

Dhulikhel Hospital, Kathmandu University Hospital

OT Workflow and Perioperative Guidelines

COVID -19 ERA 2020

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OT workflow and perioperative guidelines

Note:

- Abbreviation “OT” will be used to indicate the Operating theatre department.
- Abbreviation “OR” will be used to indicate the designated operating room for operation.

PREOPERATIVE PHASE

1. Planning

- Day must begin with preparation meeting including anesthetist, surgeon, and the leading nursing staffs. All the necessary equipment that might be required during the surgery for the day must be discussed.
 - The **time** and **personnel required** for the surgery should also be discussed.
 - Personnel change or rest during long OT can be pre planned, (which should be bare minimum).
 - Ensure the room is ready, and all **supplies, equipment, blood, and other materials are available in the OR and in working order.**
 - The **post-operative requirement of ICU bed and transfusion** should also be discussed.
- Patient should not be brought to OT for Pre-anesthetic check-up.
- Before the transfer of the patient, preparation of the OR and necessary equipment must be **ensured**, so that waiting time for the patient is minimum.

2. Investigations

- Patient should at least have had **following investigations**, beside the required
 - CBC – TC, DC, platelets, hemoglobin
 - Blood grouping
 - Prothrombin time/ INR
 - CRP
 - RFT
 - Chest x-ray PA view
 - If any change is seen in x-ray or there are symptoms of fever, shortness of breath or cough, CT chest must be done
 - ECG for patients > 40 years of age

3. Patient’s Dress and preparation at ward

- Patient’s file should be kept at nursing station and NOT be kept or taken at bedside at any time while patient is admitted to the respective ward.
- Patient must be shifted from ward/ER with the proper dress after proper hand sanitization overviewed by the nurse in charge of shifting the patient. Patient should include:
 - hospital dress, head cap and surgical mask must be worn.

4. Handover and Takeover

A. Patient's File (that includes all documents, radiograph and investigations)

- Patient, diagnosis and the operation must be **confirmed by surgeon and anesthetist** before the patient is shifted to OR. Use WHO Surgical Safety Checklist.

B. A **checklist** must be used for every patient that must include triage for COVID-19, list of investigations, consent, and deposit, before a patient is allowed in the OT premises.

a. History

- i. Presence of dry cough, fever, shortness of breath
- ii. Travel history to high-risk area,
- iii. Close contact with COVID-19 patients
- iv. Occupational exposure
- v. Contact history
- vi. Cluster phenomenon – more than 2 cases in the same locality of the patient including school, workplace, community

b. Physical examination and investigation record:

- i. Check the record for the presence of fever
- ii. Check the record of blood pressure and pulse to look for presence of shock,
- iii. Check the record of SpO₂ for desaturation
- iv. Look for leukopenia, lymphocytosis and lymphopenia from CBC
- v. Look for elevated CRP
- vi. Look for deranged PT/INR or platelet level
- vii. Look for consolidations on chest x-ray, CT-thorax if available.

c. Consent paper completed

d. Deposit done

e. Existing checklist also should be used.

C. Patient transportation to OT

- Patient should not be brought to holding area. Patients should always be **transferred from the lift** and transported directly to OR.
- OR 6 should be used as a first priority for the operation. In case it is occupied, OR 1 should be used.
- Unnecessary cabinets should be properly closed in OR.

D. Patient Receiving at OT Entrance by anaesthesia nurse who should wear the following PPE

- In-house gown,
- Surgical cap,
- surgical mask and
- clean gloves.

INTRAOPERATIVE PHASE

Negative pressure airflow with HEPA filter inside the OT should be obtained prior to shifting patient in the OR. Laminar flow with positive pressure should not be used (OR 4 and 5). If it is possible proper training of staffs should be done about the function and usage of the same.

Notices and Information

Entrance to all rooms, donning and doffing area should have specific signs (markings, photographs) alerting hospital personnel about appropriate materials to wear or remove in the specific zones, along with the material and waste basket.

Access to OR must be reduced to absolute minimum, and all staff should be trained to avoid errors and unnecessary exposures.

