Dear fellows,

In this critical time of worldwide corona outbreak you are passing a very hard time. As a doctor and front liner you are playing a vital role in this pandemic.

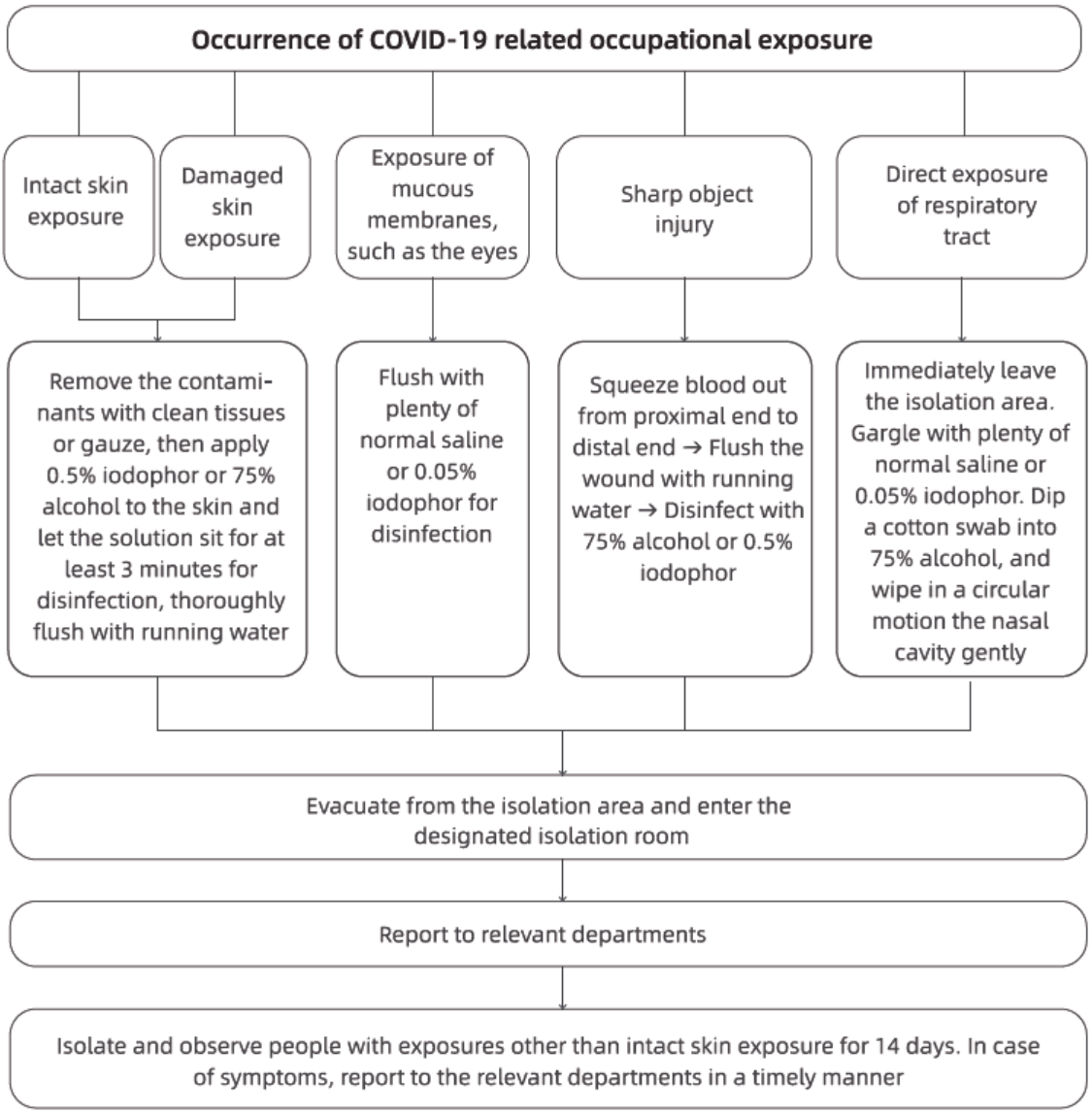
As you are aware in this situation doctors are the most vulnerable community; we have to serve the people of the country. But we have to protect ourselves as well as our family members from this virus.

We don't expect you to provide care without regard to the risk to yourself or others.

In this highly challenging circumstances of the pandemic, doctors will need to provide the best service possible within the resources available.

