

CPR - a life-saving skill

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Current Australian CPR guidelines include a compression to ventilation ratio of 30:2 (30 compressions followed by two ventilations) and a rate of 100 compressions per minute for patients of all ages. It is considered no longer necessary to check for a pulse as doing so may delay effective resuscitation.

GPs possess vast knowledge and skills, but can they all conduct such simple life-saving procedures as cardiopulmonary resuscitation (CPR)?

The Australian Resuscitation Council (ARC) released new guidelines on basic life support (BLS) in March 2006 following extensive evaluation of resuscitation science by the International Liaison Committee on Resuscitation. The ARC guidelines are available on the ARC website, www.resus.org.au.¹

Prior to the introduction of these guidelines, survival from out-of-hospital cardiac arrests in Australia was poor, with less than 10% of victims leaving hospital alive. Factors identified as influencing outcomes of these out-of-hospital cardiac arrests included the underlying cardiac rhythm, the early initiation of CPR and early defibrillation.²

The simplified CPR procedures result in straightforward, safe and effective CPR. This article outlines the recommended procedures and discusses the advantages

of automated external defibrillators (AEDs). Important points to remember regarding CPR are given in the box on this page.

Completing a basic CPR course meeting ARC guidelines is a requirement of the 2008–2010 RACGP QA&CPD Program. The course can be a Category 2 activity or part of a Category 1 activity.

ARC basic life support guidelines

The ARC's new guidelines on basic life support were developed following a lengthy international scientific iterative process. Issues addressed in this process included:

- incidence and predictors of cardiopulmonary arrest
- independent predictors of cardiopulmonary arrest
- signs of need for resuscitation
- CPR interruption and optimal compression ratios
- airway and ventilation
- AEDs.

CPR: points to remember

- Any attempt at resuscitation is better than no attempt.¹
- CPR should be considered within the first aid DRABCD action plan and the 'chain of survival' approach to managing cardiac arrest in the community.
- Commence CPR when there are no signs of life – that is, the patient is unconscious, unresponsive, not moving and not breathing normally.
- Give two initial breaths and then chest compressions and further breaths at a compression to ventilation ratio of 30:2 and a rate of 100 compressions per minute.
- Attend a CPR course and consider placing an AED in your surgery.

CPR in context

Before CPR is addressed in detail, its place in the overall management of cardiac arrest and within the broader first aid scenario must be considered.

ARC guideline 7 ('Cardiopulmonary resuscitation') defines CPR as a technique of rescue breathing combined with chest compressions. The purpose of CPR is to temporarily maintain a circulation that is sufficient to preserve brain function until specialist treatment is available. GPs should start CPR when the patient has no signs of life (unconscious, unresponsive, not moving and not breathing normally).

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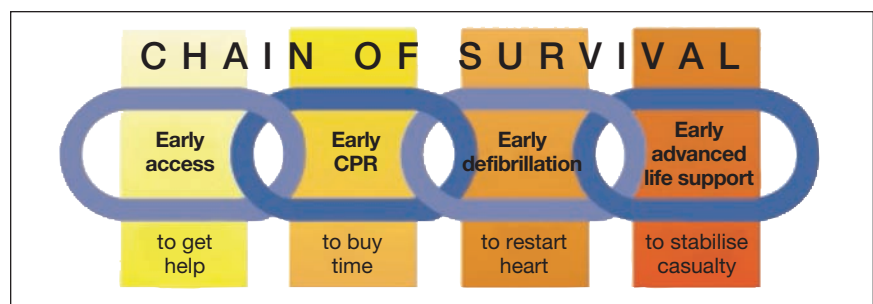


Figure 1. The chain of survival for a victim of out-of-hospital cardiac arrest.

