

**International Life Saving Federation  
Medical Commission**

**STATEMENT ON AUTOMATIC EXTERNAL DEFIBRILLATION USE BY  
LIFESAVERS AND LIFEGUARDS**

Approved by the ILS Board of Directors: September 14, 1999

**BACKGROUND**

Survival of cardiac arrest depends on a series of critical interventions. The term *chain of survival* has been used to describe this sequence. This chain has four interdependent links: early access, early basic cardiopulmonary resuscitation (CPR), early defibrillation, and early advanced cardiac life support. While all links are important, in cardiac arrest due to heart disease, early defibrillation is the most critical link in the *chain of survival*.<sup>(1)(2)</sup>

Most victims who can be saved from cardiac arrest are in ventricular fibrillation (VF) or ventricular tachycardia (VT) rhythms.<sup>(8)</sup> Conversion of ventricular fibrillation to a normal heart rhythm requires defibrillation be administered within a few minutes of a cardiac arrest. The probability of successful defibrillation diminishes rapidly over time.<sup>(9)</sup>

To achieve the earliest possible defibrillation, many leading organizations in resuscitation have recommended that non medical individuals should be allowed and encouraged to use defibrillators.<sup>(1)</sup> There has been interest in the possibility of lifesavers and lifeguards receiving training in the use of AED to improve response times to early AED use in cases of sudden cardiac arrest on land, cardiac arrest in water and in some near-drowning cases. Experience and peer reviewed literature on defibrillation in near-drowning resuscitation by lifesavers and lifeguards is limited. There is no clear evidence of the value of early defibrillation following near-drowning. Cost-benefit analysis for early defibrillation by lifeguard programs is absent. There will always be interesting discussion about the priority of early defibrillation by lifeguards in relation to other training and equipment needs of lifeguards and lifeguard programs.

Lifesavers and lifeguards have the unique challenge of providing rescue and resuscitation service in and around water. Drowning and near-drowning are hypoxic events with significant consequences.<sup>(3)(4)</sup> The prevention of drowning deaths and near-drowning accidents must remain a principle function of lifesavers and lifeguards. When rescue is needed, speed to recognition and elevation of the head above the water are critical. This is easier, and quicker to achieve, in some environments (pools) than in other environments (open water or surf)

The speed of rescue and early initiation of the *chain of survival* will improve victim outcomes.<sup>(5)</sup> In cases of land based cardiac arrest and those near-drowning cases with rapid rescue and early effective resuscitation, VF and VT may be present and defibrillation may be helpful.<sup>(6)(7)</sup>

To maximize successful outcomes after submersion, rescue prior to the hypoxic

insults is ideal. In near-drowning cases with potentially good outcomes, early victim recognition, fast rescue, and early effective resuscitation are essential. Outcome studies after AED use by lifesavers and lifeguards are needed.

## **STATEMENT**

1. Outcomes from near-drowning and water related accidents can be tragic. The principal objective for lifesavers and lifeguards is to prevent near-drowning, drowning and water related accidents through education, supervision and rapid rescue response.

2. The principal consequence of near-drowning is hypoxia. The provision of lifesavers and lifeguards with training and equipment for early recovery of victims from water is the highest priority.

3. All lifesavers and lifeguards should receive training in Basic Life Support (chain of survival, early access to EMS, Airway Management and CPR).

4. Early defibrillation in the management of cardiac arrest is effective in cases with VF and VT. When an arrest victim, in VF or VT, has early application of defibrillation, this is associated with conversion to sinus rhythm and to functional survival. VF and VT may be present in some near-drowning resuscitations when early recognition, speedy rescue and effective CPR with oxygen supplementation, has occurred. Early application of AED may be helpful in these cases.

5. Advanced Life Support skills (defibrillation, medication and intensive care) may be part of the community response to cardiac arrest. It is appropriate for some lifesaving and lifeguard services to investigate AED use. This review should include investigations of other community AED providers, AED response times, frequency of cardiac arrests, supervision and management of AED, AED license requirements, cost benefit analysis and outcome studies. Decisions about the availability, placement, training, and use of AED should be a community level decision based on the principles of the "Chain of Survival", local resources and community priorities.

6. Lifesavers and Lifeguards may play a role in the delivery of AED if this is consistent with the support and service priorities of that community.

7. If lifesavers or lifeguards will be delivering AED, they must receive appropriate training in the use of AED and the associated issues related to outcomes, stress and grief.

8. National, regional and local lifesaving and lifeguard organizations may choose to participate in the development of training policies for the use of AED by non-medical personnel, if and when communities choose to implement AED use by lifesavers or lifeguards. Lifesaver and Lifeguard services are part of a community risk management and response plan, an integral part of a wider population safety network.

9. Outcome studies of the application of AED by lifesavers and lifeguards in aquatic settings should be encouraged.

## REFERENCES

1. Kloeck W. et al, An Advisory Statement From the Advanced Life Support Working Group of the International Liaison Committee of Resuscitation(ILCOR): Circulation Vol 95, No 8 April 15 1997, Pg. 2183-2184
2. American Heart Association 1992 Guidelines for CPR and Emergency Cardiac Care, The Journal of the American Medical Association, Oct 28 1992, Vol 268, No 16, Pg. 2171-2302
3. Model, J H, Drowning N Engl J Med, 328,253-256,1993
4. Model, J H, Graves, S A, and Kuck E J, Near-Drowning; Correlation of Level of Consciousness and Survival, Can Anaesth Soc J, 27, 211-215, 1980
5. Orłowski J P, Drowning, Near-Drowning and Ice-Water Submersion, Pediatric Clinics of North America, Vol 34, No 1, Feb 1987
6. Monolios N, Mackie I, Drowning and near-drowning on Australian beaches patrolled by life-savers: a 10 year study 1973-1983, Med J of Australia, 148(4), 165-171, Feb 15 1988
7. Kuisma M, Suominen P, Korpela R, Paediatric out-of-hospital cardiac arrests--epidemiological and outcome, Resuscitation 30(2), 141-150, Oct 1995
8. Weisfelt M, et al, American Heart Association Report on the Public Assess Defibrillation Conference, Dec 8-10, 1994, Automatic External Defibrillation Task Force. Circulation 92: 2740-2747 1995
9. Herlitz J et al, Rhythm changes during resuscitation from ventricular fibrillation in relation to delay until defibrillation, number of shocks delivered and survival, Resuscitation, Vol 34, pg17-19, 1997

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