**Clinical Practice Procedures:**

**Cardiac/Synchronised cardioversion**

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<th>Date</th>
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<td>Purpose</td>
<td>To ensure a consistent procedural approach to Synchronised cardioversion.</td>
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<td>Scope</td>
<td>Applies to all QAS clinical staff.</td>
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**Synchronised cardioversion** is a method of restoring the normal rhythm of the heart in patients presenting with a rapid ventricular rate associated with severely compromised cardiac output (e.g. ALOC, SBP < 90 mmHg, chest pain, heart failure).[1-4]

This is achieved using a purpose modified defibrillator capable of delivering a direct current countershock, synchronised on the R-wave of the ECG.[5]

**Synchronised**

![Synchronised ECG waveform with annotations](image)

**Not synchronised**

![Not synchronised ECG waveform with annotations](image)
**Indications**

Rapid ventricular rate with severely compromised cardiac output, in the following cardiac rhythms:[2]
- Pulsatile ventricular tachycardia
- Supra-ventricular tachycardia
- Atrial fibrillation
- Atrial flutter

**CAUTION:** Cardioversion of SVT including Atrial Fibrillation and Atrial Flutter is rarely required

**Contraindications**

- VF/pulseless VT
- Dysrhythmias where the patient is adequately perfused

**Complications**

- Pain and discomfort
- Paradoxical asystole or VF

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**Procedure – Synchronised cardioversion**

1. Explain the procedure to the patient.
2. Establish IV access with a sodium chloride 0.9% running line.
3. Ensure resuscitative drugs are available.
4. Prepare airway, suction and ventilation equipment.
5. Consider sedation as per CPG: Procedural sedation, ensuring the patient is well oxygenated prior to and following sedation and cardioversion.
6. Position ECG electrodes. (refer to CPP: Cardiac monitoring)
7. Position defibrillation electrodes in the anterior-lateral position (all patient ages).

Anterior-lateral defibrillation pad placement
**Procedure – Synchronised cardioversion**

**corpusl3:** *For comprehensive instruction refer to the corpusl3 operating instructions.*

1. Ensure the defibrillator is in manual mode. If not press the **Manual** key.
2. Observe the ECG rhythm, ensure appropriate location of the sense markers.
3. Select the required energy level with the jog dial or via the soft keys.
4. Press the **Charge** key to charge the defibrillator.
5. Once charged, hold the **key** to deliver the synchronised cardioversion to the patient.
6. Confirm that the synchronised cardioversion has occurred by **SHOCK PERFORMED** being displayed on the screen.
7. Assess patient following cardioversion attempt. If VF or asystole occurs immediately manage as per CPG: Cardiac arrest.
8. Perform a maximum of three attempted synchronised cardioversions.

**LIFEPAK®12:** *For comprehensive instruction refer to the LIFEPAK®12 operating instructions.*

1. Ensure the defibrillator is in manual mode. If not press the **ADVISORY** key.
2. Press **SYNC**. Confirm the **SYNC** led blinks with each detected QRS complex.
3. Select the required energy level with the **ENERGY SELECT** key.
4. Press the **CHARGE** key.
5. Once charged, hold the **SHOCK** key to deliver the synchronised cardioversion to the patient.
6. Confirm that the synchronised cardioversion has occurred by **SHOCK PERFORMED** being displayed on the screen.
7. Assess patient following cardioversion attempt. If VF or asystole occurs immediately manage as per CPG: Cardiac arrest.
8. Perform a maximum of three attempted synchronised cardioversions. Ensure that the synchroniser is turned on by pressing the **SYNC** button before each shock is delivered.
Procedure – Synchronised cardioversion

Propaq®MD: For comprehensive instruction refer to the Propaq®MD operating instructions.

1. Press **Sync**. Observe the ECG rhythm, ensure appropriate location of the sense markers.
2. Select the required energy level with the **Select Energy** key.
3. Press the **Charge** key.
4. Once charged, hold the **Shock** key to deliver the synchronised cardioversion to the patient.
5. Assess patient following cardioversion attempt. If VF or systole occurs immediately manage as per **CPG: Cardiac arrest**.
6. Perform a maximum of three attempted synchronised cardioversions. Ensure that the synchroniser is turned on by pressing the **Sync** button before each shock is delivered.

**Additional information**

- LIFEPAK®12 and corpuls³ joule settings for the synchronised cardioversion of adults:
  - **Shock 1** 100J
  - **Shock 2** 150J
  - **Shock 3** 200J

- Consultation with the **QAS Clinical Consultation and Advice Line** is required in all circumstances of paediatric synchronised cardioversion. The requirement for pre-hospital synchronised cardioversion in the paediatric patient is extremely rare. If deemed necessary a recommended sequence at 0.5 – 1 J/kg increasing to 2 J/kg if required.

- Always consider other possible causes of the tachyarrhythmia such as hypovolaemia.

- Should synchronised cardioversion be unsuccessful, confirm monitoring electrodes and pads are appropriately placed, ensure the synchroniser is on and the R-wave is being sensed, and consider alternative pad placement.