



Australian Resuscitation Advisory Network

Medical Emergencies Guideline 8 – Asthma Management

Scope

Who does this guideline apply to?

This guideline applies to all persons with an acute asthmatic episode

Who is the audience for this guideline?

This guideline is for use by BLS first responders, including bystanders, first aiders, and health professionals away from a clinical setting.

General Principles

Asthma is a disorder of the smaller, lower airways of the lungs. People with asthma have sensitive airways which can narrow when exposed to certain 'triggers'; leading to sudden difficulty in breathing. Three main factors cause the airways to narrow:

1. The smooth muscle lining the airway tightens (bronchospasm).
2. The inside lining of the airways becomes swollen (inflammation).
3. Extra mucus (sticky fluid) may be produced which further obstructs the lower airways.

In asthma, episodes can be spontaneously made worse by 'triggers'. Every person's asthma is different and not all people will have the same triggers.

Triggers can include: Respiratory infection, irritants (e.g. cigarette, wood fire or bushfire smoke, occasionally perfumed or cleaning products), inhaled allergens (e.g. dust mite, mould spores, animal hair, grass/tree pollen), cold air, exercise, laughing/crying, Non-steroidal anti-inflammatory agents (e.g. aspirin, ibuprofen), Sulphite additives (food preservatives) which are more common in those with poorly controlled asthma

Severe allergic reaction (anaphylaxis) can also trigger a life threatening asthmatic episode as an isolated presentation or associated with other anaphylaxis symptoms and signs.

Recommendations

The Australian Resuscitation Advisory Network (ARAN) makes the following recommendations:

Disclaimer – The recommendations in this guideline are compiled by ARAN from advice available at the time. As ARAN cannot control the manner in which these recommendations are implemented, ARAN and its members accept no responsibility for injury or death resulting from the use or non-use of this guideline.

Acknowledgement - The material in this guideline is based on original work by the Australian Resuscitation Council.

1. In an emergency, if there is any doubt as to whether the victim is suffering from asthma or anaphylaxis (with associated bronchospasm) an adrenaline auto-injector should be used in conjunction with “reliever” medication. Adrenaline is also a powerful Broncho-dilator.
2. The severity of asthmatic episodes can be assessed using the following table. Cases of **Severe** and **Life Threatening** Asthma need to be treated as an emergency.

Recognition of the Severity of an Asthmatic Episode				
	Mild	Moderate	Severe	Life Threatening
Consciousness	Alert	Alert	Agitated	Confused/Drowsy
Accessory muscle usage	Nil accessory muscles	Mild accessory muscle use	Moderate accessory muscle use	Severe accessory muscle use
Exhaustion level	Variable	Variable	Some physical exhaustion	Physical exhaustion
Breathing rate	No Increase	Mild Increase	Marked Increase	Marked increase
Associated signs	Nil	Nil	Intercostal recession, tracheal tug abdominal breathing	Intercostal recession, tracheal tug abdominal breathing
Heart rate	Normal Range	Mild tachycardia	Marked tachycardia	Hypotension/bradycardia
Breath sounds	Variable wheeze	Variable wheeze	Variable wheeze	Often silent chest
Ability to talk	Talks in sentences	Talks in phrases	Talks in words	Unable to talk
Oxygen Saturation	SaO ₂ >94% (RA)	SaO ₂ 90-94% (RA)	SaO ₂ <90% (RA)	SaO ₂ <90% (RA)
Cyanosis	No cyanosis	No cyanosis	Cyanosis/sweating	Cyanosis/sweating
Posture	Normal	Normal	Patient seated upright, unable to lie supine, pursed lips breathing	Patient seated upright, unable to lie supine, pursed lips breathing
Expiratory phase	Normal to slightly extended	Extended	Prolonged expiratory phase	Prolonged expiratory phase
Hyperinflation	Nil	Nil	Hyperinflated thorax	Hyperinflated thorax
Tidal volume	Normal	Normal	Low Tidal Volume	Low/Nil tidal volume Soft/Absent breath sounds

3. The use of *Sustained Lateral Chest Thrusts* is recommended in cases of **Severe** and **Life Threatening** Asthma, particularly when medical assistance is delayed and/or “reliever” medication has no or poor effects in relieving symptoms. Decreased effect of “reliever” medication is likely as severity increases as the medication cannot reach the lower airways.

