



ANESTHESIA EQUIPMENT

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FACE MASK

The face mask is designed to fit the face anatomically and comes in different sizes to fit patients of different age groups (from neonates to adults). It is connected to the breathing system via the angle piece.

COMPONENTS

1. The body of the mask which rests on an air-filled cuff. Some paediatric designs do not have a cuff, e.g. Rendell–Baker (Fig. 6.2).
2. The proximal end of the mask has a 22-mm inlet connection to the angle piece.
3. Some designs have clamps for a harness to be attached.
4. The angle piece has a 90-degree bend with a 22-mm end to fit into a catheter mount or a breathing system

Face masks are of two types:

- (1) Reusable masks
- (2) Disposable masks

▶ Parts

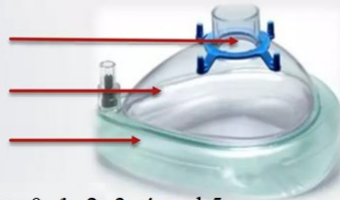
▶ Connector / mount

▶ Body

▶ Edge / seal

▶ Size

▶ The sizes available are 0, 1, 2, 3, 4 and 5.





MECHANISM OF ACTION

1. They are made of transparent plastic. Previously, masks made of silicon rubber were used. The transparent plastic allows the detection of vomitus or secretions. It is also more acceptable to the patient during inhalational induction. Some masks are 'flavoured', e.g. strawberry flavour.
2. The cuff helps to ensure a snug fit over the face covering the mouth and nose. It also helps to minimize the mask's pressure on the face. Cuffs can be either airfilled or made from a soft material.

MECHANISM OF ACTION

3. The design of the interior of the mask determines the size of its contribution to apparatus dead space. The dead space may increase by up to 200 mL in adults. Paediatric masks are designed to reduce the dead space as much as possible.

PROBLEMS IN PRACTICE AND SAFETY FEATURES

1. Excessive pressure by the mask may cause injury to the branches of the trigeminal or facial nerves.
2. Sometimes it is difficult to achieve an air-tight seal over the face. Edentulous patients and those with nasogastric tubes pose particular problems.
3. Imprecise application of the mask on the face can cause trauma to the eyes.



Nasal masks (inhalers)

1. These masks are used during dental chair anaesthesia.
2. An example is the Goldman inhaler which has an inflatable cuff to fit the face and an adjustable pressure limiting (APL) valve at the proximal end. The mask is connected to tubing which delivers the fresh gas flow.
3. Other designs have an inlet for delivering the inspired fresh gas flow and an outlet connected to tubing with a unidirectional valve for expired gases.

The Goldman nasal inhaler.



CATHETER MOUNT

This is the flexible link between the breathing system tubing and the tracheal tube, face mask, supraglottic airway device or tracheostomy tube. The length of the catheter mount varies from 45 to 170 mm.

COMPONENTS

1. It has a corrugated disposable plastic tubing. Some catheter mounts have a concertina design allowing their length to be adjusted.
2. The distal end is connected to either a 15-mm standard tracheal tube connector, usually in the shape of an angle piece, or a 22-mm mask fitting.
3. The proximal end has a 22-mm connector for attachment to the breathing system.
4. Some designs have a condenser humidifier built into them.
5. A gas sampling port is found in some designs.



MECHANISM OF ACTION

1. The mount minimizes the transmission of accidental movements of the breathing system to the tracheal tube. Repeated movements of the tracheal tube can cause injury to the tracheal mucosa.
2. Some designs allow for suction or the introduction of a fiberoptic bronchoscope. This is done via a special port.

PROBLEMS IN PRACTICE AND SAFETY FEATURES

1. The catheter mount contributes to the apparatus dead space. This is of particular importance in paediatric anaesthesia. The concertina design allows adjustment of the dead space from 25 to 60 mL.
2. Foreign bodies can lodge inside the catheter mount causing an unnoticed blockage of the breathing system. To minimize this risk, the catheter mount should remain wrapped in its sterile packaging until needed.



SPECIFIC MASKS:

- **The Rendell-Baker-Soucek (RBS) mask:**

It has a triangular body due to which, this mask has low dead space. The minimal dead space in the masks (4 cc in size 1 and 8 cc in size 2) , useful in pediatric patients.

- This mask can be used for the patient with a tracheostomy.



SPECIFIC MASKS:

- **Endoscopic Masks**

An endoscopic mask is specifically designed to allow mask ventilation during endoscopic procedures



SPECIFIC MASKS



- **Masks for Noninvasive Positive Pressure Ventilation or Continuous Positive Airway Pressure.**
- These masks are made of plastics and soft silicone rubber similar to anesthesia face masks, but are of better quality for more comfort and tolerability.
- They may cover the mouth and nose or just the nose for nasal continuous positive airway pressure (CPAP).



Thank you