

PREVENTION OF INFECTION, HOUSE-KEEPING AND WASTE DISPOSAL

IMPORTANCE OF ASEPSIS

- Sepsis is the most important cause of neonatal deaths in hospital. Every hospital should establish its own detailed policies to prevent infection of newborn in the baby care area.
- Normally the newborn is free from harmful organisms for initial few hours after birth.
- Healthcare providers working in the hospital tend to transmit organisms during routine procedures, thus leading to colonization of organisms on surrounding skin of the abdomen, the perineum, groins and respiratory tract.

Prevention of infection is more cost effective than treating infection in neonates.

ASEPSIS BASICS

Basic requirements for asepsis in a baby care area

- Running water supply
- Soap
- Elbow or foot operated taps
- Strict hand washing
- Avoid overcrowding, recruit optimal number of nurses for care of more babies
- Plenty of disposables
- Rational antibiotic policy asepsis routine and housekeeping
- Strict adherence to housekeeping and asepsis routines

Guidelines for ENTRY into the baby care area

- Remove shoes, socks, woolens, watch, bangles, and rings
- Rollup the full sleeves up to elbow. Put on new slippers wash hands with soap and water for 1 minute (40-60 seconds) by following eleven steps of hand washing
- Put on sterile half sleeve gown.

Policy regarding VISITORS

- Only parents of the babies should be allowed entry into the nursery
- Mothers are welcome anytime, they can come every 2 to 3 hours to the baby care area
- Fathers should be allowed at the time of admission to the nursery, after stabilizing the baby, during hospital visiting hours (4 to 6 pm) or when the newborn is sick.
- Father should be allowed especially after the rounds or at a convenient time in the unit (this policy can be framed in consultation with a pediatrician)
- Parents and siblings should be guided and supervised about proper hand washing technique.

Personnel with active infection should not be allowed entry into the baby care area

Sterile gloves

- Always use sterile gloves for invasive procedures like sampling, starting intravenous lines, giving intravenous injections etc.
- Throw used gloves in bluebag
- Adequate number of sterile and clean pair of gloves should be available in the unit.

Full sleeve gown and masks

- Use them for all invasive procedures e.g. lumbar puncture, blood exchange transfusion etc.

Other basics

- Keep separate spirit and povidone iodine/chlorhexidine swab containers, stethoscope, tape measure and thermometer for each baby
- Change intravenous sets and tubings used for TPN daily or as per set routine
- Feeding tubes can be left alone as long as baby can keep
- Do not keep fomites e.g. files, X-ray films, pens etc. on the baby cot
- Change antiseptic solution in suction bottles and sterile water in oxygen humidification chambers everyday and sterilize the

bottles/chambers daily by dipping in 2% gluteraldehyde for 4 to 6 hours.

Nursery environment

- The nursery temperature should be maintained between 28-30°C
- The environment should be calm and clean
- Ensure 24 hours water and electricity supply with adequate lighting and ventilation.
- Overcrowding should be avoided
- Floor should be cleaned with diluted phenyl once in each nursing shift and as and when required. No dry cleaning, only wet mopping should be done
- Clean the walls with 2% bacillocid once in each nursing shift
Dustbins should be washed daily with soap and water; polythene should be changed daily or whenever full

HANDWASHING

- It is the single MOST IMPORTANT means of preventing nosocomial infections
- It is VERY SIMPLE and CHEAP

Hand washing norm

- ONE MINUTE handwashing (11steps)to be done before entering the unit
- Hand hygiene with alcohol hand rub for 20-30 seconds before and after touching babies, before any clean/aseptic procedure, after body fluid exposure risk and after touching baby surroundings.

Steps of effective hand washing

- Roll sleeves above elbow
- Remove wrist watch, bangles, rings etc.
- Using plain water and soap, wash parts of the hand in the following sequence:
 - o. Wet hands with water

1. Apply enough soap to cover all hand surfaces
2. Rub hand palm to palm
3. Right palm over left dorsum with interlaced fingers and vice versa.
4. Palm to palm with fingers interlaced
5. Back of finger stoop posing palms with fingers interlocked
6. Rotational rubbing of left thumb clasped in right palm and vice versa
7. Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa
8. Rinse hands with water
9. Dry hands thoroughly with a single use towel/ sterile napkin
10. Use towel to turn off tap
11. Your hands are now safe

Once you have washed your hands, do not touch anything e.g.hair, pen or any fomite till you carry out the required job.

