




# OXYGEN IN ADULTS PRESCRIPTION AND ADMINISTRATION

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Ratifying committee or executive director	Clinical Governance Committee	
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Executive director	Director of Nursing	
Policy lead	Deputy Director of Nursing	
Policy author <i>(if different from above)</i>	Lead Nurse for Physical Health	
Exec Sign off Signature (electronic)		
Disclosable under Freedom of Information Act 2000	Yes	

## Policy context

The aim of this policy is to ensure that:

- All patients who require supplementary oxygen therapy receive therapy that is appropriate to their clinical condition and in line with national guidance (British Thoracic Society [BTS] Guideline 2017).
- Oxygen will be prescribed according to a target saturation range. The system of prescribing target saturation aims to achieve a specified outcome, rather than specifying the oxygen delivery method alone.
- Those who administer oxygen therapy will monitor the patient and keep within the target saturation range.
- All references are to 2017 BTS Guideline for oxygen use in adults in healthcare and emergency settings (British Thoracic Society Emergency Oxygen Guideline Development Group, 2017)

## Policy requirement (see Section 2)

This Policy identifies:

- This is a Trust wide policy to guide the safe and effective prescribing and administration of oxygen in adults.
- Therefore, all clinical staff involved with the prescribing and administration of oxygen therapy must read this policy

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## 1. Introduction

Information on oxygen safety can also be found at (British Thoracic Society Emergency Oxygen Guideline Development Group, 2017)

Information of the oxygen as a medical gas can be found at (BOC, 2022) (BOC, 2022)

### 1.1 Rationale (why):

This policy will ensure that all patients who require oxygen are given the correct amount of oxygen using the most appropriate equipment.

The administration of supplemental oxygen is an essential element of appropriate management for a wide range of clinical conditions; however, oxygen is a drug and therefore requires prescribing in all but emergency situations.

Failure to administer oxygen appropriately can result in serious harm to the patient. The safe implementation of oxygen therapy with appropriate monitoring is an integral component of the Healthcare Professional's role

The guideline is based on the British Thoracic Society (BTS) Guideline for oxygen use in adults in healthcare and emergency settings 2017.

### 1.2 Scope (when, where and who):

This policy applies to the whole of the Trust and all Trust staff. Staff working in clinical settings provided by other organisations must also familiarise themselves with their hosts Policies, procedures and protocols.

The policy also includes the prison service; however, the ordering and storing of oxygen will be co-ordinated via their own SOP.

### 1.3 Principles (beliefs):

The aim of this policy is to ensure that:

Suitably trained Trust clinical staff must be aware of: -

- All patients who require supplementary oxygen therapy receive therapy that is appropriate to their clinical condition/clinical need and is in line with national guidance (British Thoracic Society Emergency Oxygen Guideline Development Group, 2017) – this guideline was reviewed and again approved in 2022
- Oxygen should be regarded as a drug. It is prescribed for hypoxaemic patient to decrease the work of breathing.
- The concentration of oxygen requirement depends on the condition being treated
- Administration of an inappropriate concentration of oxygen may have serious or even fatal consequences.

- Oxygen will be prescribed according to a target saturation range. The system of prescribing target saturation aims to achieve a specified outcome, rather than specifying the oxygen delivery method alone.
- Those who administer oxygen therapy must monitor the patient's oxygen saturations and keep them within the target range.
- *The Trust positively supports individuals with learning disabilities and ensures that no-one is prevented from accessing the full range of mental health services available. Staff will work collaboratively with colleagues from learning disabilities services and other organisations, in order to ensure that service users and carer's have a positive episode of care whilst in our services. Information is shared appropriately in order to support this.'*

## 2 The policy

- ⊕ This is a Trust wide policy to guide the safe and effective prescribing and administration of oxygen in adults.
- ⊕ All clinical staff involved with the prescribing and administration of oxygen therapy must be familiar with this policy

## 3 Procedure

Prescribing, administering, and monitoring oxygen saturation

- ⊕ Oxygen should be regarded as a drug. It is prescribed for hypoxaemic patient to increase alveolar oxygen tension and decrease the work of breathing, (except in a medical emergency when it can be given at 15 litres stat.)
- ⊕ The concentration of oxygen required depends on the condition being treated
- ⊕ Administration of an inappropriate concentration of oxygen may have serious or even fatal consequences. (National Institute for Health and Care Excellence, 2022)

Oxygen should be prescribed to achieve a recommended target saturation range of

- ⊕ **94-98% for most acutely unwell patients or**
- ⊕ **88-92% for those at risk of hypercapnic respiratory failure.** (*Consider advanced cystic fibrosis, bronchiectasis, lung scarring caused by tuberculosis, neuro-muscular disease, known severe or moderate COPD*)

Those who administer oxygen therapy must monitor the patient's oxygen saturations and keep them within the target range.

Guidance from BTS on identifying appropriate saturations for patients is provided for the prescribers in Appendix 2-3 (table 3-4).

\*\* be aware these tables are based on acute hospital admissions and acutely unwell patients. Please consider if they are appropriate in our mental health units or if urgent transfer to acute hospital is required instead\*\*

## Prescribing oxygen

- 3.1.1 All patients requiring oxygen therapy should have a target saturation range established so that the clinical staff are aware of the patient's needs if they should develop hypoxaemia.
- 3.1.2 Oxygen is classed as a medication and should always be prescribed on EPMA (except in emergency situations – see section 3.4) **(National Institute for Health and Care Excellence, 2022)**
- 3.1.3 When writing the prescription, it should state
  - ⊕ The prescription should state the percentage (e.g., 24% -not 4 litres)
  - ⊕ The prescription should state delivery device (e.g., nasal cannula)
  - ⊕ The prescription should state the target oxygen saturations (e.g., 94-98%)
  - ⊕ Duration (e.g., continuous until review)

