Oxygen and Airway Adjuncts

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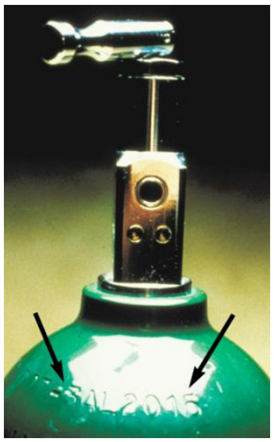
Oxygen ("O_2")

- Supplied as **medical** oxygen
  - **Not the same as commercial oxygen**
- Supports combustion, but is not flammable
- **When full, a tank contains 2000 psi**
- Exercise **care** when handling and storing oxygen tanks

Oxygen ("O_2")

- Oxygen **regulators** convert pressure to a working pressure of **50 psi**
  - Further regulated by flowmeter
- **P**in **I**ndex **S**afety **S**ystem
  - "PISS"
- **"Safe residual pressure" is 200 psi**

PISS for Oxygen



Yoke Regulator

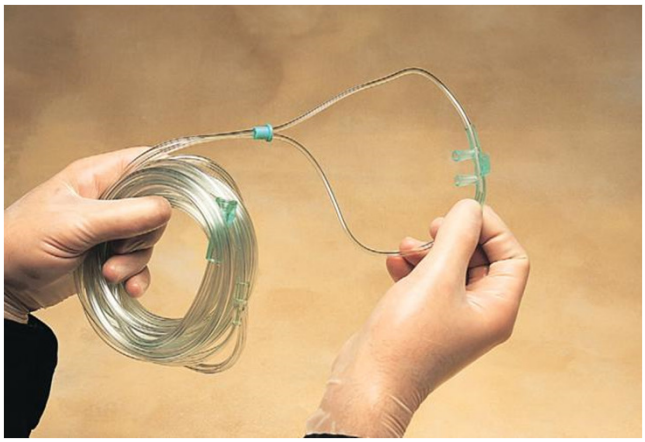
"On Board" Regulator

Oxygen Delivery Devices

- Nasal Cannula
  - Low flow, low percentage
  - 20 – 44% oxygen
- NonRebreather Mask
  - High flow, high percentage
  - ***Up to*** approximately 80 - 90% oxygen
- Bag Valve Mask ("BVM")
  - High flow, high percentage
  - Close to 100% oxygen
  - **Used to *ventilate* patients with inadequate respirations**

NonRebreather Mask

Nasal Cannula



Partial Rebreathing Masks

- Similar to nonrebreathing mask
  - Except no one-way valve between mask and reservoir
  - Consequently, patients rebreathe a small amount of exhaled air.
  - Advantageous if patient is hyperventilating
    - Not in NY State Protocol

Venturi Masks

- A number of settings can vary the percentage of oxygen while a constant flow is maintained.
- Medium-flow device that delivers 24% to 40% oxygen
- Useful in long-term management of physiologically stable patients

Venturi Mask

Tracheostomy Masks (1 of 2)

- Patients with tracheostomies do not breathe through their mouth and nose.

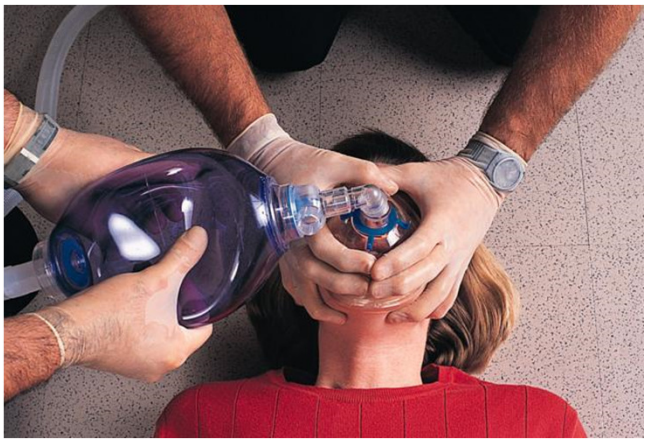
Tracheostomy Masks (2 of 2)

- Tracheostomy masks cover the tracheostomy hole and have a strap that goes around the neck.
  - May not be available in an emergency setting
  - Improvise by using a face mask instead, placed at the tracheostomy opening.