To protect yourself, your family members as well as the patients you can take certain measures –

DISEASE SPREAD TO HEALTH CARE PROVIDERS



PROTECTION FOR (IPC) IN PATIENT CARE /HOSPITALIZED PATIENT

IPC strategies to prevent or limit transmission in health care settings include the following:

1. Ensuring triage, early recognition, and source control (isolating patients with suspected COVID-19).
2. Applying standard precautions for all patients.
3. Implementing empiric additional precautions (droplet and contact and, whenever applicable, airborne precautions) for suspected cases of COVID-19.
4. Implementing administrative controls.
5. Using environmental and engineering controls.

1. Ensuring triage, early recognition, and source control:

Clinical triage includes a system for assessing all patients at admission, allowing for early recognition of possible COVID-19 and immediate isolation of patients with suspected disease in an area separate from other patients (source control). To facilitate the early identification of cases of suspected COVID-19, health care facilities should:

- Encourage HCWs to have a high level of clinical suspicion.
- Establish a well-equipped triage station at the entrance to the facility, supported by trained staff.
- Hand hygiene and respiratory hygiene are essential preventive measures.

2. Applying standard precautions for all patients:

Standard precautions include hand and respiratory hygiene, the use of appropriate personal protective equipment (PPE) according to a risk assessment, injection safety practices, safe waste management, proper linens, environmental cleaning, and sterilization of patient-care equipment.

Ensure that the following respiratory hygiene measures are used:

- Ensure that all patients cover their nose and mouth with a tissue or elbow when coughing or sneezing.
- Offer a medical mask to patients with suspected COVID-19 while they are in waiting/public areas or in cohorting rooms.
- Perform hand hygiene after contact with respiratory secretions.

HCWs should apply WHO's My 5 Moments for Hand Hygiene approach before touching a patient, before any clean or aseptic procedure is performed, after exposure to body fluid, after touching a patient, and after touching a patient's surroundings.

- Hand hygiene includes either cleansing hands with an alcohol-based hand rub or with soap and water.
- Alcohol-based hand rubs are preferred if hands are not visibly soiled.
- Wash hands with soap and water when they are visibly soiled.

The rational, correct, and consistent use of PPE also helps reduce the spread of pathogens. PPE effectiveness depends strongly on adequate and regular supplies, adequate staff training, appropriate hand hygiene, and appropriate human behaviour.

3. Implementing empiric additional precautions:

A. Contact and droplet precautions:

- In addition to using standard precautions, all individuals, including family members, visitors and HCWs, should use contact and droplet precautions before entering the room of suspected or confirmed COVID-19 patients.
- Patients should be placed in adequately ventilated single rooms. For general ward rooms with natural ventilation, adequate ventilation is considered to be 60 L/s per patient.
- When single rooms are not available, patients suspected of having COVID-19 should be grouped together.
- All patients' beds should be placed at least 1 metre apart regardless of whether they are suspected to have COVID-19.
- Where possible, a team of HCWs should be designated to care exclusively for suspected or confirmed cases to reduce the risk of transmission.
- HCWs should use a medical mask.
- HCWs should wear eye protection (goggles) or facial protection (face shield) to avoid contamination of mucous membranes.
- HCWs should wear a clean, non-sterile, long-sleeved gown.
- HCWs should also use gloves.
- The use of boots, coverall, and apron is not required during routine care.
- After patient care, appropriate doffing and disposal of all PPE and hand hygiene should be carried out. A new set of PPE is needed when care is given to a different patient;
- Equipment should be either single-use and disposable or dedicated equipment (e.g. stethoscopes, blood pressure cuffs and thermometers). If equipment needs to be shared among patients, clean and disinfect it between use for each individual patient (e.g. by using ethyl alcohol 70%).

- Medical masks are surgical or procedure masks that are flat or pleated (some are like cups); they are affixed to the head with straps.
- HCWs should refrain from touching eyes, nose, or mouth with potentially contaminated gloved or bare hands.
- Avoid moving and transporting patients out of their room or area unless medically necessary.
- Use designated portable X-ray equipment or other designated diagnostic equipment. If transport is required, use predetermined transport routes to minimize exposure for staff, other patients and visitors, and have the patient wear a medical mask.
- Ensure that HCWs who are transporting patients perform hand hygiene and wear appropriate PPE as described in this section.
- Notify the area receiving the patient of any necessary precautions as early as possible before the patient's arrival.
- Routinely clean and disinfect surfaces with which the patient is in contact.
- limit the number of HCWs, family members, and visitors who are in contact with suspected or confirmed COVID-19 patients.
- Maintain a record of all persons entering a patient's room, including all staff and visitors.

