

# Bullet Point Nursing

## Nursing Fundamentals – Oxygen administration

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### Oxygen

- Prescription medication
- Hypoxia is a low level of oxygen
- Hypoxemia is another term used here that means low level of oxygen in the blood
- Hyperoxia is too much oxygen and can be harmful if given in excess
  - Can cause oxygen toxicity
  - Can cause apnea in patients with hypoxic drive
- Not indicated for pulse ox levels above 94%
- Should never be withheld in an emergency where the patient is hypoxic

### FiO<sub>2</sub>

- Room air oxygen has a fraction of inspired oxygen (FiO<sub>2</sub>) of 21%
  - This means that 4/5ths of the air we bring into our lungs is useless, contains no oxygen
- Goal of oxygen administration is to increase the FiO<sub>2</sub>
  - This makes our lungs bring in more oxygen with less work

### Delivery devices

- Nasal cannula
  - Often used as first line option for administering oxygen
  - Increases the FiO<sub>2</sub> by approximately 4% per LPM
  - Flow rates are 1-6 LPM
  - Patients may be on this in the home setting
  - Assess for skin breakdown behind the ears and in the nares with prolonged usage
  - May be humidified for long term use to prevent drying out the mucous membranes
- Face mask
  - Flow rate is 5-8 liters per minute
  - Can achieve an FiO<sub>2</sub> of around 40%
- Venturi mask
  - These masks are used to deliver a precise amount of oxygen
  - They use color coded adaptors to regulate exact FiO<sub>2</sub>
  - Adaptor being used must be matched with the correct flow rate
- Non-rebreather (NRB) mask
  - Most common for emergencies and significant respiratory distress
  - Not used long term
  - Flow rates are 10-15 LPM
  - Can achieve an FiO<sub>2</sub> of 90% -100%
  - Has a bag, or reservoir, that must be inflated prior to placing this on the patient

# Bullet Point Nursing

- Bag valve mask (BVM)
  - Used to provide oxygenation and ventilation
    - Is used when a patient is not breathing on their own
  - Can achieve an FiO<sub>2</sub> of 90% -100%
  - Consists of a self-inflating bag and reservoir
  - Flow rate is 15 LPM

## Inhalation medications

- Medication may be administered via a nebulizer
  - The medication is placed in a reservoir and is aerosolized by the flow of oxygen
  - Flow rate should be 6-8 liters per minute
    - O<sub>2</sub> tubing may pop off the wall if the flow rate is too high
  - Can be given with oxygen via handheld device or attached to a face mask
    - Can also be given “in-line” to a patient on a mechanical ventilator

## Adjunctive airway devices and maneuvers

- Head-tilt, chin-lift is a common technique to open the airway in an apneic patient
- Jaw thrust is an alternative method in the apneic patient with possible cervical injury
- Nasopharyngeal (NPA) is used to maintain an open airway in patients
- Oropharyngeal airway (OPA) is used to maintain an open airway in unresponsive patients
- Endotracheal intubation is an advanced technique to maintain a secure airway and provide ventilations

# Bullet Point Nursing

## References

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