



Document Name:	Policy for Infection Control in ICU
Document Number:	DUHS / REG/ SOP / 09

DOW UNIVERSITY OF HEALTH SCIENCES

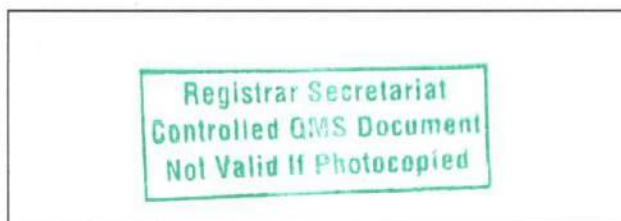


STANDARD OPERATING PROCEDURE

Policy for Infection control in ICU

(CLAUSE 1.1 OF ISO 9001:2008)

	NAME	DESIGNATION	SIGNATURE	DATE
PREPARED BY:	Dr. Shobha Luxmi	Assistant Professor	<i>Shobha</i>	2-8-19
REVIEWED BY:	Ms. Sanam Soomro	Director, Quality Enhancement Cell	<i>Sanam Soomro</i>	2-8-19
APPROVED BY:	Prof. Zarnaz Wahid	Pro-Vice Chancellor, DUHS	<i>Zarnaz Wahid</i>	2-8-19
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Sustainable improvement in prevention and control of infection in ICU requires board-level support and endorsement. It will require the engagement and active involvement of all staff working at every level of the organisation, supported by the infection control team.

Infection control is achieved through sustained and close adherence to best practice by every member of the critical care team, whether clinical or non-clinical staff. All individuals who come into contact with critically ill patients have a responsibility to ensure effective infection prevention and control is afforded to them.

Implementation:

All health care workers ,physicians, visiting consultants and attendants

Support by administration

Factors that make critically ill patients at high risk of infection

- **Immunosuppression**
- **Co morbids**
- **Age**
- **Malnutrition**
- **Understaffing and overcrowding in ICU.**
- **Poor design of the ICU**

Sources of Cross-Infection in the ICU

- **Hands of staff and attendants**
- **Assisted ventilation equipment; suction and drainage bottles;**
- **I.V. lines – central and peripheral;**
- **Urinary catheters;**
- **Wounds and wound dressings;**
- **Disinfectant containers;**
- **Dressing trolleys (on which disinfectants jars/bottles are stored)**
- **Linen**



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Strategies to Reduce Infection Risk

I Hand hygiene:

Hands are the most common vehicle of transmission of organisms and therefore sinks or alcohol tubs should be provided for hand washing.

All visitors and staff should wash their hands before direct contact with patients.

Aseptic hand wash or alcohol based hand rub should be performed:

- Before entering the ICU.
- Before performing any invasive procedure including peripheral cannula Insertion and removal.
- Before and after touching the patient
- Before administration of iv fluids or medications/drugs
- After touching environmental surfaces whenever soiled.
- Procedures requiring aseptic technique

(E.g. Intravenous Therapy, Urinary Catheterization & Respiratory Care Equipment /Practices)

1. A) IV care practices

- Clean injection ports with alcohol before accessing the system.
- Cap all stopcocks when not in use.
- Use aseptic technique including a cap, mask, sterile gown, sterile gloves, and a large sterile sheet for the insertion of central venous catheters (CVCs) (including peripherally inserted central catheters [PICCs]) or guide wire exchange.


1. B) Respiratory care – Patient-Based Interventions:

- If there is no medical contraindication, elevate the head of the bed of a patient at high risk for aspiration pneumonia, e.g., a person receiving mechanically assisted ventilation and/or who has an enteral tube in place, at an angle of 30-45 degrees.
- Periodically drain and discard any condensate that collects in the tubing of a mechanical ventilator, taking precautions not to allow condensate to drain toward the patient. Decontaminate hands with soap and water or a waterless antiseptic agent after performing the procedure or after handling the fluid.

1. C) Personal protective equipment for routine patient care

- **Gloves:** should be selected according to need (e.g., sterile for procedures using aseptic technique such as insertion of central venous catheter and non-sterile for procedures such as emptying urinary drainage bags, insertion of peripheral IV catheters, contact with contaminated surfaces or equipment);
- **Wear gloves** for handling respiratory secretions or objects contaminated with respiratory secretions of any patient.

Change gloves and decontaminate hands in the following situations:

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- Between contacts with different patients.
- After handling respiratory secretions or objects contaminated with secretions from one patient.
- Before contact with object, or environmental surface.
- Between contacts with a contaminated body site and the respiratory tract of, or respiratory device on, the same patient.
- Wear a gown: When exposure to respiratory secretions from a patient is anticipated, and change it after soiling occurs and before providing care to another patient.
- Plastic aprons may be worn when contact with patient body fluids is anticipated;
- Disposable high-efficiency filter masks or surgical masks may be used for wound care.
- Shoe and head coverings are not required for routine care but are used in the immunosuppressed patients (Burns patients and transplant recipients)

IV- ICU Personnel

- All staff working on the unit should be offered hepatitis B vaccine before beginning work on the unit.
- Orientation to the unit should include basic infection control concepts that include hand hygiene, management of sharps, and associated risks of disease transmission.
- Training and education should include formal and informal infection control lectures and assessment of practices through periodic observations.

