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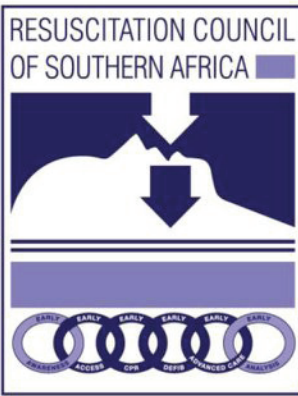
## Re: Covid-19 pandemic in Sub-Saharan Africa- Resuscitation considerations

**Disclaimer** – This document has been compiled on the best evidence available but mostly involves expert opinion and is intended as a general guide with useful information. As resources differ greatly across Southern Africa, a “one size fits all” policy cannot be generated. However, we feel that as the Resuscitation Organization representing our region, we need to release an appropriate advisory guide for the current crisis we are facing.

We highly recommend that emergency units, hospital groups and groups of resuscitation providers evaluate their own resources and formulate specific policies on resuscitation triage. Southern Africa is in general a limited resource community and therefore stakeholders need to follow appropriate ethical triage principles in making resuscitation policies specific to Covid-19 patients.

### 1- CPR in a known Covid-19 infected patient IHCA (In-hospital-cardiac-arrest)

- a. As a result of the disease process and in general, multi-organ failure resulting in the patient requiring CPR, the reversibility of the disease is unlikely to occur with standard CPR intervention and therefore CPR has not shown to be beneficial.
- b. Should there be a **suspected immediately reversible cause** – eg: blocked endotracheal tube or accidental extubation or arrhythmia. A short period of CPR may be indicated provided the cause may be reversed. However – **safety of the healthcare providers** has to be taken into account. Therefore, appropriate PPE measures need to be ensured. This will differ according to local practices but in general, the patient care is divided into two areas:
  - i. Airway control – Local Covid-19 intubation/airway management recommendations need to be adhered to which would include, ideally, a senior/experienced intubation provider, who has specific PPE for aerosolization contact limitation. Protocols that include plastic sheeting covering the patient, viral filters on the airway equipment, video laryngoscopy, supra-glottic access etc, (dependent on the resources available) should be enforced. If safety protection is not timeously available, do not attempt advanced airway interventions (not a time for “heroics”)
  - ii. Compressions and other interventions excluding airway manipulations – Standard PPE including gown, gloves, facemask at a minimum would be recommended
- c. The “trial of CPR” should be limited to actual, identified reversible causes, while suggesting a similar regimen to the Arizona study of a “tight fitting” non-rebreather face mask with 100% oxygen, maintaining the reservoir bag  $\frac{2}{3}$  full (to not waste  $O_2$ ), a cycle of 2 minutes of chest compressions (200 continuous chest compressions), rhythm



check followed by continuous compressions x 6 mins {3 cycles} (essentially the electrical phase of cardiac arrest where best outcomes would be expected). If no ROSC in this time, with no reversible cause identified, it would be reasonable to stop the CPR effort.

- d. Care must be taken in disposing/cleaning the equipment used and in the removal of the healthcare workers' PPE. Appropriate procedure in removing all barriers especially contaminated PPE from the potential aerosolization of the patient's secretions.

## 2- CPR in Covid-19 patients in out of hospital cardiac arrest (OHCA)

- a. **We recommend against starting conventional CPR in unwitnessed cardiac arrest.**
- b. Conventional CPR as per RCSA Guidelines in witnessed cardiac arrest may not be beneficial in highly suspected and confirmed cases of Covid-19 requiring resuscitation. If CPR is to be attempted, appropriate PPE needs to be enforced again limiting the resuscitation attempt to an "easily" identifiable reversible cause eg: shockable rhythm.
- c. Safety of the rescuers is of paramount importance. We encourage emergency medical systems (if the resources are available), to enforce appropriate PPE without critical time wastage to effect the principles of "high quality" CPR. A good outcome from the resuscitation effort would be unlikely.

**Please note:** These are general guides, specific to the Covid-19 outbreak and infected patient, there may be exceptional circumstances that will have to be looked at on a case by case basis and by the resuscitation professional attending to the case/circumstance.

### **Useful resources below:**

- 1 – American Heart Association – Covid-19 Resources for CPR training  
<https://cpr.heart.org/en/resources/coronavirus-covid19-resources-for-cpr-training>
- 2- Rational use of PPE for coronavirus disease 2019 (Covid-19) – WHO 27 Feb 2020  
<https://www.samedical.org/file/1245>
- 3- Covid-19 training for clinicians  
<http://www.nicd.ac.za/covid-19-training-for-clinicians/>
- 4- Ethics around why we make these harsh decisions related to Covid-19  
Summary document below  
<https://www.thehastingscenter.org/ethicalframeworkcovid19/fbclid=IwAR1OBxvPVfRQx9K7mKpOYRDCTFC1vupke6POY2SldzLOGLVYi2YI2OvAhLE>
- 5- Resuscitation Council UK resources:  
[https://www.resus.org.uk/\\_resources/assets/attachment/full/0/36124.pdf](https://www.resus.org.uk/_resources/assets/attachment/full/0/36124.pdf)  
[https://www.resus.org.uk/\\_resources/assets/attachment/full/0/36100.pdf](https://www.resus.org.uk/_resources/assets/attachment/full/0/36100.pdf)



Resuscitation Council (UK)

## ALS Algorithm in pts with POTENTIAL or confirmed COVID-19

**STOP : put on full PPE. FFP3 mask, double gloves, gown and visor.**

1) Even in presumed hypoxic arrest start with chest compressions and avoid rescue breaths

2) Feel for pulse don't listen and feel for breathing.