## 3.2 Administering oxygen

- 3.2.1 Once the target saturation has been identified and prescribed, the most appropriate delivery system should be used. (Appendix 8)
- 3.2.2 When administering oxygen, the staff should always assess the device is still appropriate and is not damaged. If this is the case the device needs to be changed.
- 3.2.3 It is essential to set up the cylinder correctly and regularly check the oxygen level in the cylinder. (Appendix 7) Failure to do so could result in serious harm by: -
  - ⊕ Failure to provide therapeutic oxygen as
  - ⊕ Potentially for the patient to be suffocated by a mask without oxygen running

## 3.3 Monitoring and recording oxygen

- 3.3.1 The patient's oxygen saturation and oxygen delivery system should be recorded on the inpatient portal and ONLY on the paper observation chart if this is not available.
- 3.3.2 Appendix 8 provides information about oxygen delivery device choices. Patients should thus be monitored as specified in Appendix 4-5.
- 3.3.3 All patients on oxygen therapy should have regular SpO<sub>2</sub> (Saturation measured by pulse oximetry) measured alongside their NEWS2 score. **(Birmingham and Solihull Mental Health Foundation Trust, 2019)** The frequency of pulse oximetry measurements will depend on the condition being treated and the stability of the patient. Acutely ill patients should have their oxygen saturations monitored

continuously and recorded every few minutes, whereas patients with a stable condition will need less frequent monitoring. (Appendix 4)

- 3.3.4 Oxygen therapy should be increased if the saturation is below the desired range and decreased if the saturation is above the desired range (and eventually discontinued as the patient recovers). (Appendix 4-5)
- 3.3.5 Any sudden fall in oxygen saturation should lead to clinical evaluation of the patient and in most cases, measurement of blood gases will be required and therefore, the patient would require urgent transfer to an acute hospital
- 3.3.6 Patients on oxygen should have their saturations recorded in line with the trust guidelines **(Birmingham and Solihull Mental Health Foundation Trust, 2019)**
- 3.3.7 Patients should be monitored accurately for signs of improvement or deterioration. Nurses should observe the follow NEWS2 assessment but particularly the respiratory rate, effort of breathing and the peripheral skin colour for any signs of cyanosis
- 3.3.8 It is sometimes possible to obtain a pulse oximetry signal from the earlobe if the circulation in the fingers is poor.
- 3.3.9 If a patient has elevated NEWS2 because of saturation below the target range, the nurse should increase the concentration of flow of oxygen and immediately contact the doctor whilst continuing to monitor the saturation on the increased dose of oxygen. **(Birmingham and Solihull Mental Health Foundation Trust, 2019)**
- 3.3.10 If a patient has elevated NEWS2 purely because of being on oxygen with saturation above target range but is otherwise clinically stable, the nurse should reduce the concentration or flow of oxygen and repeat the NEWS2 measurement after about 5 minutes. It is not necessary to call a doctor to assess the patient just to reduce the oxygen saturation into the desired range if there are no clinical concerns.

### **3.4 Emergency situations**

- 3.4.1 In an emergency situation oxygen prescription is not required. Oxygen should be given to the patient immediately without a formal prescription or drug order but documented later in the patient's record.
- 3.4.2 All acutely ill patients should be given 100% oxygen (15 l/m reservoir mask) whilst awaiting immediate medical review or transfer to the acute trust. Patients with COPD and other risk factors for hypercapnia who develop critical illness should have the same initial target saturations as other critically ill patients, pending transfer to acute care for urgent blood gases, after which these patients may need controlled oxygen therapy or supported ventilation in the acute setting. If there is severe hypoxaemia and/or hypercapnia with respiratory acidosis this will not be managed within our trust.
- 3.4.3 All patients who have had a cardiac or respiratory arrest should have 100% Oxygen provided along with basic/emergency/immediate life support until return of

spontaneous circulation and reliable pulse oximeter readings are achieved.

**(Resuscitation Council UK, 2021)**

3.4.4 A subsequent written record on the SBARD form (previously known as SBAR) must be made of what oxygen therapy has been given alongside the recording of all other emergency treatment.

3.4.5 Any registered professional can commence oxygen therapy in an emergency as indicated in the Management of the Deteriorating Patient Policy

### **3.5 Exclusions**

3.5.1 Patients admitted to specialist areas with a specialised oxygen prescribing policy (section 3.7)

3.5.2 Patients receiving oxygen as part of palliative care or patients on the end-of-life care pathway (in which case, the prescriber should indicate that target saturation is not required). Please consider in end-of-life seeking specialist palliative care advice related to ordering continual oxygen via a HOOF form. [Home Oxygen Order Form \(HOOF\) Part A \(baywater.co.uk\)](#)

### **3.6 Specialist Area**

3.6.1 This policy is for general use within general wards and community Hubs. Where specific clinical guidelines are required for oxygen administration within specialist areas, they must be approved via the appropriate local clinical governance forum.

3.6.2 Mother & baby unit will receive additional training as identified through their clinical governance systems

### **3.7 Indications**

3.7.1 The rationale for oxygen therapy is prevention of cellular hypoxia, caused by hypoxaemia (low PaO<sub>2</sub>), and thus prevention of potentially irreversible damage to vital organs.

3.7.2 The most common reasons for oxygen therapy to be initiated are:

- ⊕ Acute hypoxaemia (for example pneumonia, shock, asthma, heart failure, pulmonary embolus, sepsis)
- ⊕ Ischaemia (for example myocardial infarction, but only if associated with hypoxaemia (abnormally high blood oxygen levels may be harmful to patients with ischaemic heart disease and stroke).
- ⊕ Abnormalities in quality or type of haemoglobin (for example acute GI blood loss or carbon monoxide poisoning).

### 3.7.3 Other indications include:

- ⊕ Pneumothorax – Oxygen may increase the rate of resolution of pneumothorax in patients for whom a chest drain is not indicated.
- ⊕ Post-operative state (general anaesthesia can lead to decrease in functional residual capacity within the lungs (especially following thoracic or abdominal surgery) resulting in hypoxaemia (**Kelkar, 2015**)
- ⊕ It is preferable to specify target saturation and only administer oxygen if the patient is hypoxaemic.

