



ANZCOR Guideline 8 – Cardiopulmonary Resuscitation (CPR)

Summary

Who does this guideline apply to?

This guideline applies to all persons who are unresponsive and not breathing normally.

Who is the audience for this guideline?

This guideline is for use by bystanders, first aiders or first aid providers, first responders and health professionals.

Recommendations

The Australian and New Zealand Committee on Resuscitation (ANZCOR) make the following recommendations:

1. Rescuers must start CPR if the person is unresponsive and not breathing normally.
2. Bystander CPR should be actively encouraged.
3. Compression-to-ventilation ratio be 30:2 for all ages.
4. All rescuers perform chest compressions for all who are not breathing normally. Rescuers who are trained and willing to give rescue breaths are encouraged to do so.
5. Chest compressions should be provided at a rate of approximately 100 – 120 /min.
6. Rescuers should aim to minimise interruptions to chest compressions.

Guideline

1 What is Cardiopulmonary Resuscitation?

Cardiopulmonary resuscitation (CPR) is the technique of chest compressions combined with rescue breathing. The purpose of CPR is to temporarily maintain a circulation sufficient to preserve brain function until specialised treatment is available. Rescuers must start CPR if the person is unresponsive and not breathing normally.¹ Even if the person takes occasional gasps, rescuers should start CPR.¹ [Class A; LOE IV] CPR should commence with chest compressions [Class B; LOE extrapolated evidence] and interruptions to chest compressions must be minimised.^{1,2} [Class A; LOE IV, extrapolated evidence]

1.1 Bystander CPR

Early high-quality CPR saves lives.¹ ANZCOR recommends that CPR is started for presumed cardiac arrest without concerns of harm to persons not in cardiac arrest (CoSTR 2015, strong recommendation, very-low-quality evidence).

2 Compression-to-Ventilation Ratio

ANZCOR suggests a compression–ventilation ratio of 30:2 compared with any other compression–ventilation ratio in people in cardiac arrest¹ (CoSTR 2015, weak recommendation, low-quality evidence). Compressions must be paused to allow for ventilations.

3 Steps of Resuscitation

Initial steps of resuscitation are:

DRS ABCD

- | | |
|-------------------|---|
| 1. DANGERS | Check for danger (hazards/risks/safety) |
| 2. RESPONSIVENESS | Check for response (if unresponsive) |
| 3. SEND | Send for help |
| 4. AIRWAY | Open the airway |
| 5. BREATHING | Check breathing (if not breathing / abnormal breathing) |
| 6. CPR | Start CPR (give 30 chest compressions followed by two breaths) |
| 7. DEFIBRILLATION | Attach an Automated External Defibrillator (AED) as soon as available and follow the prompts. |

3.1 Chest Compressions

All rescuers should perform chest compressions for all those who are unresponsive and not breathing normally (CoSTR 2015, strong recommendation, very-low-quality evidence). ANZCOR suggests that those who are trained and willing to give breaths do so for all persons in cardiac arrest (CoSTR 2015, weak recommendation, very low quality of evidence). If rescuers do continuous chest compressions they should be at a rate of approximately 100 – 120 /min.¹ [Class A; LOE III-2]

3.2 Minimise Interruptions to Chest Compressions

CPR should not be interrupted to check for response or breathing. ANZCOR places a high priority on minimising interruptions for chest compressions. We seek to achieve this overall objective by balancing it with the practicalities of delivering 2 effective breaths between cycles of chest compressions to the patient without an advanced airway¹. (CoSTR 2015, values and preferences statement)

3.3 Multiple Rescuers

When more than one rescuer is available ensure:

- that an ambulance has been called
- all available equipment has been obtained (e.g. AED).

3.4 Duration of CPR

The rescuer should continue cardiopulmonary resuscitation until any of the following conditions have been met:¹

- the person responds or begins breathing normally
- it is impossible to continue (e.g. exhaustion)
- a health care professional arrives and takes over CPR
- a health care professional directs that CPR be ceased.

[Class A; Expert Consensus Opinion]

4 Risks

CPR should be initiated for presumed cardiac arrest without concerns of harm to persons not in cardiac arrest¹ (CoSTR 2015, strong recommendation, very-low-quality evidence). In making this recommendation, ANZCOR places a higher value on the survival benefit of CPR initiated by rescuers for persons in cardiac arrest against the low risk of injury in persons not in cardiac arrest¹ (CoSTR 2015, values and preferences statement).

The risk of disease transmission during training and actual CPR performance is very low.³ [Class A; LOE IV, extrapolated evidence] A systematic review found no reports of transmission of hepatitis B, hepatitis C, human immunodeficiency virus (HIV) or cytomegalovirus during either training or actual CPR when high-risk activities, such as intravenous cannulation were not performed.³ [Class A; LOE extrapolated evidence] If available, the use of a barrier device during rescue breathing is reasonable.³ [Class A; LOE IV, extrapolated evidence] After resuscitating a person, the rescuer should reassess and re-evaluate for resuscitation-related injuries.³ [Class A; LOE IV, extrapolated evidence]

References

1. Perkins GD, Travers AH, Berg RA, Castren M, Considine J, Escalante R et al. Part 3: Adult basic life support and automated external defibrillation. 2015 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science With Treatment Recommendations. *Resuscitation* 2015; 95: e43-e69
2. Soar J, Callaway CW, Aibiki M, Böttiger BW, Brooks SC, Deakin CD et al. Part 4: Advanced life support 2015 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science With Treatment Recommendations. *Resuscitation* 2015; 95: e71-e120 .
3. Soar J, Mancini ME, Bhanji F, Billi JE, Dennett J, Finn J, Ma MHM, Perkins GD, Rodgers DL, Hazinski MF, Jacobs I, Morley PT, on behalf of the Education, Implementation, and Teams Chapter Collaborators. Part 12: Education, implementation, and teams: 2010 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science with Treatment Recommendations. *Resuscitation* 2010;81:e288–e330.
4. Finn JC, Bhanji F, Lockey A, Monsieurs K, Frengley R, Iwami T et al. Part 8: Education, implementation, and teams 2015 International Consensus on Cardiopulmonary Resuscitation and Emergency Cardiovascular Care Science With Treatment Recommendations. *Resuscitation* 2015; 95: e203-e24

Further Reading

ANZCOR Guideline 2 Priorities in an Emergency

ANZCOR Guideline 3 Unconsciousness

ANZCOR Guideline 4 Airway

ANZCOR Guideline 5 Breathing

ANZCOR Guideline 6 Compressions

ANZCOR Guideline 7 External Automated Defibrillation (AED) in Basic Life Support (BLS)

ANZCOR Guideline 9.3.2 Resuscitation of the Drowning Victim

Basic Life Support

m

Dangers?

m

Responsive?

EJ

Send for help

A

Open Airway

m

Normal Breathing?

m

Start CPR

30 compressions : 2 breaths

m

Attach Defibrillator (AED)

as soon as available, follow prompts

**Continue CPR until responsiveness or
normal breathing return**

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a

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WHAKAHAUORA AOTEAROA