



## **KENYA SOCIETY OF ANAESTHESIOLOGISTS**

**Safe Anaesthesia**

### **COVID-19 ANAESTHESIA AND CRITICAL CARE GUIDELINES**

#### **BACKGROUND:**

COVID-19 is a novel coronavirus first reported in the Hubei province in China as a causative agent in fatal viral pneumonia on the 31<sup>st</sup> December 2019.

COVID-19 was subsequently declared a public health emergency on January 30<sup>th</sup> 2020, a pandemic on March 11<sup>th</sup> and the first detected case in Kenya notified on 13<sup>th</sup> March 2020.

The incidence of infection and fatalities among frontline healthcare workers has been noted to be high especially where the disease has not been identified early, there has been inadequate use of protective personal equipment (PPE) or the health worker has concurrent illness that reduces their capability to mount an ideal immunological response.

#### **DEMOGRAPHICS:**

COVID-19 has during this initial phase appeared to be most severe in the elderly or those patients having immunosuppressive comorbid conditions and cigarette smoking.

Frontline health workers seem to also have suffered the brunt in the Hubei province probably due to continued repeated exposure with high dose inoculum whilst working long hours without adequate rest, conditions that certainly lower immunity.

There is currently no validated data concerning the effects of COVID`-19 in pregnancy on neither mother nor fetus.

COVID`-19 `appears to run a milder disease course in the paediatric age group with the youngest patient testing positive as a neonate in the United Kingdom.

Overall, there has been an approximate mortality rate of 2-4% globally and due to the mutative nature of most viral particles, trial medication utilizing various antiviral agents and chloroquine together with support for various body organ systems have been the mainstay for severe disease: mild disease has responded to antipyretics, bed rest and rehydration.

20-25% of hospitalized patients may need intensive care admission with worsening respiratory function that may culminate in ARDS being the leading cause for admission.

Critical care is largely supportive with early intubation, airway pressure release ventilation, prone positioning and the judicious use of neuromuscular blockade.



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Ritonavir/lopinavir, low dose systemic steroids and fluid restriction have been used with some documented success in the critically ill patients.

Cardiovascular complications may also occur and these have been noted to be arrhythmias, myocarditis and cardiogenic shock.

### **HOSPITAL PREVENTION MEASURES**

1. All healthcare personnel must be trained in infection control and prevention strategies especially in hand washing, use of KEBS certified alcohol based sanitizer as well as donning/doffing PPE (personal protective equipment)
2. All healthcare facilities must provide PPE items and create safe isolation areas for patients with suspected covid-19 infection: these isolation areas must meet the airborne, droplet and contact prevention precautions
3. Routine infrared thermal screening for hospital visitors and health workers on entry into hospitals
4. Minimize hospital visitation by the general public who are not sick
5. Preparation for disease surge precautions must be factored in the hospital plans (see section further below).
6. All healthcare facilities must form a local infection care team that has a centralized reporting system and a way of communicating to a centralized government office for coordinated responsiveness and resource mobilization.
7. Creation of a negative pressure isolation ward purposed for highly infectious aerosol disease at level 5 and 6 healthcare institutions is advisable in the event that the disease burden exceeds the currently available space.

### **PERIOPERATIVE PREPARATION AND HANDLING OF CONFIRMED OR HIGHLY SUSPECTED COVID-19 PATIENTS**

#### ***(protection in high risk aerosol generating procedures)***

#### **1. GROUP A: CONFIRMED COVID-19 IN RESPIRATORY FAILURE FOR AIRWAY CONTROL**

- A) Postpone any non-urgent surgical procedure until infection is controlled
- B) Don PPE which must include long gloves, eye shields, tight fit N95 face mask, double gloving and gown
- C) Appropriate hand hygiene at both donning hand doffing PPE
- D) Patient must also have a tight fit mask or a purified powered airway device to minimize airborne /droplet infection
- E) Appropriate signage as precautionary on the room must also be available and clearly visible (as frontline workers, health care personnel must be duly informed of risks).
- F) Surface, droplet and direct contact decontamination procedures must be adhered to.
- G) Intubation plan that is preferably rapid sequence with as few people as practical in the intubating space preceded by a long preoxygenation: all equipment including ventilators and monitors should be prepared for immediate connection to minimize exposure to viral particles.
- H) Most experienced intubating personnel is to lead the intubation process
- I) If manual ventilation is to required, use small tidal volumes only



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- J) Avoid the use of open suction systems and fibre-optic intubation devices to minimize aerosol: if video laryngoscopy necessitated, sheath unused sites, surgically drape all carts and disinfect the equipment after use as per contact decontamination protocols.
- K) Avoid high flow oxygen delivery systems including CPAP prior to or during intubation to minimize risks of aerosol spread of virus.
- L) HEPA filter at y-piece and gas sampling should be of filtered gas
- M) Negative pressure rooms are best for isolation and intubation to minimize viral airborne spread.
- N) While doffing, remove and dispose of outer gloves first in a designated disposal area avoiding touching surfaces then the rest of the PPE kit. Avoid touching the face or parts of your own body until appropriate hand hygiene has been observed.
- O) Seek assistance from the local infection control teams as self-quarantine may be necessitated.

## 2. GROUP B: PATIENTS NOT EXPECTED TO HAVE COVID-19.

Due to the latency in symptoms presentation coupled with the fact that some patients may only manifest mild respiratory systems, it is advisable that:

- A) Hand hygiene must be paramount
- B) Wear gloves and change these regularly and when soiled
- C) Surface decontamination between patients must be adhered to and observed: anaesthesia machine work surface, drug trolleys, bags, patient trolleys (gurneys), drip stand, masks and door handles must be decontaminated between cases.

### PREPARING FOR A SURGE IN COVID-19 CASES

COVID-19 is spread by droplets, aerosol and surface contamination hence reporting of an index case simply means contact tracing is a necessity: most cases are mild in the disease course but severe disease when present puts a heavy burden on critical care infrastructure and personnel.

Vigilant screening and reporting as well as isolation of suspected cases must be done in real-time to enable adequate review and measures to be implemented as the disease patterns may evolve.

Current estimates of critical care need in a COVID-19 outbreak are at 5% with risk factors being older age (median age of 60 years) and 40% of the patients have had comorbid conditions lowering immunity.

Ability to provide PPE to the health workers, airway control and mechanical ventilation, negative pressure isolation rooms as well as expertise to handle multiple organ support is severely limited: as a country, we can expand ventilator capacity in places with trained critical care nurses and reliable oxygen capacity but this would also require



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trained physicians to engage in medical interventions with the support of intensivists/anaesthesiologists for real time decision making.

An increase in ventilator capacity and use of other critical care equipment necessitates early engagement of the biomedical teams representing the suppliers of these equipment to ensure the equipment is well serviced and operational as well as the availability of consumables.

Use of online management protocols with permission from the Faculty of Intensive Care Medicine (FICM) will certainly be beneficial in conjunction with multidisciplinary consultations among infectious disease and other multi-organ specialists: internet connectivity enabling telemedicine may help actualize this in case the case load exceeds the ability of the national teaching and referral hospitals isolation space BUT it must occur in the space of a safe working environment for the health workforce as alluded to above.