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South East Coast Ambulance Service
NHS Foundation Trust

Clinical Bulletin

Resuscitation Practices during COVID-19

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Applies To: Frontline A&E | Private providers | CFRs | EOC

Headline action

This guidance outlines the approach to and management of, out of hospital cardiac arrest of any patient during the COVID-19 pandemic. The guidance and available evidence is changing frequently, this bulletin aims to give guidance for the use at the current time and supersedes any previous guidance issued by the Trust.

The Trust are aware of conflicting guidance and views between national and international expert and professional bodies. The aim of this guidance is to give a Trust position based on a balance of the best available evidence, staff safety and continuing to ensure the best patient outcomes.

Patient criteria

In the context of cardiac arrest and resuscitation, it should be assumed that a patient in the community may have covid-19 irrespective of this being the potential or likely cause of the cardiac arrest, therefore resuscitative efforts may carry a risk to the rescuer. This applies to both adults and children.

All cases should have a dynamic risk assessment applied by the attending clinical staff in terms of the likelihood of COVID-19 in order to inform the safest approach for those in attendance. This dynamic risk assessment can be carried out at any phase of the incident and as many times as is felt necessary and may inform changes in approach or practice.

Irrespective of the suggestive cause of the cardiac arrest there should be very high suspicion of COVID-19 infection in those that have any history of respiratory illness or symptoms and in those living within communal environments (e.g. nursing homes).

Objective of Resuscitation

The overall objective of resuscitation remains the same despite COVID-19; the rapid correction of reversible underlying pathologies in order to restore normal physiological function and ensure subsequent neurologically intact survival. To summarise;

Adult sudden collapse – high quality chest compressions and rapid defibrillation followed by optimised oxygenation, continued high quality resuscitation and consideration of reversible causes.

Paediatric collapse – effective rescue breaths, high quality chest compressions and rapid defibrillation where indicated followed by rapidly addressing hypoxia and hypovolaemia.

Trauma – rapid reversal of underlying reversible causes aimed at addressing hypoxia, tension pneumothorax and hypovolaemia.

Other special circumstances - high quality chest compressions and rapid defibrillation followed by optimised oxygenation, continued high quality resuscitation and consideration of reversible causes.

Aerosol Generating Procedures

Resuscitation will require the provision of interventions that are considered aerosol generating procedures (AGP). AGPs generate tiny particles, small enough to remain in the air for extended periods and may be inhaled. AGPs relevant to the ambulance service include;

- Laryngoscopy and Intubation
- Extubation
- Open airway suctioning
- Manual ventilation (BVM)
- Choking/FBAO removal
- Tracheostomy suctioning
- Insertion of a naso-gastric or oro-gastric tube
- Surgical airway
- Insertion of and ventilation through a supra-glottic airway device (i-gel) – this is not listed as an AGP itself, however, an i-gel cannot be used without providing ventilation.

Manual airway manoeuvres, postural manoeuvres, chest compressions in isolation of advanced airway or ventilation interventions **are not considered an AGP,** however, staff should continue to take reasonable precautions**.**

The term AGP applies not only to the performance of the initial intervention but also to the continued use of the intervention, e.g. an endo-tracheal tube may be considered a ‘closed airway circuit’ but we need to remain prepared for complications or the need to suction or change from BVM to ventilator etc.

