



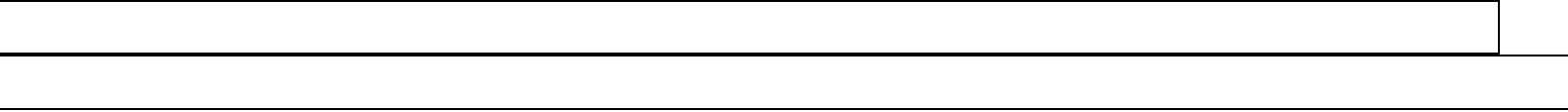
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**Policy for the Prescription and Administration
of
Emergency Oxygen in Adults**

PREPARED BY:

DR J F Faccenda, and RSN E Dodds, both BTS oxygen champions for NHS Borders. This document is based on BTS guideline.



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1.0 Introduction

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.

2.0 Aim

The aim of this protocol 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 (BTS Guideline; Thorax, 2008).
- 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.

3.0 Prescribing, administering and monitoring oxygen

3.1 Identifying appropriate target saturations

Guidance on identifying appropriate saturations for patients is provided for the medical staff and other prescribers in Appendices a-e. In summary oxygen should be prescribed to achieve a target saturation of 94-98% for most acutely unwell patients or 88-92% for those at risk of hypercapnic respiratory failure.

3.2 Prescribing oxygen on the drug chart

An oxygen section on the drug chart has been designed to assist prescription and administration. Oxygen should be prescribed in the designated section of the hospital prescription card (Appendix b) and the appropriate target saturation should be circled on the chart. In the case of some patients e.g. palliative care oxygen saturations are not required to be monitored- this should be documented on the kardex and in the medical notes.

3.3 Administering oxygen

Once the target saturation has been identified and prescribed, guidance regarding the most appropriate delivery system to reach and maintain the prescribed saturation is provided for those administering oxygen in Appendix (c), (d) and (e). Personnel who may administer oxygen is shown in Appendix (f). Education regarding oxygen delivery and monitoring is being included in the nursing mandatory yearly update.

3.4 Monitoring and recording oxygen

The patient's oxygen saturation and oxygen delivery system should be recorded on the bedside observation chart alongside other physiological variables as shown in Appendix (g). This appendix also specifies the codes for oxygen delivery devices to be recorded on the SIRS observation chart. Patients should thus be monitored as specified in Appendix (h).

All patients on oxygen therapy should have regular pulse oximetry measurements. The frequency of oximetry measurements will depend on the condition being treated and the stability of the patient. Critically ill patients should have their oxygen saturations monitored continuously and recorded at an agreed frequency whereas patients with mild breathlessness due to a stable condition will need less frequent monitoring.

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). See Appendix (c) and (e) for more details

Any sudden fall in oxygen saturation should lead to clinical evaluation of the patient and in most cases, measurement of blood gases.

Patients on oxygen should have their saturations recorded as per ward protocol. Appendix (g) and (h).

Patients should be monitored accurately for signs of improvement or deterioration. Nurses should also monitor skin colour for peripheral cyanosis and respiratory rate. Oxygen saturations of less than 90%, with or without oxygen, noisy or laboured breathing or respiratory rate of less than 8 or more than 25 should be reported immediately to the medical team, according to the early warning or SIRS criteria, Appendix (g). (Note that some patients will have a set target saturation of 88% and if stable do not require any intervention)

3.5 Emergency situations

In the emergency situation an 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.

All peri-arrest and critically ill patients should be given high flow oxygen (15 l/m via a reservoir mask) whilst awaiting immediate medical review. 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 the results of urgent blood gas results after which these patients may need controlled oxygen therapy or supported ventilation if there is severe hypoxaemia and/or hypercapnia with respiratory acidosis.

All patients who have had a cardiac or respiratory arrest should have high flow oxygen (15 l/m via a reservoir mask) provided along with basic/advanced life support.

A subsequent written record must be made of what oxygen therapy has been given to every patient alongside the recording of all other emergency treatment.

Any qualified nurse/ health professional can commence oxygen therapy in an emergency situation as indicated in the oxygen guideline as per protocol.

4.0 Exclusions

- Patients admitted to specialist areas with a specialised oxygen prescribing policy. e.g. paediatric unit/obstetric/intensive care/recovery/theatres.
- Patients receiving oxygen as part of palliative care or patients on the end of life care pathway do not require monitoring of their oxygen saturations and this should be documented in the patients case records and charts as necessary.
- Patients being assessed for Long Term Oxygen Therapy (LTOT) should follow protocols in place for the prescription and provision of LTOT.

5.0 Specialist Areas

This policy is for general use within general wards and departments. Where specific clinical guidelines are required for oxygen administration within specialist areas, they must be approved via the appropriate clinical governance forum. They should reflect wherever possible the principles within this policy.

Patients transferring from specialist areas to a general ward area need a timely review for oxygen requirements and if oxygen is to continue a prescription for oxygen therapy, utilising target saturations requires to be completed.

Patient transferring from theatres will have specific anaesthetic instructions/prescriptions for oxygen as per post-operative protocols.

6.0 Indications

The rationale for oxygen therapy is prevention of cellular hypoxia, caused by hypoxaemia (low PaO₂), and thus prevention of potentially irreversible damage to vital organs.

Therefore the most common reasons for oxygen therapy to be initiated are:

- *Acute hypoxaemia* (for example pneumonia, shock, asthma, heart failure, pulmonary embolus)
- *Ischaemia* (for example myocardial infarction, **but only** if associated with hypoxaemia (abnormally high 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).

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 (Ferguson 1999). There is some evidence to suggest a decreased incidence of post operative wound infections with short-term oxygen therapy following bowel surgery.