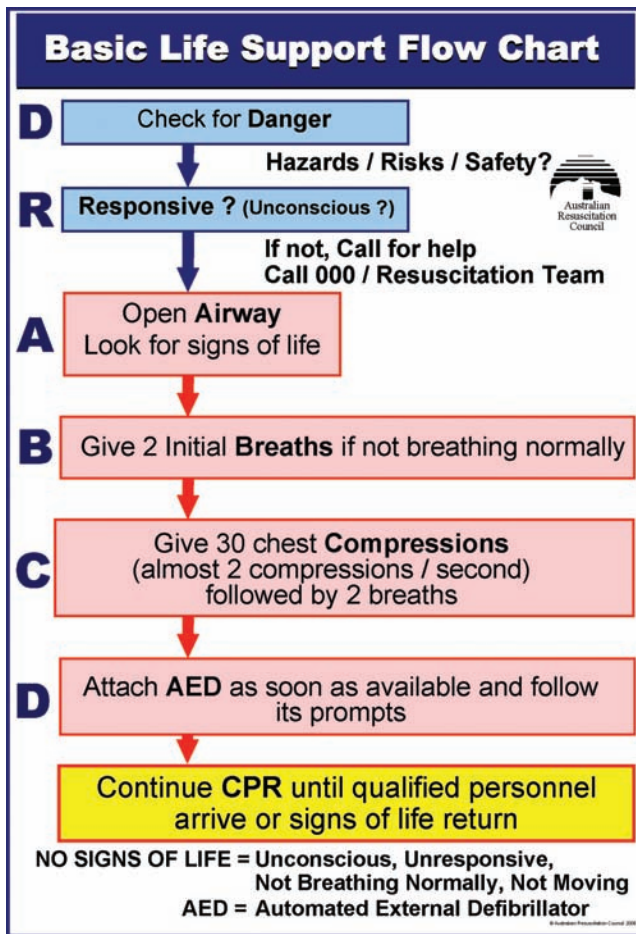


Figure 2. The Australian Resuscitation Council's basic life support flowchart. (Available from the Council's website: www.resus.org.au.)

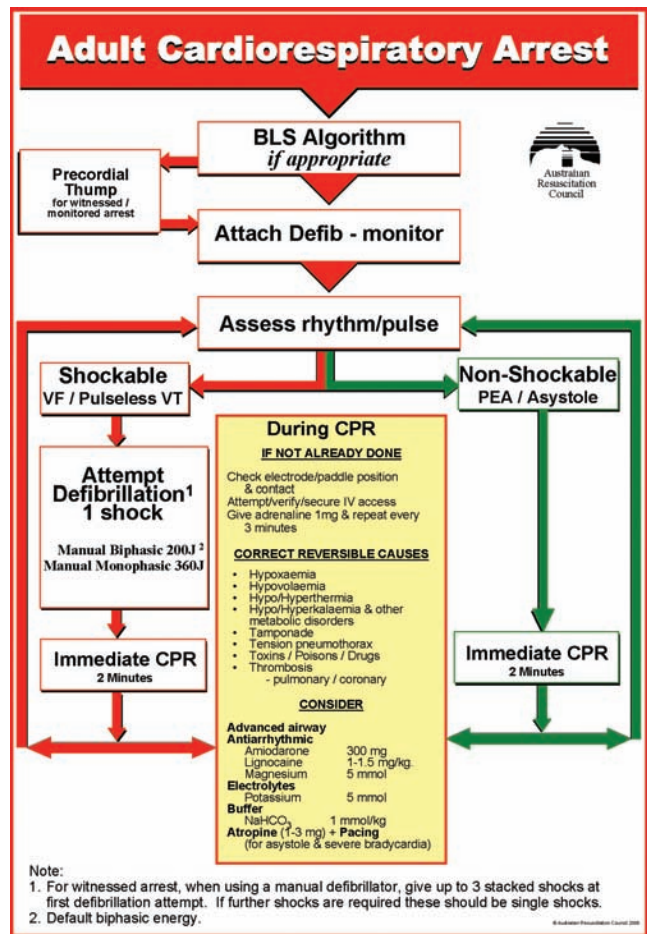


Figure 3. The Australian Resuscitation Council's advanced life support flowchart. (Available from the Council's website: www.resus.org.au.)

It must be borne in mind that CPR is the second essential link in the chain of survival, which is the key to improving the survival rate from cardiac arrest in the community.³ The four links that are in the chain are depicted in Figure 1.

In addition, CPR should always be considered within the overall DRABCD action plan:

- D – danger
- R – response
- A – airway
- B – breathing
- C – CPR
- D – defibrillation.

It should be noted that in the new guidelines it is no longer necessary to

check for a pulse, as this may delay effective resuscitation.

Changes made in the CPR guidelines

The main change made to give the current CPR guidelines was the acceptance of the universal compression to ventilation ratio of 30:2 (30 compressions followed by two ventilations) for all ages, regardless of the number of rescuers present. This compression to ventilation ratio has been selected to:

- increase the number of compressions
- minimise interruptions to compressions
- prevent excessive ventilation

- simplify teaching
- maximise skill retention
- maintain international consistency.

The main considerations were a balance between adequate oxygenation, particularly in the brain, and the maintaining of coronary artery pressure to encourage a shockable cardiac rhythm and the subsequent use of an AED as part of advanced life support to stabilise the patient.

