



### Definition

Basic airway management is known to improve patient survival rates in the prehospital field. Once the need for airway intervention has been identified, basic maneuvers and equipment must be used before proceeding with more advanced techniques.

### Interventions

Positioning the patient is the key first step in airway management:

1. Place padding under the patient's head to align the patient's ear with the sternal notch, unless contraindicated by spinal motion restriction; this maximizes airway patency and improves the mechanics of ventilation, both spontaneous and artificial
2. Flex the neck by using ear to sternal notch positioning; this maximizes the dimensions of the hypopharyngeal space
3. Use proper padding and support in obese patients to maintain position before placing them on the stretcher
4. A jaw thrust lifts the base of the tongue and epiglottis while opening the hypopharyngeal space

### 2-Person BVM Technique

Using 2 people to perform BVM ventilation greatly improves its effectiveness:

1. Properly position the patient for ear to sternal notch alignment
2. Use an OPA and/or NPA
3. One person performs a jaw thrust, lifting the jaw into the mask, simultaneously pressing the mask down on the nasal bridge
4. The second person slowly, gently squeezes the BVM
5. Work together to create a patent airway; do not force the air in

### Mask Ventilation Difficulties

1. Patients with dentures are easier to ventilate with the dentures in place
2. Apply a water-soluble lubricant to beards to flatten the hair and aid in forming a seal
3. Obese patients can develop airway obstruction at the hypopharynx, base of the tongue, and perilaryngeal structures; proper ear to sternal notch positioning is critical to relieve this

### Pre-oxygenation

Pre-oxygenation using 15 LPM nasal cannula can help avert hypoxia prior to and during the intubation process and should be applied in all hypoxic scenarios. This should be initiated early in the airway management pathway and should be administered concurrently with a non-rebreather mask or, when applicable, a BVM. Only once intubation has occurred and tube placement has been confirmed, should the nasal cannula be removed.

### Supraglottic Airways (SGAs)

1. There are many supraglottic airways available including iGel, King LT, LMA & Combitube
2. SGAs are considered an advanced airway adjunct and is within the PCP scope of practice
3. When using a SGA that is equipped with inflatable cuffs ensure correct positioning and use only the minimum amount of air needed to achieve a seal with the inflatable cuffs. Incorrect positioning and / or overinflating the cuffs may result in numerous complications (e.g. impaired cerebral blood flow, tracheal obstruction or esophageal perforation)
4. Revert to ventilating the patient with a BVM and OPA/NPA with 15 LPM oxygen via nasal cannula if insertion of the SGA airway is unsuccessful
5. The value of effective 2-person BVM ventilation in airway management cannot be overstated

### Patient Safety Considerations

- When using a SGA with inflatable cuffs, use only the minimum amount of air needed to achieve a seal

### End-Tidal CO<sub>2</sub> Monitoring (EtCO<sub>2</sub>) (35 – 45 mmHg)

1. Routine confirmation of airway placement with EtCO<sub>2</sub> monitoring is required. It is the presence of a waveform, not the absolute value, which confirms airway placement
2. Continuous EtCO<sub>2</sub> monitoring provides valuable information on airway placement and effectiveness of ventilation (OPA/NPA, BVM). A flat or absent EtCO<sub>2</sub> tracing likely indicates a misplaced or dislodged airway
3. Waveform and numerical value can be used to monitor hyperventilation and hypoventilation

### Conscious Patients

This includes patients who are awake or who can be awakened with verbal or painful stimuli.

Consider the following

1. Confirm a clear airway
2. On initial contact, rescuers must ensure that all patients have an open and adequate airway
3. The head-tilt/chin-lift or modified jaw thrust maneuver is used to open the airway of patients who are unable to do so on their own. The modified jaw thrust is used on patients who have suspected c-spine trauma
4. Noisy respirations indicate airway obstruction. Snoring respirations are usually relieved with proper airway positioning. Gurgling respirations indicate fluid in the oropharynx and these patients require placing in a recovery position

5. The inability to ventilate a patient after the airway has been cleared and repositioned once indicates an airway obstruction. The OBSTRUCTED AIRWAY algorithm is referred to at this point.

### Evaluate Respirations

1. Determine the rate, rhythm, and quality of respirations by looking and listening.
2. See if the chest is fully expanding. Count the breaths/min. See if the patient has accessory muscle use or has cyanosis (blue) around the mouth. Does the patient look like he/she is having difficulty breathing?
3. Listen to the breathing. Is it shallow or laboured? How many words can the patient speak in a sentence?
4. Consider rates below 8 slow and rates above 20 fast with signs of inadequate oxygenation, hypoxia, or a decreased LOC

### Patients Benefiting from Oxygen

If crews are equipped and trained to use oxygen, the following patients may benefit from oxygen treatment if SpO<sub>2</sub> is less than 94% on room air:

- Any patient whose chief complaint involves the airway, breathing, circulation, or nervous system
- Any patient suspected of being hypoxic or who has a history that indicates the potential for hypoxia
- Any patient with a history of altered LOC
- Any patient with chest pain
- Signs of smoke or toxic gas inhalation
- History of pulmonary edema
- Signs of shock
- Head injury or evidence of stroke
- Seizures
- Drowning/near drowning
- Trauma
- Poisoning or overdose

### Vomiting

- Patients who vomit require immediate reassessment of their airway patency
- If supine, vomiting patients are placed on their side and allow the emesis to drain
- Patients with suspected spinal injury should be maintained in neutral alignment while they are rolled onto their side
- If oxygen administration is discontinued due to vomiting and the vomiting episode lasts more than 30 seconds, consider applying a nasal cannula at 2 - 6 LPM until the administration of high-flow oxygen can be resumed

- Once vomiting is completed, the patient's status is re-evaluated using the primary survey

**Position**

- Avoid laying anyone in respiratory distress flat
- Keep patients sitting upright in a position of comfort
- Consider c-spine precautions

**Unconscious Patients**

This includes patients who do not respond to verbal or painful stimuli.

Consider the following

1. Confirm a Clear Airway
2. The head-tilt/chin-lift or modified jaw thrust maneuver is used to open the airway. The modified jaw thrust is used on patients with suspected c-spine trauma. An inability to ventilate a patient after the airway has been cleared and repositioned once indicates an airway obstruction. The OBSTRUCTED AIRWAY protocol is referred to at this point.

**Altered Level of Consciousness**

Consciousness is defined as an awareness of self and the environment.

Of all the central nervous system functions, mental status is the earliest indication of advancing disease.

Changes in a patient's LOC may be extremely subtle, with the patient appearing awake and alert, but disoriented to person, place, time, or event. Patients who appear asleep represent a more obvious alteration of consciousness and should be immediately evaluated for response levels. This includes noting the response to verbal stimuli and tapping the shoulder.

Causes of altered levels of consciousness are many and varied. The mnemonic

**AEIOU TIPS** provides a general overview of some common reasons for decreased or altered consciousness and includes:

- A Alcohol, ingested drugs, Arrhythmias
- E Endocrine disorder, Epilepsy
- I Insulin (too much, too little)
- O Overdose, Opiates, hypoxia “Oxygen”
- U Under dose, Uremia, (renal problems) hypertension
- T Trauma, Temperature, Tumour, Toxins
- I Infections
- P Psychiatric, Poison
- S Shock, Stroke, Seizures

Management of patients exhibiting an Altered LOC includes performing a primary survey with early administration of oxygen (if trained and equipped). Airway control and maintenance, although always a priority, requires continuous monitoring in a patient with diminished LOC.