

## Refractory shockable rhythms

Further reading

Resus Council UK Guidelines 2021 CPR Compression strategy. Resuscitation 2021 Airways 2 trial. JAMA 2018



#### **Related SOPs**

Post cardiac arrest SOP

Acute coronary syndrome SOP

#### **General Points**

- There is strong evidence for a survival benefit from good quality CPR and early defibrillation, and the GNAAS team should strive to ensure these are delivered in all cases of medical arrest 'in preference' to critical care interventions.
- Other management strategies have a universally poor evidence base so whilst this document
  contains a plethora of interventions they should be <u>regarded as considerations not</u>
  <u>checkboxes to be achieved</u>. The role of a critical care team is to take the care beyond an SOP
  towards therapies tailored to the individual patient, treatments may be delivered later or
  earlier in the resuscitation depending upon case specific factors
- Should the patient remain in VF/VT the goal is to adjust something between each shock and the attached table provides suggestions as to potential options.
- An early decision should be made as to the possibility of transport with mechanical CPR.
   Assess whether transport in arrest is feasible and if there a therapy that can be provided by a hospital that we cannot.

#### **During CPR**

- A working iGel is as effective as an endotracheal tube
- Compression: Ventilation should be 30:2 regardless of the airway management device; the pressures required to ventilate against CPR (particularly mechanical compressions) are often too high.
- Consideration of Nasogastric decompression of the stomach if indicated.

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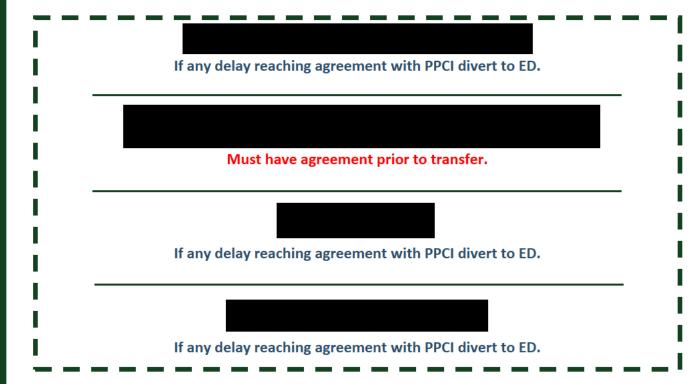
#### **Drug Therapy**

There is little to no evidence for most drug therapies in cardiac arrest. Additional options are:

- In prolonged cases consider withholding or increasing interval of adrenaline
- Lidocaine
- Magnesium
- Calcium
- Sodium bicarbonate in the context of very prolonged arrests

#### Hospital Triage/Diagnosis

- Disposition of patients whether in arrest or post-ROSC is complex. The diagnosis is often unclear, with primary arrythmias, pulmonary embolism and intercranial pathology accounting for a measurable proportion of arrests.
- PPCI may be helpful intra or post arrest and should be considered and discussed with the receiving service. Other acute cardiology interventions (e.g. pacing) are available sporadically throughout the patch.
- If in doubt, consider discussing and taking to an ED with an on-site interventional cardiology service.
- It is reasonable to believe that extracorporeal CPR (ECMO) is a viable future therapy but this does not reliably exist in our region.







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### **Summary of Treatment Options**

| Defibrillation      | Pad Position  | Change to anterior-posterior or lateral pad position  |
|---------------------|---------------|---|
| Benbringtion        |               |   |
|                     |               | Use a second set of pads and consider alternating between   |
|                     |               | standard and alternative pads after each shock  |
|                     | Escalating    | Escalate energy levels for first 3 Shocks Corpuls: 120j/150j/200j   |
|                     | Energy        | Zoll: 120j/150j/200j  |
|                     |               | Lifepak: 200j/300j/360j   |
|                     |               | Further shocks at maximum energy  |
| <b>Drug Therapy</b> | Amiodarone    | Ventricular Arrythmia   |
|                     |               | 300mg after 3 <sup>rd</sup> shock   |
|                     |               | 150mg after 5th shock   |
|                     | Calcium       | Hyperkalaemia, Calcium Channel Blocker OD, Hypocalcaemia<br>10ml 10% Calcium chloride   |
|                     | Magnesium     | Suspected torsades, coarse VF   |
|                     |               | 2g Magnesium Sulphate   |
|                     | Lidocaine     | Defibrillation and amiodarone resistant VF  |
|                     |               | 100mg: 5ml/2% Lidocaine   |
|                     | Sodium        | Prolonged cardiac arrest, Tricyclic/SSRI OD, hyperkalaemia  |
|                     | Bicarbonate   | 50ml of 8.4% Sodium Bicarbonate   |
|                     | Adrenaline    | In prolonged VF consider withholding or increasing interval of  |
|                     |               | adrenaline when you consider appropriate  |
| Fluid               | 0.9% Saline   | Updated ALS guideline is to restrict fluid in cardiac arrest, consider  |
|                     |               | whether additional fluid tailored to specific patients is required. Large volume flush important when using peripheral IV               |
|                     |               | cannula.  |
|                     |               |   |
| Transport           | PPCI          | Consider transport whilst in VF/VT arrest to PPCI centre - either to the ED, or direct to PCI (with agreement). Especially if there is: |
|                     |               | the LD, of direct to FCI (with agreement). Especially if there is:  |
|                     |               | High amplitude VF   |
|                     |               | Signs of brain perfusion  |
|                     |               | <ul> <li>Transport with mechanical CPR ongoing practical</li> </ul>   |
|                     | Extra-        | It is reasonable to believe that E-CPR via VA ECMO is a viable  |
|                     | corporeal CPR | future therapy but this does not yet exist routinely in our region.   |
|                     |               | For hypothermic arrest discuss with RVI, JCUH or Wythenshawe.   |