



## **AUSTRALIAN RESUSCITATION COUNCIL**

### **GUIDELINE 7**

#### **CARDIOPULMONARY RESUSCITATION**

**This guideline is applicable to adults, children and infants.**

#### **CARDIOPULMONARY RESUSCITATION - (CPR)**

Cardiopulmonary resuscitation is the technique of rescue breathing combined with chest compressions. The purpose of cardiopulmonary resuscitation is to temporarily maintain a circulation sufficient to preserve brain function until specialised treatment is available.

Rescuers should start CPR if the victim has no signs of life (unconscious, unresponsive, not moving, and not breathing normally). Even if the victim takes occasional gasps, rescuers should suspect that cardiac arrest has occurred and should start CPR. <sup>1</sup> [Class A; LOE IV]

#### **COMPRESSION VENTILATION RATIO**

No human evidence has identified an optimal compression-ventilation ratio for CPR in victims of any age<sup>1,2</sup>. Interruptions to compressions should be avoided with evidence suggesting that previous compression-ventilation ratios resulted in too much “hands off time”[LOE IV]. Evidence also demonstrates that over ventilation occurs even by trained responders<sup>1</sup>.

A universal compression-ventilation ratio of 30:2 (30 compressions followed by 2 ventilations) is recommended for all ages regardless of the numbers of rescuers present.<sup>1,2</sup> Compressions must be paused to allow for ventilations.

This compression 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.

[Class A; LOE IV]

## **STEPS OF RESUSCITATION**

Initial steps of resuscitation are:

### **DRABCD**

- Check for danger (hazards/risks/safety);
- Check for response (unresponsive/unconscious);
- Opening the airway (look for signs of life – call 000/Resuscitation team);
- Give rescue breathing (give two rescue breaths if not breathing normally);
- Give 30 chest compressions (almost 2 compressions/second) followed by 2 breaths;
- Attach an AED (Automated External Defibrillator) if available and follow the prompts.

When providing 30 compressions (at approximately 100/min) and giving 2 breaths (each given over 1 second per inspiration), this should result in the delivery of 5 cycles in approximately 2 minutes.

[Class A; LOE Expert Consensus Opinion]

## **DEFIBRILLATION**

The Australian Resuscitation Council recommends the use of an AED if available (refer to Guideline 10.1.3).

## **CHEST COMPRESSION ONLY**

If rescuers are unwilling or unable to do rescue breathing they should do chest compressions only. If chest compressions only are given, they should be continuous at a rate of approximately 100/min.<sup>1</sup> [Class A; LOE III-2]

## **MULTIPLE RESCUERS**

When more than one rescuer is available ensure:

- That an ambulance has been called (000);
- All available equipment has been obtained (e.g. Defibrillator);
- Frequent rotation of rescuers is undertaken (approximately every 2 minutes) to reduce fatigue. [Class A; LOE Expert Consensus Opinion]

## **DURATION OF CPR**

The rescuer should continue cardiopulmonary resuscitation until:

- Signs of life return;
- Qualified help arrives;
- It is impossible to continue (e.g. exhaustion);
- An authorised person pronounces life extinct.

[Class A; Expert Consensus Opinion]

## **RECOVERY CHECKS**

Evidence has demonstrated that interruption of chest compressions is associated with poorer return of spontaneous circulation and lower survival rates and that both lay and health care professionals experience difficulty in determining presence or absence of pulse in collapsed victims. Therefore, rescuers should minimise interruptions of chest compressions and CPR should not be interrupted to check for signs of life.<sup>1</sup> [Class A; LOE IV]

## **RESUSCITATION IN LATE PREGNANCY**

In the obviously pregnant woman the pregnant uterus causes pressure on the major abdominal vessels when she lies flat, reducing venous return to the heart. The pregnant woman should be positioned on her back with her shoulders flat and sufficient padding under the right buttock to give an obvious pelvic tilt to the left.<sup>3</sup> [LOE: Expert Consensus Opinion] [Class A; LOE Expert Consensus Opinion]

### **Additional Notes:**

Distension of the stomach may occur when the rescuer either blows too hard or blows when the airway is partially obstructed so that air enters the stomach rather than the lungs. If the stomach is distended, **DO NOT APPLY PRESSURE TO THE STOMACH**. If air is forced into the stomach, some stomach contents can be forced up into the mouth and airway and thus into the lungs.

Regurgitation is the passive flow of stomach contents into the mouth and nose. Although this can occur in any person, regurgitation and inhalation of stomach contents is a major threat to an unconscious person. It is often unrecognised because it is silent and there is no obvious muscle activity. Vomiting is an active process during which muscular action causes the stomach to eject its contents. In resuscitation, regurgitation and vomiting are managed in the same way by prompt positioning of the victim on the side and manual clearance of the airway prior to continuing rescue breathing.

