COLLEGE OF ANAESTHESIOLOGISTS, ACADEMY OF MEDICINE MALAYSIA,

MALAYSIAN SOCIETY OF ANAESTHESIOLOGISTS

&

MALAYSIAN SOCIETY OF INTENSIVE CARE

RECOMMENDATIONS FOR MANAGEMENT OF ANAESTHESIA AND INTENSIVE CARE SERVICES IN PREPARATION OF WORSENING OF THE COVID 2019 PANDEMIC

Dated 16 March 2020

As of 12 pm 15 March 2020, the Ministry of Health (MOH) confirmed additional 190 COVID-19 cases that were reported to the National Crisis Preparedness and Response Centre (CPRC) MOH. With these additional cases, cumulatively there are now 428 confirmed COVID-19 cases in Malaysia.[1] Of these, nine (9) patients are receiving treatment in intensive care units requiring ventilation support.

In view of this escalating numbers and the probability of more new cases will be detected with possibility of healthcare resources to be diverted to focus on managing the pandemic (declared by the World Health Organisation on March 11 2020), the COLLEGE OF ANAESTHESIOLOGISTS together with the MALAYSIAN SOCIETY OF ANAESTHESIOLOGISTS and the MALAYSIAN SOCIETY OF INTENSIVE CARE (CoA/MSA/MSIC) have prepared these recommendations to aid anaesthesiologists in both public and private hospitals to consider implementing at their respective place of practice.

These recommendations are meant to be as broad as possible and may be adapted to location or hospital specific guidelines in conjunction with current available data and recommendations by the MOH. These recommendations are meant for the teams involved in providing anaesthesia/ICU services and they are not exhaustive. The CoA/MSA/MSIC will review these recommendations based on updated available data and information and may change as more evidence becomes available.

At the present moment, the leadership of the current pandemic management is adequately addressed by the MOH together with other agencies. Nationwide, MOH has designated hospitals at each state specifically to manage COVID-19 cases. For example, designating Sungai Buloh Hospital as its referral centre in the Klang Valley and strategically decanting all non-COVID-19 cases from Sungai Buloh Hospital to other MOH hospitals such as Cheras, Shah Alam and Banting etc. Arrangements are made by MOH to quarantine stable patients at some of the nursing colleges where there are single rooms and basic facilities.

Recommendation 1:

All doctors should be aware of the hospital that has been designated by MOH as the referral centre for their locality and to establish a team at their individual hospitals to serve as liaison to ensure a clear line of communication is established between their hospital and the designated hospitals/ICU.

Broad principles of managing the COVID-19 pandemic will involve measured targeted response according to data accumulated from the MOH and based on the capabilities of the private/public hospital. One recommendation would be to identify the COVID-19 patients as below and to channel resources and staffing to manage them appropriately based on the clinical expertise available.

Recommendation 2:

All doctors need to recognise the level of care required by the patients affected by the COVID-19 based on the tabulated description.

<table>
<tr><th>Category</th><th>Description of COVID-19 Positive Patients</th><th>%
(based on anecdotal data on current number of patients)</th><th>Examples of Recommendations for team lead and staffing</th></tr>
<tr><td>1</td><td>Asymptomatic</td><td rowspan="2">80%</td><td rowspan="2">General medical and nursing team led by a senior physician and assisted by senior medical officers. These include Emergency Medicine Specialists, ID physicians or General Physicians/ Paediatricians</td></tr>
<tr><td>2</td><td>No pneumonia</td></tr>
<tr><td>3</td><td>Features of pneumonia with no supplementary O2 required</td><td rowspan="2">10-15%</td><td rowspan="2">Respiratory, Infectious Disease Physicians, General Physicians/Paediatricians</td></tr>
<tr><td>4</td><td>Features of pneumonia and supplementary O2 required</td></tr>
<tr><td>5</td><td>Features of pneumonia with respiratory organ failure/ multiorgan failure requiring ventilatory support</td><td>3-5%</td><td>Most experienced team of nurses led by intensivists, anesthesiologists, critical care physicians and other disciplines such as cardiology, nephrology and surgical teams where indicated</td></tr>
</table>

Note: The above is to simplify case management in order to maximise utilisation of available clinical expertise and allocate where it is most needed. They are meant as a guide only and subjected to whatever healthcare resources available at the particular hospital.

Recommendation 3:

The Anaesthesia and Intensive Care Resources (personnel and equipment) are reserved for the most critically ill and vulnerable patients (Category 5) as these are the categories of patients who will require the most amount of interventions and acute critical care management that is time

consuming. The level of care required will be a Level of Care 3 where the patient will be on ventilatory support and with potential multiple organ failure requiring one to one nursing care.

Recommendation 4:

The current data indicates a higher mortality and morbidity involving those aged above 60 with co-morbidities, healthcare personnel who fall in this group should be redeployed to manage non COVID-19 patients until more concrete data is available. This also applies to pregnant healthcare personnel.

Recommendation 5:

For the non-designated hospitals (public or private), there should be plans regarding the following facility and equipment.