A. Staffing in the OT

(The main **principle is to minimize the exposure**. Staff the room with the minimum number of providers needed to care for patient with no or minimal exchange of staff for duration of the case.)

a. Anesthesia team

- i. 1 consultant
- ii. 1 PG/MO
- iii. 1 anesthetic nurse – same patient attending nurse (decrease number of PPE)

b. Patient positioning and preparation

- i. Depending upon requirement for patient positioning more personnel might be needed; this should be discussed at the team meeting at the beginning of the day.
- ii. Once the Aerosol Generating Procedure (AGP) is performed, wait for 15 minutes. Personnel responsible for the positioning shall enter the room with in-house gown, double gloves, surgical masks and goggles/face shield. (**Note:** sterile gown/sterile gloves NOT required).

c. Operating team

- i. 1 Chief surgeon
- ii. 1 or 2 surgery assistants – depending upon the requirement of the surgery. This should be discussed at the team meeting at the beginning of the day.
- iii. 1 scrub nurse
- iv. 1 circulating nurse
- v. **ONE RUNNER** (STAYS OUTSIDE THE OR) with in-house gown, cap, surgical mask and gloves for delivering equipment if needed (so that circulating nurse does not has to come out of OR)

B. PPE recommendations

a. Anesthesia team

- i. Regional anesthesia
 - surgical cap,
 - goggles/face shield,

- surgical mask,
- In-house gown,
- double gloves,
- shoes cover/boots

ii. General anesthesia – intubation/extubation (Done over Glass Box)

- Surgical cap/bouffant
- goggles
- face shield
- N95 mask,
- double in-house gown (two types)
- double clean gloves

b. Operating team (sterile)

- Surgical cap/bouffant
- goggles
- face shield
- surgical mask,
- double in-house gown (two types)
- double sterile gloves,
- shoes cover/boots

Circulating nurse

- Surgical cap/bouffant
- goggles/face shield
- surgical mask,
- in-house gown
- double clean gloves

C. Management issues to be taken care by Anesthesia team

- a. Patient file should be kept outside at the counter (DO NOT bring it to OR). Necessary study of file should be done at the counter itself.
- b. Whenever possible regional or local anesthesia should be used for surgery.
- c. Regional anesthesia should be given at the OR.
- d. Rapid Sequence Intubation (RSI) should be done for intubation with minimal bag and mask ventilation.
- e. Minimize disconnection of the ventilator tubes.
- f. During the anesthesia only the anesthetic team shall be in the OR with PPE.
- g. At least 15 minutes time should be given after intubation, before the operating team shall enter the OR. Anesthetic assistant (nurse/PG/MO) will keep the timing and call the surgery team.

D. Donning and Doffing Procedure

This procedure clarifies the steps for the donning and doffing (removal) of sterile surgical attire for ALL STERILE SURGICAL PERSONNEL (surgeons and the scrub nurse/assistants) who will be scrubbed into operations of **highly suspected/confirmed COVID-19 patients**.

Donning Procedure

Steps 1 - 10 should be performed prior to arrival in the OR. Runner will observe the donning procedure as a dofficer (who will coach the person performing these procedures for best adherence). The circulator will take on the role of dofficer at step 10 when team is entered to OR.

1. Remove ALL communication devices including cell phones and pagers. Remove hospital ID badge. These should be left outside the OT entrance on a table or in a personal locker.
2. Remove personal items on head/neck (e.g. earrings, necklaces, etc.)
 - a. Eyeglasses can remain on.
 - b. Tip: Long hair should be placed in a braid or bun. A hair band should be used to keep hair away from the face.
3. Don disposable cap.
4. Don closed OT shoes.
5. Perform hand hygiene.
6. Don surgical mask. (Seal the top edge with the tape).
7. Don eye protection (Reusable goggles or visor).
8. Wear in-house surgical gown.
9. Perform standard surgical scrub after dofficer (runner) confirms good eye protection, mask and cap fit or mirror could be used for the confirmation.
10. Enter OT (circulating nurse can open door if needed).
11. Don first pair of sterile gloves (under gloves).
12. Don another gown with assistance of circulator (circulator in nonsterile PPE).
13. Don second pair of sterile gloves over gown cuffs (overgloves).

Contamination Event during Surgery

During operation, may exchange overgloves, with scrub nurse/assistants changing their overgloves as well. If any other PPE is compromised during the case, remove gown and outer gloves, assess need for removal of visor and/or mask and follow steps in doffing procedure until contamination is resolved, then start over with donning (must rescrub).

