

Announcement of the Royal College of Surgeons of Thailand on Guidance for Surgery in COVID-19 Patients (V1.2020, 20-04-2020)

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ABSTRACT

COVID-19 has demonstrated significantly impact on healthcare professionals practice including surgeons. The Royal College of Surgeons of Thailand (RCST) has developed the “Guidance for Surgery in COVID-19 Patients” for surgeons and related medical personnel to handle surgical care during COVID-19 pandemic.

COVID-19 is the newly emerged outbreak, the understanding of its nature, also the prevention and control of this disease is limited. Since there are very few studies on this new coronavirus, some knowledge and assumption were drawn from the lesson learnt from the outbreak of SARs and MERs (both are also RNA coronavirus) in the past. Therefore, the recommendation, as stated in this manuscript, needs to be updated accordingly to the current situation. The medical practitioners need to cling on the new status of COVID-19 constantly. In case that anyone who has any relevant information and want to bring to our attention, please email to siriwattayakorn@gmail.com.

With no legal effect, this guidance should contemporarily conform to the *occurrence* (current situation or incident), *character* (internal factors of the patient), and *circumstances* (external factors of the patient, e.g. hospital resources, equipment, and capacity).

Keywords: COVID-19; Guidance for Surgery; RCST (Siriraj Med J 2020; 72: 431-435)

INTRODUCTION

COVID-19 is an RNA virus. Until now (April 2020), it is believed that the disease can be spread out via two modes of transmission, which are respiratory droplets (thus, a person should stay at least 2 meters away from a carrier, and a medical-grade mask/respirator is required for protection), and contact transmission, caused by contact with infectious secretions and then manipulate T-zone mucous membrane of face with contaminated hand. It is not clear confirmed that COVID-19 can be transmitted via respiratory aerosol or not, even though, WHO has warned about respiratory

aerosol transmission. Also, there is no shown evidence to prove that the disease can be transmitted via blood transfusion, even the coronavirus has been reported found in lymphocyte. In RNA coronavirus family, SARS and MERs, both of them are not infected through blood transfusion. However, the patients infected by COVID-19 are not recommended to donate their blood for at least 28 days after being completely cured. As the evidence on the infection via blood infusion remains unclear, the surgeons should comply with the measurement for surgery in AIDS patients in those cases infected by COVID-19.

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Overall Disease Management in Hospital

Recommendations

- 1) Limit numbers of regular patients. Separate patients with acute respiratory illness from other patients.
- 2) Implement technology such as telemedicine to screen and to manage patients.
- 3) Limit numbers of medical personnel to contact patients.
- 4) Avoid face-to-face communication. Alternatively, communicate through divider screen or via telephone/VDO conference system.
- 5) Limit numbers of accompany person of the patient.
- 6) Group patients with similar disease in the same zone.
- 7) All relevant staffs, including patient transfer staffs and cleaners, must be well-trained for putting on, removing, leakage testing, and disposing of PPE.
- 8) In case that there are limited N-95 respirator, give priority to the person/staff in need.
- 9) There should be divider curtains in the waiting area to separate patient individually. If the waiting area has enough space, each patient shall stay at least 2 meters away from others.
- 10) Zone the patients with infectious respiratory diseases separately. Infected cases must be isolated in AIIR that reserved only for COVID-19 cases.
- 11) Conduct the intensive training for emergency physicians to handle COVID-19 cases.
- 12) Set up a joint operation team to handle the COVID-19 cases. A team consists of a surgeon, an anesthesiologist, a pulmonologist, and an infectious disease specialist.
- 13) Avoid using a central air-conditioner.

Surgeons and Resource Management during the pandemic

During pandemics, the preserving of limited resources and workforce is mandatory. Surgeons need to manage available resources (including workforce, equipment, drug, and consumable) with efficiency to deal with the unpredictable situation.

Recommendations

- 1) Postpone all non-urgent operations indefinitely or until the situation returns to normal. All patients are officially informed with written notification.
- 2) Minimize the numbers of patients and the frequency of OPD visit. Use alternative channels such as phone call or social media for the patient follow-up. Advise the patients to receive medication from the hospital in the closed-by location instead.
- 3) Ban significant events and social gatherings, especially events of the same surgical specialty. Use teleconference as an alternative.

