



Early defibrillation

An Advisory Statement by the Advanced Life Support Working Group of the International Liaison Committee On Resuscitation¹

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1. The concept of early defibrillation

Most adults who can be saved from cardiac arrest are individuals in ventricular fibrillation or pulseless ventricular tachycardia. Electrical defibrillation provides the single most important therapy for the treatment of these patients. Resuscitation science, therefore, places great emphasis upon early defibrillation. The greatest chances of survival result when the interval between the start of VF and the delivery of defibrillation is as brief as possible. To achieve the earliest possible defibrillation, ILCOR endorses the concept that, in many settings, non-medical individuals be allowed and encouraged to use defibrillators [1].

ILCOR recommends that resuscitation personnel be authorised, trained, equipped, and directed to operate a defibrillator if their professional responsibilities require them to respond to persons in cardiac arrest. This recommendation includes all first responding emergency personnel, in both the hospital and out-of-hospital setting, whether physicians, nurses or non-medical ambulance personnel. The widespread availability of automated external defibrillators (AEDs) provides the technological capacity for early defibrillation both by ambulance crews and by lay responders.

2. Early defibrillation by ambulance personnel

ILCOR urges the medical profession to increase the awareness of the public, and of those responsible for

emergency medical services, of the importance of early defibrillation by ambulance personnel. Every ambulance service which responds to emergencies should carry a defibrillator and staff trained in its use. In some locations the medical profession will need to encourage medical and regulatory authorities to initiate changes in regulations and legislation. Leaders of emergency medical systems (EMS) may need to overcome obstacles that include: non-enabling legislation, economic priorities, unsuitable EMS structure, lack of awareness, inadequate motivation and tradition.

ILCOR recommends that early defibrillation programmes by non-medical ambulance personnel operate with control systems that:

- Set written policies and guidelines based upon or similar to those already developed by major resuscitation organisations.
- Establish a training and quality maintenance programme that ensures a high level of supervision
- Place the programme under the direction and responsibility of a physician, or the direct representative of a physician acting on his or her behalf.
- Use only AEDs (except for fully trained paramedics who may use manual defibrillators by local agreement).
- Require that all defibrillators contain internal recording facilities that permit documentation and review of all clinical uses of the AED.

3. Early defibrillation by first responder in the hospital

The concept of early defibrillation applies not only to the out-of-hospital setting, but also to in-hospital resuscitation efforts. ILCOR strongly encourages the development of early defibrillation programmes for non-physician in-hospital responders. ILCOR recommends that these programmes comply with these guidelines:

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- Regularly train all hospital staff, who may need to respond to a sudden cardiopulmonary emergency, in basic life support.
- Establish and encourage AED training as a basic skill for health care providers working in settings where advanced life support professionals are not available immediately.
- Extend training and authorisation to use conventional defibrillators or AEDs to all appropriate non-physician staff, including nurses, respiratory therapists and physician assistants.
- Reduce the time from collapse to defibrillation by making conventional defibrillators or AEDs readily available in strategic areas throughout a facility.
- Document all resuscitation efforts accurately by recording specific treatment interventions, event variables and outcome variables. The in-hospital Utstein guidelines [2,3] provide a recommended Standard Reporting Form for in-hospital cardiopulmonary resuscitation.
- Collect and review the patient variables, event variables and outcome variables that are contained in the set of uniform data elements in the in-hospital Utstein guidelines.
- Establish an interdisciplinary committee, with expertise in cardiopulmonary resuscitation, to assess the quality and efficacy of the facilities resuscitation efforts.

4. Early defibrillation by first responder in the community

A first responder is defined as a trained individual acting independently within a medically controlled system. In the community these may include police, security officers, life guards, airline cabin attendants, railway station personnel, voluntary first aiders and those assigned to provide first aid at their own place of work or in the community, and are trained in how to use an AED.

ILCOR advises that physicians should be involved with any first responder defibrillation programmes in the community and makes the following recommendations:

- Establish acceptance, support, and coordination by responsible community medical and EMS authorities.
- In some specific situations, consider combining training programmes for bystander defibrillation with

training in basic life support with careful monitoring of results.

- Arrange for review of all clinical applications of an AED by a medically qualified programme coordinator or a designated representative.
- Plan for critical programme evaluation at two levels: individual clinical uses; overall EMS system effects.
- Ensure the availability of debriefing and counselling for every first responder following the clinical use of an AED, especially when the victim did not survive.
- Use only AEDs; for practical considerations manual defibrillators should not be used by lay persons.
- Continue innovations to produce simple, lightweight, economically priced and highly reliable AEDs.

5. Early defibrillation and the chain of survival concept

Early defibrillation addresses only part of the problem of sudden cardiac death. Early defibrillation initiatives will succeed only when implemented as part of the chain of survival concept. The links of the chain of survival include early recognition of cardiopulmonary arrest, early activation of trained responders, early cardiopulmonary resuscitation (CPR), early defibrillation when indicated, and early advanced life support. The chain of survival concept, while originally described in the context of out-of-hospital cardiac arrest, is equally valid for in-hospital resuscitation. Establishment of early defibrillation within a strong chain of survival will ensure the highest possible survival rate for both out-of-hospital and in-hospital events.

References

- [1] Weisfeldt ML, Kerber RE, McGoldrick RP et al. AHA medical/scientific statement. Task Force Report. Public access defibrillation: a statement for health care professionals from the American Heart Association Task Force on automatic external defibrillation. *Circulation* 1995; 92: 2763.
- [2] Recommended guidelines for uniform reporting of data from out of hospital cardiac arrest: the Utstein style. Prepared by a Task Force of Representatives of the European Resuscitation Council, American Heart Association, Heart and Stroke Foundation of Canada, Australian Resuscitation Council. *Resuscitation* 1991; 22: 1–26.
- [3] Recommended guidelines for uniform reporting of data from in hospital cardiac arrest. Prepared by a Task Force of Representatives from the European Resuscitation Council, American Heart Foundation, Heart and Stroke Foundation of Canada, Australian Resuscitation Council, Resuscitation Council of South Africa. *Resuscitation* 1997; in press.