

## Guidelines for care of emergent cases requiring surgical procedures including trauma management in COVID 19 pandemic

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### Background

The current pandemics threatens to overwhelm the health care system and thus impact the ability to care for critically injured patients and other surgical emergencies. This document will provide a guideline to the health care individuals to plan and prepare the required facilities by hospitals and health care systems, and to raise awareness of the importance of preserving capacity to respond to traumatic injuries that routinely occur in our communities. The guidelines devised in this documents are borrowed from best practices around the world and mainly developed by the American College of Surgeons. It is very likely that the strategies outlined in this document may change as our understanding of unique challenges that COVID-19 poses in the health care environment around the world:

### Guiding principles for emergency surgery in all COVID suspected or positive patients

1. The goal is to provide timely surgical care to patients presenting with urgent and emergent surgical conditions while optimizing patient care resources (e.g. hospital and intensive care unit beds, personal protective equipment, ventilators) and preserving the health of caregivers.
2. There is no substitute for sound surgical judgement
3. Procedures and operations should be performed if delaying the procedure or operation is likely to prolong the hospital stay, increase the likelihood of later hospital admission, or cause harm to the patient.
4. Patients who have failed attempts at medical management of a surgical condition should be considered for surgery to decrease the future use of resources
5. Multidisciplinary shared decisions regarding surgical scheduling should be made in the context of available institutional resources that will be variable and rapidly evolving.

### Specific Conditions

**Acute Hemorrhoidal Thrombosis/Necrosis:** Most acute hemorrhoidal conditions can be managed non-operatively based on the judgment of the surgeon. Where possible, management under local anesthesia in an outpatient setting may be appropriate. Emergency surgical procedures should *generally be reserved for significant bleeding and severe disease or disease unresponsive to non-operative measures.*

**Perianal or Perirectal Abscess:** Perianal abscesses that are superficial and localized may be managed with incision and drainage with local anesthesia based on the surgeon's usual indications. Incision and drainage of larger perirectal abscesses in the operating room should not be delayed in order to ensure adequate initial drainage, prevent extension of the disease to an invasive infection and shorten hospital stay. If the operating room is not available percutaneous drainage should be considered as an alternative and temporizing measure.

**Soft Tissue Infections:** Superficial and localized abscesses may be managed with incision and drainage with local anesthesia. Incision and drainage in the operating room of larger abscesses or those with an intra-muscular component is preferred to ensure adequate initial drainage and shorten hospital stay. Patients with concern for necrotizing soft tissue infections should proceed with emergent debridement.

**Acute Pancreatitis** with Necrosis Antimicrobial therapy should be used if infected necrosis is confirmed. The “step up” approach is recommended which includes: percutaneous drainage, endoscopic debridement or by interventional radiologic techniques (note that I/R techniques may be preferred in COVID positive patients due to risk of aerosolization with endoscopy), followed by laparoscopic or open operative drainage if no other option available. Van Santvoort HC, Besselink MG, Bakker OJ, et al. A Step-up Approach or Open Necrosectomy for Necrotizing Pancreatitis, N Engl J Med 2010:362-1491-1502. <https://www.nejm.org/doi/full/10.1056/nejmoa0908821>

**Pneumoperitoneum, Intestinal Ischemia, Intestinal Obstruction Patients presenting with suspected bowel perforation, intestinal ischemia, closed loop obstruction, or obstruction secondary to incarcerated hernia should proceed with emergent surgery.** Non-operative management of small bowel obstruction secondary to adhesions should follow usual practice.

**Uncomplicated Appendicitis:** there is some evidence that suggests that patients with uncomplicated appendicitis can be managed with IV antibiotics followed by transition to PO antibiotics. High failure rates of this approach (30-50%) have been noted with appendicolith and with CT evidence of disease extension outside of the RLQ. Based on the surgeon’s judgment and the patient condition, a trial of antibiotics can be considered. Short stay or appendectomy is likely associated with a shorter length of stay. The duration of hospital stay should be weighed against the use of OR resources in this circumstance and should be based on surgeon judgment. In brief, all patients should receive IV antibiotics until clinically improving, followed by transition to PO antibiotics. Patients with a defined abscess should undergo percutaneous drainage. Patients with evidence of perforation may be managed with percutaneous drainage or operation based on patient condition. Patients who fail non-operative management should proceed to surgery expeditiously

**Symptomatic Cholelithiasis:** Patients with symptomatic cholelithiasis and chronic cholecystitis should have their pain managed. If this is feasible, surgery should be delayed and performed electively. For patients with crescendo symptoms, and for those with pain refractory to medical management, consider open cholecystectomy.