- 4) Allow only one accompanying person per patient.
- 5) Measure the hospital capacity (including the numbers of ORs, ICUs, ventilators, wards, beds, facilities, consumables, and workforce) to assess the readiness of each hospital and the country in overall.
- 6) The hospital should arrange laboratory testing with a high rate of speed, accuracy and efficiency. The delayed result leads to wastage of resource uses during the quarantine. Precise and expedited testing result help to downsize the preparation to handle potential COVID-19 cases. It keeps down the expense and workforce.
- 7) Start fundraising to cover the increasing expenses of necessary supplies, due to the lack of government funding.

Patient Transport

Recommendations

- 1) Patient transfer staffs must be well-trained for putting on and removing PPE.
- 2) Secure the route from ward/ICU to the OR (including elevator) and vice versa route with staffs in-charge. Use only a designated route that prevents contamination of other people. Not allow other people to access the designated route on the same day.
- 3) All non-intubated patients should wear their medical-grade mask.
- 4) Transport respiratory used for COVID-19 patients must be separated from those for other patients.

At Operating Room

Recommendations

- 1) The OR for COVID-19 patients should be with a negative pressure environment, located at a corner of the operating complex, and separated from the setting for non COVID-19 cases.
- 2) Crucially understand the airflow within the OR. It needs to flow from non-contaminated to contaminated area, to minimize the risk of infection.
- 3) Use the same OR and the same anesthesia machine only for COVID-19 cases. Place an additional HME with HEPA filter on the expiratory limb of the circuit. Both HME with HEPA filter and soda lime are changed after each case.
- 4) Before starting the case, the anesthesiologist prepares all required drugs and equipment onto a trolley, each trolley for each operating room. Try not to move the trolley between the rooms. In case that the additional drugs or equipment are needed during the case, glove changing and hand hygiene with 70% alcohol are required before handing the drugs trolley in the other room.

- 5) Provide enough amount of airway equipment. Use disposable airway equipment.
- 6) Handle a video-laryngoscope, if needed, concisely. Decontaminate the video-laryngoscope with an effective disinfectant agent after use. Avoid repeated instrumentation before decontaminate the instrument.
- 7) All machines/equipment in limited supply in OR setting such as monitors and infusion pumps need to be thoroughly wiped down after uses.

At Induction Room

Recommendations

- 1) Follow the “Practical Recommendations for Caring of COVID-19 or Suspected COVID-19 Patients”, issued by The Royal College of Anesthesiologists of Thailand. Use this guidance as an additional guideline.
- 2) Minimize number of personnel in the induction room.
- 3) Designated staffs keep N-95 respirator or PAPR on during the procedure. In case of a patient with a tracheostomy, all staffs at induction room must wear N-95 respirator throughout.
- 4) Regional anesthesia is preferable.
- 5) If general anesthesia is required, aerosol-generating procedure (e.g. manual ventilation before intubation, tracheal intubation, non-invasive ventilation, tracheostomy, bronchoscopy, CPR, etc.) shall be conducted concisely. All aerosol-generating procedure shall be done in an adequate ventilation room (at least 160 L/sec/patient) or in a negative pressure room with at least 12 air changes/hr.
- 6) In order to reduce aerosol generation, intubation shall be conducted by a well-practiced anesthesiologist.
- 7) For induction, pre-oxygenation with 100% oxygen and the rapid sequence induction (RSI) are required. The manual ventilation is not recommended due to the spread of disease. In the significant cases, such as the patient with very high alveolar-arterial oxygen gradient, patients who cannot tolerate an about 30 second apnea, or those who cannot be administered succinylcholine, must comply with low tidal volume manual ventilation before intubation.
- 8) Avoid using awake fiber-optic intubation.
- 9) If need, tracheal intubation should be done. Do not perform ventilation support using laryngeal mask.
- 10) In the significant respiratory failure case outside OR, intubation is recommended instead of a non-invasive ventilator.
- 11) For CPR, do not perform chest compressions while conducting intubation. Administration of neuromuscular blockade is required before intubation.

