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Standard Practice for Performance of Prehospital Automated Defibrillation[1]

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1. Scope

1.1 This practice covers guidelines for the performance of automated 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:*[2]

F1149 Practice for Qualifications, Responsibilities, and Authority of Individuals and Institutions Providing Medical Direction of Emergency Medical Services

F1177 Terminology Relating to Emergency Medical Services

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 *automated defibrillator*—an automatic or semi-automatic device, or both, capable of rhythm analysis and defibrillation after electronically detecting the presence of ventricular fibrillation and ventricular tachycardia.

3.1.2 *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.

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

3.1.4 *operator*—as outlined in this practice, a person who has successfully completed a course of training and may treat prehospital cardiac arrest with an automatic or semi-automatic defibrillator. Legal functioning as an operator will be based upon licensure or certification requirements, or both, as established by the authority or authorities having jurisdiction.

3.1.5 *protocols*—See Terminology F1177.

3.1.6 *service medical director*—the physician who is medico-legally responsible for the patient care provided by the operator (Practice F1149).

3.1.7 *standing orders*—See Terminology F1177.

4. Significance and Use

4.1 This practice establishes minimum guidelines for prehospital automated defibrillation.

4.2 This practice does not preclude the use of automated defibrillators as prescribed by a licensed physician.

4.3 All persons who are identified as prehospital automated defibrillation operators shall meet the requirements of this practice.

4.4 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 automated defibrillation operator.

5. Guidelines for Prehospital Automated Defibrillation

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

5.2 The operator shall be capable of performing prehospital defibrillation in accordance with standing orders, protocols

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[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] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] Available from American Heart Association (AHA), 7272 Greenville Ave., Dallas, TX 75231, http://www.americanheart.org.

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developed, approval by the service medical director or other medical authority or authorities having jurisdiction, or a combination thereof.

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

5.4 The operator shall be capable of preparing the automated defibrillator for operational use.

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

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

5.7 The operator shall be capable of accomplishing the tasks listed in 5.3-5.5 and 5.6 within 90 s following patient contact.

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

5.9 The operator shall be capable of recognizing the success or lack of success of defibrillation and treat the patient accordingly.

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

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

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

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

5.13.1 *Patient data,* including age; sex; whether the arrest was witnessed or unwitnessed; pulselessness; and initial cardiac rhythm as identified by the automated defibrillator.

5.13.2 *EMS system data,* including time of:

5.13.2.1 Collapse/arrest,

5.13.2.2 Call for help,

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

5.13.2.4 Initiation of BLS/CPR,

5.13.2.5 Arrival of automated defibrillator at patient's side,

5.13.2.6 Initial defibrillation,

5.13.2.7 Departure to hospital, and

5.13.2.8 Arrival at hospital.

5.13.3 *EMS System Data,* in those systems that include these elements, including time of:

5.13.3.1 Activation of on-line medical control, and

5.13.3.2 Arrival of advanced life support.

5.13.4 *Treatment,* including documentation of treatment for each rhythm encountered.

5.13.5 *Cardiac arrest patient outcome,* including the rhythm after each defibrillation attempt; the return of pulse or spontaneous respiration, or both; and the level of consciousness.

5.14 The operator or the service, or both, utilizing the automated defibrillator shall ensure it is maintained in accordance with manufacturer's recommendations.

5.15 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 automated defibrillation in accordance with standing orders/protocol.

6.2 Proficiency shall include performance skills demonstrating the ability to use the automated 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 automated defibrillator as approved by the service medical director.

7. Keywords

7.1 automated defibrillation; defibrillation; emergency medical services; prehospital automated defibrillation; prehospital defibrillation

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