Doffing Procedure

Circulator will act as dofficer in the operating room and observe/coach through step 12, from the checklist. Steps 1-14 SHOULD be performed inside the operating room.

1. Remove the outer gloves and dispose in trash.
2. Perform hand hygiene (will have to use hand gel) over undergloves.
3. Wear the clean gloves over undergloves.
4. Perform hand hygiene (will have to use hand gel).
5. Remove gown and overgloves, rolling the gown and dispose in laundry bag. Remove the outer gloves and dispose in trash.
6. Perform hand hygiene over undergloves.

7. Remove visor/goggles and place in clean bucket if reusable, or in trash if disposable (mask/visor combo). While removing the visor/mask combo, take care to avoid touching the front of the mask. May require assistance from dofficer to remove mask safely.
8. Perform hand hygiene over undergloves.
9. Remove undergloves and place in trash.
10. With runner opening door so as not to touch door, exit operating room.
11. Perform hand hygiene, 30 seconds duration with soap and water.

E. Safety Issues, Cleaning and Decontamination

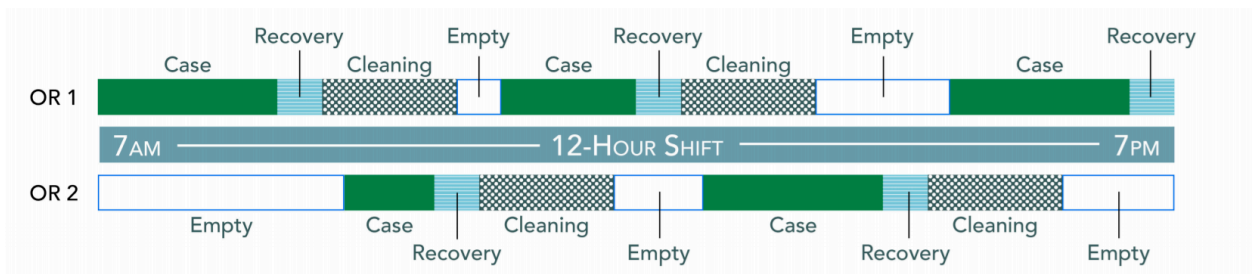
- There should be enough time for cleaning of OR and the passage before next patient can be shifted.
 - **Time duration should be at least 30 minutes after the patient is shifted.**
 - Surface disinfection must be done by 0.4% Virex 256 (10 minute contact/wet time) by circulating nurse/anesthesia nurse must be done immediately after patient has been shifted if patient had regional anesthesia. Wait for 15 minutes after extubation if patient had general anesthesia.
 - Floor and OR table must be disinfected by hygiene staff with PPE (In-house gown, surgical mask, cap, goggles/visor and clean gloves)
 - Scrub nurse will cover all the used instruments and transport to cleaning room. Cleaning and disinfection of the used instruments with hospital approved disinfectant per normal protocol.
- Allow HEPA filter to run x 1 hour after the last patient leaves the OR at the end of the day (**do not enter until 1 hour is complete**). *Ensure all OR doors stay closed during this time.
- All staff should wear closed shoes in OT. Boots are also available in OT.

NOTES

1. **Effective communication must be done** during the operation.
2. Surgical hand scrub should be performed at the washbasin outside recovery room.
3. Minimize the opening of the OR door. Prepare the necessary equipment in the OR before surgery. Only necessary drugs and equipment should be kept out of the cabinet.
4. Pre-information regarding necessary equipment should be provided to the concerned person.
5. Cautery should be used with suction if possible.
6. Wound should be sutured with absorbable suture material as feasible.
7. If positioning has been done, operating team shall help reposition the patient.
8. Extubation shall be done after the surgical team has left the OR.

POST OPERATIVE PHASE

1. **Two surgical team members** will enter to help **shift the patient** after **at least 15 minutes** of extubation. They shall be wearing same inner gown but add another pair of unsterile gloves.
2. Patient should be escorted to the recovery room by one member of surgical team and a member from anesthesia team.
3. **SICU should be used as the recovery room.**
4. Shift the patient to the post-operative ward (**ROOM No. 14, SURGICAL WARD**) after recovery.
5. Cleaning and disinfection of the recovery room must be done.



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