Oxygen Therapy

By Clinical Educators
Learning Outcomes

To enable staff to:

- Discuss the need for oxygen therapy
- List the signs and symptoms of respiratory inadequacy
- State the causes of respiratory failure
- Discuss complications of oxygen therapy
- Describe the different oxygen delivery systems
- Describe the systematic approach to assessment, monitoring and management of the patient with breathing problems
- Identify when help is needed
Oxygen Therapy

Oxygen is the elixir of life, it is required for the body to function normally. All cells require oxygen, without oxygen tissues will die.

Oxygen delivery depends on good ventilation, gas exchange and effective circulation.

Oxygen is a drug and therefore should be prescribed. Patients who are receiving oxygen should have regular observations and their oxygen requirements should be reviewed regularly.

Smith et al (2012)
Respiratory failure occurs when system fails to maintain normal physiological parameters for the patient. There are two types of Respiratory Failure:

Type 1 and Type 2
Hypoxia (Low oxygen levels)
Normal or low CO2

Common Causes:
- Pneumonia
- Shock
- Myocardial Infarction (heart Attack)
- Sepsis
- Asthma
- Pulmonary Embolism

British Thoracic Society (2017)
Type 2 Respiratory Failure

- Patients retain CO2 (hypercapnia)
- Hypoxia
- Acidaemia (low pH)

Common Causes:
- Chronic Obstructive Pulmonary Disease (COPD)
- Neuromuscular diseases
- Morbid Obesity

British Thoracic Society (2017)
Complications of Oxygen Therapy

- Some patients with COPD retain Carbon Dioxide (CO2). These patients function on a higher CO2.
- When a patient has COPD we should aim for lower oxygen saturations (88 and 92% as stated on the NEWS Chart).
- If we aim for higher saturations we can knock off the patient's respiratory drive thus causing the CO2 to rise. The rise in CO2 can cause the patient to become unconscious and eventually cause their death.
- This can be described as oxygen toxicity.
Complications of Oxygen Therapy

Symptoms of Oxygen toxicity

- **Eyes**
  - Visual field loss
  - Near-sightedness
  - Cataract formation
  - Bleeding
  - Fibrosis

- **Central**
  - Seizures

- **Respiratory**
  - Jerky breathing
  - Irritation
  - Coughing
  - Pain
  - Shortness of breath
  - Tracheobronchitis
  - Acute respiratory distress syndrome

- **Muscular**
  - Twitching
Oxygen Delivery Systems

Nasal Cannula:
1 to 6 litres

Hudson Face Mask:
5 to 10 litres
- Must NOT be used below 5 litres as patient at risk of Rebreathing Carbon Dioxide

Aerosol Mask with Venturi Valves:
- Use flow indicated on the valve to deliver specific Oxygen %

High Concentration Non–Rebreathing Mask:
- 15 Litres ONLY as patient breathing from Reservoir Bag
- This is not for prolonged use. The High Concentration mask are for the acutely unwell and are for use in an emergency
A–E assessment

Airway: Are they talking to you?
*If they are talking to you they have a patent airway.*

Breathing

Can they talk in full sentences? Are they Breathless?
Are there any added sounds?
*Wheeze*
*Stridor*
Monitoring of Patients with Breathing problems

- NEWS chart
  - Respiratory rate
  - Oxygen Saturations
  - Blood Pressure
  - Heart rate
  - AVPU
  - Temperature
  - Pain
  - Fluid balance

Think about:
- Frequency of observations
- Escalation pathway