

## PARAMEDIC TIP SHEET #3:

# *Defibrillation & Synchronized Cardioversion*

### Indications for Defibrillation

Defibrillation is indicated for patients with non-perfusing states (cardiac arrest) when the presenting rhythm is:

- ◆ **Ventricular Fibrillation (VF)**
- ◆ **Ventricular Tachycardia (VT without a pulse)**

Occasionally, “fine VF” may masquerade as Asystole. If “fine VF” is suspected in the cardiac arrest patient, defibrillation attempts are indicated. However, caution must be exercised to avoid continued attempts at defibrillating suspected “fine VF” as this may delay appropriate care for true asystole. In these instances, unsuccessful defibrillation of suspected “fine VF” should be viewed as evidence of asystole. With this in mind, attention can then be given to identifying a cause of asystole and treating appropriately rather than continuing unsuccessful attempts at defibrillating suspected “fine VF.”

### Indications for Synchronized Cardioversion

Synchronized cardioversion is indicated for patients with perfusing supraventricular tachydysrhythmias who are also considered “**unstable**” as a *direct result of their tachydysrhythmia*. What does this mean? Patients considered to be “unstable” are those in whom the tachydysrhythmia results in an altered mental status, shortness of breath, severe chest discomfort, evidence of acute MI, pulmonary congestion, hypotension, or shock. Treatment for tachydysrhythmias is based upon the underlying ECG rhythm. Examples include:

- ◆ **Supraventricular Tachycardia (SVT)**
- ◆ **Ventricular Tachycardia**
- ◆ **Atrial Flutter**
- ◆ **Atrial Fibrillation (\*)**

### Defibrillation Methods

*The following is a suggested defibrillation method intended for the new/inexperienced paramedic.*

1. Verify cardiac arrest. Ensure ongoing & effective BLS [CPR and airway management]
2. Ensure the ECG monitor is properly connected.
3. Identify VF or pulseless VT. Ensure all patient and device movement is eliminated.
4. If using Hands-Free defibrillation:
  - Place the defibrillation electrodes with the attached leads on the chest.
  - Anterior-Anterior placement is the most commonly utilized method. It is the only method that is acceptable with most devices using Shock-Advisory algorithms. In this placement, the sternum pad is placed to the right of the sternum just below the right clavicle (not on the clavicle or sternum). The apex pad is placed at the level of the apex of the heart in the area of the anterior axillary and mid-axillary lines below the margin of the left breast.
5. If using paddles:
  - Gel the entire metal surface of both paddles.
  - Place the paddles on the chest wall as described above for anterior-anterior placement.
  - Provide firm, downward pressure (25 pounds of force) onto the chest

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6. Charge the defibrillator or paddles to the desired energy level.
7. **“Verbally and visually clear the patient!”** In simple terms, make absolutely sure that no one is in electrical contact with the patient.
8. Discharge the selected energy. If using paddles, this may require that you press 2 buttons simultaneously.
9. The first 3 shocks delivered to a patient should be administered in a rapid sequence if at all possible.
10. Once the energy is delivered, wait for the rhythm to stabilize on the screen. Then, quickly reassess the ECG rhythm for VF/VT.
11. Continue to the next step in care for the patient based upon the patient’s present status (e.g. still in cardiac arrest or now in a different ECG rhythm).

### **Synchronized Cardioversion Methods**

*The following is a suggested cardioversion method intended for the new/inexperienced paramedic.*

1. Verify the patient meets the criteria for synchronized cardioversion (see above). Continue other therapy including airway management.
2. Ensure the ECG device is properly connected.
3. Identify the ECG rhythm. Minimize patient movement in order to acquire the best quality ECG rhythm.
4. Activate the SYNC mode on the defibrillator device.
5. Place the defibrillation pads or paddles as described for defibrillation.
6. Charge the defibrillator or paddles to the desired energy level.
7. **“Verbally and visually clear the patient!”** In simple terms, make absolutely sure that no one is in electrical contact with the patient.
8. Discharge the selected energy. If using paddles, this may require that you press 2 buttons simultaneously. Hold the discharge button(s) until the shock is delivered. This is slightly delayed in cardioversion.
9. Once the energy is delivered, wait for the rhythm to stabilize on the screen. Then, quickly reassess the ECG rhythm.
10. If cardioversion is needed again, the SYNC button must be activated again as nearly all devices revert to the non-synchronized mode once the shock is delivered.