B. <u>Airborne precautions for aerosol-generating procedures:</u>

Some aerosol-generating procedures, such as tracheal intubation, non-invasive ventilation, tracheotomy, cardiopulmonary resuscitation, manual ventilation before intubation, and bronchoscopy, have been associated with an increased risk of transmission of coronaviruses. Ensure that HCWs performing aerosol-generating procedures:

- Perform procedures in an adequately ventilated room – that is, natural ventilation with air flow of at least 160 L/s per patient or in negative- pressure rooms with at least 12 air changes per hour and controlled direction of air flow when using mechanical ventilation.
- Use a particulate respirator at least as protective as a US National Institute for Occupational Safety and Health (NIOSH)-certified N95, European Union (EU) standard FFP2, or equivalent. When HCWs put on a disposable particulate respirator, they must always perform the seal check. Note that facial hair (e.g. a beard) may prevent a proper respirator fit.
- Use eye protection (i.e. goggles or a face shield).
- Wear a clean, non-sterile, long-sleeved gown and gloves. If gowns are not fluid-resistant, HCWs should use a waterproof apron for procedures expected to create high volumes of fluid that might penetrate the gown.
- Limit the number of persons present in the room to the absolute minimum required for the patient's care and support.

4. Implementing administrative controls:

- Provision of adequate training for HCWs.
- Ensuring an adequate patient-to-staff ratio.
- Establishing a surveillance process for acute respiratory infections potentially caused by COVID-19 virus among HCWs.
- Ensuring that HCWs and the public understand the importance of promptly seeking medical care.
- Monitoring HCW compliance with standard precautions and providing mechanisms for improvement as needed.

PROTECTION FOR IN OPD/CHAMBER

The basic principles of IPC and standard precautions should be applied in all health care facilities, including outpatient care and primary care. For COVID-19, the following measures should be adopted:

- Prescreen new patients by telephone. Screening for the urgency of the condition can usually be completed using this approach, and nonurgent consultations may be deferred.
- Decrease the number of patients in waiting rooms. Spread out chairs and throw away magazines/handouts/materials that may acquire persistent reservoirs of pathogens.
- Some offices are instituting “wait in your car” mandates in which patients are contacted by cell phone or a pager when to come into the office to avoid excessive numbers of people in the waiting rooms.
- Vanderbilt is limiting the number of visitors/family members to one per patient in outpatient offices.
- Use telehealth services for routine postoperative consultations as appropriate. This may also be useful for return visits for monitoring as opposed to an in-person visit.
- Emphasis on hand hygiene, respiratory hygiene, and medical masks to be used by patients with respiratory symptoms.
- Appropriate use of contact and droplet precautions for all suspected cases.
- Prioritization of care of symptomatic patients.
- When symptomatic patients are required to wait, ensure they have a separate waiting area.
- Educate patients and families about the early recognition of symptoms, basic precautions to be used, and which health care facility they should go to.

PROTECTION FOR SURGEONS

5. **Acute patients** are our priority. COVID-19 should be sought in any patient needing emergency surgery by history, COVID-19 testing, recent CT chest (last 24h) or failing that CXR. Any patient undergoing abdominal CT scan must also have CT chest.

6. Any patient currently prioritised to undergo urgent planned surgery must be assessed for COVID-19 as above and the current greater risks of adverse outcomes factored into planning and consent. Consider stoma formation rather than anastomosis to reduce need for unplanned post-operative critical care for complications.

7. Full **Personal Protective Equipment (PPE)** should be used for laparotomy except perhaps when the patient is convincingly negative for COVID-19, but note that current tests maybe false negative. Full PPE includes wearing visors or eye protection. It is imperative to practise donning and doffing PPE in advance.

8. **Laparoscopy** should generally not be used as it risks aerosol formation and infection. Chinese and Italian experience reflects this. SAGES have offered guidance. Advocated safety mechanisms (filters, traps, careful deflating) are difficult to implement. Consider laparoscopy only in extremely selected cases where the mortality benefit is substantially beyond doubt in the current situation.

