NASA Occupational Health
Guidance for Center Automated External Defibrillator Program
2007

Introduction

Cardiovascular (CV) disease is the leading cause of death in the United States. The American Heart Association (AHA) estimates that 250,000 Americans die each year from sudden cardiac arrest (SCA). SCA usually strikes without warning and is caused in most incidences by ventricular fibrillation (VF) which limits or prevents the heart from pumping blood. VF is treatable and potentially survivable when prompt action is taken. Defibrillation is the only effective treatment in returning the heart to a normal rhythm. The rapid intervention of the AHA Chain of Survival: early access, early Cardiopulmonary Resuscitation (CPR), early defibrillation and early advanced care are the vital response links to optimize the chance of SCA survival. Placing the use of AEDs in the hands of trained lay people is the greatest advance in the treatment of SCA since the development of CPR.

In May of 2000, a Presidential Memorandum was issued on placing AEDs in Federal buildings. The federal requirements for AEDs were established by the Food and Drug Administration (FDA). The AHA established the guidance for "Public Access Defibrillation (PAD) Program" in compliance with Federal regulations. The Department of Health and Human Services (HHS) and the General Services Administration (GSA) developed "Guidelines for Public Access Defibrillation Programs in Federal Facilities" that were published in the Federal Register May 23, 2001. On April 21, 2001 the Department of Transportation (DOT), Federal Aviation Administration (FAA) issued the "Emergency Medical Final Rule" requiring AEDs and other associated first aid supplies on aircraft that carry passengers.

The Office of the Chief Health and Medical Officer (OCHMO) advocates the use of AEDs in conjunction with CPR and rapid entry into the community Emergency Medical System (EMS) at all NASA Centers and Facilities. The development and implementation of a Center-wide AED Program is a requirement for each NASA Center and Facility. Integration of the AED Program with the local EMS enhances the emergency medical response capabilities at the Centers and facilitate transfer of care.

Roles and Responsibilities

Office of the Chief Health and Medical Officer (OCHMO)

The OCHMO is responsible for:

- Establishing the requirements for AED Programs at NASA Centers and Facilities.
- Advocating for AED Programs at NASA Centers and Facilities including management support, commitment, and resources.
- Evaluating the Center-wide AED Program during Occupational Health (OH) Program Reviews.
- Monitoring Center AED Program outcomes for the Agency.
- Tracking the number of AEDs and their locations at NASA Centers and Facilities.

Medical Contracting Officer Technical Representative (COTR)
The Medical COTR at each Center is responsible for:
- Managing the overall Center-wide AED Program.
- Obtaining Center management support and commitment for the AED Program.
- Meeting all Federal and state regulations and NASA requirements.
- Ensuring the development of an official written Center-wide AED Program document.
- Conducting an annual review of the program.

Center Medical Director
The Medical Director at each NASA Center or facility is responsible for:
- Providing medical oversight for the Center AED Program including the planning and implementation, medical expertise, and ongoing guidance, support, and evaluation.
- Ensuring linkage with the local emergency medical system (EMS).
- Establishing the written AED Program operational procedures and protocols.
- Establishing and managing the equipment maintenance plan.
- Establishing quality review and process improvement for the AED Program.

AED Program Coordinator
The AED Program Coordinator, appointed by the Medical COTR, is responsible for:
- Managing the day-to-day AED Program activities.
- Maintaining AEDs according to the Center equipment maintenance plan.
- Maintaining an adequate inventory of medical supplies.
- Maintaining a list of trained responders and training records.
- Coordinating training programs, drills, and post-incident debriefings.
- Ensuring documentation completion following an emergency response.

AED Program Responder
All of the AED Program Responders are responsible for:
- Completing the required training.
- Participating in drills and skill refreshers.
- Following the established emergency response procedures and protocols.

AED Program Planning and Implementation
Assessment
The planning for an AED Program starts with an assessment of the Center needs. The number and location of AEDs to support a 3 to 5 minute response time needs to be determined. Consideration should be given to high risk areas, such as fitness centers, employee demographics, buildings with large employee populations, size of Center and physical layout, and level of risk in the facility environment. Standardizing AED equipment is recommended and minimizes a user's confusion during an emergency.

