



ANZCOR Guideline 9.2.10 – The Use of Oxygen in Emergencies

Summary

Who does this guideline apply to?

This guideline applies to adult, child and infant victims.

Who is the audience for this guideline?

This guideline is for use by bystanders, first aiders and first aid providers.

Recommendations

The Australian and New Zealand Resuscitation Councils of Resuscitation (ANZCOR) make the following recommendations:

1. Basic Life Support measures should never be delayed whilst waiting for oxygen or other equipment.
2. The administration of oxygen and use of oxygen delivery devices should only be undertaken by those who are trained
3. When bag-valve-mask oxygen resuscitation is used by trained but occasional operators, a minimum of two trained rescuers are required to provide ventilation for a non-breathing victim.
4. The short-term administration of supplemental oxygen to a breathing victim will not cause harm in most circumstances.
5. Victims who require supplemental oxygen in a first aid setting be further evaluated by a health care professional.

Guideline

1 Introduction

Administration of supplementary oxygen is traditionally considered essential for individuals presenting with shortness of breath, difficulty breathing, or hypoxemia (low oxygen level in the blood). In certain circumstances, oxygen supplementation might have potential adverse effects that complicate the disease course or even worsen clinical outcomes¹.

The use of oxygen may be beneficial in emergencies with breathing and non-breathing victims [Class A; LOE Expert Consensus Opinion]. There is evidence to support the use of oxygen as part of first aid management of decompression illness^{1,2} (COSTR 2015, very low quality evidence) and for shortness of breath (dyspnoea) in cancer patients with hypoxaemia (COSTR 2015 moderate quality evidence) and without hypoxaemia¹ (COSTR 2015, very low quality evidence).

The administration of supplementary oxygen should be limited to individuals with specific training in oxygen administration¹ (CoSTR 2015, values and preferences statement). ANZCOR recommends the use of oxygen delivery devices, such as bag-valve-mask equipment and oxygen powered resuscitation equipment, should also only be undertaken by those who are trained in their use [Class A; LOE Expert Consensus Opinion].

2 Equipment

There are many types of oxygen delivery devices available, ranging from the simple oxygen mask, which can be used with very little training, to the more complex bag-valve-mask ventilation equipment.

It is recommended that when bag valve mask oxygen resuscitation is used, a minimum of two trained people are required to provide ventilation for a non-breathing victim: one to manage the airway, mask and seal, and the second to operate the bag. ^{3,4} [Class A; LOE Expert Consensus Opinion].

If two trained people are not available to provide ventilation for a non-breathing victim then mouth-to-mask breathing using a resuscitation face mask with supplemental oxygen will provide adequate oxygenation and ventilation⁵ (ANZCOR Guideline 5).

3 Management

Basic Life Support measures should never be delayed whilst waiting for oxygen or other equipment⁶. [Class A; LOE Expert Consensus Opinion].

The short-term administration of supplemental oxygen to a breathing victim will not cause harm in most circumstances.

In the non-breathing victim, oxygen may be used if available by mouth-to-mask, bag-valve-mask or positive pressure oxygen delivery system, if the appropriate equipment and trained personnel are available [Class A; LOE Expert Consensus Opinion].

A victim who requires supplemental oxygen in a first aid setting requires further assessment by a health care professional so an ambulance must always be called.

3.1 Use of pulse oximetry

The use of oxygen saturation monitoring by non-invasive techniques such as pulse oximetry, may be useful in guiding oxygen therapy. Pulse oximetry is now available in some first aid settings. The use of pulse oximetry is not essential during oxygen administration but it may assist in identifying victims most likely to benefit from oxygen therapy in first aid settings.

If available, oxygen should be administered to victims with an oxygen saturation of less than 94% (SpO₂<94%). Victims with an oxygen saturation of 94% or above do not usually need supplemental oxygen unless there are signs of cyanosis (blue colouration of skin), shock^{7,8}, decompression illness^{1,2} or a situation suggesting carbon monoxide poisoning.

3.2 Conditions where oxygen is recommended

Conditions where oxygen is recommended include:

- during cardiopulmonary resuscitation (Guideline 11.1.1, Guideline 12.2)
- bleeding (Guideline 9.1.1)
- burns (Guideline 9.1.3)
- shock (Guideline 9.1.4)
- heart attack with shortness of breath (Guideline 9.2.1)
- stroke (Guideline 9.2.2)
- asthma (Guideline 9.2.5)
- anaphylaxis (Guideline 9.2.7)
- drowning (Guideline 9.3.2)
- decompression illness (Guideline 9.3.5)
- poisoning (Guideline 9.5.1).

References

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5. Harrison, R.R., Maul, K.I., Keenan, R.L., Boyan, C.P. Mouth to mask ventilation: a superior method of rescue breathing; *Ann. Emerg. Med.* Feb 1982. **11**(2):74-76.

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