## **CURRENCY AND ASSESSMENT OF CPR SKILLS**

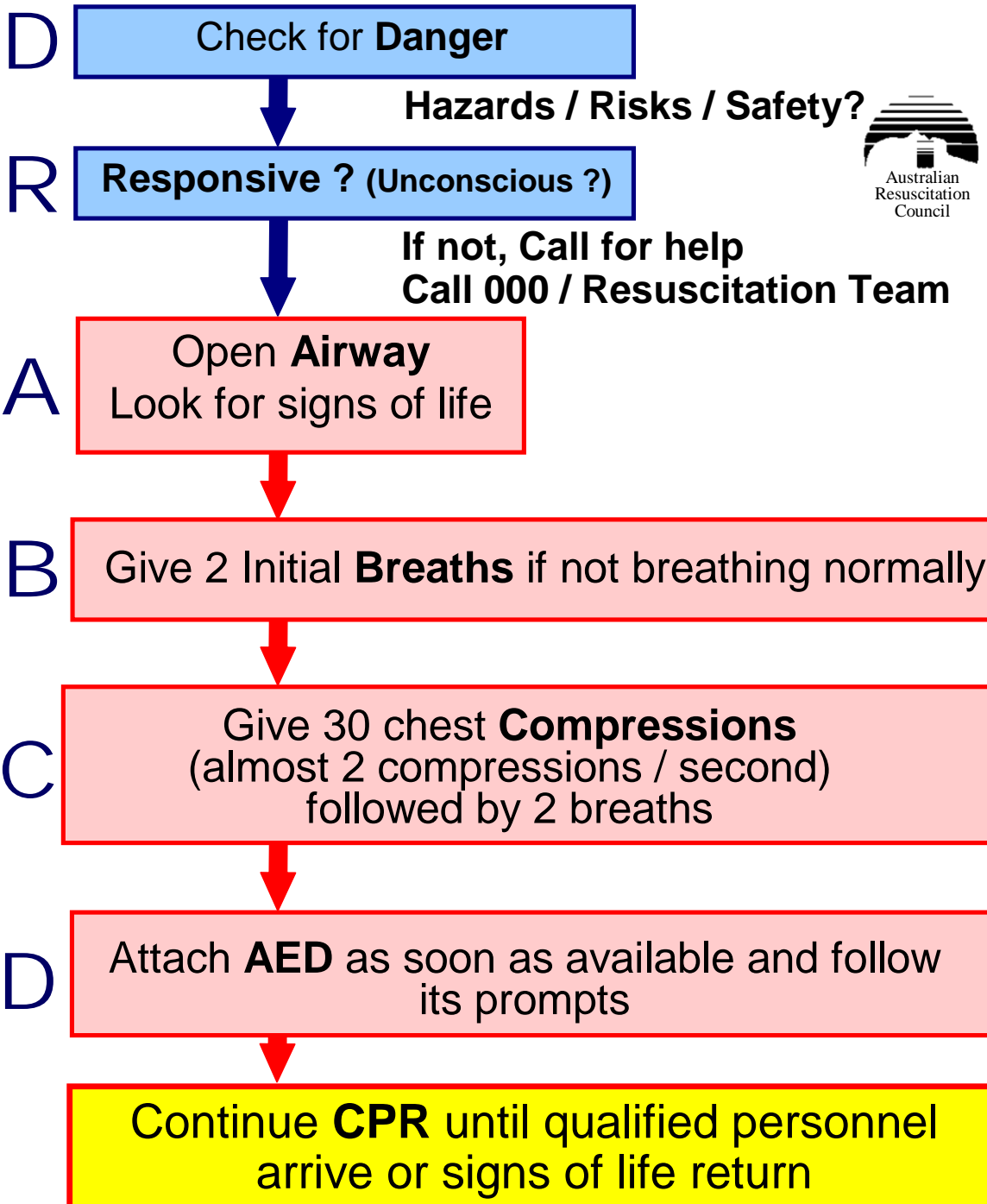
CPR skills performance has been shown to decline rapidly following initial achievement of competency.<sup>4</sup> The Australian Resuscitation Council recommends that CPR skills are reassessed at least annually. [Class A; LOE Expert Consensus Opinion]

The Australian Resuscitation Council recognises that training organisations are required to assess CPR competency. ARC recommends that assessors be cognisant to the intent of the resuscitation community that any attempt at resuscitation is better than no attempt. As such, assessment should focus on adequate CPR and not on the technicalities of achieving set figures or rates. [Class A; LOE Expert Consensus Opinion] (refer to Guideline 9.1.1)

## **REFERENCES**

1. Consensus on Resuscitation Science & Treatment Recommendations. Part 2: Adult Basic Life Support. Resuscitation 2005; 67: 187-201.
2. Consensus on Resuscitation Science & Treatment Recommendations. Part 6: Paediatric Basic and Advanced Life Support. Resuscitation 2005; 67: 271-291.
3. Consensus on Resuscitation Science & Treatment Recommendations. Part 4: Advanced Life Support. Resuscitation 2005; 67: 213-247.
4. Consensus on Resuscitation Science & Treatment Recommendations. Part 8: Interdisciplinary Topics. Resuscitation 2005; 67: 305-314

# Basic Life Support Flow Chart



**NO SIGNS OF LIFE = Unconscious, Unresponsive,  
Not Breathing Normally, Not Moving**  
**AED = Automated External Defibrillator**

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