

Resuscitation in Haemodialysis Units use of Personal Protective Equipment

All health care workers managing those with suspected or confirmed COVID-19 must follow local and national guidance for infection control and the use of Personal Protective Equipment (PPE).

The use of Personal Protective Equipment (PPE) during resuscitation procedures in haemodialysis units is reported as being varied due to lack of clarity of guidance.

The current advice as of 1st May 2020 from the Resuscitation Council UK¹ is: Equipment must be made readily available to protect staff during resuscitation attempts. It is acknowledged that this may cause a delay to starting chest compressions. The following guidance has been issued by the Resuscitation Council UK to manage risk posed by COVID-19 during a cardiac arrest¹.

1. Recognise cardiac arrest. Look for the absence of signs of life and normal breathing. Feel for a carotid pulse if trained to do so. Do not listen or feel for breathing by placing your ear and cheek close to the patient's mouth. If there are any doubts about the diagnosis of cardiac arrest, the default position is to start chest compressions until help arrives. When calling 2222, state the risk of COVID 19.
2. If wearing Level 2 PPE (surgical mask, disposable gloves, apron and eye protection) and a defibrillator is readily available, defibrillate shockable rhythms rapidly prior to starting chest compressions. The early restoration of circulation may prevent the need for further resuscitation measures. Local guidance must be followed about equipment entering and leaving the area.
3. Full Aerosol Generating Procedure (AGP) PPE (disposable gloves, fluid resistant gown/suit, filtering face piece respirator and eye protection) must be worn by all members of the resuscitation/emergency team before entering the room. Sets of AGP PPE must be readily available where resuscitation equipment is being locally stored. No chest compressions or airway procedures such as those detailed below should be undertaken without full AGP PPE. Once suitably clothed, start compression-only CPR and monitor the patient's cardiac arrest rhythm as soon as possible. Do not undertake mouth-to-mouth ventilation or use a pocket mask. If the patient is already receiving supplemental oxygen therapy using a face mask, leave the mask on the patient's face during chest compressions as this may limit aerosol spread. If not in situ, but one is readily available, put a simple oxygen mask on the patient's face. Restrict the number of staff in the room (if a single room). Allocate a gatekeeper to do this.

4. Airway interventions (e.g. supraglottic airway (SGA) insertion or tracheal intubation) must be carried out by experienced individuals. Individuals should use only the airway skills (e.g. bag-mask ventilation) for which they have received training. For many healthcare workers this will mean two-person bag-mask techniques with the use of an oropharyngeal airway. Use a viral filter between the self-inflating bag and airway (mask, SGA or tracheal tube). Liaise with your anaesthetic department about the use of filters.
5. Identify and treat any reversible causes (e.g. severe hypoxaemia) before considering stopping cardio-pulmonary resuscitation (CPR). Discussion should be maintained throughout the resuscitation event and early planning of the post-resuscitation phase undertaken. Seek senior help and advice from critical care partners as part of the planning
6. Dispose of, or clean, all equipment used during CPR following the manufacturer's recommendations and local guidelines. Any work surfaces used for airway/resuscitation equipment will also need to be cleaned according to local guidelines. Specifically, ensure equipment used in airway interventions (e.g. laryngoscopes, face masks) is not left lying on the patient's pillow, but is instead placed in a tray. Do not leave the Yankauer sucker placed under the patient's pillow; instead, put the contaminated end of the Yankauer inside a disposable glove
7. Remove PPE safely to avoid self-contamination and dispose of clinical waste bags as per local guidelines. Hand hygiene has an important role in decreasing transmission. Thoroughly wash hands with soap and water; alternatively, alcohol hand rub is also effective.
8. Post resuscitation debrief is important and should be planned.

Public Health England (PHE) Guidance of use of PPE updated 3rd May 2020² in consultation with The New and Emerging Respiratory Virus Threats Advisory Group (NERVTAG) states:

'Chest compressions and defibrillation (as part of resuscitation) are not considered AGPs; first responders (any setting) can commence chest compressions and defibrillation without the need for AGP PPE while awaiting the arrival of other clinicians to undertake airway manoeuvres. However, healthcare organisations may choose to advise their clinical staff to wear FFP3 respirators, gowns, eye protection and gloves when performing chest compressions but it is strongly advised that there is no potential delay in delivering this life saving intervention. Enhanced PPE is to be worn for all AGPs: intubation, extubation, manual ventilation and open suctioning of the respiratory tract (including the upper respiratory tract).'

In the absence of high-quality evidence to state that anything less than AGP PPE is sufficient for healthcare professional safety, Resuscitation Council UK maintains its belief that AGP PPE provides the safest level of protection when administering chest compressions, CPR, and advanced airway

procedures in known or suspected COVID-19 patients¹. Trusts can opt for AGP levels of PPE if they consider this appropriate to best ensure staff safety.

With regard to resuscitation procedures in Haemodialysis Units, the Kidney Patient Safety Committee recommends:

- Enhanced PPE (disposable gloves, fluid resistant gown/suit, filtering face piece respirator and eye protection) must be available alongside resuscitation equipment. At least 4 sets must be available. It is the responsibility of the employer³ to ensure clinical staff on dialysis units are FIT tested for FFP respirators and trained in donning and doffing of enhanced PPE.
- First responders wearing basic PPE (gloves, surgical mask, apron, eye protection) with defibrillator available may defibrillate shockable rhythms rapidly and should leave the area before Aerosol Generating Procedures are commenced and return only if wearing enhanced PPE.
- No chest compressions or airway procedures should be undertaken unless enhanced PPE is available. Once suitably clothed, start compression-only CPR and monitor the patient's cardiac arrest rhythm as soon as possible.
- Do not undertake mouth-to-mouth ventilation or use a pocket mask. If the patient is already receiving supplemental oxygen therapy using a face mask, leave the mask on the patient's face during chest compressions as this may limit aerosol spread. If not in situ, but one is readily available, put a simple oxygen mask on the patient's face. Restrict the number of staff in the room
- Resuscitation/medical team to don enhanced PPE before entering the clinical area
- Restricting the number of staff involved in direct resuscitation procedure to a minimum e.g. 4 persons
- Protecting other patients in the surrounding area by erecting screens and providing them with surgical face masks if they are not already wearing one.

References

1. <https://www.resus.org.uk/media/statements/resuscitation-council-uk-statements-on-covid-19-coronavirus-cpr-and-resuscitation/in-hospital-settings/>
2. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/881489/COVID-19_Infection_prevention_and_control_guidance_complete.pdf
3. <https://www.hse.gov.uk/news/working-safely-during-coronavirus-outbreak.htm>