Planning
The written Center-wide AED Program plan must address the location, storage, and inspection of AEDs, training of responders, maintenance of the equipment and stocking of supplies, activation of system and notification of EMS, protocols for AED use and post

use, and recordkeeping. The program procedures should address the management of the AED electronic recorder module after a response. The written plan must be reviewed at least annually.

The placement of AEDs on Center should be in locations that are easily accessible, secured and marked, as well as, near a telephone so the emergency medical services can be activated. Supplies, such as personal protective equipment (PPE), simplified directions for CPR and AED, medical waste bags, and other medical supplies based on AHA recommendations, should be inventoried and stored with each AED.

The local EMS should be advised of the Center-wide AED Program and integrated in the response plan. They should be advised of the number of AEDs, their locations, and manufacturer.

Review of State AED Requirements
The requirements for AED Programs varies among states and must be reviewed to ensure compliance when developing your program. Most states require a physician licensed in the state to act as a medical supervisor of the program, require notification or registration of the AED program with the local EMS, and require a nationally recognized CPR and AED training program. Limited immunity for lay rescuers is provided by state Good Samaritan laws and the federal Cardiac Arrest Survival Act (CASA).

Equipment Maintenance
A written AED equipment maintenance plan must be in place for routine and preventive maintenance checks in accordance with the manufacturer's recommendations. The program coordinator or designated employee(s) can perform and document regularly scheduled equipment checks such as verifying placement of equipment, checking the battery and service light, inspecting for damage, and checking supplies.

A checklist would be a useful tool to document the equipment checks. The serial numbers of the AED, battery, and pads should be tracked in the event of an equipment recall.

The plan should include a written procedure for getting the AED back into service following use. This would include replenishing supplies, cleaning and disinfecting the device, checking the battery, checking the AED for any damage, and returning the AED to its designated location.

Post-Incident De-Briefing
Following an emergency response, responders need an opportunity to discuss their concerns in a supportive environment. Centers are encouraged to involve the Employee Assistance Program (EAP) Manager immediately following the event. The EAP Manager will determine the appropriate intervention.

Training Requirements
All designated AED Program responders are required to complete a nationally recognized CPR and AED training course. Training courses sponsored by the American Heart Association (AHA), the American Red Cross (ARC), or the National Safety Council (NSC) are recommended. Training renewal must be completed by responders based on Federal and state requirements usually every two years.

The Center-wide AED Program plan and the procedures and protocols must be reviewed with all of the designated AED responders. Drills should be conducted for responders to practice their CPR and AED skills. It is recommended that drills be conducted semi-annually. Other training means, such as computer based training (CBT) and video's, should be available to provide more frequent review by responders.

Quality Review and Performance Improvement Plan
Quality Assurance is a key component of the Center AED Program that assesses the efficacy of the program. The following are recommended criteria for program evaluation at the Center level:

- A case review by the Center Medical Director for every AED use at the Center including providing feedback and making recommendations for performance improvement.
- The response times, number of responses and outcomes should be documented and monitored.
- The AED Program training documentation should include a list of personnel trained and copies of CPR and AED Training certificates.
- The AED drills documentation should include dates, participants, drill evaluation, and feedback or recommendations.
- The location of the AED's on the Center and the equipment maintenance records should be reviewed and maintained.

The Office of the Chief Health and Medical Officer (OCHMO) will maintain oversight of the Center AED Program through the Center OH Review process and monitor the program outcomes for the Agency.

References

1. Chief Health and Medical Officer's memo "NASA Occupational Health Program Guidelines for Implementing a Center Automatic External Defibrillator Program" July 20, 2000.
2. NASA Occupational Program Guidelines for Implementing a Center Automatic External Defibrillator Program, 2000.
3. Public Law 106-505, Public Health Improvement Act, Title IV-Cardiac Arrest Survival, November 13, 2000.
4. 66 FR 28495, Guidelines for Public Access Defibrillation Programs in Federal Facilities, May 23, 2001.
5. American College of Occupational and Environmental Medicine, Automated External Defibrillation in the Occupational Setting (reaffirmed May 2006).

6. American Heart Association, Automated External Defibrillation: Implementation Guide, September 2004.