Method

If there are immediate signs of **Severe or Life Threatening** Asthma (particularly a hyperinflated chest and/or decreased air movement and/or use of accessory muscles), Ambulance assistance should be sought immediately and this *Action Plan* enacted while waiting for assistance. In cases of **Severe, Life Threatening or Unrelieved** Asthma, consider *Sustained Lateral Expiratory Chest Thrusts* to aid breathing and medication relief.

REMEMBER

A delay in seeking assistance in severe and life-threatening asthma is a high predictor of a poor outcome.

STEP 1

Posture the casualty seated and upright

STEP 2

Without delay give **four to six separate puffs** of a blue/grey “reliever”.

The medication is best given one puff at a time via a spacer device.

Shake puffer

Put 1 puff into spacer

Take 4 breaths from spacer

Repeat until 4 puffs have been taken

If a spacer is not available, simply use the inhaler.

REMEMBER

The inability of a casualty to take the breaths needed for puffer medication may be an indication that the asthma is more severe than first thought

STEP 3

Observe casualty for **4 – 6 minutes**

STEP 4

Re-assess the casualty

If the person is not breathing adequately **or** there asthma suddenly becomes worse **or** is not improving, call Ambulance (000) immediately.

REMEMBER

If you are not sure it is asthma and the casualty is known to have Anaphylaxis - follow their Anaphylaxis Action Plan **NOW** before continuing with this Asthma Plan

STEP 5

If there is little or no improvement, give 4- 6 more separate puffs of blue/grey reliever as above

STEP 6

If there is little or no improvement, call **Ambulance (000)**
Give 4- 6 more separate puffs of blue/grey reliever as above every 4 – 6 minutes until Ambulance arrives.
Treat as for **Severe or Life Threatening** Asthma

Sustained Lateral Expiratory Chest Thrusts

The use of *Sustained Lateral Expiratory Chest Thrusts* is recommended in cases of **Severe, Life Threatening** or **Unrelieved** Asthma, particularly when medical assistance is delayed and/or “reliever” medication has no or poor effects in relieving symptoms.

The anomaly with asthma is that the more severe the symptoms, the less effective an inhaled “reliever” medication will be. Therefore “waiting for the medication to take effect” is a flawed strategy in the emergency management of in all but mild and moderate presentations.

Sustained Lateral Expiratory Chest Thrusts are also an effective technique for supporting respiration in the asthmatic casualty whose respiratory muscles are tiring due to a prolonged episode and in respiratory arrest when the technique can aid exhalation during the ventilation cycle.

For casualties with server, life-threatening or unrelieved asthma who are hyperinflated **or** there is little or no air movement **or** when ventilation due to asthma is difficult due to high resistance pressures in an arrest, *Sustained Lateral Expiratory Chest Thrusts* are recommended.

1. Place hands on both sides of the lower lateral chest wall. If the patient is supine (flat on the back e.g. an arrest, face the patient and kneel astride patient's hips.
2. Spread the fingers out to reduce point pressure. The little finger should be over the lowest rib and the thumbs aligned to the mid-clavicle (see Figure 1)
3. Compress medially (toward the spine and then slightly up under the diaphragm) , synchronising with patient's expiratory effort (which can be observed in the breathing casualty in the neck and over the clavicles. Do not compress during inspiration.
4. During resuscitation ventilation, compression commences with cessation of each positive pressure ventilation.
5. Compressions should be slow, rhythmic and sustained to help force air out. A slight vibration of the hands during the compression can assist to reduce resistance by the casualty during the procedure.



Figure 1