INPATIENT CARE

1. Person Under Investigation (PUI) ward with single rooms until test comes back negative in which they can be managed subsequently in a normal ward together with other non-COVID-19 patients.
2. COVID-19 wards for confirmed cases that ideally consists of single rooms.
3. Designated rooms in ICU for category 5 patients.

For all categories of the COVID-19 patients as above, appropriate Personal Protective Equipment (PPE) are to be worn at all times subject to the nature of care that is being planned to be performed.

INTENSIVE CARE UNITS FOR CATEGORY 5 PATIENTS

1. These could be provided either in negative pressure rooms or airborne infection isolation rooms if available.
2. If not available, rooms where nursing can be done with doors closed are acceptable alternatives.
3. Specifically, for anaesthesiologists and medical team assisting with procedures such as intubation, a Powered Air Purifying Respirators (PAPR) or appropriately fitting N95 mask with face shield or eye goggles should be worn.
4. Water resistant gowns and gloves covering the sleeves should be donned.
5. Where available, intubations should be done using video laryngoscope devices to minimise direct exposure to the oropharyngeal cavity and secretions.
6. There are mixed views on the use of Non-Invasive Ventilation (NIV) and High Flow Nasal Cannula (HFNC). In the event there are paucity of available ventilators, these modalities of ventilatory supports should be considered as well with all possible precautions taken to minimise exposure to aerosolised droplets.
7. Closed suction systems for removal of secretions from the respiratory system should be used when an endotracheal tube (ETT) is in-situ. During disconnection of the ETT from the ventilator, the ETT should be clamped.
8. If possible/applicable, more frequent air exchanges are done (15-30 times per hour) in the isolation rooms.
9. The above recommendations are also applicable for patients with no prior history of travel to the affected countries and presenting with SUSPECTED community acquired pneumonia that require intubation in the emergency department or ICU.
    a. These patients should be considered as possible COVID-19 positive patients until proven otherwise by lab test. All protocols applicable to a COVID-19 patient should be

implemented to these patients including nursing them with strict infection control protocols.

   b. These steps are to ensure that healthcare personnel are not unnecessarily exposed to the virus. Exposure to the virus will render them inaccessible to care for future patients during their quarantine periods, and worse still if they are infected with serious clinical condition.

10. For COVID-19 patients who are intubated in a non-designated hospital, it is important to liaise with the regional designated COVID-19 hospital to plan the future care of the patient.
    a. Critical care may need to be initiated in the non-designated hospital itself using existing treatment protocols until a time is decided for transfer of care to the designated hospital upon availability of an ICU bed there.
    b. As availability of ICU beds at the designated hospitals may be limited, there will be a probability that the non-designated hospitals will have to manage these cases (suspected or confirmed COVID-19 infection). Therefore, all non-designated hospitals are expected to have their own measures in place in case this situation arise. All precautions are to be taken to handle suspected cases as potential COVID-19 until proven otherwise and PPEs are always worn when handling these patients.

Recommendation 6:

Reallocation of resources are recommended to be done by the non-designated hospitals in preparation of worsening COVID-19 pandemic in regards of bed management and human resource.

Below is our suggestion on how resources are reallocated in the event above will be required of a non-designated hospital.

Assuming for ease of calculations in a 100-bed hospital and during this pandemic, 25% of the resources are allocated for the provision of care to COVID-19 patients and 75% to non COVID-19 patients.

As such 25 beds will be effectively be reserved for the provision of care of possible COVID-19 patients and potentially 2-3 ICU beds will need to be allocated. On a daily basis, this would mean a team of one anaesthesiologist/intensivist with 6-8 nurses who will be required to provide care for 2 ventilated patients in two separate rooms over either three 8- hour shifts or four 6-hour shifts.

The 6-8 hours are considered to be an appropriate duration of time due to the high intensity of care required, high level of precautions that need to be taken, focussed attention and also safeguarding personal protection needed from any possibility of contracting the infection. A staff who is fully attired will not be able to de-gown with ease and put on new protective attires in order to limit the usage of very scarce PPEs.

Recommendation 7:

Reallocation of resources are recommended to be done by the non-designated hospitals in preparation of worsening COVID-19 pandemic in regards to the surgical services provided in the non-designated hospitals.

SURGERIES (ELECTIVE and EMERGENCY)

1. At this moment in time, there is no recommendation for suspension of elective surgeries to be enforced in the non-designated hospitals.
    a. However, it is prudent to have a business contingency plan in place in the event the need for suspension of elective surgeries were to be required for the healthcare

personnel to focus more on the pandemic. These including postponement or cancellations of elective surgery or reduction of elective operating hours so that operating room staff may be deployed to other areas of need.

