

Recommendations for AIIMS Bhopal Disinfectant Policy; 2015

I. ENVIRONMENTAL SURFACES

Areas	Recommended Method of Disinfection/ Sterilization in order of preference
Environmental surfaces with frequent patient contact (e.g. Bedrails, Bedside tables, Nursing Stations, etc)	<ul style="list-style-type: none"> • Sodium hypochlorite (5.25-6.15% household bleach diluted 1:500 providing >100 ppm available chlorine) • Sodium dichloroisocyanurate (As per manufacturer instruction). • Ethyl or isopropyl alcohol (70-90%)
Floors of Critical Areas (e.g. OTs; ICUs; Nurseries; Burns Unit; Trauma Unit.	<ul style="list-style-type: none"> • Two step cleaning procedure: involving pre-cleaning with detergent followed by Sodium hypochlorite (5.25-6.15% household bleach diluted 1:500 providing >100 ppm available chlorine). • One step cleaning procedure: with a compound having detergent and minimum of aforementioned concentration of Sodium hypochlorite
Floors of Non-critical areas (e.g. General Wards, OPDs)	<ul style="list-style-type: none"> • Two step or One step cleaning procedure as mentioned above. • For non-patient area cleaning with detergent and water.
Food Handling surfaces (e.g. Kitchen Slabs & tables)	<ul style="list-style-type: none"> • Twice a week (on Thursday and Sunday): cleaning with detergent and water followed by Sodium hypochlorite (5.25-6.15% household bleach diluted 1:500 providing >100 ppm available chlorine). On other week days cleaning with detergent and water. • In case of suspected gastro-enteritis outbreak daily cleaning with detergent and water followed by Sodium hypochlorite (5.25-6.15% household bleach diluted 1:500 providing >100 ppm available chlorine).
Spillage of Blood/ Body Fluids	<ul style="list-style-type: none"> • <u>Small Spill <10 ml:</u> 1:100 dilution of Sodium hypochlorite (5.25-6.15% household bleach diluted providing >500 ppm available chlorine). Contact time of at least 10 minutes is recommended. • <u>Spill >10 ml:</u> 1:10 dilution of Sodium hypochlorite (5.25-6.15% household bleach diluted 1:500 providing >5000 ppm available chlorine).

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Soiled Linen	<ul style="list-style-type: none"> Sodium hypochlorite (5.25-6.15% household bleach diluted 1:500 providing >100 ppm available chlorine) followed by detergent washing.
Mattress	<ul style="list-style-type: none"> Wiping with Sodium hypochlorite (5.25-6.15% household bleach diluted 1:500 providing >100 ppm available chlorine).
Fogging of areas like OT	<ul style="list-style-type: none"> 11% H₂O₂ +0.01% Ag NO₃

II. SKIN DISINFECTANTS

Activity	Recommended Method of Disinfection/ Sterilization
Hand Disinfection	<ul style="list-style-type: none"> Hand washing followed by Isopropyl alcohol (70-90%) / Propanol
Insertion of IV lines including phlebotomy	<ul style="list-style-type: none"> Isopropyl alcohol (70-90%)
Insertion of central/arterial/long lines	<ul style="list-style-type: none"> Isopropyl alcohol (70-90%) followed by Iodophor solution
Pre-operative Skin Preparation	<ul style="list-style-type: none"> Surgical scrub using 4% Chlorhexidine gluconate / 7.5% Iodophor solution followed by paint by same compound solution in 4% or 10% concentration respectively.
Pre-operative surgical team hand / forearm anti-sepsis.	<ul style="list-style-type: none"> Conventional hand washing (surgical scrub) using 4% Chlorhexidine gluconate / 7.5% Iodophor solution followed by alcoholic 0.5% alcoholic Chlorhexidine.

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III. PATIENT-CARE EQUIPMENT/ DEVICES:

Cleaning Procedure must always precede disinfection.

