

Guidance for the care of the deteriorating child or in cardiac arrest with suspected or proven COVID-19 infection

COVID-19 should be suspected in any child, particularly with fever and/or respiratory symptoms and appropriate measures instituted.

ALWAYS DO PPE BEFORE INTERVENING IN ANY EMERGENCY SITUATION 1,2

Full PPE should be available and always worn when performing AGP's such as CPR, bag mask ventilation or advanced airway positioning (N95 or higher level respirator instead of facemask). Expecting staff to resuscitate without appropriate PPE is not acceptable 1-4

	PPE	Intervention
Deteriorating child	Surgical mask, gown, gloves, glasses	Maintain safe distance from child Have child wear a mask, if possible 3 Communicate team members child COVID+ Escalate concerns early, prepare for escalation of care 5 Avoid unnecessary AGP's or close examinations Prepare: use cognitive aids and simulation training 8
	PPE AGPs: N95 or higher respirator, gown, gloves, glasses	If AGPs needed consider moving patient to a negative pressure room 11 Equip any ventilatory equipment with HEPA or other bacterial/viral filters to filter expired air 6,7
Prepare for resuscitation	PPE AGPs	Provide PPE to the RRT-MET on the resuscitation trolley or by the patient room, if isolated 11 Full AGP PPE must be worn by RRT/MET and first responders before starting ventilation or chest compressions 3-5,8 Limit the number of HCP present to only those essential 3,4,11 A runner outside the room is recommended 3,4 Prepare airway equipment and drugs outside the room if possible 5 Follow local policies on what equipment should enter the room 5
Resuscitation	PPE AGPs	Simple oxygen mask can be maintained on patient during chest compressions to reduce aerosol spread 3,6 Support ventilation early according to local guidelines 5,11 Consider 2 persons-2 handed bag mask ventilation for tight seal or SGA 5,6,7 Consider leaving intubated patient on MV to maintain a closed circuit. Change MV settings to allow for asynchronous ventilation 11 Intubate as early as possible with a cuffed tube, rapid sequence and connect to MV 3,6 Experienced providers should position an advanced airway (for highest chance of first pass success) 3,5,6 If patient is in prone position with advanced airway, consider prone position CPR to reduce risk of disconnections (hands over T7/T10 vertebral bodies) 11
Teamwork Child and family centered care		Family members should not be present during emergency procedures and CPR unless already in the room and with AGP PPE. Explain to family members the reason for this decision and support them. However, families should be there if resuscitation attempts appear futile. Full PPE should be worn by family members. 4 Team post cardiac arrest debriefing is recommended and should take into account infection control procedures 5

	PPE	Intervention
Transport	PPE AGPs	<p>Full PPE should be worn. Deviation from this recommendation should involve a full risk assessment by the transport team 3,8</p> <p>Non intubated patients should wear a face mask over their oxygen delivery device 8</p> <p>Family members and other contacts of patients with possible COVID-19 should not ride in the transport vehicle OR if not possible should wear a facemask 3</p> <p>Minimize the number of providers to essential in order to minimize possible exposures 3,8</p>

Supporting evidence or recommendation

1. Alhazzani W, Hylander Moller M, Arabi Y. et al Surviving Sepsis Campaign Guidelines on the management of critically ill adults with COVID-19. **Intensive Care Med** March 2020
2. ESICM Statement on the management of critically ill patients with COVID-19 March 2020
3. Interim Guidance for Healthcare Providers Caring for Pediatric Patients. CPR emergency and cardiovascular care. **American Heart Association** March 2020
4. Interim Infection Prevention and Control Recommendations for Patients with Suspected or Confirmed Coronavirus Disease 2019 (COVID-19) in Healthcare Settings (Source: **CDC**, accessed 3/23/2020)
5. Resuscitation Council UK Statement on COVID-19 in relation to CPR and resuscitation in healthcare settings (Source: **Resuscitation Council UK**, accessed 3/30/2020)
6. COVID-19 airway management principles. **ICM Anaesthesia** COVID-19. March 2020 <https://icmanaesthesiacovid-19.org/covid-19-airway-management-principles>
7. Cheung JCH, Ho LT, Cheng JV, Cham EYK, Lam KN. Staff safety during emergency airway management for COVID-19 in Hong Kong. **Lancet respiratory Medicine**. Published: February 24, 2020 DOI: [https://doi.org/10.1016/S2213-2600\(20\)30084-9](https://doi.org/10.1016/S2213-2600(20)30084-9)
8. Guidance on care of critically ill patients with COVID-19. **New Zealand Intensive Care Society (ANZICS)** March 2020,
9. Hui D et al. Exhaled air dispersion during high-flow nasal cannula therapy versus CPAP via different masks. **Eur Resp J** 2019; 53:
10. Hui D et al. Exhaled air dispersion during non-invasive ventilation via Helmets and a total facemask. **CHEST** 2015; 147: 1336-1343 Davies HD, Byington CL, AAP COMMITTEE ON INFECTIOUS DISEASES.
11. Interim Guidance for Basic and Advanced Life Support in Adults, Children, and Neonates With Suspected or Confirmed COVID-19 From the Emergency Cardiovascular Care Committee and Get With the Guidelines®- Resuscitation Adult and Pediatric Task Forces of the American Heart Association in Collaboration with the American Academy of Pediatrics, American Association for Respiratory Care, American College of Emergency Physicians, The Society of Critical Care Anesthesiologists, and American Society of Anesthesiologists: Supporting Organizations: American Association of Critical Care Nurses and National EMS Physicians. 10.1161/CIRCULATIONAHA.120.047463

Abbreviations: AGP= Aerosol Generating Procedure; HCP= healthcare provider; HEPA=High Efficiency Particulate Air, PPE= Personal Protective Equipment; MV=Mechanical Ventilation

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