Defibrillation

Part 1—Defibrillation and Safety

Manual Defibrillation

Using a Manual Defibrillator/ Monitor

When using a manual defibrillator/monitor, perform a rhythm check as indicated by the Pulseless Arrest Algorithm. This can be performed by attaching the adhesive defibrillator electrode pads or placing the defibrillator paddles on the chest (with appropriate conduction surface or gel) and using the paddle "quick look" feature.

Because adhesive monitor/defibrillator electrode pads are as effective as gel pads or paste and paddles, and the pads can be placed before cardiac arrest to allow for monitoring and rapid administration of a shock when necessary, adhesive pads should be used routinely instead of standard paddles. Whether using the adhesive electrode pads or paddles, the ACLS provider should be very careful not to delay the shock and during CPR to minimize the time between last compression and shock delivery. Delays in delivery of the first shock have been shown to last approximately 20 to 30 seconds, which is no longer acceptable. If CPR is in progress, chest compressions should continue until the defibrillator electrode adhesive pads are attached to the chest and the manual defibrillator is ready to analyze the rhythm.

When you identify VF/pulseless VT, *immediately* deliver 1 shock. Use the following energy levels:

- Manual biphasic: device-specific (typically a selected energy of 120 J with a rectilinear biphasic waveform and a selected energy of 150 J to 200 J with a biphasic truncated exponential waveform); if you do not know the device-specific dose shown to be effective for elimination of VF, use 200 J
- Monophasic: 360 J

After delivering the shock, immediately resume CPR, pushing hard and fast (compression rate 100 per minute). Allow full chest recoil after each compression, and minimize interruptions in compressions.

Attaching the 3 Monitor Leads

Most monitors use three leads: white, red, and black.

"WHITE to RIGHT"
"RED to RIBS"
"The LEAD LEFT OVER goes to LEFT SHOULDER"

The following table explains these directions in more detail.

Attach…	Where…
WHITE lead to RIGHT	Right side of the chest, just beneath the right clavicle
RED lead to RIBS	Left midaxillary line, below the expected point of maximum impulse of the heart
The LEAD [that is] LEFT OVER goes to LEFT SHOULDER	Left side of the torso, just beneath the distal end of the left clavicle

Safety and Clearing the Patient

Clearing You and Your Team

To ensure the safety of defibrillation, whether manual or automated, the defibrillator operator must always announce that a shock is about to be delivered and perform a visual check to make sure no one is in contact with the patient. The operator is responsible for "clearing" the patient and rescuers before each shock is delivered. Whenever you use a defibrillator, firmly state a "defibrillation clearing or warning" before each shock. The purpose of this warning is to ensure that no one has any contact with the patient and that no oxygen is flowing across the patient's chest or openly flowing across the electrode pads. You should state the warning quickly to minimize the time from last compression to shock delivery. For example:

- *"I am going to shock on three. One, I am clear."* (Check to make sure you have no contact with the patient, the stretcher, or other equipment.)
- *"Two, you are clear."* (Check to make sure no one is touching the patient. "No one" includes providers performing chest compressions, starting IVs, inserting catheters, or performing ventilation and airway maintenance.)

  Make sure all personnel step away from the patient, remove their hands from the patient, and end contact with any device or object touching the patient. Any personnel in indirect contact with the patient, such as the team member holding a ventilation bag attached to an endotracheal tube, must also end contact with the patient. The person responsible for airway support and ventilation should ensure that oxygen is not openly flowing around the electrode pads (or paddles) or across the patient's chest.

- *"Three, everybody is clear."* (Perform a visual check to make sure no one has contact with the patient or stretcher.)

You do not need to use these exact words. But it is imperative that you warn others that you are about to deliver a shock and that everyone stand clear.

A Final Note About Defibrillators

Most modern AEDs and manual defibrillators use biphasic waveforms. Take the time to learn to operate the defibrillator used in your workplace and its energy settings. Remember, *early* defibrillation increases the patient's chance of survival. This principle holds true regardless of the type of defibrillator or waveform.

Part 2—AED Checklist

AED Readiness-for-Use Checklist
Daily/Weekly Checklist
Date __________ Covering Period ______________ to ______________

Organization Name/Identifier ____
Manufacturer/Model No. _________________________
Serial/ID No. _________________

At the beginning of each shift or at the scheduled time, inspect the device using this checklist. Note any inconsistencies, problems, and corrective actions taken. If the device is not ready for use or is out of service, write OOS on the "day of month" line and note problems in the corrective action log.

	Corrective Action Log	***Day of Month/Signature/Unit No.***
1. Defibrillator unit		
a. Clean, no spills, unobstructed	_________________	1. ___________________________
b. Casing intact	_________________	2. ___________________________
2. Defibrillation cables and connectors	_________________	3. ___________________________
a. Inspect for cracks, broken wires, or damage	_________________	4. ___________________________
b. Connectors engage securely	_________________	5. ___________________________
3. Supplies available	_________________	6. ___________________________
a. Two sets of unexpired hands-free defibrillator	_________________	7. ___________________________
pads in sealed packages	_________________	8. ___________________________
b. Personal protection equipment—gloves, barrier	_________________	9. ___________________________
device (or equivalent)	_________________	10. ___________________________
c. Razor and scissors	_________________	11. ___________________________
d. Hand towel	_________________	12. ___________________________
e. Spare event documentation device*	_________________	13. ___________________________
f. ECG paper*	_________________	14. ___________________________
g. ECG monitoring electrodes*	_________________	15. ___________________________
h. ALS module/key (or equivalent)*	_________________	16. ___________________________
4. Power supply	_________________	17. ___________________________
a. Verify fully charged battery(ies) in place	_________________	18. ___________________________
b. Spare charged battery available*	_________________	19. ___________________________
c. Rotate batteries per manufacturer's	_________________	20. ___________________________
specifications*	_________________	21. ___________________________
d. AC power plugged into live outlet*	_________________	22. ___________________________
5. Indicators and screen display	_________________	23. ___________________________
a. POWER ON display and self-test OK*	_________________	24. ___________________________
b. ECG monitor display functional*	_________________	25. ___________________________
c. No error or service required indicator/message*	_________________	26. ___________________________
d. Correct time displayed/set; synchronized with	_________________	27. ___________________________
dispatch center	_________________	28. ___________________________
6. ECG paper and event documentation device	_________________	29. ___________________________
a. Event documentation device in place and	_________________	30. ___________________________
functional*	_________________	31. ___________________________
b. Adequate ECG paper*	_________________	
c. ECG recorder functional*		***Example entry:*** *5. John Jones (signature)/Aid 2 checked Aid 2's device on the 5th day of this month and found it ready for use.*
7. Charge/display cycle for defibrillation		
a. Test per manufacturer's recommended test procedure		
b. Identifies shockable rhythm*		
c. Charges to appropriate energy level*		
d. Acceptable discharge detected*		
8. AED returned to patient-ready status		
**Applicable only if the device has this capability or feature or if required by medical authority.*		