### 3.8 Contra-indications

- 3.8.1 There are no absolute contraindications to oxygen therapy if indications are judged to be present. The goal of oxygen therapy is to achieve adequate tissue oxygenation using the lowest possible (percentage) FiO<sub>2</sub>.
- 3.8.2 Supplemental oxygen should be administered with caution in patients suffering from paraquat poisoning and with acid inhalation or previous bleomycin lung injury.

### 3.9 Cautions

- 3.9.1 Oxygen administration in a patient with carbon dioxide retention (Type 2 Respiratory Failure)
- 3.9.2 In patients with chronic carbon dioxide retention, oxygen administration may cause further increases in carbon dioxide and respiratory acidosis. This may occur in patients with COPD, neuromuscular disorders, morbid obesity, or musculoskeletal disorders but there are other factors. (**British Thoracic Society Emergency Oxygen Guideline Development Group, 2017**)

### 3.10 Other precautions/ Hazards/ Complications of oxygen therapy

- ⊕ Drying of nasal and pharyngeal mucosa
- ⊕ Oxygen toxicity
- ⊕ Absorption atelectasis
- ⊕ Skin irritation
- ⊕ Fire hazard
- ⊕ Potentially inadequate flow resulting in lower FiO<sub>2</sub> than intended due to high inspiratory demand
- ⊕ Inappropriate oxygen delivery device or equipment faults
- ⊕ Ligature risk



### **3.11 Oxygen tubing and oxygen wall outlets (ECT only)**

- 3.11.1 Oxygen tubing is needed to connect flow meters and regulators to the patient delivery device. It is important to ensure that all tubing is connected correctly at both ends. (Appendix 7)
- 3.11.2 Air flow meters should be removed from the wall sockets or covered with a designated air outlet cover when not in use. Special care should be taken if twin oxygen outlets are in use) Appendix (Appendix 7)

### **3.12 Transportation of patients with oxygen (acute care only) - just for information**

- 3.12.1 *Patients who are transferred from one area to another must have clear documentation of their on-going oxygen requirements and documentation of their oxygen saturations. Staff must ensure that adequate oxygen is provided during transfers and whilst patients are in diagnostic departments. Oxygen saturation should be monitored continuously by registered healthcare professionals for seriously ill patients who require escorted transfers.*
- 3.12.2 *Patients who are medically unstable and those requiring high dose oxygen therapy (Reservoir mask, Venturi mask above 35% or Humidified oxygen above 35% or nasal or simple mask above 5 l/min) whilst being transferred from one area to another should be accompanied by a registered healthcare professional.*
- 3.12.3 *HCA staff may transfer stable patients with low NEWS who are on low dose oxygen. - This must be assessed and authorised as safe via the NIC of the ward*
- 3.12.4 *Clear instructions must be provided for personnel involved in the transfer of the patient, which must include delivery device and flow rate.*
- 3.12.5 *Staff must ensure there are adequate numbers of oxygen cylinders are that they are full when they leave the department/ward.*
- 3.12.6 *If a patient transfers from an area not utilising the target saturation system (see specialist areas above) their oxygen should be administered as per the transferring areas prescription until the patient is reviewed and transferred over to the target saturation scheme, which should occur as soon as possible.*

### **3.13 Sedation / Tranquillisation**

- 3.13.1 The use of oxygen should be considered in relation to patient need following use of rapid tranquilisation or seclusion

### **3.14 Requesting and Ordering Oxygen Cylinders**

- 3.14.1 It is the trust policy that all wards, day units and community units, where patients attend, have resuscitation equipment that includes oxygen cylinders
- 3.14.2 All wards, day units and community units, where patients attend, are required to have a designated named person who is responsible for ensure that her are two full oxygen

cylinders available and there is a process in place for ordering replacements when an oxygen cylinder has become empty

3.14.3 All areas need to ensure that any oxygen cylinders are stored and serviced correctly. Even if an oxygen cylinder isn't the cause of the fire, they are likely to explode in the high temperatures of a fire, causing even greater damage. (See appendix 9 for storage details)

3.14.4 The protocol and procedure for requesting and ordering oxygen cylinders (**Birmingham and Solihull Mental Health Foundation Trust, 2021**) is available on Connect [Oxygen Replacement Protocol 29 July 2021 v6.pdf](#)

#### 4 Responsibilities

This should summarise defined responsibilities relevant to the policy.

Post(s)	Responsibilities	Ref
<b>All Staff</b>	Ensure all service users have appropriate management of any oxygen prescription Staff have access to all relevant information and training	
<b>Service, Clinical and Corporate Directors</b>	Provide assurance and support to management to ensure that this policy is adhered to and that where necessary training is provided	
<b>Policy Lead</b>	Monitor implementation of the policy across the trust. Provide support and knowledge where required	
<b>Executive Director</b>	To ensure that the policy is circulated across all services with a clear briefing that all processes regarding ratification are completed	
<b>SSL</b>	Oxygen is a specialist medical gas and requires specific training and awareness for its safe transportation. Standards for the safe transportation of oxygen cylinders are guided by nationally accepted BOC guidelines.	(BOC, 2022)
<b>Resuscitation</b>	To have oversight of the implementation and review of the policy	

#### 5 Development and Consultation process consisting of:

5.1 Consultation summary	
Date policy issued for consultation	7 <sup>th</sup> April 2022
Number of versions produced for consultation	5
Committees / meetings where policy formally discussed	<b>Date(s)</b>
Physical Health Committee	3 <sup>rd</sup> May 2022

Resuscitation Committee		3 <sup>rd</sup> May 2022
Pharmacological Therapies Committee		May 2022
<b>PDMG</b>		8 <sup>th</sup> June 2022
Where received	Summary of feedback	Actions / Response
H&S	Add a section re storage of oxygen	Agreed and added
Physical Health	No details about EoL ordering of HOOF	Agreed and added
PDMG	Remove implementation plan	Agreed and removed

This policy should be read in conjunction with the following policies and guidelines

[Policies - Policies \(sharepoint.com\)](#)