BVM

BVM – one rescuer

BVM – two rescuer



Some important facts

- Inhaled air contains
  - 21% oxygen
  - 79% other gasses
- Exhaled air contains
  - 16% oxygen
  - 4% carbon dioxide

Why do we breath?

- **The average healthy human breaths due to "CO_2 drive"**
  - **Increased CO_2 levels in arterial blood detected in the brain stimulate inhalation**
  - **"COPD" patients may breath due to a "hypoxic drive"**
    - **Decreased arterial O_2 levels detected in the brain stimulate inhalation**

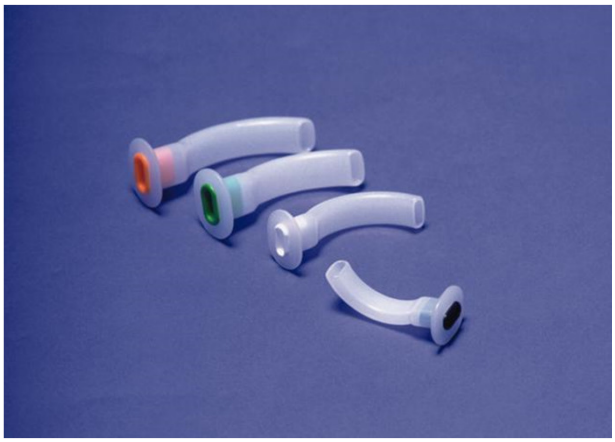
Airway Adjuncts

- Mechanical devices that *assist* in keeping the airway patent (open & clear)
  - **Does not substitute for routine airway control (e.g. head tilt/chin lift)**
- Oropharyngeal Airway – "OPA"
- Nasopharyngeal Airway – "NPA"
- Suction

Oropharyngeal Airway – "OPA"

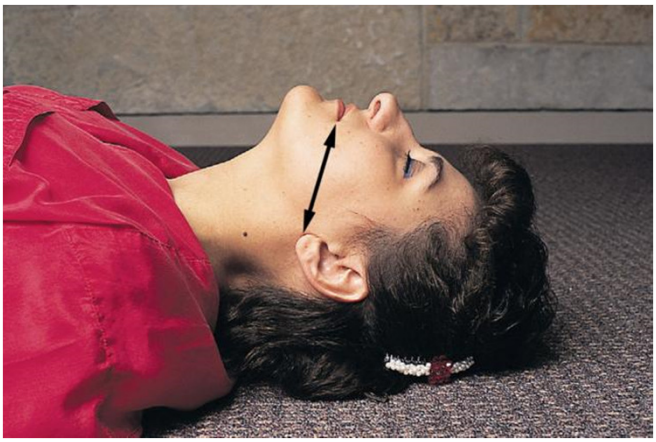
- Used in patients with no gag reflex who are unresponsive
- **Must be sized correctly!**
  - Measured from the corner of the patients mouth to the tip of the earlobe – or
  - From the center of the patients mouth to the angle of the lower jawbone