- Keep elbows always dependent, i.e. at a lower level than your hands
- Close the tap with elbow
- Dry hands using single-use sterile napkin or autoclaved newspaper pieces
- Discard napkin in the bin kept for the purpose, if news paper pieces- in the black bucket
- Do not keep long or polished nails

Remember-Rinsing hands with alcohol is NOT A SUBSTITUTE for proper hand washing

HANDRUB

Purpose

To reduce bacterial colony counts on the hands of care providers so that hospital acquired infections can be prevented.

Points of emphasis

- Use alcohol based hand rubs
 - After drying hands following hand washing
 - Before and after every routine patient contact
- Alcohol based hand rubs have been shown to be definitely superior to soap and water hand washing in reducing bacterial colony counts of the hands.
- Alcohol- based hand antiseptics are not effective on hands that are visibly dirty or contaminated with organic materials. Hands that are visibly dirty or contaminated with organic material must be washed with soap and water, even if hand antiseptics are to be used as an adjunct measure.

Indications

The term “patient contact” is not restricted to direct contact with a patient. It includes the following:

- Performing any kind of non-invasive procedure
- Recording any patient parameter
- Touching baby's clothes/linen
- Handling baby's incubator/warmer/devices attached to baby
- Handling baby's probes/ BP cuff
- Handling baby's IV tubings /syringes
- Handling baby's milk tubings /syringes

Procedure

Technique of applying alcohol-based hand rub

- Apply product to palm of one hand (two press on 500mL Sterilium® bottle pours ~3.0 ml of Sterilium) and rub hands together, covering all surfaces of hands and fingers as in steps of hand washing.
 - For surgical scrub press six times: 9.0 mL of Sterilium is required.
 - Wait until hands are dry. Do not touch the baby with wet hands.

How to make an alcohol hand rub locally at low cost:

- Because alcohol used by itself dries the skin and can make it crack, mix alcohol as follows with an ingredient to moisturize the skin
 - 100 ml of 60-90% alcohol
 - 2 ml of glycerin, propylene glycol, or sorbitol

How to use locally made hand rub:

- Pour 3-5 ml (1teaspoon) of the alcohol hand rub into the palm of your hand.
- Rub hands together, including between fingers and under nails, until dry.
- After using this method 5-10 times, you will need to remove the build-up of moisturizer (such as glycerin) from your skin. Wash this off with soap and water.

SKIN PREPARATION FOR VENEPUNCTURE AND OTHER PROCEDURES

Skin preparation for venipuncture

1. Wash and dry hands.
2. Wear sterile gloves.
3. Prepare skin site, confine to smallest possible area of skin.
4. Swab with alcohol /chlorhexidine 2% first, allow it to dry.
5. Swab iodine on site and allow it to dry.
6. Swab again with alcohol to wipe off iodine, allow it to dry.
7. Skin is now ready for puncture or prick.

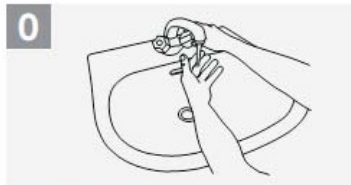
OTHER RECOMMENDATIONS

- Never use stock IV fluids (heparinized saline). Do not use a single dextrose /saline bottle for >24hours
- There should be separate IV fluid bottle for each baby
- Label the bottle with date and time of opening
- Open the top surface of the bottle, keeping the seal intact
- First clean with spirit swabs, then use povidone iodine soaked sterile cotton to cover the top surface of the bottle
- Change the burette set every 24 hour or as per policy of your unit
- Use syrups within 1 week of opening, write the opening date
- Antibiotic vials to be changed after 24 hrs. e.g. injections ampicillin and cefotaxime
- There is no need for flushing with heparinized saline to keep the IV line patent
- Use separate IV line for giving antibiotics (do not open the IV fluid line for giving injections)

How to Handwash?

