

LEADING ARTICLE

The effects of COVID-19 pandemic on the provision of urgent surgery: a perspective from the USA

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Abstract

Corona virus pandemic has affected all the 50 states in the USA. States such as NY, CA and WA being the most affected. According to the Centers for Disease Control and Prevention (CDC) website, as of 28 March 2020, the total number of cases in the USA is over 103 300 and number of deaths to 1668. In the coming weeks, COVID-19 rates are expected to begin skyrocketing and hit a peak in late April/May/June given lessons learned from China, Italy and others.

COVID-19 has been declared a pandemic by the World Health Organization (WHO) as confirmed cases approach 575 444 patients with 26 654 deaths across over 160 countries, as of 28 March 2020.

There is a lot of impact on management of the urgent and emergent cases. This article highlights the changes that are being made in delivering urgent and emergent surgical care during the pandemic.

Corona virus pandemic has affected all the 50 states in the USA. States such as NY, CA and WA being the most affected. According to the CDC website, as of 28 March 2020, the total number of cases in the USA is >103 300 and number of deaths to 1668 [1]. In the coming weeks, COVID-19 rates are expected to begin skyrocketing and hit a peak in late April/May/June given lessons learned from China, Italy and others.

COVID-19 has been declared a pandemic by the World Health Organization (WHO) as confirmed cases approach 575 444 patients with 26 654 deaths across over 160 countries, as of March 28 2020 [2].

There is a great shortage of personal protective equipment (PPE) such as gowns, masks, etc. Most of this is due to the travel restrictions from countries like China, which is one of the largest exporters of PPE to the USA. Resources need to be conserved and diverted to the treatment of COVID-19 patients. These shortages have changed the way surgical diseases are managed in the USA. This has resulted in hospitals canceling all scheduled and

elective surgeries. Acute surgical emergencies are still inevitable and must be addressed in a timely and sensible manner.

There is a lot of impact on management of the urgent and emergent cases—e.g. there is limited number of operating rooms (ORs)—catering to only emergency surgeries. Limiting exposure of personnel to potential COVID patients and to limit use of PPEs is the key. The American College of Surgeons (ACS) has published guidelines in managing acute surgical emergencies [3]. Conservative and outpatient management should be attempted first in cases such as acute appendicitis and acute cholecystitis, where applicable. Use of antibiotics alone is effective in many cases of acute uncomplicated appendicitis, there is increasing evidence that has been published recently. There is, however, a higher failure rate in patients with fecaliths. Acute cholecystitis can also be managed with cholecystostomy drains and antibiotics, which can be managed as an outpatient. These guidelines are being argued by many surgeons as conservative approach may take longer to recover—requiring longer hospital stay, and with

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higher chance of failure, which can lead to higher morbidity. This will result in higher use of PPEs.

The goal is still 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 (ICU) beds, PPE, ventilators) and preserving the health of caregivers. Surgeons are asked to use their sound judgment in addressing the acute surgical needs. Many of the smaller infections and abscesses can be managed using local anesthesia and office setting, without having to use OR facilities. Serious acute surgical issues such as perforated viscus or bowel ischemia must undergo emergent surgery.

Several measures must be taken to protect the surgeons and OR staff against COVID-19. Aerosolization and droplet transmission hazard increases with procedures such as endotracheal intubation, tracheostomy, gastrointestinal endoscopy and during the evacuation of pneumoperitoneum and aspiration of body fluids during laparoscopic procedures. Surgeons and personnel not needed for intubation should remain outside the OR until anesthesia induction and intubation are completed for patients with or suspected of having COVID-19 infection. Negative pressure ORs when available are recommended [6]. Even though there is no current data suggesting the spread of corona virus in aerosols produced during abdominal surgery such as surgical smoke, there is still a potential for the viral release under pressure during the release of pneumoperitoneum has to be borne in mind [8]. For laparoscopic procedures, use of devices to filter released CO₂ for aerosolized particles should be strongly considered [6]. With early information from Italy, China and previous Severe Acute Respiratory Syndrome (SARS) experience, there may be risk of viral exposure to proceduralists from endoscopy and airway procedures. When these procedures are necessary, enhanced PPE should be considered, following CDC guidelines for droplet or airborne precautions. There are new guidelines for OR personnel to adhere to during induction and special care to be taken during emergency procedures involving airway such as tracheostomy [5].

Traumatic injuries are unavoidable even during a pandemic. Trauma patients are to be managed as if they are potential COVID victims, without delaying their acute treatment. Trauma teams must ensure strict use of PPE for droplet contact precautions for all patients. Due to community social distancing policies and public fear of donation and disease transmission, there is an acute shortage of blood products in many parts of the country. These challenges must be considered in advance and plan accordingly [4].

Staff shortage is an important limiting factor that should be expected. Due to the closure of all the schools, some of the staff are having to cut down the number of shifts they can work. Significant exposure to COVID patients will require some of the healthcare workers to self-isolate themselves until they are tested negative. Healthcare workers also are at highest risk

of contracting the disease, as has been learnt from Italy. This also adds to the burden of staff shortages.

Shortage of ventilators and ICU beds mean that they may not be available if an emergency surgical patient requires it. There will be situations where such patients may have to be transferred out to other hospitals.

This situation is ever changing and needs every surgeon to take up leadership roles in the hospitals. The ACS has suggested the creation of surgical review committees comprising of surgeons, anesthesia and nursing departments to work closely to address the changes that need to be implemented for safety of both patients and healthcare workers [7].

As the number of patients who end up in ICU is expected to rise, and with expected shortage of medical staff and intensivists, surgeons should prepare for potential redeployment into areas of the front line in ICUs or medical wards that are outside of our regular practice patterns. The Acute Care Committee of Society of American Gastrointestinal and Endoscopic Surgeons (SAGES) has released a primer on management of mechanical ventilation for non-critical care surgeons [9].

Finally, these are uncertain times. The numbers of affected patients seem to be rising daily. The USA has become the country with the largest number of COVID-19 victims. The state and federal governments are working together to overcome the shortages in the PPEs and ventilators that could prove lifesaving. Safe practices such as hand washing and social distancing are to be continued to help 'flatten the curve'.

CONFLICT OF INTEREST STATEMENT

None declared.

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