One type of OPA



Inserting the OPA

Inserting the OPA



Inserting the OPA

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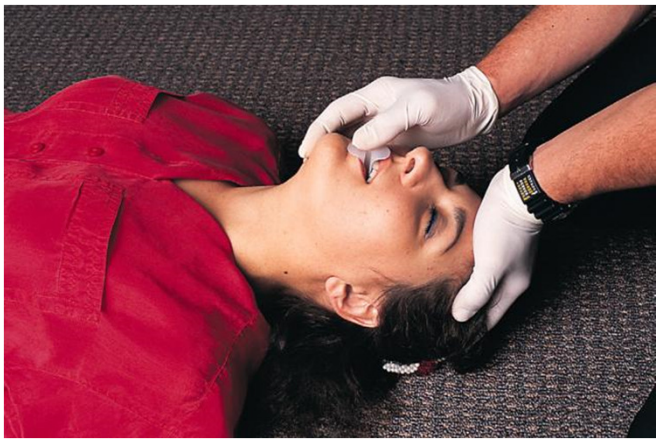
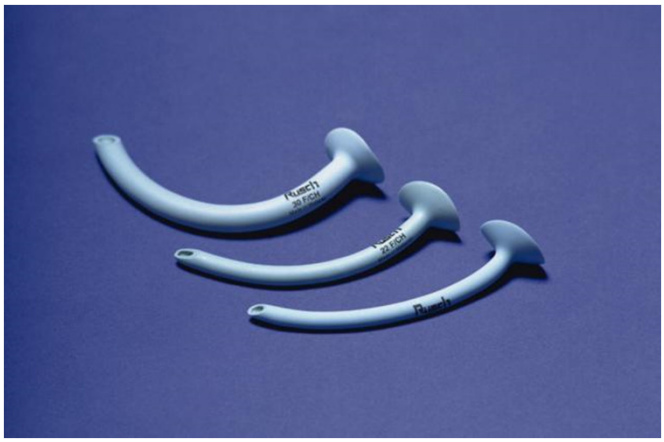


Nasopharyngeal Airway – "NPA"

- Can be used in conscious patients and is generally well tolerated
- Measured from the patients nostril to the earlobe **or** angle of the lower jawbone

NPA



Inserting the NPA

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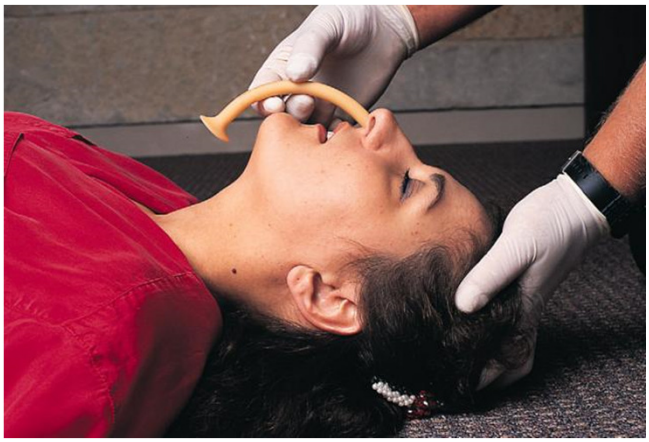


Inserting the NPA

Suction

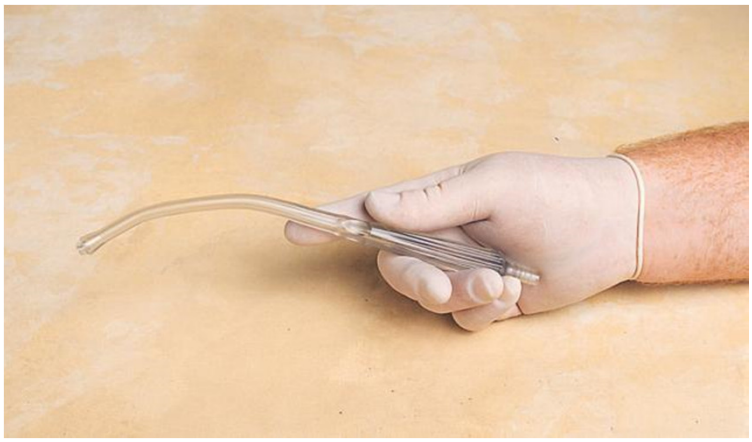
- Mechanical means of removing debris from the mouth or nose or throat area
- Two types
  - Fixed – on the ambulance
  - Portable
- **Suction for no more than 15 seconds**
  - **As long as you comfortably hold your breath**
- Suction Catheters
  - Rigid ("Yankauer", "Tonsil Tip")
  - Soft ("Whistle Tip")

Fixed Suction

Portable Suction

Portable Electronic Suction

Yankauer Catheter



Whistle Tip Suction