WASH HANDS WHEN VISIBLY SOILED! OTHERWISE, USE HANDRUB

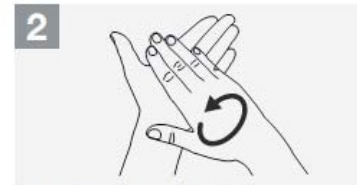
 **Duration of the entire procedure: 40-60 seconds**



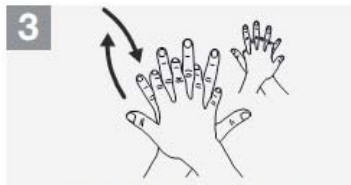
0 Wet hands with water;



1 Apply enough soap to cover all hand surfaces;



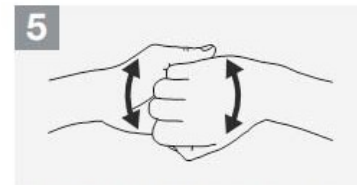
2 Rub hands palm to palm;



3 Right palm over left dorsum with interlaced fingers and vice versa;



4 Palm to palm with fingers interlaced;



5 Backs of fingers to opposing palms with fingers interlocked;



6 Rotational rubbing of left thumb clasped in right palm and vice versa;



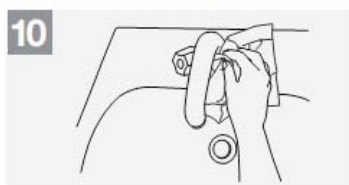
7 Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;



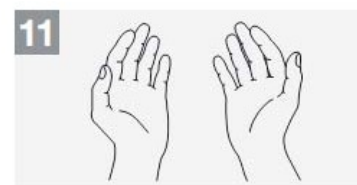
8 Rinse hands with water;



9 Dry hands thoroughly with a single use towel;



10 Use towel to turn off faucet;



11 Your hands are now safe.



World Health Organization

Patient Safety

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SAVE LIVES
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How to Handrub?

RUB HANDS FOR HAND HYGIENE! WASH HANDS WHEN VISIBLY SOILED

🕒 Duration of the entire procedure: 20-30 seconds



1a Apply a palmful of the product in a cupped hand, covering all surfaces;

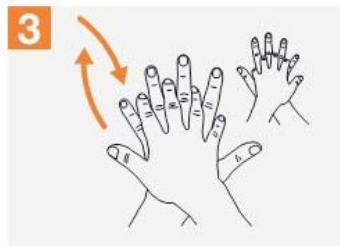


1b



2

2 Rub hands palm to palm;



3

3 Right palm over left dorsum with interlaced fingers and vice versa;



4

4 Palm to palm with fingers interlaced;



5

5 Backs of fingers to opposing palms with fingers interlocked;



6

6 Rotational rubbing of left thumb clasped in right palm and vice versa;



7

7 Rotational rubbing, backwards and forwards with clasped fingers of right hand in left palm and vice versa;



8

8 Once dry, your hands are safe.



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Setting of a bed

Keep a warm bed ready for the new admission:

- Clean the radiant warmer with soap water/ Antiseptic lotion
- Use autoclaved linen
- Keep oxygen hood and source of oxygen ready
- Keep suction machine, suction catheter ready
- Keep supplies for initiating I.V. line ready
- Keep the following articles near the warmer for exclusive use of each baby:
 - i. Spirit swab container
 - ii. Povidone iodine swab container
 - iii. Thermometer(clinical)
 - iv. Stethoscope
 - v. Tape measure
 - vi. Adhesive tape for fixing lines/probes

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Name	Disinfection method	Frequency & other considerations
Baby linen, blanket cover	Wash and autoclave	Autoclaved linen – each time
Cotton gauge	Autoclave	As required
Feeding utensils (paladai, katori, spoon, etc)	Wash with soap and water and boil for 10 min	Before each use
Swab container, injection and medicine tray	Wash with soap and water / autoclave	Daily morning shift Use separate swab container for each baby
Sets for procedures	Autoclave	After each use; every 72 hours if not used
Cheattle forceps	Autoclave	Daily. Put in sterile autoclaved bottle containing dry sterile cotton
Stethoscope, measuring tape, thermometer, BP cuff, probes of radiant warmer/ incubator pulse oxymeter	Clean with spirit swab	Daily and before use
Laryngoscope	Clean with spirit swab thoroughly. If used for an infected baby: wash with soap and water. Put the blade in 2% glutaraldehyde after removing the bulb. Wash after removing from glutaraldehyde	daily and after use. Wrap in autoclaved cloth, put date on cover