**Choledocholithiasis Patients with choledocholithiasis:** without signs of cholangitis may be managed expectantly. For those with larger stones, and those who fail to spontaneously pass their stone, an ERCP with sphincterotomy, followed by elective cholecystectomy in a delayed fashion is appropriate. Note that appropriate precautions should be taken for ERCP in patients with COVID-19 infection as it should be considered an aerosolizing procedure.

**Acute Cholecystitis:** Healthy patients with acute cholecystitis should undergo laparoscopic/open cholecystectomy to minimize hospital stay. If the patient is too high risk for surgery or an operating room is not available, then consider IV antibiotics. Patients who fail to clinically improve on antibiotics, and those with signs of sepsis should undergo percutaneous cholecystostomy in addition to the administration of IV antibiotics

**Cholangitis:** Patients with ascending cholangitis often respond to broad spectrum antibiotics and appropriate resuscitation. For patients that fail to clinically improve and those with sepsis, ERCP and sphincterotomy are indicated. If there is a concern for concomitant cholecystitis, percutaneous cholecystostomy may be appropriate. Note that appropriate precautions should be taken for ERCP in patients with COVID-19 infection as it should be

considered an aerosolizing procedure. Cholecystectomy should be performed in a delayed fashion.

**Diverticulitis:** Uncomplicated diverticulitis can be managed with usual care which includes IV antibiotics with transition to PO antibiotics. Patients who present with purulent or feculent peritonitis with diffuse pneumoperitoneum should undergo surgery. Hinchey class 1 and 2 diverticulitis should be managed with percutaneous drainage in addition to antimicrobial therapy. Patients with phlegmon may be successfully managed with antibiotics, with percutaneous drainage reserved for subsequent abscess development. Patients who fail non-operative management should proceed to surgery expeditiously

*For more details, see ACS guidelines on: <https://www.facs.org/covid-19/clinical-guidance/review-committee>.*

## **PREPARING THE OPERATING ROOM FOR CONFIRMED OR SUSPECTED COVID-19 PATIENT**

### **OPERATING ROOM PREPARATION**

- Negative pressure Operating Room is preferred.
- Use of Portable HEPA filter maybe used and placed near the patient breathing zone.
- If Negative pressure operating rooms are not available HEPA filter may be used near the patient with extreme care of the surrounding personnel who must be fully protected by wearing proper PPE (full range)
- Minimize the item/equipment inside the room; only those needed items/equipment are to be kept inside the room.
- Doors are to be kept closed at all times during the procedure.  
(Frequent and unnecessary opening and closing of doors during the procedure is restricted.)
- OR must be restricted and isolated for everyone except for those needed in the procedure.
- The same OR and the same anesthesia machine will only be used for COVID-19 cases for the duration of the epidemic.

### **PPE**

- Full sleeves gown with cap (HAZMAT SUIT)  
(Wear the full sleeves gown then use sterile disposable gown on top of it)
- N95 mask/ FFP3 – (use of surgical mask over N95)
- Protective Goggles
- Face Shield
- Water proof shoe covers
- Long boots (to be placed with disposable shoe cover on top of it)
- Sterile disposable water proof gown (they are actually cheaper in the broader perspective, but if not available, use Lenin or cotton gowns, with special laundering and sterilization after use)
- Disposable Gloves

## **STAFF**

(Anesthesia, Scrub, Circulating, Housekeeping)

- Pre assigned staff as per procedure
- Number will be kept in a minimum number as per the need/procedure