During the Operation

Recommendations

- 1) Follow transmission-based precautions, including
 - at least, standard respirator, such as: N-95 (US Standard) or FFP2 (European Standard). Updated respirator fit testing is required.
 - goggles, or face shield
 - fluid-resistant gown
 - gloves
 - cases which are required aerosol-generating procedure (AGPs) should be operated in AIIR.
 - orthopedic surgical cases need to proceed with extra caution to minimize the risk of aerosolized contaminants.
- 2) Get all necessary instruments/consumables prepared before the operation
- 3) Avoid some surgeries which have to be done under high pressure, such as Laparoscopic Surgery, Robotic Surgery, These may increase the risk of aerosolized contaminants.
- 4) Avoid taking unnecessary items into the OR (e.g. radiograph, medical record, mobile phone, etc.)
- 5) The circulating nurse shall be stationed outside the OR. If additional items are needed during the procedure, these items shall be placed onto a trolley that left in the ante room for the OR team to retrieve. This same process in reverse is used to send anything, such as specimen for frozen section, out of OR.
- 6) A minimum of ONE hour is planned between cases to allow OR staff to send the patient back to the ward, conduct thorough decontamination of all surfaces, screens, keyboard, cables, monitors, and anesthesia machine.
- 7) All unused drugs and consumables placed in the OR should be assumed to be contaminated and need to be decontaminated or discarded.

Post-Operation

Recommendations

- 1) Remove used gown and gloves in ante room. Touch-free disposal bin is needed for discarding PPE.
- 2) Perform hand hygiene before leaving ante room.
- 3) Remove respirator or PAPR outside ante room.
- 4) The patient who does not require ICU care postoperatively is fully recovered in the OR itself. Once ready for sending back, the patient is transferred via a designated route back to the isolation ward.
- 5) Take a shower, including washing your hair, immediately after case.

Disinfectant Agents**Recommendation**

- 1) Conduct thorough decontamination of all surfaces in OR with Hydrogen peroxide vaporizer.
- 2) Clean and disinfect the contaminated area with soapy water or detergent, and re-clean with alcohol-based hand rub (70% ethyl or Isopropyl alcohol), Quaternary Ammonium Disinfectant, or Potent Oxidizer. The disinfection can be effective if the exposure time is within the range of 30 seconds to 10 minutes, depends on the type of disinfectant agent.
- 3) Faculty of Pharmacy, Ubon Ratchathani University (UBU) introduces the cleaning and disinfection guideline for non-hospital settings (Table 1). This

guideline can be adapted for a hospital setting as well. (Announced in March 2020)

- Block off the contaminated area for clean-up
- Put on well-fitting personal protective equipment (PPE)
- Use cleaning equipment/tool that has a handle.
- Open doors and windows to increase airflow.
- Wash clothes on 70°C degrees for at least 25 minutes.
- Disinfect reusable cleaning equipment.
- Clean floor and other surfaces with disinfecting wipes. Do not use the pressure-washers to avoid aerosolization. (This recommendation is reinforced by Infectious Disease Association of Thailand on 10 April, 2020)
- Discard any infectious wastes properly.

TABLE 1. The cleaning and disinfection guideline for non-hospital settings by Faculty of Pharmacy, Ubon ratchathani Univesity (UBU).

Disinfectant Agents	Unit of Concentration	Recommended for	Caution
Bleach (Sodium hypochlorite)	0.05% (1 part : 99 parts water)	general surfaces	strong odors, corrosive, causes irritation to skin
Bleach (Sodium hypochlorite)	0.5% (1 part : 9 parts water)	surface contaminated with bodily fluids spills, toilet bowl (leave on surface for at least 15 min)	strong odors, corrosive, causes irritation to skin
Alcohol	70%	metal surfaces	causes irritation to skin, cause rust stains
4.8% Chloroxylenol (Dettol)	2.5% (1 part : 39 parts water)	cloth washing, cleaning surfaces (soak in or leave on surface for at least 5 min)	causes irritation to skin
4.8% Chloroxylenol (Dettol)	5% (1 part : 19 parts 70% alcohol)	household utensils (soak in for at least 5 min)	causes irritation to skin
Laundry detergent	mixed with 70°C degrees water	cloth washing	causes irritation to skin

Abbreviation

AIIR = Air borne Infection Isolation Room

HME = Heat + Moisture Exchange

PAPR = Powered Air-Purifying Respirator

PPE = Personal Protective Equipment i.e. well-fitted respirator/mask, safety goggles or face shield, splash-resistant gown, latex gloves, and boot covers

HEPA = High Efficiency Particle Air

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