Type of equipment / Device	Representative example of equipment type	Preferred method of disinfection	Alternate method(s) if preferred method not possible (eg item is heat sensitive)	Remarks
Critical <ul style="list-style-type: none"> • Penetrates body tissues and blood vessels • Includes all dental equipment 	All Surgical hand instruments/ laparoscopes / arthroscopes All implantable devices All intravascular devices All biopsy forceps / needles All dental /oral equipment (either critical or semi-critical)	A	B or C	To prefer single-use devices if available, eg Hypodermic needles, catheters, biopsy needles etc
Semi-critical <ul style="list-style-type: none"> • Comes in contact with mucosal surfaces 	All Respiratory therapy equipment All laryngoscopes, bronchoscopes All GI endoscopes, cystoscopes, proctoscopes, Vaginal ultrasonic probes, Esophageal probes	B A (If heat resistant)	C	Cleaning of flexible bronchoscopes and endoscopes to be done using an enzymatic cleaner prior to disinfection
Noncritical a. Likely to come in contact with body fluids/blood)	Thermometers, Tonometers Nebuliser/ Humidifier, Nasal prongs, Oxygen masks Non- infected Ambubag Mouth mirror, Dental Restorative instrument, Dental Tweezers, Dental Probe, Prothodontic impression trays, Le-cron carver	D		Certain non-critical device such as BiPAP masks/ Tubings / Ventilator tubings are likely to be reused. These will be disinfected using High level disinfectants. (Option C as below)
	Bed pans/ Urinals/ Suction bottles/ Sputum cups.	E		
Noncritical b. Unlikely to come in contact with body fluids/blood	BP cuffs, stethoscopes, Monitors, ventilators, wires, conduits etc	D		

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- A. **Heat sterilization:** Steam or hot air (see manufacturer's recommendations, steam sterilization processing time from 3-30 minutes)
- B. **Hydrogen peroxide gas plasma:** (see manufacturer's recommendations for internal diameter and length restrictions, processing time between 45-72 minutes).
- C. **Glutaraldehyde-based formulations:** (2.4% glutaraldehyde, caution should be exercised with all glutaraldehyde formulations when further in-use dilution is anticipated); glutaraldehyde (1.12%) and 1.93% phenol/phenate. One glutaraldehyde-based product has a high-level disinfection claim of 5 minutes at 35o C.
- D. **Ethyl or isopropyl alcohol:** (70-90%)
- E. **Sodium hypochlorite:** (5.25-6.15% household bleach diluted 1:500 providing >100 ppm available chlorine)

Note:

1. The references for this document are predominantly from *Guideline for Disinfection and Sterilization in Healthcare Facilities, 2008* unless specified otherwise.
2. The studies supporting the efficacy of >2% glutaraldehyde for 20 minutes at 20°C assume adequate cleaning prior to disinfection, whereas the FDA-cleared label claim incorporates an added margin of safety to accommodate possible lapses in cleaning practices. Hence it is necessary to use FDA approved brand containing 2.4% glutaraldehyde and have 45 minutes immersion time **to achieve high-level disinfection (i.e., 100% kill of *M. tuberculosis*).**
3. Provision of automated endoscope reprocessors (AER) is desirable which 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, and reduce personnel exposure to high-level disinfectants or chemical sterilants.
4. Peracetic, or peroxyacetic, acid is characterized by rapid action against all microorganisms. Special advantages of peracetic acid are that it lacks harmful decomposition products (i.e., acetic acid, water, oxygen, hydrogen peroxide), enhances removal of organic material 711, and leaves no residue. It remains effective in the presence of organic matter and is sporicidal even at low temperatures (Tables 4 and 5 of CDC document). Peracetic acid can corrode copper, brass, bronze, plain steel, and galvanized iron but these effects can be reduced by additives and pH modifications. An automated machine using peracetic acid to sterilize medical, surgical, and dental instruments chemically (e.g., endoscopes, arthroscopes) was introduced in 1988. This microprocessor-controlled, low-temperature sterilization method is commonly used in the United States. Since effective sterilization of heat sensitive scopes require more than one step including meticulous cleaning and failure of which can lead to contamination, the procurement of this system may be explored specifically for endoscopes, various kinds of which will be used by diverse departments. This will also help us to move away from Glutaraldehyde.