### **IMPORTANT REMINDER:**

- Disposable surgical drapes will be used for the procedure.
- Donning of PPE should occur outside the OR. For scrubbed team members, respiratory protection and eye protection or a face shield should be donned outside of the room, but the sterile gown and gloves should be donned inside the room after surgical hand antisepsis.
- Maintaining supply of proper personal protective equipment.
- Dedicated equipment, anesthesia and medication carts/trolleys.
- Detailed education of OR staff on infection prevention strategies, including visual reminders.
- Defined roles and responsibilities of each team member.
- Runner outside OR who will retrieve medications, instrumentation and other supplies.
- Utilization of mobile/land line telephones to request needed items from runner and when they are available for circulator.
- Facilitate transfer of patient through the designated access path/door of the patient.
- *(Ensuring safety while transporting patient preoperatively and postoperatively, is a MUST)*
- Waste management and PPE handling and disposal. (As per the hosp. approved guidelines)

### **PRE-OPERATIVE CARE**

- Pre-op staff will go direct to the respective rooms/floors to receive the proper handover as per the standard protocol with proper required PPE.
- Safe surgery protocols will be observed.
- After the handover patient will be moved directly inside the pre-selected OR.
- All patient should wear a mask (mandatory)

### **INTRA OPERATIVE CARE**

- A dedicated surgery staff will assist in the procedure.
- Strict universal precaution will be observed during the procedure.
- Safe surgery protocol will be observed during the procedure.
- Except from authorized staff, entrances should be restricted during the procedure.
- Disposable items will be used in the entire procedure.
- Standard Intra operative care will be observed in the entire procedure.
- Door will be kept close during the procedure and will be open only when patient will be transferred to the next level of care.

### **INTRA OPERATIVE ANESTHESIA CARE**

- All anesthesia team members must be fully protected by using full protective measure including proper donning (scrub suit, Hazmat suit, N95 Mask, surgical mask over that, shoe cover, double gloves, head covers with shield, goggles, surgical gown).
- All disposable item/supplies must be used in the procedure
- Double filter must be used on inspiratory and expiratory hose.

## **POST OPERATIVE**

- Routine post op care will be observed with precaution inside the OR.
- Patient will be sent directly to the surgical ICU on in any room assignment by the dedicated post op staff with the required PPE.
- All specimen will be sent directly to the Lab in proper container with double bag precaution.

## **OPERATING ROOM CARE AFTER PROCEDURE**

- OR will be washed (deep clean) with neutral water and detergent and surface decontamination with the use of approved chemicals
- A mixture of one part of bleach and nine parts water is recommended for floor, surface cleaning. Fumigation should be followed with hydrogen peroxide.
- A minimum of 2 hours will be allotted in between cases to allow proper decontamination of the area.

## **WASTE MANAGEMENT AND MEASURES**

- Dedicated House Keeping staff should wear the required PPE (Head, face, hand covers and gowns).
- All items that are used during the procedure will be disposed in biohazard container/yellow bag.
- Solidifier will be used in all fluid waste and to be disposed in yellow bag.
- All waste will be disposed immediately from the OR (to be sent for incineration) in a closed tight bin.

## **INSTRUMENT MANAGEMENT**

- After the procedure instruments will be placed in a dedicated biohazard container/plastic bag inside the OR before sending to CSSD.
- CSSD staff will received the used instrument with universal precaution and proper PPE.
- Instruments will be washed 3 times (Cycle) in the auto washer with water and detergent and its approved chemicals.
- Used biohazard bag will be placed in a separate biohazard bag and will be disposed immediately with precaution.
- Sharp items like blades needles and the likes will be placed on a separate sharp container and will be disposed immediately.

## **ANESTHESIA WORK STATION POST OPERATIVE CARE**

- Deep Cleaning of the anesthesia machine and all accessories with the approved solution for surface disinfection.
- BP cuff must be disposed. (Disposable cuff) or maybe wash with approved detergent and chemical.
- Soda lime must be changed and should be marked. (Date, Time & staff name)
- Deep Cleaning the medication trolley, cart & cap board.

