



Langley Research Center

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AUTOMATED EXTERNAL DEFIBRILLATOR PROGRAM

National Aeronautics and Space Administration

Responsible Office: Office of Human Capital Management, Morale, Welfare and Recreation Branch

PREFACE

P.1 PURPOSE

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. The American Heart Association 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. The quick response of emergency medical services (EMS) personnel in a community can have a significant impact on survival rates from cardiac arrest. 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 SCOPE

This document outlines the process and procedures for management of the AED Program.

P.2 APPLICABILITY

Applies to all NASA LaRC Organizations and Tenants.

P.3 AUTHORITY

a. Public Law 106-505, Public Health Improvement Act, Title IV – Cardiac Arrest Survival, November 13, 2000.

P.4 REFERENCE

a. NPD 1810.2, “NASA Occupational Medicine Program”

b. NPR 1800.1, “NASA Occupational Health Program Procedures,” w/change 2 (8/31/04) section 3.3.3, Automated External Defibrillator Program, expires October 16, 2007

c. 66 FR 28495, Guidelines for Public Access Defibrillation Programs in Federal Facilities, May 23, 2001

d. LF 217, “Supervisor's Monthly Safety and Health Audit Checklist (Office Work Area)”

e. LF 153, "Supervisor's Monthly Safety and Health Audit Checklist (Industrial Area)"

f. LF 483, "Monthly Automated External Defibrillator (AED) Safety Maintenance Inspection Record"

P.5 CANCELLATION

None

Original signed on file

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SECTION 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.

SECTION 2 - DEFINITIONS & RESPONSIBILITIES

- A. AED: Automated External Defibrillator
- B. AHA: American Heart Association
- C. AED RESPONDER: Lay or medical person who has received training and passed testing requirements of the AHA and is qualified to perform cardiopulmonary resuscitation and use of an AED. There will be a minimum of 2 trained responders assigned to each AED. These individuals will perform drills as scheduled and approved to operate under the direction of the AED-Medical Director. Additional responsibilities include notifying the AED Coordinator (AED-C) of current training status and facility location, and of any equipment problems or supplies needed. A list of approved responders is maintained by the AED-C and is posted with each AED. The AED-Medical Director must review qualifications of responders prior to placement on LF 483, "Monthly Automated External Defibrillator (AED) Safety Maintenance Inspection Record."
- D. AED MEDICAL DIRECTOR (AED-MD): The physician responsible for management and implementation of the AED Program. The AED-MD:
 - 1. Assists in choosing the appropriate AED for use at the Center. The FDA currently requires a physician's prescription to buy an AED.
 - 2. Maintains guidelines for care e.g. protocols and processes for operation of the program.
 - 3. Ensures quality assurance, compliance with protocols and proper training.
 - 4. Provides positive reinforcement to trained AED responders, as well as corrective instruction.
 - 5. Ensures critical incident de-briefing for AED responders.
 - 6. Supports integration of the Center's AED program into the Community EMS.
 - 7. Reports equipment malfunction and incidents to the Center Occupational Health Officer for referral to Langley Research Center Safety and Mission Assurance Office, NASA's Office of Safety and Mission Assurance, Agency Occupational Health Program (OHP) and the Food and Drug Administration Medical Devices Reporting department.

- E. AED COORDINATOR (AED-C): the individual identified by the AED Medical Director to oversee the AED Program at LaRC. Responsible for coordinating activities and functioning as the primary liaison between the AED Medical Director and the daily operation of the program.
1. Maintains equipment according to manufacturer's directions.
 2. Maintains an inventory of supplies.
 3. Maintains and publicizes through various mediums (web, facility and safety heads, supervisors, etc.) a list of trained responders throughout the Center.
 4. Coordinates and publicizes training programs, drills, and post-incident briefings with AED Control Committee and Responders.
 5. Maintains current training records.
 6. Ensures that appropriate written documentation and post incident debriefing sessions for any employees involved are completed.
- F. CPR: Cardiopulmonary Resuscitation
- G. CASE REVIEWS: A continuing education program conducted by the Medical Director whereby each rescue effort is reviewed and evaluated as part of a Quality Assurance Program.
- H. CERTIFIED INSTRUCTOR: A person qualified as an AED and CPR instructor by the AHA.
- I. EAP: Employee Assistance Program.
- J. EMS: Emergency Medical Services. The on-site emergency medical technicians (EMT) with Advanced Cardiac Life Support (ACLS) training, who will assume responsibility for transporting patients to the nearest emergency room.
- K. MEDICAL PROTOCOLS: Specific procedures to be followed when using an AED, based on manufacturer's instructions and medical guidelines.
- L. AED CONTROL COMMITTEE: A group of NASA civil service and contractor employees who will assist the AED-MD with all aspects of the AED Program to include proper documentation and use of equipment.
- M. LaRC SUPERVISORS: LaRC Supervisors will incorporate AED awareness briefings at least annually as a part of their monthly safety and/or staff meetings. The AED Program will be incorporated into the Supervisors Monthly Safety Check List LF 217, "Supervisor's Monthly Safety and Health Audit Checklist (Office Work Area)," and LF 153, "Supervisor's Monthly Safety and Health Audit Checklist (Industrial Area)." Information to employees shall include AED locations, identification of responders, and review of AED protocols. Assistance can be obtained from the AED-C.

SECTION 3 - AED CONTROL COMMITTEE

- A. The AED Control Committee consists of the:
 - 1. AED-MD
 - 2. AED-C
 - 3. Safety and Facility Assurance Branch Chief/Safety Official
 - 4. Morale, Welfare and Recreation Branch Chief/Occupational Health Officer
 - 5. Union Representative

- B. The committee shall meet at least annually, after an event involving use of an AED or upon the request of the AED-MD.

