



Standard Practice for Performance of Prehospital Manual Defibrillation¹

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1. Scope

1.1 This practice covers guidelines for prehospital providers performing manual defibrillation.

1.2 This practice is one in a set of performance guidelines for prehospital defibrillation.

1.3 This practice is specifically not meant to deal with equipment specifications, quality assurance, or training.

1.4 This practice is limited to external defibrillators used in the prehospital setting.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

2. Referenced Documents

2.1 ASTM Standards:

F 1031 Practice for Training the Emergency Medical Technician (Basic)²

F 1149 Practice for Qualifications, Responsibilities, and Authority of Individuals and Institutions Providing Medical Direction of Emergency Medical Services²

F 1177 Terminology Relating to Emergency Medical Services²

2.2 American Heart Association Document:

National Standards and Guidelines for Cardiopulmonary Resuscitation (CPR) and Emergency Cardiac Care (ECC), American Heart Association (Current Edition)³

3. Terminology

3.1 Definitions of Terms Specific to This Standard:

3.1.1 *basic life support/cardiopulmonary resuscitation (BLS/CPR)*—a set of skills that includes airway management, chest compressions, and others defined by the American Heart Association.

3.1.2 *defibrillation*—the discharge of an electrical current through the heart for the purpose of restoring a perfusing cardiac rhythm. For the purpose of this document, defibrillation may include cardioversion.

3.1.3 *manual defibrillator*—a monitor/defibrillator that has no capability for rhythm analysis and will charge and deliver a shock only at the command of the operator.

3.1.4 *operator*—as outlined in this practice, an Emergency Medical Technician (Practice F 1031) who has successfully completed a course of training and may treat prehospital cardiac arrest with a manual defibrillator. Legal functioning as an operator will be based upon licensure/certification requirements as established by the authority or authorities having jurisdiction.

3.1.5 *protocols*—see Terminology F 1177.

3.1.6 *service medical director*—the physician who is medicolegally responsible for the patient care provided by the operator (Practice F 1149).

3.1.7 *standing orders*—see Terminology F 1177.

4. Significance and Use

4.1 This practice establishes minimum guidelines for prehospital manual defibrillation.

4.2 Any person who is identified as prehospital manual defibrillation operator shall be an Emergency Medical Technician, as defined by the authority or authorities having jurisdiction, and shall meet the requirements of this practice.

4.3 Using this practice, emergency medical service institutions, organizations, and certification/licensing agencies should be able to develop standards for the certification/licensing and practice of the prehospital manual defibrillation operator.

5. Standards for Prehospital Manual Defibrillation

5.1 The operator shall be familiar with all operations of the defibrillator.

5.2 The operator shall be capable of performing prehospital defibrillation in accordance with standing orders or protocols, or both, developed or approved, or both, by the service medical director or other medical authority or authorities, or both, having jurisdiction.

5.3 The operator shall be capable of recognizing a patient who is unresponsive, apneic and pulseless.

¹ This practice is under the jurisdiction of ASTM Committee F30 on Emergency Medical Services and is the direct responsibility of Subcommittee F30.02 on Personnel, Training, and Education.

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² *Annual Book of ASTM Standards*, Vol 13.02.

³ Available from the American Heart Association, 7320 Greenville Ave., Dallas, TX 75231.

5.4 The operator shall be capable of applying and activating the defibrillator according to manufacturer's recommendations and standing orders/protocols.

5.5 The operator shall be capable of assessing certain cardiac rhythms, including at least ventricular fibrillation, ventricular tachycardia, and asystole.

5.6 If the operator determines from 5.4 that the cardiac rhythm appears to be ventricular fibrillation, ventricular tachycardia, or asystole, then the operator must be capable of reassessing the rhythm by checking the cables, leads, battery, and switches for potential operational malfunctions.

5.7 The operator shall ensure that no one is in contact with the patient or the defibrillator, and that no one present in the vicinity of the patient is exposed to any danger of accidental shock during charging and defibrillation.

5.8 The operator shall be capable of accomplishing the tasks listed in 5.3-5.7 within 90 s following patient contact.

5.9 The operator shall be capable of recognizing that defibrillation energy was delivered.

5.10 The operator shall be capable of assessing the rhythm resulting from the defibrillation, and will be able to respond according to standing orders/protocol.

5.11 The operator shall be capable of determining whether an organized rhythm is perfusing and whether BLS/CPR is indicated.

5.12 The operator shall be capable of performing BLS/CPR as indicated.

5.13 The operator shall be capable of recognizing and responding, in accordance with the standing orders/protocols, to patients who return to or remain in an unresponsive, apneic, and pulseless condition.

5.14 The operator shall be capable of preparing the defibrillator for the next use.

5.15 The operator or the service, or both, utilizing the manual defibrillator shall be capable of providing, at a minimum, the following information for quality assurance purposes:

5.15.1 Patient data, including age; sex; whether arrest was witnessed or unwitnessed; and initial cardiac rhythm.

5.15.2 EMS system data, including time of:

5.15.2.1 Collapse/arrest,

5.15.2.2 Call for help,

5.15.2.3 Dispatch (include advanced life support, where available),

5.15.2.4 Initiation of BLS/CPR,

5.15.2.5 Arrival of the defibrillator at patient's side,

5.15.2.6 Initial defibrillation,

5.15.2.7 Departure to hospital, and

5.15.2.8 Arrival at hospital.

5.15.3 EMS system data in those systems that include these elements, including time of:

5.15.3.1 Activation of on-line medical control, and

5.15.3.2 Arrival of advanced life support.

5.15.4 Treatment, including documentation of treatment for each rhythm encountered.

5.15.5 Cardiac arrest patient outcome, including the rhythm after each defibrillation attempt; return of pulse or spontaneous respiration, or both; and level of consciousness. Also, the discharge disposition of the patient from the emergency department and the hospital.

5.16 The operator or the service, or both, using the defibrillator shall ensure that it is maintained in accordance with manufacturer's recommendations.

5.17 The operator shall be capable of recognizing any of the possible failure modes of the device and shall document any such failures to the service medical director.

6. Operator Proficiency Requirements

6.1 The operator shall demonstrate continued proficiency in rhythm recognition and manual defibrillation in accordance with standing orders/protocol.

6.2 Proficiency shall include performance skills demonstrating the ability to use the manual defibrillator correctly in a simulated environment.

6.3 There shall be documented evidence of initial and continuing education sufficient to establish and maintain proficiency in use of the manual defibrillator as approved by the service medical director.

7. Keywords

7.1 defibrillation; emergency medical services; manual defibrillation; prehospital manual defibrillation; prehospital defibrillation

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