

Basic life support (BLS) Techniques



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5.2. Airway management and ventilation

Patients requiring resuscitation often have an obstructed airway, usually secondary to loss of consciousness, but occasionally it may be the primary cause of cardiorespiratory arrest. Prompt assessment, with control of the airway and ventilation of the lungs, is essential. There are three manoeuvres that may improve the patency of an airway obstructed by the tongue or other upper airway structures: head tilt, chin lift, and jaw thrust.

Despite a total lack of published data on the use of nasopharyngeal and oropharyngeal airways during CPR, they are often helpful, and sometimes essential, to maintain an open airway, particularly when resuscitation is prolonged.

During CPR, give oxygen whenever it is available. There are no data to indicate the optimal arterial blood oxygen saturation (SaO_2) during CPR. There are animal data and some observational clinical data indicating an association between high SaO_2 after ROSC and worse outcome. Initially, give the highest possible oxygen concentration. As soon as the arterial blood oxygen saturation can be measured reliably, by pulse oximeter (SpO_2) or arterial blood gas analysis, titrate the inspired oxygen concentration to achieve an arterial blood oxygen saturation in the range of 94–98%.

2.1. Foreign-body airway obstruction (FBAO) (choking)

Foreign-body airway obstruction (FBAO) is an uncommon but potentially treatable cause of accidental death. The signs and symptoms enabling differentiation between mild and severe airway obstruction are summarised in figure below. The adult foreignbody airway obstruction (choking) sequence is shown in [Fig. 1](#). 

Adult foreign body airway obstruction treatment

Assess severity



Fig. 1. Adult foreign-body airway obstruction (choking) sequence. © 2010 ERC

Fig. 2. Head tilt and chin lift.



2.2. Basic airway management

Once any degree of obstruction is recognised, immediate measures must be taken to create and maintain a clear airway. There are three manoeuvres that may improve the patency of an airway obstructed by the tongue or other upper airway structures: head tilt, chin lift, and jaw thrust.

2.2.1. Head tilt and chin lift

The rescuer's hand is placed on the patient's forehead and the head gently tilted back; the fingertips of the other hand are placed under the point of the patient's chin, which is lifted gently to stretch the anterior neck structures (Fig. 2)

2.2.2. Jaw thrust

Jaw thrust is an alternative manoeuvre for bringing the mandible forward and relieving obstruction by the soft palate and epiglottis. The rescuer's index and other fingers are placed behind the angle of the mandible,



Fig. 3. Mouth-to-mouth ventilation – child

With children, the most significant difference from the adult algorithm is that abdominal thrusts should not be used for infants. Although abdominal thrusts have caused injuries in all age groups, the risk is particularly high in infants and very young children. This is because of the horizontal position of the ribs, which leaves the upper abdominal viscera much more exposed to trauma. For this reason, the guidelines for the treatment of FBAO are different between children (fig. 3) and infants (fig.4). For babies (up to 2 years), ventilation should be done by blowing air through the nose and mouth of infants.

and pressure is applied upwards and forwards. Using the thumbs, the mouth is opened slightly by downward displacement of the chin.

These simple positional methods are successful in most cases where airway obstruction results from relaxation of the soft tissues. If a clear airway cannot be achieved, look for other causes of airway obstruction. Use a finger sweep, forceps or suction to remove any solid foreign body seen in the mouth. Remove broken or displaced dentures, but leave well-fitting dentures as they help to maintain the contours of the mouth, facilitating a good seal for ventilation.

2.3. Paediatric airway management

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2.4. Devices for basic airway techniques

The position of the head and neck must be maintained to keep the airway aligned. Oropharyngeal and nasopharyngeal airways overcome backward displacement of the soft palate and tongue in an unconscious patient, but head tilt and jaw thrust may also be required.

Suction of secretions

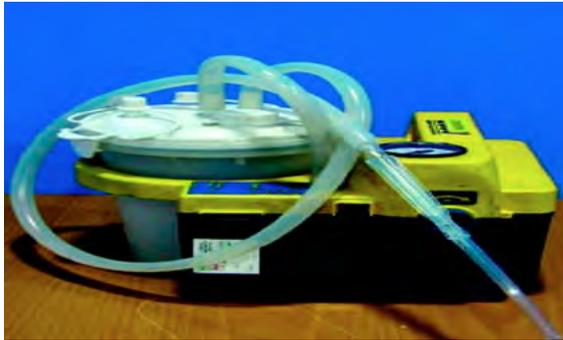


fig 5. Suction of secretions

Mask



fig 6. Mask.

Oropharyngeal airways

Oropharyngeal airways as Guedel canuls (fig.7 and 8), are available in sizes suitable for the newborn to large adults. An estimate of the size required is obtained by selecting an airway with a length corresponding to the vertical distance between the patient's incisors and the angle of the jaw. The most common sizes are 2, 3 and 4 for small, medium and large adults, respectively.



fig 7. Guedel canuls

using a reservoir system and attaching oxygen at a flow 10 lmin⁻¹. Although the bag-mask device enables ventilation with high concentrations of oxygen, its use by a single person requires considerable skill.

Nasopharyngeal airways

In patients who are not deeply unconscious, a nasopharyngeal airway is tolerated better than an oropharyngeal airway.

Self-inflating bag

The self-inflating bag (fig. 9) can be connected to a facemask, tracheal tube or supraglottic airway device (SAD). Without supplemental oxygen, the self-inflating bag ventilates the patient's lungs with ambient air (21% oxygen). The delivered oxygen concentration can be increased to about 85% by



Fig 9. Self-inflating bag



The two-person technique for bag-mask ventilation is preferable (fig. 10). One person holds the facemask in place using a jaw thrust with both hands, and an assistant squeezes the bag. In this way, a better seal can be achieved and the patient's lungs can be ventilated more effectively and safely.

2.5. Heimlich Manoeuvre

This is a sequence for performing abdominal thrusts described, and known as “**Heimlich manoeuvre**”:

1. Identify the shoulder blades of the victim upon approach. Inform the victim to be helped of what you will do.
2. Locate an open palm slap to their back, adopting a stable posture: introducing a leg between the victims; the other slightly behind the foot positioned transversely.
3. Surrounding the victim's waist with both arms. With the fingers of one hand to locate the navel. Without abandoning this reference,

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with the fingers of the other hand seek end of the breastbone (xiphoid called, last chest bone that contacts the abdomen, soft part).

4. Close the dominant hand in a fist and place the thumb inwards, on the abdomen of the victim, particularly at the midpoint between the umbilicus and xiphoid.
5. Surrounding the fist with your other hand and pull sharply inwards and upwards while strongly urging the patient to cough.
6. Repeat this action as many times as needed, to resolve the obstruction or until the victim becomes unconscious.

Special cases:

When the victim is an obese person or a pregnant woman, the point of application of the compression is the same as for performing chest compressions. Surrounding the victim having both arms under the armpits and embracing one hand with the other. Continue just like when applied the Heimlich manoeuvre.

Children over one year to puberty: compressions are performed the manner described in the case of people who are obese or pregnant women.