

Automatic Defibrillators in the Workplace



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Disclosure

Critical Knowledge, Inc. is a healthcare training and consulting firm. We offer advice about automatic external defibrillators (AEDs) and medical response team training. Tonight's speakers have an interest in the financial success of the company.

Critical Knowledge, Inc. does not sell AEDs or receive fees (or other consideration) resulting from the sale of AEDs.

Tonight's Discussion –

1. Sudden Cardiac Arrest in the Workplace
2. Program Development & Implementation
3. The Role of the Medical Director
4. Maintaining a Medical Response Team
5. Recent Changes in CPR & AED Guidelines
6. The "Business" of Resuscitation

Why develop an AED program?



Survival: Time is **not** on the patient's side!

- Every minute that passes without CPR *and* defibrillation decreases a patient's chance of survival by 7 to 10 percent.¹
- Out-of-hospital survival rates are dismal. Emergency medical services (EMS) patients have an average survival rate of only 5 percent.
- New York City EMS has an average response time of 12 minutes – and a 2 percent save rate.²

1, 2 Automated External Defibrillation (AED) Funding Fact Sheet, 07/28/05

Sudden Cardiac Arrest in the Workplace

Arrest Etiologies

- Acute myocardial infarction with rhythm disturbance
- Cardiac rhythm disturbance (non-MI)
- Electrocutation
- Severe blood loss
- Chemical exposure
- Other

Sudden Cardiac Arrest in the Workplace

- Sudden Cardiac Arrest (SCA) is the sudden, unexpected loss of heart function.
- About 400 SCA workplace deaths are reported to OSHA each year.³
- OSHA estimates that an average time-to-defibrillation of 5 minutes would result in a 40 percent survival rate.⁴

3, 4 Occupational Safety & Health Administration. Cardiac Arrest and Automated External Defibrillators. TIB 01-12-17

Sudden Cardiac Arrest in the Workplace

- About 61 million Americans have cardiovascular disease.⁵
- This year, about 1.5 million Americans will have an **acute myocardial infarction (AMI)**. About one-third of them will die.
- Approximately 40 percent of AMI patients will die before reaching the hospital.⁶

5. Ibid.
6. Browner BD, Pollak AN, Gopton CL, et al. Sudden death. American College of Othopaedic Surgeons: Emergency Care of the Sick and Injured.

Surviving Cardiac Arrest

- Treatment with immediate defibrillation can result in greater than 90 percent survival.⁷
- Reported survival rates (41 to 74 percent) for lay rescuer programs when CPR and defibrillation occur within 3-5 minutes of collapse.⁸
- Chicago system – TTM rates as high as 78 percent

7. Occupational Safety & Health Administration. Cardiac Arrest and Automated External Defibrillators. TIB 01-12-17
8. AHA. 2005 Handbook of Emergency Cardiovascular Care. Pg. 3-4

Cardiac Arrest – How AEDs Help

AEDs use micro-computer technologies to:

1. Identify deadly rhythm(s), and
2. Prompt the rescuer(s) to act, and
2. Deliver an electrical shock to the heart

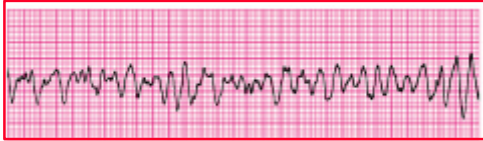
Cardiac Arrest – How AEDs Help



Cardiac Arrest – How AEDs Help

- For the first 3 to 5 minutes of cardiac arrest, more than **85 percent** of SCA patients are in ventricular fibrillation.
- AEDs will only identify and shock two rhythms: ventricular fibrillation or pulseless ventricular tachycardia.
- There are no documented cases of “wrongful defibrillation” by an AED.

Cardiac Arrest – How AEDs Help



Program Development & Implementation

Liability Issues – Good Samaritan

- M.G.L. c. 112 § 12B – Protects physicians and nurses from liability for negligence when giving emergency care or treatment in other than the ordinary course of practice
- Protection includes liability re: acts or omissions and for hospital expenses for ordering or causing hospitalization
- Such care must be provided in good faith, without a fee

Program Development & Implementation

Liability Issues – Good Samaritan

- M.G.L. c. 112 § 12V – Offers same protections for people trained in CPR, AED, or basic cardiac life support. In good faith, without fee.
- M.G.L. c. 112 § 12V½ – Protects individuals trained in CPR and AED, AED Medical Directors, and AED agencies from liability for negligence in connection with rendering CPR or AED defibrillation through a public access defibrillation program... whether or not the person is paid.

Program Development & Implementation

Liability Issues – Good Samaritan

- M.G.L. c. 111 § 21 – Protects certified, accredited, or approved EMS personnel “in the performance of their duties” when rendering First Aid, CPR, AED, or other emergency care.