2. The operating room teams should also have a plan in place to anticipate performing surgeries for COVID-19 patients.
    a. Ideally one or two operating rooms should be identified that are located away from the main operating complex and will be dedicated for surgical procedures to be done on COVID-19 patients in hope to minimise cross contamination between COVID-19 and non COVID-19 patients.
    b. Appropriate PPE, cleaning and sterilisation and disinfection of equipment used is priority.
    c. Where feasible, single use items are recommended.
3. There are also possibilities of non COVID-19 surgical cases from designated hospitals being referred to non-designated hospitals for semi elective or emergency surgeries in order for the designated hospitals to focus their resources on managing the pandemic. These discussions will need to be led by the management of the hospitals with the relevant government agencies so that the anaesthesia team can prepare for any additional workload.
4. In the worst case scenarios, operating rooms may also be considered to be used for ventilation of patients when the intensive care unit beds become unavailable.
5. Intra-hospital movements of COVID-19 patients should be minimised with clear planned route between destinations as to reduce exposure to the personnel, patients and the public.

Recommendation 8:

A clear plan on the usage of Radiological Department investigation and services performed at the non-designated hospitals need to be in place.

RADIOLOGY SERVICES

1. Use of the radiological department for diagnostic procedures should be minimised.
2. Where possible, bedside diagnostic equipment should be used such as Portable Ultrasound/Point of Care Ultrasound and Portable X-ray machines.
3. If unavoidable, a clear planned route should be made for intra-hospital movements so as for reasons above mentioned.
4. Following diagnostic imaging performed on the COVID-19 patient, the radiological equipment and room used, are to be disinfected as recommended guidelines.

Recommendation 9:

A robust plan on inter-hospital transportation of critically ill COVID-19 patients from non-designated to designated hospitals needs to be in place.

TRANSPORT OF CRITICALLY ILL PATIENTS

1. Following recommendations for transport of the critical and non-critical patients, transportation should be carried out by trained staff that ensured adequate equipment for transfer are available such as ventilators and monitors. Appropriate PPE should be used during transport and protocols for disinfection of ambulance and equipment are strictly adhered to.
2. Where possible, minimise handling of patients such as suctioning of ETT or administration of medications during transport.

3. Ensure intubated patients are adequately sedated or paralysed if indicated to minimise risk of ETT dislodgement during transport that may require re-intubation.
4. Transportation are not to be done by junior or inexperienced medical staff who are not familiar with management of critically ill patients to ensure that there is minimal risk of exposure to the COVID-19 virus due to their inexperience.

Recommendation 10:

To ensure training of medical staff of the non-designated hospital in preparation of worsening COVID-19 pandemic are done in accordance to established standard guidelines and protocols before they assigned to the care of COVID-19 patients

TRAINING AND EDUCATION

1. Currently, the management of COVID-19 patients are done by the designated hospitals (designated MOH hospitals as well as one University Medical Centre).
2. Hence, the non-designated hospitals may be inexperienced in managing these cases. The MOH is willing to provide training if requested especially on treatment protocols, infection control measures, orientation on occupational safety and health, managing confidentiality and data protection among others as well as counselling for staff if requested.

Recommendation 11:

Human resource/hospital management should be sensitive to the mental health issues of the medical staff involved in the care of the COVID-19 patients and ensure that their needs are taken care of where applicable.

PSYCHOLOGICAL SUPPORT

1. There will be various issues anticipated during this period.
2. Be mindful of healthcare personnel who will be battling issues at their domestic front as well.
3. Anticipate mental and physical fatigue to exhibit in the health care personnel.
4. Adequate rest in between shifts should be available for the healthcare personnel especially for nurses who are expected to be in the isolated single rooms wearing PPE for long period of time.
5. Trained counsellors should be made available to address some of the psychological effects faced by COVID-19 patients and their family members, and also encountered by the healthcare personnel.

DISCLAIMER

The College of Anaesthesiologist, Academy of Medicine Malaysia (AMM), the Malaysian Society of Anaesthesiologists and the Malaysian Society of Intensive Care are three professional bodies of practising academicians and anaesthesiologists/intensivists from public, private and university hospitals based in Malaysia.

These recommendations are non-exhaustive and serve as a guide on how to prepare for the COVID-19 pandemic. It is expected that individual hospitals/anaesthesiologists will be guided by their own needs and proposals in order to prepare themselves for any eventualities.

The recommendations here will not replace or supersede the most current guidelines and instructions from the MOH, Malaysia as such individuals and hospitals are encouraged to refer to the most updated guidelines and recommendations as released regularly by the MOH, Malaysia.

The College of Anaesthesiologists, AMM, the Malaysian Society of Anaesthesiologists and the Malaysian Society of Intensive Care will update these recommendations when feasible from time to time. We wish everyone their best in preparing to face this pandemic and urge everyone to be safe at all times.

Prepared by the College of Anaesthesiologists, AMM, the Malaysian Society of Anaesthesiologists and Malaysian Society of Intensive Care.

REFERENCES:

1. Press statement of the Ministry of Health Malaysia on updates on the Coronavirus disease 2019 (COVID-19) dated 15th March 2020
2. Guidelines on 2019 Novel coronavirus (2019-nCoV) Management in Malaysia
3. Australian Society of Anaesthetists Pandemic Planning Role for Australian Anaesthetists