



Subject: Automated External Defibrillator Program

Responsible Office: Safety and Mission Assurance Office

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PREFACE

P.1 PURPOSE

- a. The purpose of the Automated External Defibrillator (AED) Program is to provide timely response to victims of sudden cardiac arrest caused by ventricular fibrillation. Coronary heart disease is the leading cause of death in the United States.
- b. The American Heart Association (AHA) estimates that 250,000 Americans die each year from sudden cardiac death as a result of coronary artery disease. Sudden cardiac death due to ventricular fibrillation is a treatable condition and potentially survivable, when defibrillation is applied within the first minutes.
- c. The quick response of emergency medical services (EMS) personnel in a community can have a significant impact on survival rates from cardiac arrest.
- d. The use of an AED and properly performed cardiopulmonary resuscitation (CPR), early recognition, and application by trained lay rescuers can improve the outcome from cardiac arrest.

P.2 APPLICABILITY

- a. This LPR is applicable to all NASA Langley Research Center (LaRC) Organizations and all Federal civil service personnel on center.
- b. This LPR is applicable to contractors, grant recipients, or parties to agreements only to the extent specified or referenced in the appropriate contracts, agreements, or grants.
- c. In this directive, all mandatory actions (i.e., requirements) are denoted by statements containing the term “shall.” The terms: “may” or “can” denote discretionary privilege or permission, “should” denotes a good practice and is recommended, but not required, “will” denotes expected outcome, and “are/is” denotes descriptive material.
- d. In this directive, all document citations are assumed to be the latest version unless otherwise noted.

P.3 AUTHORITY

Public Health Improvement Act, Title IV – Cardiac Arrest Survival, Pub. L. No. 106-505, November 13, 2000.

P.4 APPLICABLE DOCUMENTS AND FORMS

- a. 74 Federal Register 41133 (August 14, 2009). General Services Administration Guidelines for Public Access Defibrillation Programs in Federal Facilities
- b. NPD 1800.2, NASA Occupational Health Program

- c. NPR 1800.1, NASA Occupational Health Program Procedure
- d. LAPD 1150.2, Councils, Boards, Panels, Committees, Teams and Groups.
- e. LAPD 1440.7, Langley Research Center (LaRC) Records Management
- f. LF 483, Monthly Automated External Defibrillator (AED) Safety Maintenance Inspection Record (for Med Tronic and Philips AEDs)

P.5 MEASUREMENT/VERIFICATION

None

P.6 CANCELLATION

Cancels LPR 1845.1 B, Automated External Defibrillator Program, dated October 25, 2011.

Clayton P. Turner 11/14/2016
Deputy Center Director Date

DISTRIBUTION

Approved for public release via the Langley Management System; distribution is unlimited.

CHAPTER 1 – INTRODUCTION

This document outlines the requirements for all persons participating in the Langley Research Center (LaRC) Automated External Defibrillator (AED) program. All fully trained and certified AED responders are to be authorized and approved by the Medical Director to operate AEDs. The program does not replace LaRC Emergency Medical Services.

CHAPTER 2 – RESPONSIBILITIES

2.1 AED Responders

2.1.1 AED Responders are lay persons who have received training and passed testing requirements of the AHA and are qualified to perform CPR and use an AED. AED responders shall:

- a. Receive AED/CPR Responder training and pass testing requirements of the AHA to qualify to perform CPR and use an AED.
- b. Participate in a minimum of one of the quarterly practice sessions scheduled throughout the year by the AED Coordinator (AED-C) and approved by the AED Medical Director (AED-MD).
- c. Notify the AED-C of current training status and facility location.
- d. Notify the AED-C of any equipment problems.

2.1.2 A list of approved AED responders shall be maintained by the AED-C and posted at each AED location.

2.2 AED Medical Director

2.2.1 The AED-MD is the physician responsible for management and implementation of the AED Program. The AED-MD shall:

- a. Assist in choosing the appropriate AED for use at the Center. The Food and Drug Administration (FDA) currently requires a physician's prescription to buy an AED.
- b. Maintain guidelines for care protocols and processes for operations of the program.
- c. Ensure quality assurance, compliance with protocols and proper training.
- d. Provide positive reinforcement to trained AED responders, as well as corrective instruction.
- e. Ensure critical incident de-briefing for AED responders.
- f. Support integration of the Center's AED program into the community Emergency Medical Services (EMS).