Program Development & Implementation

Liability Issues – Managing Risk

- Cardiac Arrest Survival Act (CASA) and Aviation Medical Assistance Act encourage/ require AEDs, provide some federal Good Sam protections
- Negligence = duty+breach of duty+causation+legally recognized damages

Program Development & Implementation

Liability Issues – Managing Risk

- The “general medical duty” imposed on Common Carriers, Innkeepers, and Business Establishments is being interpreted by the courts.
- AEDs are difficult to misuse.
- To date, no suits regarding using AEDs – only for NOT using AEDs

Program Development & Implementation

Liability Issues – Managing Risk

- Carefully design, implement, operate AED program in a “reasonable” manner.
- Becoming certified through a trusted third party can help to minimize, share liability risk.
- Obtain liability insurance. Also, some manufacturers offer liability indemnification to purchasers – but read the fine print.

12. Lazar, RA. Understanding AED Program Legal Issues. Swine Lines, Managing Risk. www.aedrights.com

Program Development & Implementation

Gaining Management Buy-In

- Medical Directors, Occupational Health Team are in a unique position to educate
- Discuss facts, statistics, and likely benefits to both the company and the employees
- Review the cultural results of desirable and undesirable patient outcomes

Program Development & Implementation

Building a Plan Around Your Resources

1. Understand the budget for equipment, training, and employee recognition
2. Actively solicit input from employee volunteers
3. Estimate an monthly time commitment – be clear about participation and attendance expectations

Program Development & Implementation

Building a Plan Around Your Resources

1. Determine staffing levels... a minimum of four (4) rescuers are needed for a critically-ill or -injured patient
2. Place AEDs no greater than three (3) minute walk from potential patients
3. Educate, educate, educate... (medical responders, managers, general employee population)

Key Recruitment Factors –

1. The ability to help others
2. Transferability of skills, knowledge

Program Development & Implementation

Other Elements:

1. Agency notification
2. Quality Assurance program participation
3. AED/CPR training
4. Inspections and maintenance
5. Post-event reporting
6. Development of written Policies & Procedures

Role of the Medical Director

In Massachusetts, the “AED Medical Director” is:

- 1) a physician practicing in (adjacent to) the regional emergency medical service region of the city/town of the AED agency
- 2) an emergency physician, cardiologist, or a physician having *specialized training and knowledge* concerning public access defibrillation
- 3) knowledgeable about EMS protocols pursuant to c. 111C
- 4) familiar with CPR and AED action sequences and coordinates activities of the AED agency and its AED providers, per protocol, and evaluates the activities of the AED agency

Role of the Medical Director

Do-it-Yourself vs. Outsourcing

Much will depend on background, comfort level, and availability...

- Does the physician meet geographical practice and specialization requirements?
- Is the physician knowledgeable re: EMS and resuscitation protocols?
- Is the physician willing/ able to provide oversight and review critical events?

Maintaining a Medical Response Team

1. Form a plan, set goals, and measure progress.
2. Use a transparent process with real-time drills.
3. **Employee involvement** is key:
“Invite, encourage, recognize”

Changes in CPR & AED Guidelines

- The American Heart Association (AHA) provides most resuscitation research. Red Cross, National Safety Council generally adopt AHA recommendations within 6 months.
- New AHA recommendations for Healthcare Providers are already in effect. New training for lay rescuers will be released Summer, 2006.
- Great emphasis on **effective** chest compressions; AED shock sequence has also changed.

Changes in CPR & AED Guidelines

CPR for Lay Rescuers

- Compressions-to-breaths ratio is now 30:2
- “Push hard, push fast” at a rate of 100... half of compressions by professional rescuers are too shallow.
- Limit interruptions in compressions; keep pauses to less than 10 seconds.

Changes in CPR & AED Guidelines

CPR for Lay Rescuers

- No longer teaching the jaw-thrust to open airway in patients with suspected cervical injury
- No longer teaching lay rescuers to check for a pulse or signs of circulation – simply start compressions
- Other: hand placement is on intermammary line; breaths shortened to 1 second

Changes in CPR & AED Guidelines

The AED for Lay Rescuers

- **OLD** Give 3 shocks, then perform CPR for 4 cycles (about 1 minute), then attempt 3 more shocks....
- **NEW** Give 1 shock, then perform CPR for 5 cycles (about 2 minutes), then attempt 1 more shock...
- **WHY** Most new AEDs eliminate VF with one shock, the heart does not pump effectively for first few minutes after VF is eliminated, and myocardial oxygenation makes it more likely that VF will be eliminated in subsequent shocks...

The "Business" of Resuscitation

- What happens **during** a critical event?
 - » Dispatch and communications
 - » Leadership
 - » Patient care
- What happens **after** a critical event?
 - » Documentation and downloads
 - » Critical event review
 - » Employee debriefing

The "Business" of Resuscitation

- Is there anything we should watch out for?
- What brand of AED should we purchase?
- How much should we pay for an AED?
- What sort of maintenance program will we need?

Questions?

Thank you for the invitation!

