Guideline 9.2.10 – The Use of Oxygen in Emergencies

Summary

Who does this guideline apply to?

This guideline applies to adults, children and infants.

Who is the audience for this guideline?

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

Recommendations

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

1. Basic Life Support measures should never be delayed whilst waiting for oxygen or other equipment. [Good Practice Statement]
2. The administration of supplemental oxygen should be limited to individuals with specific training in oxygen administration.[1,2] [Good Practice Statement]
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 person. [Good Practice Statement]
4. Persons who require supplemental oxygen in a first aid setting be further evaluated by a health care professional. [Good Practice Statement].

Abbreviations

Abbreviation	Meaning/Phrase
ANZCOR	Australian and New Zealand Committee on Resuscitation

CoSTR	Consensus on Science with Treatment Recommendations (from International Liaison Committee on Resuscitation - ILCOR)
ANZTS	Australia and New Zealand Thoracic Society

1.0 | Introduction

Administration of supplemental 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 adverse effects that complicate the disease course or even worsen clinical outcomes.[1] The administration of supplemental oxygen should be limited to individuals with specific training in oxygen administration.[1,2] [Good practice statement]

There is evidence to support the use of oxygen as part of first aid management of decompression illness[1] and for shortness of breath (dyspnoea) in cancer patients with hypoxaemia.[1]

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 (with current training and certification). [Good Practice Statement]

2.0 | 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 person: one to manage the airway, mask and seal, and the second to operate the bag.[3] [Good Practice Statement]

If two trained people are not available to provide ventilation for a non-breathing person then mouth-to-mask breathing using a resuscitation face mask with supplemental oxygen will provide adequate oxygenation and ventilation.[4] [Refer to ANZCOR Guideline 5].

3.0 | Management

Basic Life Support measures should never be delayed whilst waiting for oxygen or other equipment.[6] [Good Practice Statement]

In the non-breathing person, oxygen may be used if available by mouth-to-mask, bag-valve- mask or positive pressure oxygen delivery system, if the appropriate equipment and personnel with current training and certification in its use are available. [Good Practice Statement]

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

3.1 | Use of pulse oximetry

It is best practice that the use of supplemental oxygen is guided by pulse oximetry[2,5] [TSANZ Grade C recommendation: "Body of evidence provides some support for recommendation(s) but care should be taken in its application"].[5]

Oxygen should be administered to persons with an oxygen saturation of less than 92%.[5]

Oxygen should be given to persons signs with cyanosis (blue colouration of skin), shock including from major injury,[2] decompression illness[6] or a situation suggesting carbon monoxide poisoning[7] (eg. house fire) irrespective of their oxygen saturation level or whether pulse oximetry is available.

3.2 | Oxygen administration in specific circumstances

Conditions where oxygen is recommended include:

- during cardiopulmonary resuscitation [Refer to ANZCOR Guideline 11.1.1 and ANZCOR Guideline 12.2]
- bleeding [Refer to ANZCOR Guideline 9.1.1]
- burns [Refer to ANZCOR Guideline 9.1.3]
- shock [Refer to ANZCOR Guideline 9.2.3]
- asthma [Refer to ANZCOR Guideline 9.2.5]
- anaphylaxis [Refer to ANZCOR Guideline 9.2.7]
- drowning [Refer to ANZCOR Guideline 9.3.2]
- decompression illness [Refer to ANZCOR Guideline 9.3.5]
- poisoning [Refer to ANZCOR Guideline 9.5.1].

Oxygen use in persons with stroke [Refer to ANZCOR Guideline 9.2.2] and heart attack [Refer to ANZCOR Guideline 9.2.1] who do not have signs of shock should be guided by pulse oximetry as excessive oxygen may be harmful in these conditions.[2,5,8-10] ANZCOR suggests against the routine administration of oxygen in persons with stroke.[11,12] [2020 CoSTR, weak recommendation, low-to-moderate certainty evidence] ANZCOR suggests that for persons with stroke, the routine use of oxygen is not recommended if the oxygen saturation is >92% on room air [National Stroke Foundation: weak recommendation, moderate-to-high certainty evidence].[8]

ANZCOR suggests against the routine administration of oxygen in persons with chest pain.[13] [2015 COSTR, weak recommendation, very-low certainty evidence] For persons with heart attack, routine use of oxygen is not recommended if the oxygen saturation is >93% [National Heart Foundation of Australia & Cardiac Society of Australia and New Zealand: practice advice].[9]

References

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About this Guideline

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