Uses

- Patient transport
- Emergency resuscitation
- Stimulation of a cough
- Tracheobronchial aspiration
- Preparation for attachment to a mechanical ventilator
- Backup ventilation for MV

Types

- Self-Inflating
- Flow-Inflating
Manual Resuscitators

Self-Inflating

• AMBU = ____________________

• Many different models - differ in
  – Design
  – Materials of construction
  – Type of non-rebreathing valve
  – Intake valve

Units should have:

• Bag (proper size for patient); transparent

• Nonrebreathing ____________________ capable of 30 lpm input flow w/o jamming

• Provide up to ___________% O₂

• Be constructed of materials that are easy to clean/disinfect/sterilize
Units should have:
- ______________ valve with diaphragm
- Face mask
- Standard 15/22 mm ______________
- Good performance under extremes of temperature and humidity
- When disabled by vomitus, the valve should be capable of being restored to proper function within 20 sec.

Features “Nice” to Have
- ______________ valve
- O₂ reservoir
- Adjustable ______________

Principles of Use
- Must always be tested before use
- ______________ system must be maintained between bag and patient
- Must observe ______________
- On non-intubated patients - care must be taken to prevent aspiration of vomited materials
Manual Resuscitators

Principles of Use

• Excessive inflation pressures can cause stomach distension and ______________; excessive volumes can cause ______________
  • Supplemental O₂ must be added to ↑ FIO₂ > 0.21
  • ____________________ use

Principles of Use

• FIO₂ delivered depends on:
  – Stroke volume
  – Refill time
  – Rate of compression
  – O₂ flow rate
  – Reservoir size

Principles of Use

• Relief valve or “pop-off” should be ______________ so that high pressures can be delivered if needed
• PEEP attachments should be available
• If using bag/mask - may need to use ______________ airway
Manual Resuscitators

Hazards

• Delivery of high pressures (barotrauma)
  – Pneumothorax
  – Gastric distension
• Improper function
• Poor technique

Operation

• Inspiration
  – When bag squeezed, positive pressure generated causes 1-way patient valve to open and 1-way air intake valve to close
  – Air leaving bag can only go to patient

• Expiration
  – Positive pressure of exhaled gas closes patient valve
  – Negative pressure generated by release of bag open air intake valve and air/O2 refills bag
**Manual Resuscitators**

### Operation
- If supplemental O\(_2\) used, flow must be set so reservoir bag does not collapse as bag refills
- When bag is fully expanded excess O\(_2\) flow is vented to atmosphere
- If PEEP attachment used, exhaled gases are diverted through attachment

### Applying Face Mask
- Designed to fit over nose and mouth to provide air-tight seal

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**Applying Face Mask**
- Mask is held with thumb and first finger, while other 3 fingers will hold chin
Manual Resuscitators

Applying Face Mask

- Mask should be placed on chin first, then lowered over nose as head is tilted back

Tips for proper seal
- Select proper mask size: smallest mask that will cover nose and mouth
  - $V_D$
  - good seal
- Hard to fit over
  - Beards
  - Tubes
  - Burns

Flow-Inflating
Manual Resuscitators

Flow-Inflating

• No ______________
• No ______________
• Requires flow of gas to inflate
• Provide _________% FIO₂
• Easy to feel compliance and resistance of lungs and airways