COVID-19: Guidelines for Surgeons for use after lockdown is withdrawn

Introduction:
We are in the midst of a serious epidemic and Surgeons will have to continue to take extreme measures to protect themselves, their staff, patients and their relatives, **even after the lockdown is lifted.**
These may be applicable and useful especially to the Indian surgeons practice scenario.

Following measures are suggested:

1. **Entrance to the Hospital premise:** preferably single entrance
   1. Entrance should be manned by personnel with protective suit: this will include a 3 Ply surgical mask
   2. All patients must be permitted to be accompanied by One relative only
   3. Record of patient and relatives Name, Mobile no and address to be noted (to help contact-tracing)
   4. Patient and relative must be asked to wear a mask either their own or provided by the hospital
   5. Hand hygiene with alcohol-based solution at the entrance
   6. Social distancing must be observed between all the parties concerned

2. **OPD:**
   Entrance should be manned by personnel with protective suit: this will include a 3-ply surgical mask
   1. All patients must be permitted to be accompanied by One relative only
   2. Record of patient and relatives Name, Mobile no and address to be noted (to help contact-tracing)
   3. Patient and relative must be asked to wear a mask either their own or provided by the hospital
   4. Hand hygiene with alcohol-based solution at the entrance
   5. Hospital personnel manning the Waiting area should wear gown cap mask and facial shield
   6. Waiting area: Seating arrangements should be spaced out to prevent spread of virus
   7. Appointment system with staggering of timings to avoid crowding of OPD waiting area.
   8. Preliminary history to be taken in the waiting area either through questionnaire or hospital personnel, to comprise of the following things:
      i. History of travel in last one month
      ii. History of fever present or recent
      iii. Respiratory Symptoms
      iv. Chief complaint for which patient has come to the hospital
9. Temperature of patient with noncontact method is desirable
10. If suspected to be COVID-19 Positive, deal as per your hospital policy, but do not allow in common areas, only inside dedicated area for COVID-19.

3. **Wards and Indoor patient area (For non-COVID19 patients)**
   1. All hospital personnel must wear protective clothing and cap, mask and face shield (since testing has not been done and window period has not been ruled out.)
   2. Only one relative to be allowed
   3. Patient and relative wear mask all the time
   4. Hand hygiene to be followed by patient, relative and all hospital personnel
   5. Care of patient to be done by maintaining all precautions
   6. Any procedure with possibility of Aerosol exposure to done with full PPE and N95 respirator.
   7. Dressings to be done with gown cap mask face shield, gloves
   8. Drains to be taken care of preventing spillage, closed drainage systems
   9. Biomedical waste to be handled with extreme precaution

4. **Operation theatre:**
   1. Patient shifting to OR to be followed with strict protocol of using safe transfer techniques
   2. Patient trolleys/Bed to be cleaned with recommended solution after every use
   3. Minimum Staff as per requirement of the surgery in OR
   4. All staff inside the OR in close contact with the patient to don PPE
   5. Negative pressure atmosphere if possible
   6. Anaesthetic protocol involves exposure to Aerosol, hence should be done preferably in a separate room with all staff wearing PPE and N95 respirator and intubation done using equipment to prevent Aerosol exposure
   7. Biomedical waste disposal to be done with caution
   8. Opening of doors to be zero or minimum during the procedure

5. **Surgical procedure:**
   1. Surgeon and all scrub staff to don PPE under supervision and help of a second person
   2. Open surgery to be preferred whenever possible to reduce Aerosol exposure
   3. Electrocautery setting should be minimal to minimize smoke
   4. Electrocautery use should be minimal: use of less Aerosol generating power source if available
   5. Smoke to be evacuated by having suction on before every use of electrocautery
   6. Care to be taken to avoid sharp injury
   7. Anaesthetic gases expiratory circuit should be closed circuit with filters and minimize Aerosol in OR.
   8. Dressing should be nonpermeable occlusive dressings
   9. Removal of PPE should be done with inside out technique with proper help from second person
   10. Disposal of PPE should be supervised by the Surgeon or a competent person
6. **Laparoscopic Surgery:**

   Laparoscopic surgery carries the highest risk of exposure to Aerosol due to Pneumoperitoneum and CO2 gas, hence

   1. All members present in OR during Laparoscopic procedure should be wearing a full PPE, including N 95 respirator, although some may not be coming near the surgical field.
   2. All arrangements to safely evacuate CO2 Gas from the patient, equipment and area to be checked by the Surgeon before starting the surgery.
   3. Closed technique of Pneumoperitoneum is preferable.
   4. No leak of CO2 during the first trocar should be ensured by keeping the Valve closed.
   5. Co2 tubing should be connected keeping the Insufflator in “On” position to prevent it from going back into the insufflator.
   6. Small incisions for all other ports to prevent gas leak.
   7. All trocars should have valves closed.
   8. One trocar (if needed an additional dedicated one) should be connected to a gas evacuating tubing through a “filter” which will evacuate CO2 safely in a closed container/System
   9. Once placed, ports should not be vented if possible. If movement of the insufflating port is required, the port should be closed prior to disconnecting the tubing and the new port should be closed until the insufflator tubing is connected.
   10. Desufflation should be done after closing the CO2 entry valve on trocar and through the dedicated exit port with filter only.
   11. Specimen should be removed after desufflation.
   12. Port closure to be done after desufflation.

**Intensive Care Unit/recovery:**

   1. No entry to any relatives.
   2. All staff to wear full PPE.
   3. Barrier nursing techniques to be observed.
   4. Shifting of patients in and out to be done by two teams: One outside and one inside.
   5. Biomedical waste disposal with all care.
   6. Aerosol generating procedures to be minimized or done using special techniques and/or equipment with full PPE and N 95 respirator: should be done in a separate room adjacent, to prevent exposure of the entire ICU.
   7. Separate ICU for patients on ventilatory support preferable.

**Acknowledgements:**

   1. SAGES and EAES guidelines
   2. ACS bulletin
References:


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