## **Policy for handling of surgical cases during COVID 19**

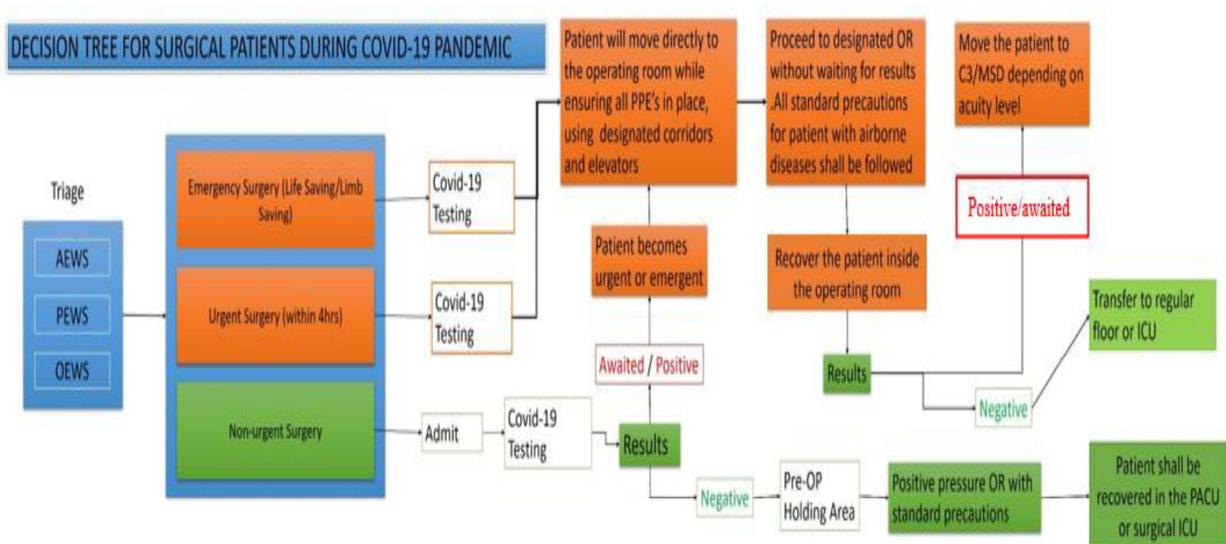
- All the patients who may require surgical intervention or procedure or should be screened for COVID-19.
- Based on the acuity level as defined by triaging through standardized tools like AEWS (Accident Emergency Warning System), PEWS (Pediatric Early Warning Score) etc. the patient may be advised an emergent, urgent or an elective surgery.

- All patients who have COVID-19/ suspected or those awaiting results and require emergent or urgent surgery should be operated in the designated operating/procedure rooms if available.
- The sampling for COVID-19 may be carried out before the procedure, but the patient should be sent to the operating room without waiting for the results. All such patients should not be moved to the pre-operating/pre-procedure area, rather received directly inside the operating/procedure room.
- The transfer should be carried out by the OR team from and to the operating room; for other procedures (endoscopy, interventional radiology etc.) the admitting unit should take the responsibility.
- The patient to be moved as per protocol and the procedure be performed with standard precautions for patients with air-borne diseases.
- Disposable gowns and linen should preferably be used for all such cases. All the waste-bins should be lined with two yellow bags.
- Post procedure, the patient should be recovered inside the same operating/procedure room and moved back to their allocated area only after the patient meets “Policy for Post Anesthesia Recovery Care”.
- Protocols for management of the operating rooms during COVID-19 pandemic should be as per “Preparing the Operating Room for Confirmed or Suspected COVID-19 Patient”.

The same procedure shall be followed for patients requiring intervention in other procedure areas.

### Procedure and Responsibilities

- Screening of patients: the primary team.
- Sampling for all patients requiring surgical services: the respective area nursing managers in collaboration with the infection control staff.
- Transfer of patients from and to the operating theater: operating room staff, unit staff.
- Ensuring way clearance, like availability of the elevators, restricting staff to designated pathways and elevator: security staff.
- Follow-up of COVID-19 results: infection control department/ primary team.



(With courtesy of the Anastasia Department- Shifa International Hospital Islamabad)