RS 01 Risk management Policy

RS 15 Fire Safety Policy

RS 16 Health and Safety Policy

RS 19 Diagnostic and Therapeutic Equipment

RS 18 COSHH Policy

IC 01 Infection Control Policy

CG 03 Rapid Tranquilisation Policy

CG 04 Managing of the Deteriorating Patient Policy

CG 06 Medicines Code Policy

CG 38 Physical Health Assessment Policy

CG End of Life Policy

NEWS and SBAR clinical guidelines <https://bsmhftnhsuk.sharepoint.com/sites/connect-trustguidelines/Shared Documents/Forms/AllItems.aspx?id=%2Fsites%2Fconnect-trustguidelines%2FShared Documents%2FPhysical Health %26 Psychological therapies%2FNEWS2 and SBAR clinical guidelines%2Epdf&parent=%2Fsites%2Fconnect-trustguidelines%2FShared Documents%2FPhysical Health %26 Psychological therapies>

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## 7 Bibliography:

no documents

## 8 Glossary

BTS	British Thoracic Society
COPD	Chronic Obstructive Pulmonary Disease
CPAP	Continuous Positive Airway Pressure
FiO <sub>2</sub>	Fraction of Inspired Oxygen (% of oxygen being breathed in)
GI	Gastro-Intestinal (Blood loss)
HCA	Health Care Assistant
HFNC	High Flow Nasal Cannula
NEWS2	National Early Warning Score 2
PaCO <sub>2</sub>	Partial Pressure Carbon Dioxide
SpO <sub>2</sub>	Saturation (measured by Pulse oximetry) of oxygen
SBARD	Situation, Background, Assessment, Recommendation, Decision

## 9 Audit and assurance consisting of:

Element to be monitored	Lead	Tool	Frequency	Reporting Committee
Compliance with prescribing	<b>PHC Area Representative</b>	EPMA	Annual	PTC
Appropriate equipment used	<b>PHC Area Representative</b>	Eclipse/EPMA /SBAR	Annual	Physical Health Committee
Level of monitoring undertaken	<b>PHC Area Representative</b>	NEWS 2 (2018)	Annual	Physical Health Committee
How to Respond to an Emergency	External Provider, <b>RC Area Representative</b>	SBAR Form CAS Feedback Tool	Monthly	Resuscitation Committee

## 10 Appendices consisting of:

- ✦ Appendix 1 – The Equality Analysis Screening Form
- ✦ Appendix 2 - Table 3 COPD and other conditions requiring controlled or low-dose oxygen
- ✦ Appendix 3 - Table 4 Conditions for which patients should be monitored closely but oxygen therapy is not required unless the patient is hypoxaemic
- ✦ Appendix 4 - Summary of Oxygen Administration protocol (and weaning protocol)
- ✦ Appendix 5 – Administration of Acute Oxygen Therapy
- ✦ Appendix 6 – Flowchart for oxygen therapy
- ✦ Appendix 7 – Oxygen Cylinder Set up
- ✦ Appendix 8– Appropriate Oxygen mask selection
- ✦ Appendix 9 - Oxygen Cylinder Storage Checklist

## 10.1 Appendix 1 - Equality Analysis Screening Form

A word version of this document can be found on the HR support pages on Connect

<http://connect/corporate/humanresources/managementsupport/Pages/default.aspx>

<b>Title of Proposal</b>		Oxygen in Adults – Prescribing and Administration		
<b>Person Completing this proposal</b>	Lyndi Wiltshire	<b>Role or title</b>	Lead Nurse for Physical Health	
<b>Division</b>	Corporate Nursing	<b>Service Area</b>	Nursing	
<b>Date Started</b>	14 March 2022	<b>Date completed</b>	March 2022	
<b>Main purpose and aims of the proposal and how it fit in with the wider strategic aims and objectives of the organisation.</b>				
The policy identifies roles and responsibilities of all staff regarding oxygen therapy and details the trusts requirements for the provision and delivery of oxygen therapy.				
<b>Who will benefit from the proposal?</b>				
The policy will benefit the service user and clinical staff when oxygen is either prescribing or administering ensuring a high quality care.				
<b>Impacts on different Personal Protected Characteristics – Helpful Questions:</b>				
Does this proposal promote equality of opportunity? Eliminate discrimination? Eliminate harassment? Eliminate victimisation?		Promote good community relations? Promote positive attitudes towards disabled people? Consider more favourable treatment of disabled people? Promote involvement and consultation? Protect and promote human rights?		
<b>Please click in the relevant impact box or leave blank if you feel there is no particular impact.</b>				
<b>Personal Protected Characteristic</b>	<b>No/Minimum Impact</b>	<b>Negative Impact</b>	<b>Positive Impact</b>	<b>Please list details or evidence of why there might be a positive, negative or no impact on protected characteristics.</b>
<b>Age</b>			√	Inclusive to all service users
Including children and people over 65 Is it easy for someone of any age to find out about your service or access your proposal? Are you able to justify the legal or lawful reasons when your service excludes certain age groups				
<b>Disability</b>			√	Inclusive to all service users
Including those with physical or sensory impairments, those with learning disabilities and those with mental health issues Do you currently monitor who has a disability so that you know how well your service is being used by people with a disability?				

Are you making reasonable adjustment to meet the needs of the staff, service users, carers and families?				
<b>Gender</b>			√	Inclusive to all service users
This can include male and female or someone who has completed the gender reassignment process from one sex to another Do you have flexible working arrangements for either sex? Is it easier for either men or women to access your proposal?				
<b>Marriage or Civil Partnerships</b>			√	Inclusive to all service users
People who are in a Civil Partnerships must be treated equally to married couples on a wide range of legal matters Are the documents and information provided for your service reflecting the appropriate terminology for marriage and civil partnerships?				
<b>Pregnancy or Maternity</b>			√	Inclusive to all service users
This includes women having a baby and women just after they have had a baby Does your service accommodate the needs of expectant and post natal mothers both as staff and service users? Can your service treat staff and patients with dignity and respect relation into pregnancy and maternity?				
<b>Race or Ethnicity</b>			√	Inclusive to all service users
Including Gypsy or Roma people, Irish people, those of mixed heritage, asylum seekers and refugees What training does staff have to respond to the cultural needs of different ethnic groups? What arrangements are in place to communicate with people who do not have English as a first language?				
<b>Religion or Belief</b>			√	Inclusive to all service users
Including humanists and non-believers Is there easy access to a prayer or quiet room to your service delivery area? When organising events – Do you take necessary steps to make sure that spiritual requirements are met?				
<b>Sexual Orientation</b>			√	Inclusive to all service users
Including gay men, lesbians and bisexual people Does your service use visual images that could be people from any background or are the images mainly heterosexual couples? Does staff in your workplace feel comfortable about being 'out' or would office culture make them feel this might not be a good idea?				
<b>Transgender or Gender Reassignment</b>			√	Inclusive to all service users
This will include people who are in the process of or in a care pathway changing from one gender to another Have you considered the possible needs of transgender staff and service users in the development of your proposal or service?				