Basic life support technique

Always remember DRABCD when performing basic life support. If the patient is not responsive, call for help – the practice nurse, the ambulance service (dial 000) or

the resuscitation team. Open the patient's airway and give two initial breaths if he/she is not breathing normally, then give 30 chest compressions followed by two breaths repeatedly. Attach an AED as soon as possible, and follow its prompts. The procedure is outlined in Figure 2.

It should be noted that there has been no significant change in the positioning of hands on the patient's chest. The GP should visualise the centre of the chest and compress at that point.

Advanced life support

In many circumstances, such as in rural and remote locations, GPs will not enjoy the luxury of transferring a patient on whom they are performing CPR to an ambulance service. In these cases, it is essential to have appropriate equipment and drugs available. ARC guideline 11.2 ('Protocols for adult advanced life support') provides excellent advice on advanced life support.⁴

In these cases, the following considerations are critical:

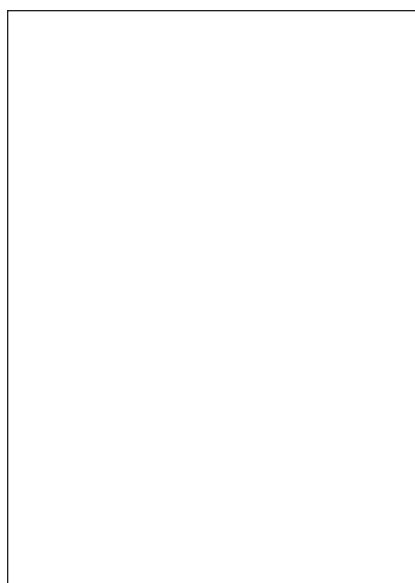
- early defibrillation is of pre-eminent importance
- AEDs can accurately diagnose and categorise shockable and non-shockable rhythms
- interruptions to CPR should be minimised when conducting advanced life support procedures
- intravenous access should be established
- adrenaline should be administered every three minutes
- other drugs/electrolytes should be administered depending on the circumstances.

The full detail regarding advanced life support procedures is beyond the scope of this article on the topic of CPR. However, the advanced life support procedure flowchart, titled 'Adult cardiorespiratory arrest' is included as a summary (Figure 3).

Automated external defibrillators

St John Ambulance Australia, through its

Project HeartStart (funded by Insurance Australia Group and the Department of Health and Ageing) has installed AEDs in 292 public locations (public access defibrillators [PADs]) across Australia since 2004. I am pleased to note that seven lives have been saved as a direct



result of the work of Project HeartStart Australia.

Since their deployment in 2004, PADs have saved seven lives and been activated approximately 20 times for non-shockable rhythms. These numbers are a reflection that the community is embracing the Public Access Defibrillation concept, and that the emergency response system implemented and the associated training are effective.

Comcare guidelines for all public service offices now support the introduction of AEDs into all public access locations and workplaces. There is no current legislation that supports or excludes the use of an AED in a workplace where the Occupational Health and Safety (Commonwealth Employment) Act 1991 (OHS [CE] Act) applies. Comcare does, however, recognise and accept as evidence of good practice the recent changes to first aid protocols as declared in April 2006 by St John

Ambulance Australia and other leading first aid providers.

Whereas there is currently no evidence reported in the literature to support AEDs in GP surgeries, best professional opinion recommends this practice.

Conclusion

CPR is a basic life-support skill that all GPs should be competent in and feel confident conducting. Practice clinical staff should also be trained in this potentially life-saving and simple skill. The next life saved by CPR may be yours or that of one of your loved ones. Finally, consider having an AED in your surgery. I have one in mine. MT

Acknowledgements

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Figures 1 (the Chain of Survival), 2 (the Basic Life Support flowchart) and 3 (the Adult Cardiorespiratory Arrest flowchart) have been reproduced with the approval and support of St John Ambulance Australia (Figure 1) and the Australian Resuscitation Council (Figures 2 and 3).

References

1. Australian Resuscitation Council website: www.resus.org.au (accessed June 2008).
2. Jacobs, I. Public access to defibrillation. Review of the literature and audit for the defibrillation task force. Canberra: Commonwealth Department of Health and Ageing; March 2004.
3. St John Ambulance Australia. Australian first aid. 4th edn. 2007. (Available from St John Ambulance in each State or Territory on 1300 360 455.)
4. ARC Guideline 11.2. Protocols for adult advanced life support. Available on: www.resus.org.au (accessed June 2008).

COMPETING INTERESTS: Dr Warfe's practice has received an AED from Laerdal Pty Ltd.