

OPERATING ROOM (OR)

GDIPC

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Element : D-3

- **Sub- Element (13)**
- **Activities for auditing:**
 - ✓ **(D)** documentation
 - ✓ **(SI)** staff interview
 - ✓ **(O)** observation
- **Score (0-1-2)**

Sub- Element (D - 3.1)

There is a written policy and procedure for IPC in OR including a clear policy to handle patients under air-borne infection isolation precaution inside OR (e.g., TB) & patients with infectious transmissible diseases are scheduled towards the end of the operating list. (D)

Review the policy, which should be:

Comprehensive: it covers all aspects of infection control in OR including:

- Special protocols to handle patients under Air-borne Infection Isolation Precautions (e.g., TB) inside OR etc.
- Handling patients with transmissible diseases (patient +ve for one of blood borne pathogens / patients under air-borne transmission-based precaution / patients under contact and/or droplet transmission-based precaution) / scheduling cases with infected wounds (e.g., dirty wounds).

Review the Operating lists: to review the last event for dealing with patients' with transmissible diseases or cases with infected wounds.

- **Fully applicable:** all elements of the policy can be applied and comply with the hospital's scope of services
- **Based on scientific references** approved by MOH (GCC, CDC, WHO & APIC)
- **Signed from authorized personnel** (i.e., owner of the policy / hospital director or medical director / concerned department)
- **Approved by IC committee***
- **Valid** (updated within 2 - 3 years and when indicated)

Comment:

Approval by IC committee is required for the infection control manual as a whole before distribution and also for individual policy after major changes

Sub- Element (D - 3.2)

There is a clear demarcation between unrestricted, semi-restricted and restricted zones of OR with restrictions and special precautions for movement between these zones. (O, SI)

Observe the OR suite that should be divided into three clearly demarcated zones*:

- **Unrestricted area: area with limited public access that may include:**
 - * **Central control point: it may be established to monitor the entrance of patients, personnel, and materials from the unrestricted area into the semi-restricted area**
 - * **Locker rooms: lead into semi-restricted area**
 - * **Pre-operative admission area**
 - * **Offices & waiting areas.**
 - * **Post-anesthesia care units (PACUs).**

- **Semi-restricted area: (Peripheral support areas of the surgical suite)**
 - * Corridors leading from the unrestricted area to the restricted area of the surgical suite.
 - * Surgical scrub sinks need to be located in the semi-restricted near to the entry of theatre
 - * At least one large scrubbing sink is available at entry to each operating theater.
 - * Storage areas for clean and sterile supplies
- **Restricted area: A designated space with restricted access that can be reached only through a semi-restricted area (this is primarily intended to support high level of asepsis control not necessarily for security purposes):**
 - * Operating rooms
 - * Areas for preparation of sterile surgical instruments and supplies (opening of sterile surgical sets & sterile field preparation), which directly leads to operating rooms

- Observe: traffic control (movement of the patients, personnel, instruments and materials) between different zones of the OR suite in order to ensure that restrictions and special precautions for movement between different zones are strictly applied

- Unrestricted area:

- Limited public access / Street clothes are permitted in this area / Patients are switched between units' beds and OR trolleys or beds in this area.

- Semi-restricted area:

- Limited access to authorized personnel and patients accompanied by authorized personnel / Personnel in this area were wearing surgical attire and covering head and facial hair / No units' beds in this area (only OR trolleys or beds)

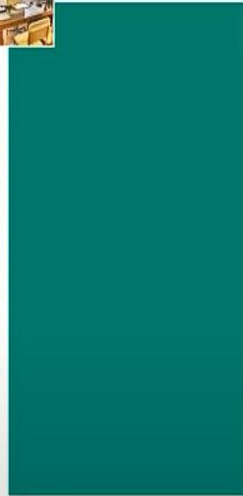
- Restricted area:

- Restricted access to authorized personnel and patients / Personnel in these areas are required to wear surgical attire and cover head and facial hair - masks are required where open sterile supplies or scrubbed persons may be located + appropriate use of sterile gowns and sterile gloves when indicated (operating rooms scrub clothing).