<b>Human Rights</b>			√	Inclusive to all service users
Affecting someone's right to Life, Dignity and Respect? Caring for other people or protecting them from danger? The detention of an individual inadvertently or placing someone in a humiliating situation or position?				
<b>If a negative or disproportionate impact has been identified in any of the key areas would this difference be illegal / unlawful? I.e. Would it be discriminatory under anti-discrimination legislation. (The Equality Act 2010, Human Rights Act 1998)</b>				
<b>What do you consider the level of negative impact to be?</b>		<b>No</b>		
	<b>High Impact</b>	<b>Medium Impact</b>	<b>Low Impact</b>	<b>No Impact</b>
				√
If the impact could be discriminatory in law, please contact the <b>Equality and Diversity Lead</b> immediately to determine the next course of action. If the negative impact is high a Full Equality Analysis will be required.				
If you are unsure how to answer the above questions, or if you have assessed the impact as medium, please seek further guidance from the <b>Equality and Diversity Lead</b> before proceeding.				
If the proposal does not have a negative impact or the impact is considered low, reasonable or justifiable, then please complete the rest of the form below with any required redial actions, and forward to the <b>Equality and Diversity Lead</b> .				
<b>Action Planning:</b>				
How could you minimise or remove any negative impact identified even if this is of low significance?				
How will any impact or planned actions be monitored and reviewed?				
How will you promote equal opportunity and advance equality by sharing good practice to have a positive impact other people as a result of their personal protected characteristic.				
Please save and keep one copy and then send a copy with a copy of the proposal to the Senior Equality and Diversity Lead at <a href="mailto:bsmhft.hr@nhs.net">bsmhft.hr@nhs.net</a> . The results will then be published on the Trust's website. Please ensure that any resulting actions are incorporated into Divisional or Service planning and monitored on a regular basis.				



## 10.2 Appendix 2 - Table 3 COPD and other conditions requiring controlled or low-dose oxygen

<b>Table 3</b> Conditions for which patients should be monitored closely but oxygen therapy is not required unless the patient is hypoxaemic		
Section 8.13		
If hypoxaemic, the initial oxygen therapy is nasal cannulae at 2–6 L/min or simple face mask at 5–10 L/min unless saturation is below 85% (use reservoir mask) or if at risk from hypercapnia (see below).		
The recommended initial target saturation range, unless stated otherwise, is 94–98%.		
If oximetry is not available, give oxygen as above until oximetry or blood gas results are available.		
If patients have COPD or other risk factors for hypercapnic respiratory failure, aim at a saturation of 88–92% pending blood gas results but adjust to 94–98% if the PCO <sub>2</sub> is normal (unless there is a history of respiratory failure requiring NIV or IMV) and recheck blood gases after 30–60 min, see table 4.		
	<b>Additional comments</b>	<b>Recommendations</b>
Mycardial infarction and acute coronary syndromes	Most patients with acute coronary artery syndromes are not hypoxaemic and the benefits/harms of oxygen therapy are unknown in such cases. Unnecessary use of high concentration oxygen may increase infarct size.	Recommendation F13
Stroke	Most patients with stroke are not hypoxaemic. Oxygen therapy may be harmful for non-hypoxaemic patients with mild–moderate strokes.	Recommendation F14
Hyperventilation or dysfunctional breathing	Exclude organic illness. Patients with pure hyperventilation due to anxiety or panic attacks are unlikely to require oxygen therapy. Rebreathing from a paper bag may cause hypoxaemia and is not recommended.	See section 8.13.3
Most poisonings and drug overdoses (see table 1 for carbon monoxide poisoning)	Hypoxaemia is more likely with respiratory depressant drugs, give antidote if available, for example, naloxone for opiate poisoning. Check blood gases to exclude hypercapnia if a respiratory depressant drug has been taken. Avoid high blood oxygen levels in cases of acid aspiration as there is theoretical evidence that oxygen may be harmful in this condition. Monitor all potentially serious cases of poisoning in a level 2 or 3 environment (high dependency unit or intensive care unit).	Recommendation F15
Poisoning with paraquat or bleomycin	Patients with paraquat poisoning or bleomycin lung injury may be harmed by supplemental oxygen. Avoid oxygen unless the patient is hypoxaemic. Target saturation is 85–88%.	Recommendation F16
Metabolic and renal disorders	Most do not need oxygen (tachypnoea may be due to acidosis in these patients)	Recommendation F17
Acute and subacute neurological and muscular conditions producing muscle weakness	These patients may require ventilatory support and they need careful monitoring which includes spirometry. If the patient's oxygen level falls below the target saturation, they need urgent blood gas measurements and are likely to need ventilatory support.	Recommendation G4
Pregnancy and obstetric emergencies	Oxygen therapy may be harmful to the fetus if the mother is not hypoxaemic.	Recommendations H1–H4
COPD, chronic obstructive pulmonary disease; IMV, invasive mechanical ventilation; NIV, non-invasive ventilation; PCO <sub>2</sub> , arterial or arterialed carbon dioxide tension.		

