



World Water Safety

INTERNATIONAL LIFE SAVING FEDERATION

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MEDICAL POSITION STATEMENT - MPS 15

COMPRESSION-ONLY CPR AND DROWNING

The International Liaison Committee on Resuscitation (ILCOR) *Consensus on Science and Treatment Recommendations 2010* ^[1] was published on 19 October 2010 and was accompanied by guidelines on resuscitation from the American Heart Association (AHA) ^[2] and the European Resuscitation Council (ERC) ^[3]. Although there was press coverage of these publications, to some extent they were overshadowed by coverage of a report on the benefits of compression-only cardiopulmonary resuscitation (CPR) that appeared a little earlier ^[4].

The Medical Committee of the International Life Saving Federation (ILS) is concerned that publicity surrounding compression-only ('hands-only') CPR may deflect potential rescuers from the true needs of victims of a drowning incident.

The effectiveness of compression-only CPR relies on the fact that in sudden, adult cardiac arrest (the commonest form of cardiac arrest) the lungs and blood contain considerable quantities of oxygen at the moment the heart stops. For the first few minutes afterwards, the prime need of the victim is for artificial circulation of the blood, and this is provided by chest compressions, better results being obtained if there are no pauses for rescue breaths. After about 5 minutes, however, ventilation is required to restore oxygen to the body.

We should like to draw attention to the following recommendations from the recent AHA, and ERC publications which represent our view of the correct management of the drowning victim.

AMERICAN HEART ASSOCIATION

CPR for drowning victims should use the traditional A-B-C [airway – breathing – chest compression] approach in view of the hypoxic nature of the arrest.

The first and most important treatment of the drowning victim is the immediate provision of ventilation. Prompt initiation of rescue breathing increases the victim's chance of survival.

As soon as the unresponsive victim is removed from the water, the rescuer should open the airway, check for breathing, and if there is no breathing, give 2 rescue breaths that make the chest rise.

EUROPEAN RESUSCITATION COUNCIL

[In cases of drowning] chest compression combined with rescue breaths is ... the method of choice for CPR delivered by both trained lay rescuers and professionals.

Most drowning victims will have sustained cardiac arrest secondary to hypoxia. In these patients, compression-only CPR is likely to be less effective and should be avoided.

The first and most important treatment for the drowning victim is alleviation of hypoxaemia. ... Give five initial ventilations/rescue breaths as soon as possible.

The primary cause of death from drowning is suffocation – a lack of oxygen. To circulate oxygen-poor blood by chest compression alone fails to address the underlying problem. A drowning victim requires oxygen, and requires it fast.

It will be noted that the AHA and ERC each recommend a different number of initial breaths in the resuscitation of drowning victims. Our recommendation is that there be **at least two** initial breaths but would suggest that individuals follow their national guidelines if uncertain about how many to give.

Finally, we draw your attention to the ILS Clarification Statement on Cardiopulmonary Resuscitation for Drowning, issued 3 April 2008. www.ilf.org which is given hereunder:

CLARIFICATION STATEMENT

The International Life Saving Federation urgently reminds all would-be rescuers that hands-only CPR is not appropriate in cases of drowning. The American Heart Association (AHA) Emergency Cardiovascular Care (ECC) Committee has recently published a statement on cardiopulmonary resuscitation (CPR).⁽¹⁾ This recommends that bystanders who witness an adult suddenly collapsing out of hospital should perform chest compressions only without giving mouth-to-mouth ventilation, so-called hands-only CPR.

Drowning is the second leading cause of accidental death worldwide. While hands-only CPR may be effective in cases of sudden heart attack, cardiac arrest during drowning is due, in large part, to lack of oxygen. The body is thus starved of oxygen and needs urgent replenishment in addition to circulation of blood that is provided by chest compressions.

Similarly, compression-only CPR is inappropriate in cases of cardiac arrest in children, when failure of breathing is the usual underlying cause.

The AHA ECC Committee statement includes: “this *call to action* for bystanders does NOT apply to unwitnessed cardiac arrest, cardiac arrest in children or cardiac arrest presumed to be of non-cardiac origin”. The ILS concurs with this, but is concerned that the overwhelming emphasis on hands-only (compression-only) CPR in the statement will mean that this secondary advice may be overlooked.

Further information can be found in the Medical section of the ILS website, www.ilsf.org. In particular, attention is drawn to the Medical Position Statements on Critical CPR Skills, Use of Oxygen, and In-Water Resuscitation.^{(2) (3) (4)}

- (1) The AHA statement: <http://tinyurl.com/27zept>
- (2) <http://www.ilsf.org/medical/statements/critical-cpr-skills>
- (3) <http://www.ilsf.org/medical/statements/use-oxygen-lifesavers>
- (4) <http://www.ilsf.org/medical/statements/in-water-resuscitation>

REFERENCES

1. International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science With Treatment Recommendations. Resuscitation 2010;81:e1-e330.
2. Vanden Hoek TL et al. Guidelines for Cardiopulmonary Resuscitation and Emergency Cardiovascular Care. Part 12: Cardiac Arrest in Special Situations: 2010 American Heart Association. Circulation 2010;122:S829-S861.
3. Nolan JP et al. European Resuscitation Council Guidelines for Resuscitation 2010. Resuscitation 81 (2010) 1219–1276.
4. Bobrow BJ et al. Chest compression-only CPR by lay rescuers and survival from out-of-hospital cardiac arrest. JAMA 2010;303:1447-1454.

Approved by the ILS Board of Directors in 2008.