- C. The committee, with the concurrence of the AED-MD, shall change the requirements of the AED program based on lessons learned or changes in NASA NPD 1810.2, "NASA Occupational Medicine Program," or NPR 1800.1, "NASA Occupational Health Program Procedures."

- D. The committee shall determine appropriate placement of AED units throughout the Center.

SECTION 4 - TRAINING AND SKILLS COMPETENCY REQUIREMENTS

- A. GENERAL TRAINING for LaRC AED Responders is as follows:
 - 1. AED responders will complete the AHA Heart-Saver AED and CPR course.
 - 2. All AED training will be equipment specific to the AED used in that area.
 - a. CPR/AED training will be completed every 2 years.
 - b. Periodic computer-based refresher training may also be offered.
 - c. Quarterly drills with the AED will be conducted in accordance with AHA guidelines.
 - 3. All LaRC occupational medicine clinic personnel will complete the Healthcare Provider CPR and AED training.
 - 4. All occupational medicine clinic practitioners and RN's will be certified in Advanced Cardiac Life Support.

- B. INITIAL TRAINING FOR AED RESPONDERS will be in accordance with the AHA standards and include the following:
 - 1. Early activation of the EMS through 911.
 - 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 manikin'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 American Heart Association chain of survival: Early Access, Early CPR, Early Defibrillation, and Early Advanced Care.
8. Take a written multiple-choice test. A score of 85 percent is required to pass and remediation is available when needed. All successful students receive an AHA Heart-Saver AED course completion card with a recommended renewal date of 2 years.
9. Completion of a skills evaluation for CPR techniques and use of the AED.

C. Responder Re-TRAINING

1. Re-training is required every 2 years. Each AED Responder must attend training sessions to maintain skills. The AED-C is responsible for scheduling training and recording participation.
2. Re- training will include the following:
 - (a). Demonstration of AED use during a simulated case of ventricular fibrillation.
 - (b). Demonstration of adult CPR techniques.
 - (c). Demonstration of AED inspection procedures using the checklist provided.
 - (d). Satisfactory completion of a written test.
3. Any AED Responder who fails to attend and successfully demonstrate the above requirements will no longer be certified as trained to use the AED until the above requirements are met. Remedial training and evaluation results are reviewed by the AED-C and AED-MD.

D. Any employee who has not been certified to use an AED by the AED-MD and who has completed requisite training must:

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.

SECTION 5 - AED RESPONDER RESPONSIBILITIES FOLLOWING AED USE

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 AED Responder(s) will immediately bring the AED to the LaRC Occupational Health Clinic for transfer of data. If the clinic is closed, the AED will be brought to the clinic on the next business day. A hard copy of the data captured in the AED will be submitted to the AED Control Committee. The responder will 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. Employee Assistant Program counselors will 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 only advising those on a need to know basis.

SECTION 6 - AED CASE REVIEW

The AED-C will 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 Section 7 below.
- 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.

SECTION 7- INTERVIEW WITH AED RESPONDER(S)

Within 72 hours of the use of the AED, the AED-C will contact the Employee Assistance Program office at 757-826-8565 to schedule a stress debriefing for the responder(s). The purpose of this is to allow AED responders to talk through the event, and to maximize the lessons learned. The opportunity to talk through the event with program professionals and counselors after a crisis is also essential for later resolution and adjustment to the AED program. The AED-C or the AED-MD will review in person with the primary AED responder(s) detailed information about the incident as soon as possible.

SECTION 8 - CORRECTIVE ACTION FOR DEFICIENCIES

- A. Any AED program deficiencies identified by the AED-C shall be promptly brought to the attention of the AED-MD for analysis and resolution.
- B. Deficiencies noted in the use of the AED by individual responders will be reviewed and discussed with each responder individually. A determination will be made of the need for individual remedial training.
- C. Defects and deficiencies noted in the AED unit will be followed by:
 1. Completing an incident report and forwarding it to the AED-MD.

2. Placing the defective AED out of service until it is inspected and repaired by an authorized service representative.
3. Completing the Safety/Maintenance Inspection Record addressing the problem.
4. Presenting the incident report and inspection record to the AED Control Committee.

SECTION 9 - MAINTENANCE OF AED EQUIPMENT

The AED-C will complete the LF 483, "Monthly Automated External Defibrillator (AED) Safety/Maintenance Inspection Record," on a monthly basis for all AEDs to assure the equipment is in proper working condition. AED responders throughout the Center will also make interim checks and notify the AED-C or any changes in their names, location and phone numbers. The AED-C will maintain a corrected LF 483.

SECTION 10 - DRILLS

The AED-C will schedule quarterly drills at randomly selected facilities to allow for hands on practice using established emergency procedures and to evaluate AED responders' performance. The objective is to have all facilities conduct one drill within a 2-year period. The AED-MD is responsible for evaluating drills and implementing improvements to emergency processes and protocols.

SECTION 11 – RECORD KEEPING

The AED-C will maintain written records of training for team members and drills that are conducted. Written documentation must also be maintained for daily, weekly and post-use inventories, incident responses, and response outcomes. All documentation on training, maintenance procedures and drills shall be retained for two years. Documentation of emergency responses shall be retained indefinitely.

SECTION 12 - ANNUAL QUALITY ASSURANCE REVIEW

To ensure on-going quality assurance, the AED-C will prepare an annual evaluation of the Center AED Program for the AED Committee that will address the effectiveness of the:

- A. AED Training program
- B. Quarterly drills 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

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

SECTION 13 - AED PROTOCOL

- A. The AED protocol can be found at Appendix A and shall be posted by the AED units.
- B. Any deviation from this protocol shall be reported to the AED-C in written form immediately after use of the AED.

AED Protocol

