



COVER STORY

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SPOTLIGHT

Gábor Forrai, Mammography is the Most Proven Screening Method

Tienush Rassaf, Management and Leadership in Cardiology

IN THE NEWS

EAHM Joins Forces with HealthManagement

MANAGEMENT MATTERS

Circadian Rhythm
Administrative Burden
Value-Based Healthcare

BEST PRACTICE

Continuous Improvement
Patient Identification

Supply Chain Management
Interoperability
Care Environments

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AUTOMATED EXTERNAL DEFIBRILLATORS

EXECUTIVE SUMMARY

Cardiac arrest, or the sudden and abrupt loss of heart function, is a leading cause of death in the United States. According to the American Heart Association (AHA), about 326,200 out-of-hospital cases of sudden cardiac arrests occur annually in the United States; less than 10% of those victims survive (Mozaffarian et al. 2015). Some cardiac arrests are caused by "shockable rhythms" and may therefore respond to automated external defibrillation.

Because death can occur quickly, AHA recommends that defibrillation begin within three to five minutes of arrest for out-of-hospital cardiac arrest or within two minutes for in-hospital cardiac arrest. Studies suggest that delays occur in responding to patients' cardiac arrest and that these delays can reduce the likelihood that patients will survive. In fact, AHA states that, for every minute that passes without defibrillation, a victim's chance of survival decreases by 7% to 10% if no cardiopulmonary resuscitation (CPR) is available and by 3% to 4% if bystander CPR is available (AHA 2012; Morrison et al. 2013)

AHA's combined 2010 and 2015 guidelines on emergency CPR stress the importance of using automated external defibrillators (AEDs) as a way to facilitate early defibrillation. According to AHA, in instances of cardiac arrest in which an AED is immediately available, defibrillation should be administered as soon as possible, as opposed to administering chest compressions first (AHA 2015)

In hospitals, AEDs may be particularly helpful in areas where staff do not have rhythm recognition skills and would not be able to use manual defibrillators, as well as in areas where defibrillators are infrequently used. Healthcare facilities must ensure that healthcare workers and other staff who may activate AEDs are aware of their locations and are properly trained in their use, that quality improvement processes are in place to monitor resuscitation efforts, and that AEDs are properly managed.

Action Recommendations

- Assess in-hospital and off-campus response times to cardiac arrest. Identify situations that may contribute to delays in response.

- Ensure that response processes for in-hospital and out-of-hospital cardiac arrest enable victims to receive a first shock in the AHA-recommended time frames.
- Decide whether AEDs will be deployed in the facility and at off-campus sites.
- Decide which AED features would be most desirable for the organisation's intended use, and purchase devices accordingly.
- Ensure that the AED programme is overseen by a medical director or an appropriate group within the healthcare facility, such as the CPR or code blue committee. The individual or committee should serve as the "champion" for the facility's AED strategy.
- Arrange training for staff in accordance with AHA standards or other standards as designated by state law for all AED users. Plan refresher training at least annually.
- Establish policies and procedures for AED use in children one year of age or older following recommendations from AHA.
- Require postevent documentation and reporting consistent with the Utstein style for quality improvement purposes.
- Ensure appropriate medical review of documentation for each event, and, if necessary, identify strategies for improvement.
- Ensure that preventive maintenance of AEDs is regularly scheduled as recommended by the device manufacturer, and require that the organisation's hazard and recall management programme effectively address safety alerts and advisories for AEDs.

Note

The full Healthcare Risk Control report on AEDs is available on request from Philip Hodsman, European Business Development Manager, ECRI Institute European Office, phodsman@ecri.org.uk. ■



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See page 348 for more about ECRI