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Syringe pumps	Clean with wet clean cloth. If blood stained – use soap and water	Daily in morning shift; if possible on each shift
Oxygen hood	Wash with soap and water and dry with clean linen.	Daily in morning shift
Face mask	Clean with soap and water, immerse in glutaraldehyde for 20 min, rinse in distilled running water, dry and warp with autoclaved linen.	Daily and after each use.
Resuscitation bag and reservoirs, oxygen tubings and bottle and tubing of suction machine	Clean with soap and water after dismantling. Immerse in glutaraldehyde for 4-6 hours. Rinse in distilled water, dry and warp with autoclaved linen and put a date	Weekly for resuscitation bag and reservoir. Daily for others
Weighing machine	Wipe with surface disinfectant	Daily in morning shift and when required
Radiant warmer and incubator	Clean with soap water daily if occupied. If not occupied, clean with disinfectant.	Daily

SAFE DISPOSAL OF HOSPITAL WASTE

The following are different colour drums with different color polythene for different type of waste, to be disposed off in a different way.

a. Black drums/Bags

Left over food, fruits, feeds, vegetables, waste paper, packing material, empty box, bags etc. This waste is disposed off by routine municipal council committee machinery.

b. Yellow drums/Bags

Infected non-plastic waste e.g. human anatomical waste, blood, body fluids, placenta, diapers etc. This type of waste requires incineration.

c. Blue drums/Bags

Infected plastic waste such as used disposable syringes, needles (first destroy the needle in the needle destroyer) and soiled gloves.

Used sharps, blade and broken glass should be discarded in puncture proof containers before discarding.

Patients IV set, blood transfusion set, endotracheal tube, catheter, urine bag etc. should be cut into pieces and disposed in blue bag. This waste will be autoclaved to make it non-infectious. This is then shredded and disposed off

Disinfectants and Germicides

Name	Indication for use	Direction for use and special considerations
Bacillocid spray (2%)	<ul style="list-style-type: none"> - Walls of nursery I Incubators & warmers (when not in use) - Surface of weighing machine 	Put off air conditioners at the time of spray
2% gluteraldehyde (Cidex)	<ul style="list-style-type: none"> - Face mask & Ambu bag - Reservoir 	<p>Before immersing into cidex, clean thoroughly with soap and water time of contact :</p> <ul style="list-style-type: none"> -For sterilization : 4-6 hours -For disinfection : 15 - 20 mins (once prepared, solution is active for 14 days)
Formalin 40% (Prepare solution as per instruction of manufacturer)	Fumigation of nursery	<p>Routine fumigation: 30 ml formalin with 90 ml water per1000 cubic feet area. Nursery is to be sealed properly - switch off AC and seal AC duct-Take desired amount of formalin and water in the OT care Switch on the machine for half an hour. Open and clean the nursery after 6 hrs</p>

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EcoShield (H ₂ O ₂ 11% W/V), 0.01 % W/V Silver Nitrate	Fumigation of nursery	Routine fumigation: 200 ml of Ecoshield in 800 ml of water, 1 liter for 1000 cu feet for aerial fumigation. Nursery is to be sealed properly - switch off AC and seal AC duct. Switch on the machine for f one hour. Open and clean the nursery after 6 hrs
Sodium hypochlorite (bleach)	Sharps / needles and disposables	Keep the solution covered, change it every 24 hours
Spirit	Skin preparation, cleaning aryngoscope blades, tape measure, and stethoscope	Do not use to clean incubators and warmers
Soap and water	Oxygen hood, feeding utensils, swab containers, injection tray face mask, buckets	After washing in soap and water, boil the feeding utensils for 20 min
Phenyl (5%)	Cleaning floors	Daily in the morning shift or as required
Povidone-iodine	Skin preparation	Use with caution in extremely preterm babies
Chlorhexidine (2%)	Skin preparation	

House-keeping routines

Name	Disinfection method	Frequency & other considerations
Floors	Wet mopping with phenyl	Once in each shift, No dry sweeping. DO NOT use 2% glutaraldehyde (Cidex)
Walls	2% Bacillocid	Once in each shift
Fans	Wipe with wet clean cloth	Once a week
Window AC	Surface and filters to be washed with soap and water	Once a week
Refrigerator	Defrost and clean with soap and water	Once a week
Buckets	Soap and water	Daily in the morning shift
Sinks	Vim/surf	Daily in the morning shift or as required