Environment Factors and Design

Unit Design should consider the following

1. Space
2. Ventilation
3. Traffic flow
4. Visitors
5. Non-ICU Staff

(a)- Space

- Beds
 - The beds should be 2.5 – 3 meters (7-9 feet) apart, to allow free movement of staff and equipment, reducing risk of cross contamination.
 - Ideally, a sharps container should be within easy access of each bed.
- Partitions
 - Privacy partitions should be of material that is easily cleaned and should be cleaned weekly and any time that it becomes soiled or contaminated.

If curtains are used, they should be changed weekly and between patients.

- Toilets
 - May be located outside the ICU.



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- **Medication preparation**
 - Medication prep areas should be separate from patient care areas and should be maintained as a clean area.

- **Clean storage**
 - An area should be identified and maintained for clean storage and should be separate from care and waste disposal areas.

- **Soiled and waste storage**
 - An area should be identified for storing collected bedside waste and should be maintained separate from direct care and clean medication areas. Ideally, this area should have a clinical sink for the disposal of blood and body fluid waste. The area should include storage of filled sharps containers until these containers can be removed.

(b)- Ventilation

- **Type**
 - The source of clean air should be determined including central or through-the –wall air conditioning units.

- **Windows**
 - Windows should remain closed in order to control all airborne risks; plants and flowers should be kept outside the ICU.

- **Sinks and Waterless Hand rub Dispensers**
 - Sinks should be placed near the ICU entrance and if this is not feasible, waterless handrub dispensers should be available at the ICU entrance and at each bedside. If the design permits scrub sinks.

 - An adequate number of easily accessible Elbow/Foot operated sinks should be available. Sinks should not be plugged or used for storage.

 - Sinks assigned for hand washing should not be used for washing instruments.

(c)- Traffic flow

- The unit may be situated close to the operating theatre and to the emergency department for accessibility, but should be separate from the main ward areas.
- Policies should consider controlling traffic flow to and from the unit in order to reduce sources of contamination from visitors, staff and equipment.

(d) – Visitors

- Design of the unit should permit staff to assess visitors for communicable disease (eg, rash, respiratory infection) before permitted to enter unit.
- They should be instructed in washing their hands if assisting the patient.



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(e) – Non-ICU Staff

Staff not assigned to the ICU should follow the following protocol:

- Street coats and white coats must be removed;
- Hands should be washed on entering the ICU and before leaving the unit.
- The proper procedure should be followed when attending the patient (wearing ICU gowns, slippers etc)

Cleaning and Reprocessing Method of some Patient Care Equipment used in ICU

1. Disposable ventilatory tubing does not routinely need to be changed for a single circuits patient unless it becomes visibly contaminated, malfunctions or within 3-4 days.
 - Multiple-use tubing must be heat-disinfected for a at least 76°C for 30 minutes or sterilized
 - If properly maintained, a ventilated patient may use the same circuit for 3-4 days before reprocessing becomes necessary.
 - Use a heat-moisture exchanger (HME) to prevent pneumonia in a patient receiving mechanically assisted ventilation. Change the HME when it malfunctions mechanically or becomes visibly soiled.
 - Do not routinely change an HME more frequently than every 48 hours.

Install filters, e.g. heat-moisture exchangers with filters (HMEF) on the expiratory and inspiratory ends of the ventilator to prevent contamination

2. Endotracheal tubes

These may be recycled after thorough cleaning and autoclaving tubes

- Autoclaving.
- Disposable endotracheal tubes are available but are more expensive than recyclable ones.

3. Ambu-bags

These are used for resuscitation. Ambu-bags are extremely difficult to disinfect and become contaminated very quickly:

- These should be disinfected in glutaraldehyde and quaternary ammonium
- The bags must be rinsed thoroughly in sterile water after immersion in glutaraldehyde or quaternary ammonium. This will reduce the risk of chemical irritation, which can itself precipitate respiratory infection.

4. Oxygen delivery masks

These can be disposable or reusable;

- Wash thoroughly.
- Soak in quaternary ammonium compounds, rinse, dry and store.

5. Suction and drainage bottles

Disposable, with a self-sealing inner container held in a clear plastic outer container. These types are used once and discarded.



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Non-disposable bottles:

- Must be changed every 24 hours (or sooner if full).
- The contents may be emptied down the toilet.
- Must be rinsed and autoclaved or disinfected with glutaraldehyde
- Do not leave fluids standing in suction bottles.

Cleaning the ICU Environment

- **Daily**
 - Cleaning must be done daily with the hospital approved cleaner. All surfaces must be wiped with a damp cloth to remove dust and dirt;
 - Cleaner/disinfectants should be identified by the Infection Control team and used as indicated. High level disinfectants (HLD) are not used for environmental cleaning.
 - Cleaner/disinfectants should be kept closed when not in use.
- **Terminal**
 - When patients are discharged from the unit, a thorough cleaning of the bed and bedside equipment must be completed before admitting new patients.
- **Scheduled**
 - A total cleaning of all areas, including the store clean and soiled storage areas should be done at least every 2 weeks.
 - Separate mops, and cleaning utensils should be used for cleaning of the unit.
 - Cleaning equipment should be wiped and properly stored when not in use.

Conclusion

Nosocomial infections are often preventable by adherence to procedures and policies designed to limit spread of infection between patients and between ICU staff and patients.