- g. Report equipment malfunction and incidents to the Center Occupational Health Officer (COHO) for referral to the LaRC Safety and Mission Assurance Office, NASA's Office of Safety and Mission Assurance, Agency Occupational Health Program (OHP) and the FDA Medical Devices Reporting department.

2.3 AED Coordinator

2.3.1 The AED-C is an individual identified by the AED-MD to oversee the AED Program at LaRC and is responsible for coordinating activities and functioning as the primary liaison between the AED-MD and the program. The AED-C shall:

- a. Maintain equipment according to manufacturer's directions.
- b. Maintain and inventory of supplies.
- c. Maintain and publicize through various mediums (web, facility and safety heads, supervisors, etc.) a list of trained responders throughout the Center.
- d. Maintain current training records in accordance with LAPD1440.7.
- e. Ensure that appropriate written documentation and post incident debriefing sessions for any employees involved are completed.

2.4 Basic Life Support (BLS) Instructor

2.4.1 BLS instructors are persons certified as an AED and CPR instructor by the AHA. BLS instructors shall:

- a. Teach a minimum of four classes in a two-year period.
- b. Attend quarterly instructor meetings with the AED-C.
- c. Assist the AED-C in performing and evaluating practice sessions.

2.5 Employee Assistance Program (EAP)

2.5.1 The EAP shall offer stress debriefing for the AED responder following an incident.

2.6 Emergency Medical Services

2.6.1 EMS is a team of on-site emergency medical technicians (EMTs) with Advanced Cardiac Life Support (ACLS) training who shall assume responsibility for transporting patients to the nearest emergency room.

2.7 AED Control Committee

2.7.1 The AED Control Committee is a group of NASA civil service and contractor employees who will assist the AED-MD with all aspects of the AED Program. The AED Control Committee shall:

- a. Meet at least biannually, after an event involving use of an AED, and upon the request of the AED-MD.
- b. Determine appropriate placement of AED units throughout the Center.
- c. With the concurrence of the AED-MD, make changes to the requirements of the AED program based on lessons learned or changes in NPD 1800.2C or NPR 1800.1C.

2.7.2 The AED Control Committee shall consist of the following members:

- a. AED-MD
- b. AED-C
- c. Head, Safety and Facility Assurance Branch/Safety Official
- d. Occupational Health Officer
- e. Union Representative

2.8 LaRC Supervisors

2.8.1 It is highly recommended that LaRC Supervisors incorporate AED awareness briefings annually as part of their monthly safety and/or staff meetings. Awareness should include AED locations, identification of AED responders, emergency numbers, and review of AED protocol. Assistance can be obtained from the AED-C.

CHAPTER 3 – TRAINING AND SKILLS COMPETENCY REQUIREMENTS

3.1 General training for LaRC AED Responders

- a. AED responders shall complete the AHA Heartsaver AED and CPR course every two years.
- b. All AED training equipment shall be specific to the AED equipment used on the Center.
- c. Quarterly practice sessions with the AED will be offered in accordance with AHA guidelines.

3.2 Initial Training for AED Responders

Initial training shall be in accordance with the AHA standards and include the following:

- (1) Early activation of the EMS through calling 911 from a LaRC landline or 757-864-2222 from a cell phone.
- (2) How to perform rescue breathing using mouth-to-mouth and mouth-to-mask techniques.
- (3) How to perform one-rescuer CPR on an adult victim.

- (4) How to relieve adult foreign body airway obstructions in a conscious and unconscious victim.
- (5) How to provide defibrillation with an AED in less than 90 seconds from placement at the training mannequin's side.
- (6) Recognizing the signs and symptoms of four major emergencies: heart attack, cardiac arrest, stroke and foreign body airway obstruction.
- (7) Awareness of the links in the AHA chain of survival: Recognition of Cardiac Arrest and Activation of EMS, Early CPR, Rapid Defibrillation, Effective Advanced Life Support, and Integrated Post-Cardiac Arrest Care.
- (8) Completion of a skills evaluation for CPR techniques and use of the AED.