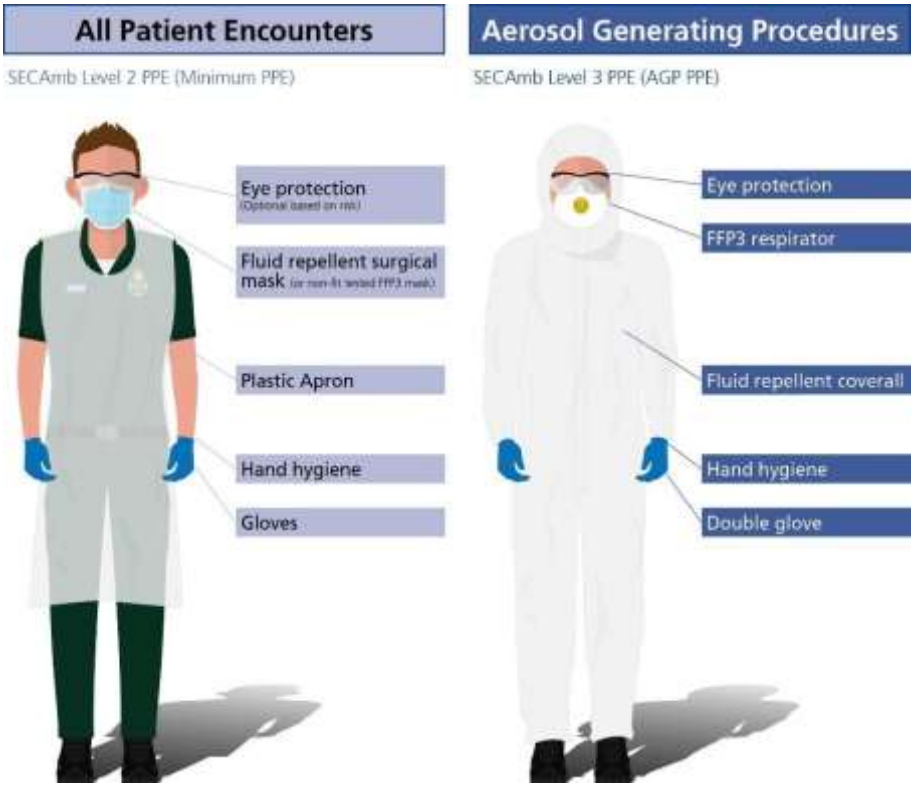
For an AGP to be performed or for staff to be within 2m of an AGP being performed, level 3 PPE must be worn.

It is unlikely that any out of hospital indoor environment will have sufficient airflow therefore take steps to optimise ventilation in the room by opening windows and doors or in an ambulance open windows and use the extractor system - do not open bulkhead door/window or use air recirculation mode on the heating/AC system.

PPE

The illustration below shows two levels of PPE to be used during clinical care. Note that level 2 is the minimum level of PPE to be worn for any patient contact. A dynamic risk assessment will inform how these levels are applied in relation to the guidance below. It is reasonable to make an individual decision to modify the approach. These decisions should be based on staff safety and optimising patient care.

The need to don PPE may delay CPR in patients with COVID-19, so ensure PPE is readily available where it may be required.



Initial approach

1. One responder should don a minimum of level 2 PPE and approach to assess the situation.
2. This responder should approach with a Primary bag (or CFR equivalent) and an AED/Monitor Defibrillator, initially leaving these >2m from the patient (no other equipment should be taken at this time).
3. Carry out an initial assessment and confirm cardiac arrest.
4. The initial assessment should be reported back to other colleagues if present or to the Emergency Operations Centre (EOC) if a solo responder.
5. Follow either the DNACPR or Resuscitation guidance below.

DNACPR Guidance

Early consideration should be given to whether the patient has an Advance Care Plan which may include a DNACPR form, or advanced directive such as Advanced Decision to Refuse Treatment (ADRT) or ReSPECT form. Such documentation whether electronic or paper based, will guide resuscitation decisions, or non-patient contact if not required.

In addition to the initial approach guidance;

1. If cardiac arrest and validity of the document are confirmed no further patient contact should occur and staff should withdraw, doff PPE and undertake hand hygiene before continuing necessary documentation, referral and arrangements.

2. If the patient is not in cardiac arrest then standard treatment and necessary precautions should be taken.
3. If the patient is in cardiac arrest but the validity of the DNACPR cannot be confirmed then resuscitation should be commenced if appropriate following the guidance below.
4. Seek early clinical advice about the appropriateness of attempting resuscitation if in doubt about the appropriateness, futility of continuing resuscitation management.

Resuscitation Guidance

Solo ambulance staff member or first resource on scene

In addition to the initial approach guidance;

1. Apply a non-rebreather mask – no oxygen flow at this time.
2. Assess patient, confirm cardiac arrest, attach AED/defibrillator and deliver a shock if indicated.
3. Perform compression only CPR, initially delivering 30 compressions.
4. Open airway with manual manoeuvres. Do not suction the airway. Do not attempt to insert an advanced airway at this stage.
5. Turn on oxygen to 10lpm ensuring reservoir bag inflates (passive ventilation).
6. Continue compression only CPR. Check rhythm every 2 minutes. Defibrillate as necessary – **remember to move oxygen for defibrillation**.