## 10.3 Appendix 3 - Table 4 Conditions for which patients should be monitored closely but oxygen therapy is not required unless the patient is hypoxaemic

<b>Table 4</b> COPD and other conditions requiring controlled or low-dose oxygen therapy		
Section 8.12		
Prior to availability of blood gases, use a 24% Venturi mask at 2–3 L/min or 28% Venturi mask at 4 L/min or nasal cannulae at 1–2 L/min and aim for an oxygen saturation of 88–92% for patients with risk factors for hypercapnia but no prior history of respiratory acidosis. Adjust target range to 94–98% if the PCO <sub>2</sub> is normal (unless there is a history of previous NIV or IMV) and recheck blood gases after 30–60 min.		
	<b>Additional comments</b>	<b>Recommendations</b>
COPD and other conditions causing fixed airflow obstruction (eg, bronchiectasis)	May need lower range if acidotic or if known to be very sensitive to oxygen therapy. Ideally use 'alert cards' to guide therapy based on previous blood gas results. Increase Venturi mask flow by up to 50% if respiratory rate is above 30 breaths/min.	Recommendations G1–G2 and section 8.12.1
Exacerbation of CF	Admit to regional CF centre if possible, if not discuss with regional centre or manage according to protocol agreed with regional CF centre. Ideally use 'alert cards' to guide therapy. Increase Venturi mask flow by up to 50% if respiratory rate is above 30 breaths/min.	Recommendations G1, G3, G6
Neuromuscular disease, neurological condition and chest wall deformity	May require ventilatory support. Risk of hypercapnic respiratory failure	Recommendations G1, G4, G6
Morbid obesity		Recommendations G1, G5, G6
CF, cystic fibrosis; COPD, chronic obstructive pulmonary disease; IMV, invasive mechanical ventilation; NIV, non-invasive ventilation; PCO <sub>2</sub> , arterial or arterialed carbon dioxide tension.		

#### 10.4 Appendix 4 Summary of Oxygen Administration protocol (and weaning protocol)

Action	Rationale
All patients requiring oxygen therapy will have a prescription for oxygen therapy recorded on the electronic drug prescription system (EPMA). N.B exceptions- see emergency situations	Oxygen should be regarded as a drug and should be prescribed. (National Institute for Health and Care Excellence, 2022)
The prescription will incorporate a target saturation that will be identified by the clinician prescribing the oxygen	To ensure the correct target is achieved
The prescription will incorporate an initial starting dose (i.e., delivery device and flow rate)	To provide the nurses with guidance for the appropriate starting point for the oxygen delivery system and flow rate
The oxygen delivery device and oxygen flow rate should be recorded alongside the oxygen saturation on EPMA	To provide an accurate record and allow trends in oxygen therapy and saturation levels to be identified.
The prescription should be signed electronically on EPMA at every drug round	To indicate that the patients is within target, or appropriate action has been taken if not, or else indicate that the patient is breathing air.
All patients should have their oxygen saturation observed for at least five minutes after starting oxygen therapy. If a patient is receiving intermittent therapy, they must be monitored at least 8 hourly.	To identify if oxygen therapy is maintaining the target saturation or if an increase or decrease in oxygen therapy is required

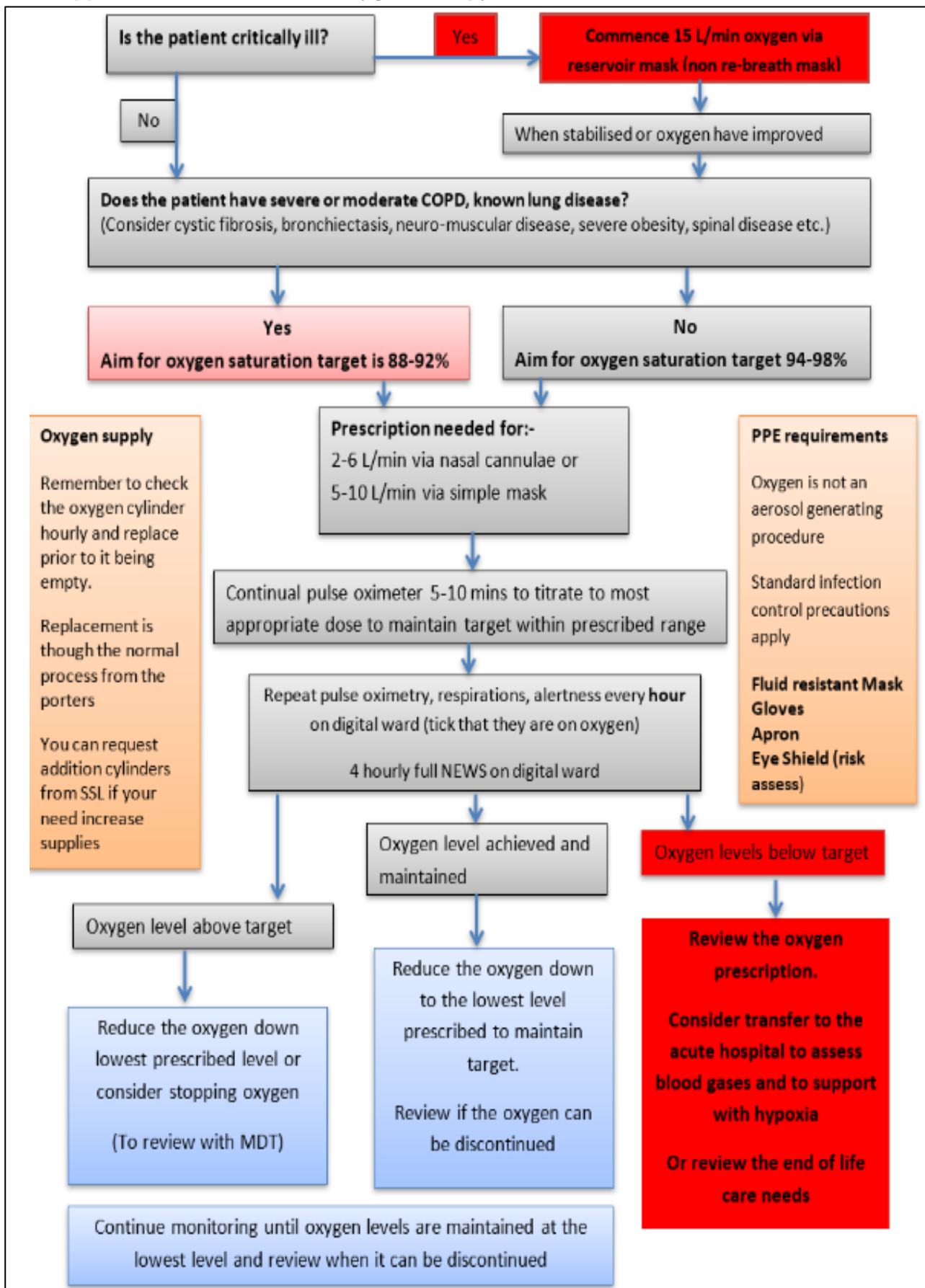
Monitoring oxygen levels	
Oxygen saturations must always be interpreted alongside the patient's clinical status incorporating the NEWS2 score	To identify early signs of clinical deterioration, e.g., changes to the respiratory rate
If the patient falls outside of the target saturation range, the oxygen therapy will be adjusted accordingly. The saturation should be monitored continuously for at least 5 minutes after any increase or decrease in oxygen dose to ensure that the patient achieves the desired saturation range.	To maintain the saturation in the desired range.
<b>Saturation higher than target specified or &gt;98% for an extended period.</b>	
Step down oxygen therapy as per guidance for delivery	The patient will require weaning down from current oxygen delivery system.
Consider discontinuation of oxygen therapy	The patient's clinical condition may have improved to negating the need for oxygen
<b>Saturation lower than target specified</b>	