3.3 AED Responder Re-Training

3.3.1 Re-training is required every two years.

3.3.2 Each AED Responder shall attend training sessions to maintain skills.

3.3.3 The AED-C shall be responsible for scheduling training and recording participation.

3.3.4 Re- training shall consist of the following:

- a. Demonstration of AED use during a simulated case of ventricular fibrillation.
- b. Demonstration of adult CPR techniques.
- c. Knowledge of AED inspection procedures using LF 483, Monthly AED Safety/Maintenance Inspection Record.
- d. Satisfactory completion of a skills evaluation.

3.3.5 Any AED Responder who fails to attend and successfully demonstrate the above requirements shall no longer be certified as trained to use the AED until the above requirements are met.

3.3.6 Remedial training and evaluation results shall be reviewed by the AED-C and AED-MD.

3.3 Responders Certified Outside of LaRC

- a. Any employee who has not been certified to use an AED by the AED-MD and who has completed requisite training shall be certified by providing the following:
 - (1) Provide proof of successful completion of an AHA certified program.
 - (2) Possesses a current certification (within past 2 years).
 - (3) Satisfactorily perform the skills demonstration requirements stated within this section.

CHAPTER 4 – RESPONSIBILITIES FOLLOWING USE OF AN AED

4.1 When electrodes are applied to a patient and the AED is turned on, it shall constitute “use of the AED.” After any use of the AED, the Safety and Facility Assurance Branch shall ensure the AED is turned in to the LaRC Occupational Health Clinic (clinic) for transfer of data. If the clinic is closed, the AED shall be brought to the clinic on the next business day.

4.2 A hard copy of the data captured from the AED by either the AED-C or AED-MD shall be submitted to the AED Control Committee.

4.3 The AED responder shall notify the AED-MD and the AED-C immediately following use of the AED by calling 757-864-3192, and shall provide written documentation (i.e. recording of date and time, notifications, crowd control, escorting of EMS) as soon as possible on the day of the incident, but no later than the beginning of the next business day, to the AED-C who will determine if a critical incident debriefing is required.

4.4 Employee Assistance Program counselors shall be available to responders in the event of a critical incident. Responders shall respect the privacy of others and enforce confidentiality of the incident while advising only those on a need to know basis.

CHAPTER 5 – AED CASE REVIEW

5.1 The AED-C shall take the following actions after each emergency incident involving use of the AED:

- a. Verbally notify members of the AED Control Committee of the incident and follow up with written documentation prior to the end of the business day of the incident, but no later than the beginning of the next business day. Such information should include the case outcome.
- b. Conduct employee incident debriefing in accordance with Chapter 6.
- c. Complete an incident follow-up report as deemed necessary by the AED-MD.
- d. Restock any reusable items e.g. electrode pads, batteries, gloves, etc. Inspect unused supplies for any damage or expiration dates.
- e. Inspect the AED for dirt and contamination and clean it as needed by following the procedures listed in the User’s Guide.

CHAPTER 6 – INTERVIEW WITH AED RESPONDER(S)

6.1 After the use of an AED or performing CPR, the AED-C shall contact the Employee Assistance Program office to schedule a stress debriefing for the responder(s). It is essential to allow AED responders the opportunity to talk through the event with program professionals and counselors after a crisis.. In addition, the NASA mishap investigation team may be used if the incident was caused by an accident.

6.2 The AED-C or the AED-MD shall review in person with the primary AED responder detailed information about the incident as soon as possible.

CHAPTER 7 – AED INCIDENT REVIEW

7.1 Any AED program deficiencies identified by the AED-C shall be promptly brought to the attention of the AED-MD for analysis and resolution.