NB If a bystander is already providing good quality chest compressions, at this point they have already been exposed to the risk of the virus and if they are willing, their skills should be utilised until further trained assistance arrives. This is particularly helpful in ensuring immediate uninterrupted chest compressions are delivered while the defibrillator is attached. They should be relieved of this task at the earliest opportunity and be more than 2m away from the patient before any further AGPs (i.e. BVM ventilation) are performed.

Subsequent ambulance staff on scene

Subsequent staff or crews should undertake the following actions;

1. Don level 3 PPE before being within 2m of the patient.
2. Bring suction, a drugs bag and additional equipment to allow full ALS treatment including AGPs to be performed. Equipment should be left greater than 2m from the patient unless required closer.
3. Once additional rescuers are present the initial rescuer should withdraw, doff PPE, perform hand hygiene and be prepared to support as required. This may include donning full PPE or acting as a runner in the ‘clean’ area.
4. Commence ALS and follow standard JRCALC and Trust resuscitation guidance.
5. Rapidly identify and treat reversible causes. Avoid protracted resuscitation attempts where the outcome is likely to be poor. Advice can be sought from the Critical Care Desk (CCD – channel 16) if a CCP is not present.

Any responders must be either wearing level 3 PPE or be more than 2m from the patient once ALS has been commenced.

Resuscitation Principles

Airway

- The need for airway management procedures that are AGPs should be carefully considered.
- Insert supraglottic device with HME filter as soon as practicable (to minimise BVM / facemask ventilation). A supraglottic airway is the recommended airway device in cardiac arrest.
- The practice of intubation should be only if **absolutely necessary** with this decision being made by an appropriately trained clinician considering the risk versus benefits. If available, the use of a full face shield in addition to goggles is recommended.

If using AGPs, consider steps to minimise exposure:

- Only the minimum number of individuals necessary to effectively carry out CPR should be present with the patient. This includes the patient's friends/family.
- If using a SGA, ensure any side port/drainage lumen is occluded prior to inserting the device using a finger or thumb.
- Use of an in-line HME filter in the breathing circuit, attached directly to the advanced airway is likely to minimise spread of secretions.

Breathing

- Assess breathing by looking, do not assess breathing by listening or feeling, so as to avoid placing your face in close proximity to the patient's face.
- Use end-tidal CO_2 after insertion of advanced airway.

Circulation

- Chest compressions alone do not constitute an AGP, so the initial resuscitation attempt should maximise the benefits of high-quality compressions along with defibrillation where indicated and oxygen delivery.
- Consideration should be given to the early use of a mechanical compression device if available.

ROSC/Conveyance

In the event of ROSC the CCD should be contacted for support if a CCP is not present for further guidance on management and appropriate destination.

Standard ROSC Care should be provided.

The need for conveyance without ROSC other than in specific circumstances is usually not recommended. These cases should be discussed with CCD prior to conveying.

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ROLE

Normal procedures for ROLE should be followed. However, unless absolutely necessary the deceased should not be moved and contact with the patient should be avoided to minimise risk of cross-infection.

Decontamination and post contact actions

Decontamination and post contact actions should follow current Trust IPC guidance for COVID-19.

Quality Impact Assessment A

QIA has been completed.

Links to trust-wide learning and other action

Trust IPC Guidance for COVID-19 (most recent version)

Key points

- COVID-19 is providing unique challenges to the provision of clinical care and there is a need to modify practice in order to keep responders safe whilst continuing to provide optimal care.
- There will be some compromise to care in order to manage IPC risk.
- Responders need to make dynamic risk assessments to inform decisions regarding PPE.
- Initial assessment and management should be conducted by a single responder in a **minimum** of level 2 PPE.
- If resuscitation is indicated all subsequent responders providing care **MUST** be in **level 3** PPE.
- No AGP should be performed unless **all** responders within 2m are in **level 3 PPE**.
- The principles of cardiac arrest management remain unchanged and should focus on the provision of high quality resuscitation and reversal of underlying causes.
- Remote decision support can be provided by the CCD and should be utilised early to avoid unnecessarily protracted resuscitation.

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