<b>Check all elements of oxygen delivery system for faults or errors.</b>	In most instances a fall in oxygen saturation is due to deterioration of the patient however equipment faults should be checked for.
<b>Step up oxygen therapy as per protocols in appendix (i). Any sudden fall in oxygen saturation should lead to clinical evaluation and in most cases measurement of blood gases</b>	To assess the patient's response to oxygen increase, and ensure that PaCO <sub>2</sub> has not risen to an unacceptable level, or pH dropped to an unacceptable level and to screen for the cause of deteriorating oxygen level (e.g. pneumonia, heart failure etc)
<b>Monitor NEWS2 for further clinical signs of deterioration</b>	For early detection of deterioration
<b>Saturation within target specified</b>	
<b>Continue with oxygen therapy, and monitor patient to identify appropriate time for stepping down therapy, once clinical condition allows</b>	
<b>A change in delivery device (without an increase in O<sub>2</sub> therapy) does not require review by the medical team.</b>	(The change may be made in stable patients due to patient preference or comfort).

## 10.5 Appendix 5 – Administration of Acute Oxygen Therapy

ACTION	RATIONALE
1. Ensure patency of airway	To promote effective oxygenation
2. The type of delivery system used will depend on the needs and comfort of the patient. It is the nurse's role to assess the patient and use the prescribed system	To provide accurate oxygen delivery. Most stable patients prefer nasal cannulas to masks.
3. Ensure the oxygen is prescribed on EPMA The prescriber must review the patient's condition within the stated time and prescribe oxygen accordingly.	To ensure a complete record is maintained and expedite patient treatment. The exception to this action would be during an emergency situation where the resuscitation guideline should be followed.
4. Ensure that the oxygen dose is clearly documented, the check flow rate is indicated, and the correct mask is being used	In accordance with the administration of medicines policy.
5. Inform patient and or relative/ carer of the combustibility of oxygen.	Oxygen supports combustion therefore there is always a danger of fire when oxygen is being used.
6. Show and explain the oxygen delivery system to the patient. Give the patient the information sheet about oxygen.	To obtain consent and cooperation.
7. Assemble the oxygen delivery system carefully	To ensure oxygen is given as prescribed.
8. Attach oxygen delivery system to oxygen source.	To ensure oxygen supply is ready
9. Attach oxygen delivery system to patient according to manufacturer's instructions.	For oxygen to be administered to patient.
10. Turn on oxygen flow in accordance with prescription and manufacturers instruction.	To administer correct amount of oxygen.
11. Ensure patient has either a drink or mouthwash within reach.	To prevent drying of the oral mucosa
12. Clean oxygen mask, as required general purpose detergent and dry thoroughly needed. Discard systems after use	To minimise risk of infection (Single patient device)

## 10.6 Appendix 6 – Flowchart for oxygen therapy



## 10.7 Appendix 7 – Oxygen Cylinder Set up



2.3 Make sure the contents gauge is in the green zone. This indicates that the cylinder is FULL.



2.4 Remove the tamper evident handwheel cover by pulling the tear ring. Discard the cover into the recycle bin. If the cylinder has been used before this cover will not be present.



2.6 Remove the valve outlet cover.  
i) The hinged grey cover is pulled down.  
Do not remove the grey cover and refit after use.



2.7 Attach tubing from mask or nasal cannula to the outlet. Ensure the tubing is pushed on securely.



2.7 Ensure the flow selector on top of the cylinder is set to zero and the hand wheel is turned off before connecting equipment.



2.8 Slowly turn on the cylinder by rotating the hand wheel anticlockwise until it comes to a complete stop.  
Do not use excessive force.



2.9 Set the prescribed flow by rotating the dial flow selector. Ensure that the correct flow rate number is clearly visible in the flow selector window. Check the gas is flowing.