9. Use appropriate non-operative treatment of **appendicitis** or open appendicectomy.

10. Treat acute **biliary disease** conservatively for now or with cholecystostomy.

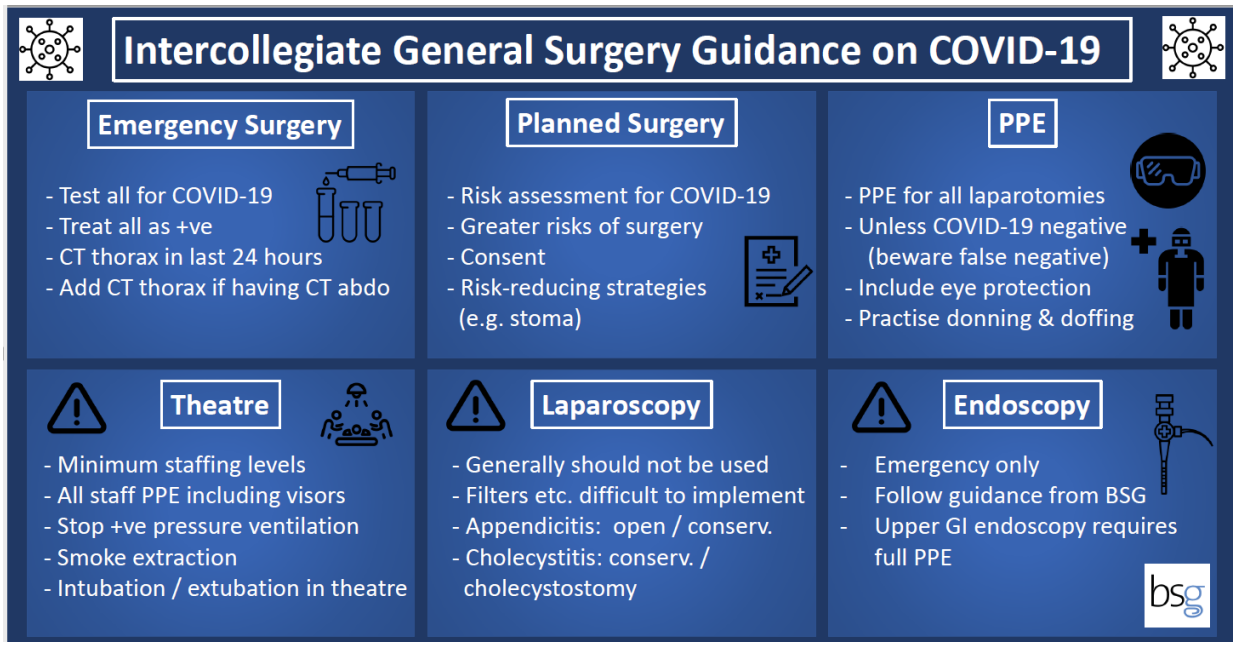
11. In theatre:

- Minimum number of staff in theatre
- Full protective PPE including visors for all staff in theatre
- Stop positive ventilation in theatre during procedure and for at least 20 minutes after the patient has left theatre
- Smoke evacuation for diathermy / other energy sources
- Patients are intubated and extubated in theatre – staff immediately present should be at a minimum.

12. Risk situations in surgery also include:

- Approaching a coughing patient, for example, even if COVID-19 has not been diagnosed. Protection including eye shield is needed.
- Naso-gastric tube placement is an aerosol generating procedure (AGP). AGPSs are high risk. Full PPE is needed. Consider carrying out in a specified location.

13. Only **emergency endoscopic** procedures should be performed. No diagnostic work to be done and BSG guidance followed. Upper GI procedures are high risk AGPs and full PPE must be used.



Resources:

1. https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/health-workers.
2. https://covid-19.alibabacloud.com/
3. https://www.england.nhs.uk/coronavirus/secondary-care/other-resources/specialty-guides/
4. https://www.rcsed.ac.uk/news-public-affairs/news/2020/march/intercollegiate-general-surgery-guidance-on-covid-19-update
5. https://www.rcseng.ac.uk/coronavirus/joint-guidance-for-surgeons-v1/
6. https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/03/specialty-guide-orthopaedic-trauma-and-coronavirus-v1-16-march-2020.pdf
7. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/876569/Infection_prevention_and_control_guidance_for_pandemic_coronavirus.pdf

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