7.2 Defects and deficiencies noted in the AED unit shall be followed by:

- a. Completing an incident report and forwarding it to the AED-MD.
- b. Placing the defective AED out of service until it is inspected and repaired by an authorized service representative.
- c. Completing the Safety/Maintenance Inspection Record addressing the problem.
- d. Presenting the incident report and inspection record to the AED Control Committee.

CHAPTER 8 – MAINTENANCE OF AED EQUIPMENT

8.1 The AED-C shall ensure the LF 483 is completed on a monthly basis for all AEDs to assure the equipment is in proper working condition.

8.2 AED responders throughout the Center shall notify the AED-C immediately if they hear a chirping alarm being emitted from an AED, as this alarm is a warning the AED has noted a deficiency during a daily internal systems check.

8.3 The AED-C shall maintain a corrected LF 483.

CHAPTER 9 – PRACTICE SESSIONS

9.1 The AED-C shall schedule quarterly practice sessions at randomly selected facilities to allow for hands-on practice using established emergency procedures and to evaluate AED responders' performance.

9.2 The objective is to have all certified responders attend a minimum of one practice session within a year period.

9.3 The AED-MD shall evaluate practice sessions and implement improvements to emergency processes and protocols.

CHAPTER 10 – RECORD KEEPING

10.1 The AED-C shall maintain written records of team member training and practice sessions.

10.2 Written documentation shall be maintained for daily, weekly, and post-use inventories, incident responses, and response outcomes.

10.3 All documentation on training, maintenance procedures, and practice sessions shall be maintained in accordance with LAPD 1440.7 and retained for two years.

10.4 Documentation of emergency responses shall be retained indefinitely.

CHAPTER 11 – ANNUAL QUALITY ASSURANCE REVIEW

11.1 To ensure ongoing quality assurance, the AED-C shall prepare an annual evaluation of the Center AED Program for the AED Committee that addresses the effectiveness of the following:

- a. AED Training program
- b. Quarterly practice sessions and team member feedback
- c. Performance and maintenance of AED equipment
- d. Emergency responses
- e. Identification and implementation of process improvements
- f. Documentation of outcome measures for treated victims of cardiac arrest

11.2 Interim reports shall be submitted on a quarterly basis to the AED-MD and Occupational Health Officer for review.

CHAPTER 12 – AED PROTOCOL

12.1 The AED protocol can be found in Appendix C.

12.2 Any deviation from this protocol shall be reported to the AED-C.

APPENDIX A – DEFINITIONS

Case Reviews – A continuing education program conducted by the Medical Director whereby each rescue effort is reviewed and evaluated as part of the Quality Assurance Program.

Medical Protocols – Specific procedures to be followed when using an AED, based on manufacturer's instructions and medical guidelines.

APPENDIX B – ACRONYMS

ACLS	Advanced Cardiac Life Support
AED	Automated External Defibrillator Program
AED-C	Automated External Defibrillator Coordinator
AED-MD	Automated External Defibrillator Medical Director
AHA	American Heart Association
BLS	Basic Life Support
COHO	Center Occupational Health Officer
CPR	Cardiopulmonary Resuscitation
EAP	Employee Assistance Program
EMS	Emergency Medical Services
EMT	Emergency Medical Technicians
FDA	Food and Drug Administration
LPR	Langley Procedural Requirement
LAPD	Langley Procedural Directorate
LARC	Langley Research Center
LPR	Langley Procedural Requirement
NPD	NASA Procedural Directorate
OHP	Occupational Health Program

APPENDIX C – AED PROTOCOL

- Check the victim for a response (no longer than 10 seconds)
- Locate phone, dial 911 from a LaRC landline or (757) 864-2222 from a cell phone to obtain Emergency Medical Services (EMS) support
- Locate AED and Responder
- Send someone to direct EMS to victim



- Begin CPR starting with compressions
- Give cycles of 30 compressions (at a depth of a 2 to 2.4 inches) and 2 breaths (1 second each)
- Push hard and fast (at least 100-120 compressions/minute) and release chest completely between compressions



- AED Arrives
- Open the AED and turn it on
- Place pads on victims chest
- Clear victim to analyze



- Follow the AED voice prompts



- Continue CPR until EMS takes over or victim starts to move