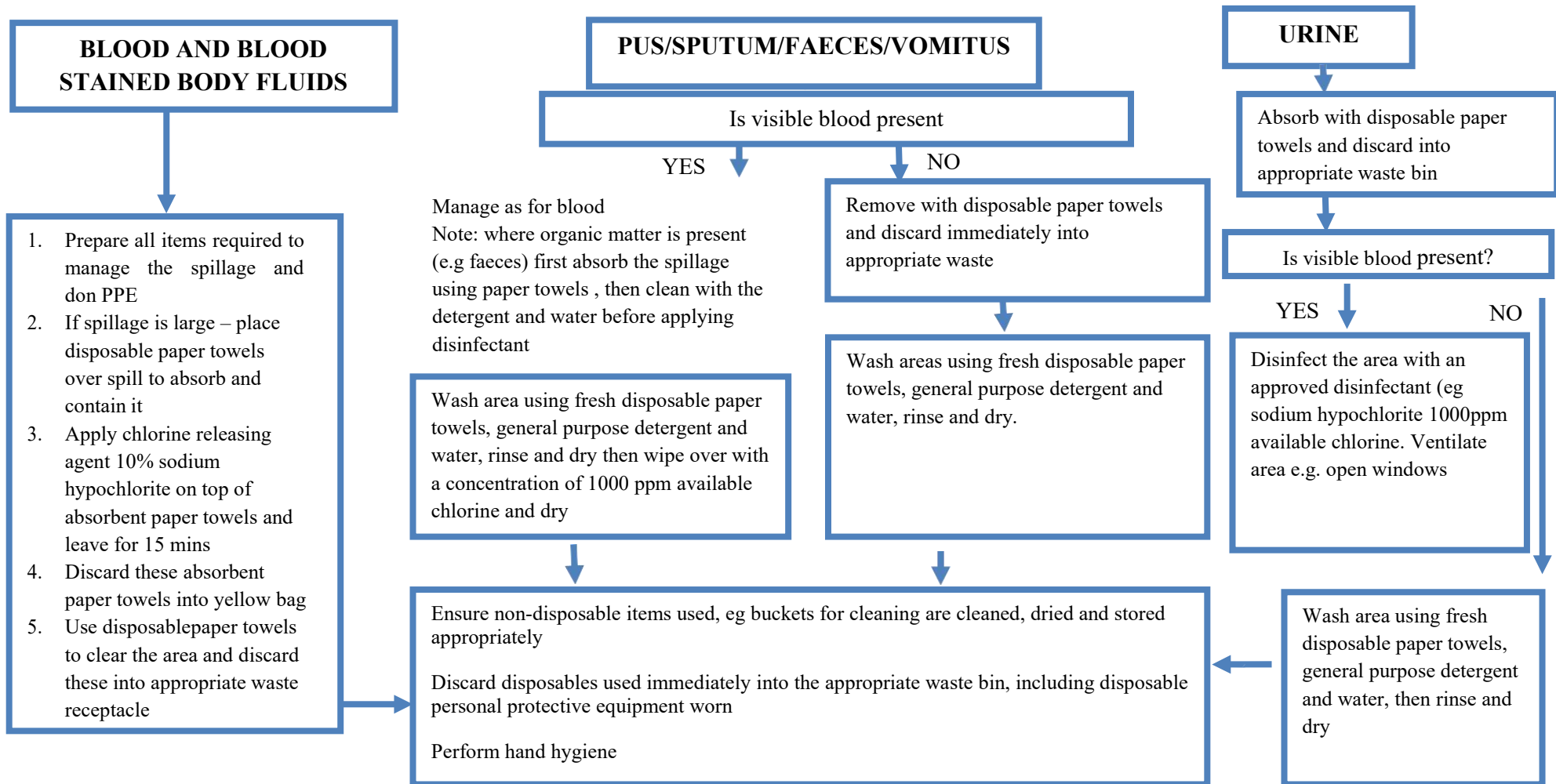
NEVER DO:-

1. Never use broom to clean up mercury.
2. Never use Vacuum cleaner to clean up mercury.
3. Never use bare hands to touch Mercury.
4. Never continue wearing shoes and clothing that contaminated with Mercury.

CHEMICAL SPILLAGE MANAGEMENT

FOR Chemical spillage, follow the manufacturer's instruction as mentioned in the MSDS (material safety data sheet) of the chemical products.

MANAGEMENT OF LARGE SPILLS (>10 cm) OF BLOOD AND OTHER BODY FLUIDS





JIPMER HOSPITAL, PUDUCHERRY

Location:



OPD WEEKLY AND MONTHLY CLEANING CHECK LIST

Month:

THINGS SHOULD BE CLEANED	I WEEK	II WEEK	III WEEK	IV WEEK	MONTHLY ONCE - CEILING FAN CLEANING & HIGH DUSHING & A/C VENT	SIGNATURE OF SUPERVISOR	SIGNATURE OF ICU/WARD SISTER
FLOOR WASH							
WINDOW							
DOOR							
FURNITURES							
DUST BINS							
WALL							
CURTAINS							
EXAMINATION TABLE							
DRESSING TROLLEY							
CUP-BOARDS							
OPEN RACK							

Note: Cleaning → detergent and water

High Dusting & ceiling fan cleaning - damp dusting

PREPARED BY HOSPITAL INFECTION CONTROL COMMITTEE (HICC), JIPMER



JIPMER HOSPITAL, PUDUCHERRY CHECK LIST FOR HIGH TOUCH SURFACE CLEANING



S. NO	Date																						
		I	II	III	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III	I	II	III	
1	Pt's Cot Side Rails & Control Keys																						
2	Pt's Bed Side Locker																						
3	Dressing Trolley																						
4	Injection Trolley																						
5	Diet Trolley																						
6	Telephone																						
7	Fridge Handle																						
8	Entrance Door																						
9	Computer & Accessories																						
10	Cardiac Table																						
11	BP Cuff																						
12	Oxygen Flow Meter																						
13	Pulse Oximeter- probe																						
14	Ventilator / knobs																						
15	Stethoscopes																						
16																							
17																							
Signature of Ward sister																							

Equipments and surface cleaning - Detergent and Bacilloid Extra 0.5% for ICU - Detergent and 7% Lysol for Non-ICU areas

PREPARED BY HOSPITAL INFECTION CONTROL COMMITTEE (HICC), JIPMER