	Policies and Procedures Title: DEFIBRILLATION I.D. Number: 1167
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Definition: Defibrillation is the delivery of an electric shock to the heart to terminate ventricular fibrillation and pulseless ventricular tachycardia

1. PURPOSE

- 1.1 To provide safe and timely defibrillation of ventricular fibrillation and pulseless ventricular tachycardia.

2. POLICY

The Registered Nurse / Health care provider will:

- 2.1 For manual defibrillation have completed the Transfer of Function in Defibrillation and be certified in ECG Rhythm Interpretation.
- 2.2 Health Care professional using the Automatic External Defibrillator (AED) must have current Heart and Stroke Basic Life Support Health Care Provider (C).
- 2.3 Perform defibrillation in the event of a cardiac arrest with a shockable rhythm. [ventricular fibrillation (VF), pulseless ventricular tachycardia (VT)].
- 2.4 In the presence of VF or pulseless VT select energy levels as per current Advanced Cardiac Life Support guidelines (ACLS) / Pediatric Advanced Life Support (PALS) guidelines.
 - 2.4.1 Adult patients: 200 joules (biphasic defibrillator) for first shock with subsequent shocks at the equivalent or higher energy level.
 - 2.4.2 Pediatric patients, first shock 2 joules/kg , second shock 4 joules/kg with subsequent shocks at ≥4 joules / kg to a maximum of 10 joules / kg or adult dose.

3. PROCEDURE

Note: Ensure cardiac compressions are ongoing while the defibrillator is being readied and the absence of a pulse is verified.

3.1 Manual Defibrillation:

- 3.1.1 Turn on the defibrillator. Apply the hands free electrodes. (See Appendix A).
- 3.1.2 Identify ventricular fibrillation or pulseless ventricular tachycardia and confirm the absence of a pulse.
- 3.1.3 Select the appropriate energy level. (200 joules for adults or 2 joules/kg for pediatrics).
- 3.1.4 Confirm by a visual check that the rhythm is still VF or VT.
- 3.1.5 If using hand held paddles position paddles on chest (see Appendix A)
- 3.1.6 Charge defibrillator to the selected energy level.
- 3.1.7 Ensure that everyone is clear. This includes giving a verbal warning and doing a visual check of the scene

Note: It is the responsibility of the defibrillator operator to ensure the safety of all personnel prior to delivering the shock.

- 3.1.8 Push and hold the discharge current button until the shock is delivered.

Note:

- Premature release of buttons may result in failure of the machine to discharge the current.
- Premature removal of hand held paddles from the chest or light contact with the chest wall may result in arcing of the electrical current.

- 3.1.9 Immediately resume CPR for 5 cycles (approximately 2 minutes) and then recheck rhythm. Subsequent shocks are delivered as per ACLS/PALS guidelines.
- 3.1.10 For safety, a charged defibrillator should be immediately cleared of current if not required. Always replace hand held paddles into their respective holders on the machine when not in use.

3.2 AED Use for defibrillation

- 3.2.1 Turn on the AED / Defibrillator
- 3.2.2 Apply the hands free electrodes in the anterior –lateral position while CPR is ongoing. (See Appendix A)
- 3.2.3 Press the ANALYZE button. Stop CPR. Do not touch the patient. The ANALYZING NOW prompt is given.
- 3.2.4 If a shock is indicated SHOCK ADVISED message is given. An audible tone indicates that the AED is charging

- 3.2.5 When charging is complete (less than 2-3 seconds) the STAND CLEAR, PUSH TO SHOCK message is given. The shock LED buttons flashes
- 3.2.6 Ensure that everyone is clear. This includes a verbal warning and doing a visual check of the scene.
- 3.2.7 When everyone is clear, push and hold the discharge current button until the current is delivered. The ENERGY DELIVERED message will be given.

Note: It is the responsibility of the defibrillator operator to ensure the safety of all personnel prior to delivering the shock

- 3.2.8 Immediately resume CPR. A count down timer continues for 2 minutes at which time the machine will prompt to re-analyze the rhythm.
- 3.2.9 If at any time following pushing the ANALYZE button the AED detects a non-shockable rhythm, immediately resume CPR.

3.3 Post Defibrillation Care

- 3.3.1 Assess patient's hemodynamic status
- 3.3.2 Assess neurological status
- 3.3.3 Monitor cardiac rhythm for detection of recurrent life threatening rhythms.

4. REFERENCES

Heart and Stroke foundation of Canada. 2010 Handbook of Emergency Cardiovascular Care for Healthcare Providers

Lifepak 20e Defibrillator/Monitor Operating Instructions. Medtronic Physio-Control Corp. 2006-2008

Link MS, et al. (2010). Part 6: electrical therapies: automated external defibrillators, defibrillation, cardioversion, and pacing: 2010 American Heart Association Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. *Circulation*. 122(suppl 3):S706 –S719.

Pediatric Advanced Life Support (PALS). Provider Manual (2010). American Heart Association.

Weigand, D. L., (ed.) (2011) Cardioversion in AACN Procedure Manual for Critical Care. (6th ed). St. Louis: Elsevier Saunders. pp. 319-328

Appendix A

USE OF HANDS FREE ELECTRODES & HAND HELD PADDLES

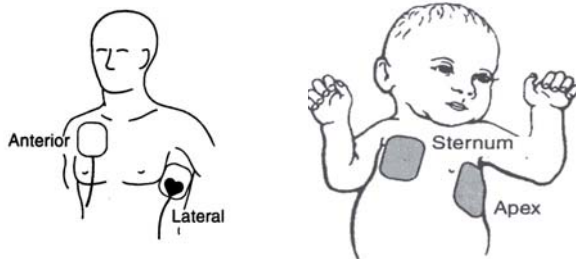
Note:

- Special Pediatric Hands Free Electrodes should be used for children (see manufacture's recommendation for maximum weight for their use).
- Electrodes/paddles should not be positioned over implanted devices or medication transdermal patches.
- The skin must be dry. If the electrode site is hairy, clip the hair prior to electrode placement. Remove any metal jewelry from the chest or neck area.

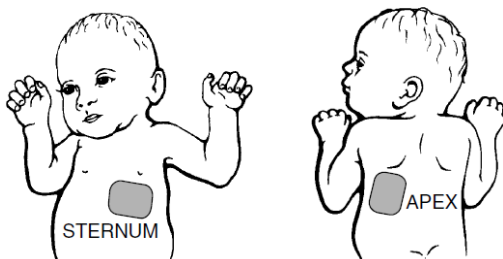
Hands Free Electrodes Recommended Method

Anterior/lateral position

- Position the anterior electrode on the upper right chest wall, lateral to the sternum and below the right clavicle
- Position the heart (+ve) electrode on the left chest wall, lateral to the left nipple in the mid-axillary line, with the center of the electrode in the mid-axillary line if possible.



Anterior Lateral



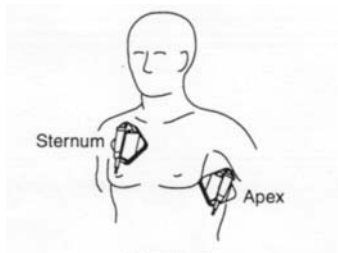
Anterior Posterior for Child

Hand Held Paddles

Conductive gel pads must be used with hand held paddles. For Pediatrics hand held paddles attachments may be required.

Anterior/lateral position

- Place the sternal paddle on the right upper chest wall, to the right of the sternum just below the right clavicle.
- Place the apex paddles on the left chest wall to the left of the nipple in the mid-axillary line



Hand held paddle placement