Operating Room Zones



Un restricted



Semi restricted



Restricted



Ask the OR staff about:

OR zones demarcations, restrictions, traffic control and special precautions to be applied in different zones of the OR suite (e.g., required PPE in different zones)

- The limitation of personnel traffic in the room decreases the amount of bacterial shedding, keeps air turbulence at a minimum, and reduces the accidental contamination of sterile items.
- A recent investigation has suggested a trend toward increased SSI rate with increased number of personnel in the operating room.
- Operating room doors should remain closed all the time, except as needed for the passage of equipment, personnel, and patients.

Sub-Element (D - 3.3)

Floors, walls, ceiling are: formed of one piece without connections, cracks, or decorative parts, with minimal openings that are completely sealed, and withstand repeated cleaning and disinfection. (O)

Observe the internal finishing of the operating theater (floors, walls and ceilings), which should be:

Formed of one piece without connections **(if formed of separate units or tiles, connections between units should be completely sealed)**

- No breaks, gaps, cracks or decorative parts are observed
- Only necessary openings (i.e., O₂ supply ports, suction ports, electricity plugs ...) that are completely sealed to keep pressure differences
- Made of suitable materials **(easily cleanable / withstand repeated cleaning and disinfection).**

Sub- Element (D - 3.4)

At least one large scrubbing sink is available at entry to each operating theater. (0)

- **Observe the scrubbing sink(s) of the operating theater(s), which should be:**

- 1) Large, deep and with hands free control
 - 2) Close to or at the entry of each operating theater.
 - 3) Dedicated only for hand hygiene & surgical scrubbing
- Provided with dispenser of antiseptic hand soap for surgical hand hygiene (ideal to be single use dispenser not refillable) and disposable surgical scrubbing brushes/sponges

Comment:

One large scrubbing sink, which is shared between two adjacent operating theaters is an acceptable option.

Sub- Element (D -3.5)

Storage areas in the OR are organized and well maintained and distribution of sterile items respects the 1st in 1st out principle.

(D, O)

Review the following documents:

- 1) Housekeeping records: housekeeping schedule with clear procedures for cleaning/disinfection activities at least daily + practical detailed checklist
- 2) Local records for regular monitoring (daily) of temperatures and relative humidity

Observe the storage area(s) of the OR, which should be:

- 1) Of adequate capacity, well maintained, secured and away from contamination, air vents and direct sunlight.
- 2) Well organized and regularly cleaned according to definite housekeeping schedule / no personal items, foods or drinks / no items are kept in the original shipping boxes
- 3) Storage shelves are made of easily cleanable material (e.g., fenestrated stainless steel, Aluminum or hard plastic).
- 4) Storage shelves: 40 cm from the ceiling, 20 cm from the floor, and 5 cm from the wall.
- 5) Centrally air conditioned with adjusted temperature and relative humidity (temperature: 22 - 24°C / relative humidity: up to 70%) + fixed device for monitoring.

For distribution process (1st in 1st out) there are 3 methods suggested to follow:

- Use a left-to-right system: the newest item is placed on the left, and the older items move forward to the right. The pack on the far right is the first to be picked-up for use.
- use a back-to-front system: the new packs in from the back of the shelf, and pick up the oldest from the front of the shelf.
- A colored sliding shelf divider system: divider containing the words "use this first" printed on the right side is moved up against the next pack. As new packs are stored, they are placed to the left of the divider.

Sub- Element (D - 3.6)

Only necessary items are kept in the restricted area of the OR. (O , SI)

Sub- Element (D - 3.7)

Doors are kept closed and only necessary personnel are allowed in the theater. (O, SI)

Observe the restricted area of the OR (operating theater), which should fulfill the following:

- ✓ Unnecessary items are kept outside: Only items prepared to be used with just one patient, and extra supplies, as little as possible, may be also prepared to get ready for some emergency situations.
- ✓ The use of storage cabinets in operating rooms should be minimized
- ✓ Unnecessary personnel are excluded: Only anesthesia team + surgical team + un-scrubbed assistant(s) + equipment technician(s) if needed (as little as possible)
- ✓ Cleaning/maintenance activities should be avoided during the procedures
- ✓ Doors are continuously kept closed during the procedures

Ask the OR staff about:

- ✓ Pre-operative preparation of operating room & how to apply concept of “Only necessary items are kept in the restricted area”
- ✓ Protocols to exclude unnecessary personnel (e.g., unauthorized HCWs, trainees, visitors ...) / conducting cleaning/maintenance activities inside operating room

Sub- Element (D - 3.8)

