



Steps for Adult Defibrillation and Cardioversion

Using Manual Defibrillators (Monophasic or Biphasic)

Assess the rhythm. If VF or pulseless VT is present, continue chest compressions without interruptions during all steps until step 8.

Defibrillation (for VF and pulseless VT)

1. Turn on defibrillator. For biphasic defibrillators use manufacturer-specific energy if known. For monophasic defibrillators use 360 J. If unknown select the maximum energy available.
2. Set lead select switch to *paddles* (or lead I, II, or III if monitor leads are used).
3. Prepare adhesive pads (pads are preferred); if using paddles, apply appropriate conductive gel or paste. Be sure cables are attached to defibrillator.
4. Position defibrillation pads on patient's chest: one on the right anterior chest wall and one in the left axillary position. If paddles are used, apply firm pressure (about 15-25 pounds) when ready to deliver shock. If patient has an implanted pacemaker, position the pads so they are not directly over the device. Be sure that oxygen flow is not directed across the patient's chest.
5. Announce "Charging defibrillator!"
6. Press *charge* button on apex paddle or defibrillator controls.
7. When the defibrillator is fully charged, state firmly: "I am going to shock on three." Then count. "All clear!" (Chest compressions should continue until this announcement.)
8. After confirming all personnel are clear of the patient, press the *shock* button on the defibrillator or press the 2 paddle *discharge* buttons simultaneously.
9. Immediately after the shock is delivered, resume CPR beginning with compressions for 5 cycles (about 2 minutes), and then recheck rhythm. Interruption of CPR should be brief.

Cardioversion (for tachycardia with a pulse)

Assess the rhythm. If patient has a pulse but is unstable, proceed with cardioversion.

- 1-4. Follow steps for defibrillation above (except for energy dose).
5. Consider sedation.
6. Engage the **synchronization** mode by pressing the *sync control* button.
7. Look for markers on R waves indicating *sync* mode is operative. If necessary, adjust monitor gain until sync markers occur with each R wave.
8. Select appropriate energy level (see Electrical Cardioversion Algorithm on left).
9. Announce "Charging defibrillator!"
10. Press *charge* button on apex paddle or defibrillator controls.
11. When the defibrillator is fully charged, state firmly: "I am going to shock on three." Then count. "All clear!"
12. After confirming all personnel are clear of the patient, press the *discharge* buttons simultaneously on paddles or the *shock* button on the unit; hold paddles in place until shock is delivered.
13. Check the monitor. If tachycardia persists, increase the energy and prepare to cardiovert again.
14. Reset the **sync** mode after each synchronized cardioversion because most defibrillators default back to unsynchronized mode. This default allows an immediate shock if the cardioversion produces VF.

Notes:

*Effective regimens have included a sedative (eg, diazepam, midazolam, etomidate, methohexital, propofol) with or without an analgesic agent (eg, fentanyl, morphine). Many experts recommend anesthesia if service is readily available.

†Note possible need to resynchronize after each cardioversion.

‡If delays in synchronization occur and clinical condition is critical, go immediately to unsynchronized shocks.

§These doses are for biphasic waveforms. For monophasic waveforms, initial dose is 200 J for atrial fibrillation.

||Recommended biphasic and monophasic doses are equivalent.