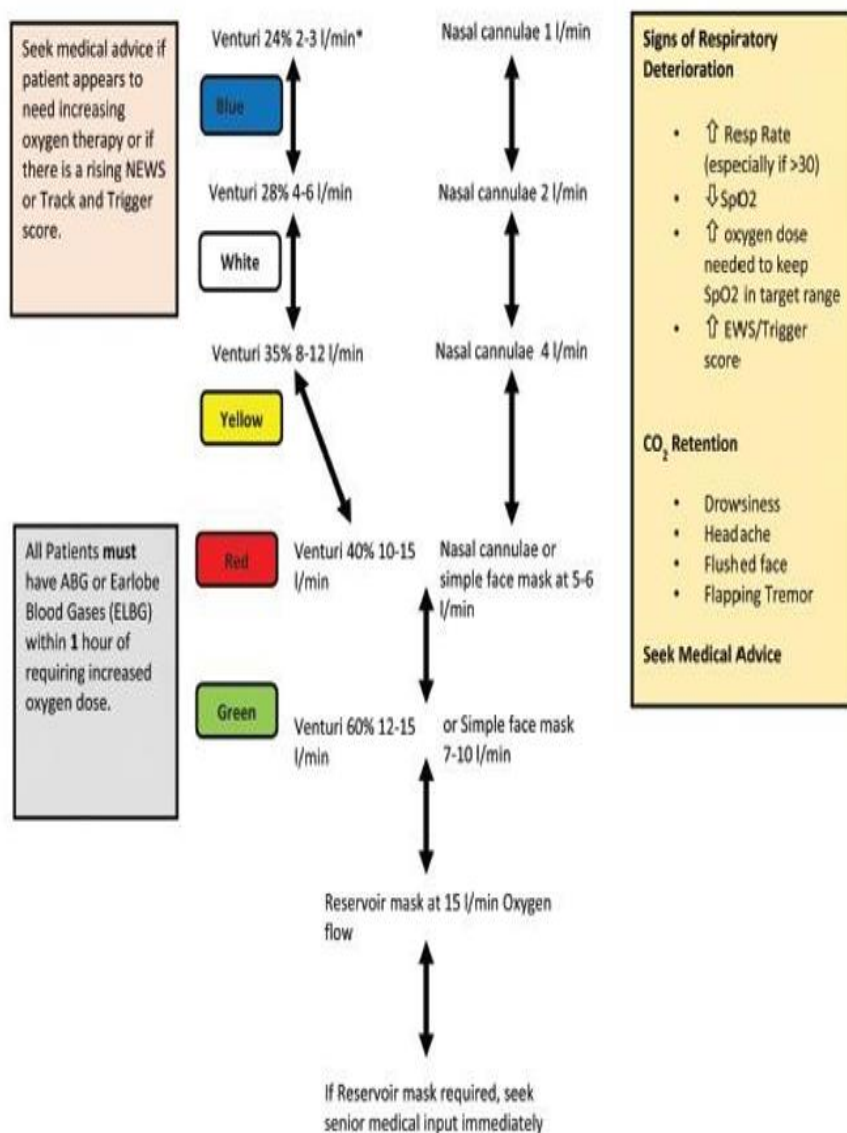
### Using wall mounted oxygen (ECT ONLY)

Ensure the correct amount of oxygen is selected on to outlet

The centre of the ball shows the correct flow rate (Below is showing 2 litres)



## 10.8 Appendix 8 – Appropriate Oxygen mask selection



\* For Venturi masks, the higher flow rate is required if the respiratory rate is >30

Patients in a peri-arrest situation and critically ill patients should be given oxygen therapy at 15 l/min via reservoir mask or bag-valve mask whilst immediate medical help is arriving.  
(Except for patients with COPD with known oxygen sensitivity recorded in patient's case notes and drug chart or in the Electronic Patient Record (EPR); keep saturation at 88-92% for this sub-group of patients)

**Figure 2** Chart 2 - Flow chart for oxygen administration on general wards in hospitals. \*For Venturi masks, the higher flow rate is required if the respiratory rate is >30. ABG, arterial blood gas; COPD, chronic obstructive pulmonary disease; EPR, electronic patient record; EWS, early warning score; NEWS, National Early Warning Score; SpO<sub>2</sub>, arterial oxygen saturation measured by pulse oximetry.

*This guide is for acute hospitals and should only be used as a guide for mask selection. (British Thoracic Society Emergency Oxygen Guideline Development Group, 2017)*

**Any acute deterioration in oxygen levels, the service user should be transferred to the acute hospital for assessment and treatment**

## Nasal Cannula



Nasal cannulas consist of a pair of tubes about 2cms long, each projecting into the nostril and stemming from a tube which passes over the ears, and which thus self- retaining

### Advantages

- Comfortable and easily tolerated
- No re-breathing
- Can eat/drink/talk
- Preferred by patient (v simple masks)

### Disadvantages

- It is not advisable in higher doses

## Venturi or Fixed Performance Masks



A high-performance mask incorporating a device to enable a fixed concentration of oxygen designed to be deliver a specified oxygen concentration during and between breathing.

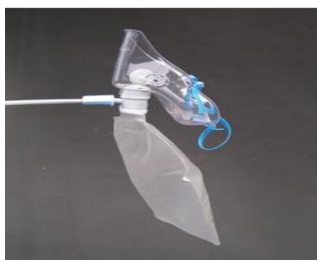
- Blue 24% @ 2 litres per minute
- White 28% @ 4 litres per minute
- Yellow 35% @ 8 litres per minute
- Red 40% @ 8 litres per minute
- Green 60% @ 15 litres per minute

## Simple Facemask



Mask has a soft plastic face piece; vent holes are provided to allow air to escape  
Maximum 50-60% at 15 litres per minute

## Non Rebreathe Reservoir mask



A non-rebreather mask which **delivers oxygen in emergency situations**. It consists of a face mask connected to a reservoir bag that's filled with a high concentration of oxygen.

- They have a one-way valve
- Can deliver 80-90% oxygen
- (Should not be used in CO<sub>2</sub> retaining patient – COPD)



## 10.9 Appendix 9 - Oxygen Cylinder Storage Checklist

- ⊕ Handle oxygen cylinders carefully, using a trolley if necessary
- ⊕ Keep cylinders secured upright
- ⊕ When not in use, store oxygen cylinders in a well-ventilated storage area away from combustible materials and separately from cylinders of flammable gas
- ⊕ Only store as many cylinders as you need to
- ⊕ Return empty cylinders to the supplier
- ⊕ Empty cylinders may still be dangerous – treat them with care
- ⊕ Keep cylinders clean and free from oils, grease, and dust
- ⊕ Never allow smoking while oxygen is in use