OR environment is maintained clean and there are clear procedures for cleaning and disinfection by allocated housekeeping staff after each surgical procedure and at least daily. (D , O, SI)

Review the following documents:

OR should have housekeeping schedule with cleaning/ disinfection activities log that records:

- a. Responsible housekeeping staff (Only experienced staff are allowed. They should be well trained on hand hygiene, use of PPE, methods of cleaning, and proper and safe mixing of chemicals).
- b. Methods of cleaning and used agents, materials and supplies (wet cleaning, MOH approved disinfectant/detergent, non-linting wipes ...)
- c. Environmental surfaces intended to be cleaned & frequency.
- d. Clear procedures for cleaning/disinfection activities after each surgical procedure and at least daily with practical updated detailed checklist.
- e. Clear procedures for cleaning and disinfecting anesthesia machines by anesthesia technicians after each case and toward the end of working hours with practical detailed checklist.

Observe OR to ensure that:

- OR environment is clean (at all times) and free of contamination (no dirt or dust)
- check if tools, agents & materials used for cleaning/disinfection activities are available and matching MOH standards.

You can wipe out the main operative light lamp, operative table, or other environmental surfaces

Ask the OR nurse (nurse in charge or nurse responsible for theater) and allocated housekeeping staff about:

- **OR housekeeping schedule / Role & responsibility of nursing staff in cleaning/disinfection activities**
- **Methods of cleaning / tools, agents & materials to be used**

Terminal cleaning checklists / cleaning/disinfection activities after patients with infectious transmissible diseases / handling body fluids spills.

Environmental Cleaning should be conducted as follows:

- Every day, before surgery begins.**
- Between patients.**
- After the last operation of the day (known as terminal cleaning).**
- Deeper cleans are carried out once a week and/or once month.**

Sub- Element (D - 3.9)

Ventilation system operates all the time and never shuts down even in long holidays / air is introduced from the ceiling and exhausted near the floor. (D, O, SI)

Sub- Element (D - 3.10)

All re-circulated or fresh air is filtered through High-Efficiency Particulate Air (HEPA) filters that are maintained and replaced as per the manufacturer recommendations. (D)

Sub- Element (D - 3.11)

**Operating Room is maintained at positive pressure (at least +2.5 Pascal) with respect to adjacent corridors.
(D , O)**

Sub- Element (D - 3.12)

Operating room ventilation is maintained at a minimum of 15 or 20 air changes per hour (ACH) with 20% fresh air. (D, O)

Sub- Element (D - 3.13)

**Operating Room temperature ranges from 21 to 24 °C
and relative humidity from 20% to 60%. (D , O)**

Review the following documents:

- 1) Copies of the original charts or project scheme for ventilation system: air supply from central AC through with at least 20 % fresh air / all re-circulated and fresh air is filtered through High-Efficiency Particulate Air (HEPA) filters / air is introduced from the ceiling (or high air vents in the wall) and exhausted near the floor.
- 2) Local records for regular monitoring (daily) of: positive pressure differences + temperatures and relative humidity \pm air changes per hour (ACH) with corrective interventions if readings are not matching the acceptable values
- 3) Copies of maintenance records for regular monitoring (every 3 months) of: positive pressure differences + temperatures and relative humidity + air changes per hour (ACH) with corrective interventions if readings are not matching the acceptable values.

4) Copies of records from the executing company (or maintenance records) for regular check-up and replacement High-Efficiency Particulate Air (HEPA) filters as per the manufacturer recommendations.

5) Copies of records from the executing company (or maintenance records) for regular calibration (annually) of OR monitors

Observe OR theater to ensure that:

1) Air is introduced from the ceiling (or high air vents in the wall) and exhausted near the floor

2) OR monitors are valid and recorded values in local OR logs are identical to the actual readings

Comment

Ask the OR staff (nurse in charge or nurse responsible for theater) about:

Handling ventilation system of the OR during long holidays.

Local controls for the OR ventilation system (e.g., presence of a local On/Off switch / adjustment of the ventilation parameters on personnel's request

Ask the maintenance staff responsible for the OR ventilation system about:

Handling ventilation system of the OR during long holidays.

Central adjustment of temperatures and relative humidity

Local controls for the OR ventilation system (e.g., presence of a local On/Off switch / adjustment of the ventilation parameters on personnel's request.

THANK YOU