3) EARLY intubation.

4) If needed do two person BVM ventilation with very tight seal

Unresponsive?  
Not breathing or only occasional gasps

Call resuscitation team

Tell them potential Covid-19

**CPR 30:2**  
Attach defibrillator / monitor  
Minimise interruptions

Assess rhythm

**Shockable**  
(VF / Pulseless VT)

**Non-Shockable**  
(PEA / Asystole)

1 Shock

Return of spontaneous circulation

Immediately resume CPR for 2 min  
Minimise interruptions

Immediate post cardiac arrest treatment

- Use ABCDE approach
- Controlled oxygenation and ventilation
- 12-lead ECG
- Treat precipitating cause
- Temperature control / therapeutic hypothermia

Immediately resume CPR for 2 min  
Minimise interruptions

**Defibrillate shockable rhythms quickly - early restoration of circulation may prevent the need for airway and ventilatory support.**

Most experienced person possible to intubate

### During CPR

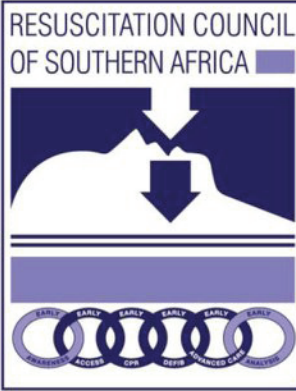
- Ensure high-quality CPR: rate, depth, recoil
- Plan actions before interrupting CPR
- Give oxygen
- Consider advanced airway and capnography
- Continuous chest compressions when advanced airway in place
- Vascular access (intravenous, intraosseous)
- Give adrenaline every 3-5 min
- Correct reversible causes

### Reversible Causes

- Hypoxia
- Hypovolaemia
- Hypo-/hyperkalaemia/metabolic
- Hypothermia
- Thrombosis - coronary or pulmonary
- Tamponade - cardiac
- Toxins
- Tension pneumothorax

### After Arrest:

- Remove PPE as per donning and doffing instructions.
- Throw away all disposable equipment.
- Clean other equipment with Chlor Clean wipes
- All rubbish should be double bagged and taken to the Covid bin by a porter.



This is a summary of a document published online by the Hastings Center on 16 March 2020 and entitled ***“Ethical framework for health care institutions and guidelines for institutional ethics services responding to the novel coronavirus pandemic.”\****

- Public health emergencies disrupt ethical patient care processes, which are normally patient-centred and responsive to individual patient preferences and values. A shift needs to take place away from the ethical norms of standard clinical practice towards public health ethics, which is concerned with safeguarding the health of the population by means of the best use of resources and interventions.
- This can entail limiting individual rights and choices. Public health ethics provides guidance in finding a balance between individual and group needs.
- “While all health care resources are limited, public health emergencies may feature tragically limited resources that are insufficient to save lives that under normal conditions could be saved, This is a basic tension between the patient centred-approach of clinical care under normal conditions and the public-centred approach of clinical care under emergency conditions.”
- It is important for first responders to have clear rules to follow during a public health emergency, for instance, “triage protocols... help first responders to swiftly prioritize patients for different levels of care based on their needs and their ability to respond to treatment given resource constraints.”
- Unclear rules or rules that cause patient distress or suffering can lead to moral distress in caregivers, especially in situations in which protocols for disaster conditions require the withholding or withdrawing of treatment against the wishes of patients or their families.
- “Responding to public health emergencies includes safeguarding the health care workforce. During a surge of infectious illness amid deteriorating environmental conditions, clinicians and nonclinicians, such as maintenance staff, may be at heightened risk of occupational harms.”
- As an emergency situation progresses resources scarcity worsens. Operations move from conventional mode, through contingency mode and finally into crisis mode. The quality of care naturally degrades in line with increasing resource scarcity. Plans need to be in place to ensure optimal quality of care at all stages.
- In the crisis operations phase triage protocols need to be activated.
- The tension between the public health ethics focus on equality and fairness in the distribution of risks and benefits and the patient-centred orientation of clinical ethics becomes stark when life-saving treatment is unavailable to all who need it. Covid-19 is a severe respiratory illness and critical patients will require ventilator support in an ICU. ICU beds and staff are scarce and the increased demand is likely to become overwhelming.
- “A public health emergency requires planning for and potentially implementing a range of contingencies to manage the increased demand for care and the resource scarcity. Contingency levels of care under emergency conditions unavoidably and gradually reduce quality of care due to limits on staff, space, and supplies. Infection control protocols reduce quality of care in other ways, such as by restricting visitors.”
- “Planning for foreseeable ethical challenges includes the identification of potential triage decisions, tools, and processes. In a public health emergency featuring severe respiratory illness, triage decisions may have to be made about level of care (ICU vs. medical ward); initiation of life-sustaining treatment (including CPR and ventilation support); withdrawal of life-sustaining treatment; and referral to palliative (comfort-focused) care if life-sustaining treatment will not be initiated or is withdrawn.”

\*<https://www.thehastingscenter.org/ethicalframeworkcovid19/?fbclid=IwAR1OBxvPVfRQx9K7mkpOYRDCTFClvupke6POY2SldzLOGLVYi2YI2OvAhLE>