7.0 Contra-indications

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 FiO₂. Supplemental O₂ should be administered with caution in patients suffering from paraquat poisoning (BNF 2005) and with acid inhalation or previous bleomycin lung injury.

8.0 Cautions

8.1. Oxygen administration and carbon dioxide retention

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. There are several factors which lead to the rise in CO₂ with oxygen therapy in patients with hypercapnic respiratory failure and details are in the BTS guideline.

8.2. 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 FiO₂ than intended due to high inspiratory demand or inappropriate oxygen delivery device or equipment faults

9.0 Transfer and transportation of patients receiving oxygen

Patients who are transferred from one area to another must have clear documentation of their ongoing oxygen requirements and documentation of their oxygen saturation. 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.

10.0 Peri-operative and immediately post operatively

The usual procedure for prescribing oxygen therapy in these areas should be adhered to. If oxygen therapy is to be continued, it should be prescribed as per anaesthetic /post-operative protocols.

11.0 Nebulised therapy and oxygen

When nebulised therapy is administered to patients at risk of hypercapnic respiratory failure (see section 8.1), it should be driven by **compressed air**, and should be prescribed as such. If necessary, supplementary oxygen should be given concurrently by nasal prongs at 1-4 litres per minute to maintain an oxygen saturation of 88-92% or other specified target range.

All patients requiring 35% or greater oxygen therapy should have their nebulised therapy by oxygen at a flow rate of 6-8 litres/minute.

12.0 Normal Oxygen saturations

- In adults less than 70 years of age at rest at sea level 96% - 98% when awake.
- Aged 70 and above at rest at sea level greater than 94% when awake.
- *Patients of all ages may have transient dips of saturation to 84% during sleep- and do not require any intervention if well.*

13.0 Summary Oxygen Administration protocol (and weaning protocol)

ACTION	RATIONALE
All patients requiring oxygen therapy will have a prescription for oxygen therapy recorded on the patients drug prescription chart. N.B exceptions- see emergency situations	Oxygen should be regarded as a drug and should be prescribed. BTS National guidelines (2008). British National Formulary (2008).
The prescription will incorporate a target saturation that will be identified by the clinician prescribing the oxygen in accordance with the NHS Borders oxygen guideline	Certain groups of patients require different target ranges for their oxygen saturation. Certain groups of patients are at risk of hyperoxaemia, particularly patients with COPD.
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 drug chart should be signed at every drug round, and check correct flow, device and target range.	To ensure that the patient is receiving oxygen if prescribed and to consider weaning and discontinuation
Once oxygen is in situ the nurse will monitor observations in line with NHS Borders policy. 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 may 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
The oxygen delivery device and oxygen flow rate should be recorded alongside the oxygen saturation on the bedside observation chart.	To provide an accurate record and allow trends in oxygen therapy and saturation levels to be identified.
Oxygen saturations must always be interpreted alongside the patients clinical status incorporating the SIRS score.	To identify early signs of clinical deterioration, e.g. elevated 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	To maintain the saturation in the desired range.

patient achieves the desired saturation range (5minute rule).	
WEANING	
Saturation higher than target specified or >98% for an extended period of time.	
<ul style="list-style-type: none"> Step down oxygen therapy as per guidance for delivery 	The patient will require weaning down from current oxygen delivery system. See Appendix (e)
<ul style="list-style-type: none"> Consider discontinuation of oxygen therapy 	The patients clinical condition may have improved negating the need for supplementary oxygen
Saturation lower than target specified	
<ul style="list-style-type: none"> Check all elements of oxygen delivery system for faults or errors. 	In most instances a fall in oxygen saturation is due to deterioration of the patient however equipment faults should be checked for.
<ul style="list-style-type: none"> Step up oxygen therapy as per protocols in appendix (c) and (e). Any sudden fall in oxygen saturation should lead to clinical evaluation and in most cases measurement of blood gases 	To assess the patients response to oxygen increase, and ensure that PaCO ₂ 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)
<ul style="list-style-type: none"> Monitor SIRS Score rate for further clinical signs of deterioration 	Patient safety
Saturation within target specified	
<ul style="list-style-type: none"> Continue with oxygen therapy, and monitor patient to identify appropriate time for stepping down therapy, once clinical condition allows 	
<ul style="list-style-type: none"> A change in delivery device (without an increase in O₂ therapy) does not require review by the medical team. 	(The change may be made in stable patients due to patient preference or comfort).
Oxygen delivery methods	
NHS Borders recommended delivery devices will be utilised to ensure a standardised approach to oxygen delivery, see Appendix (d)	Previous audits have demonstrated wide variations in delivery devices across clinical areas, potentially increasing the risk of adverse incidents

14. Humidification

Humidification may be required for some patient groups, especially tracheostomy patients and those who have difficulty in clearing airway secretions or mucus. See Appendix (n).

15. Implementation

All nurses, nursing assistants and other healthcare professionals involved in prescribing or administering oxygen should be taught on the oxygen policy. Teaching aides are available on www.brit-thoracic.org/emergencyoxygen. A record of all those who have been taught will be kept by the ward sisters.

All doctors should be taught about the oxygen policy. Teaching aids are available on the BTS website. Audits will be performed in all clinical areas. Audit proformas are available on the BTS website. The hospital will participate in the national audits organised by the BTS.

The BTS has appointed oxygen champions in all Hospitals to help introduce the Guideline.

Dr J F Faccenda and RSN E Dodd are the Oxygen Champions at Borders General Hospital.

16.0 Health and Safety issues are covered in Appendix (k).

***Plan to develop central e-learning module for medical staff.**

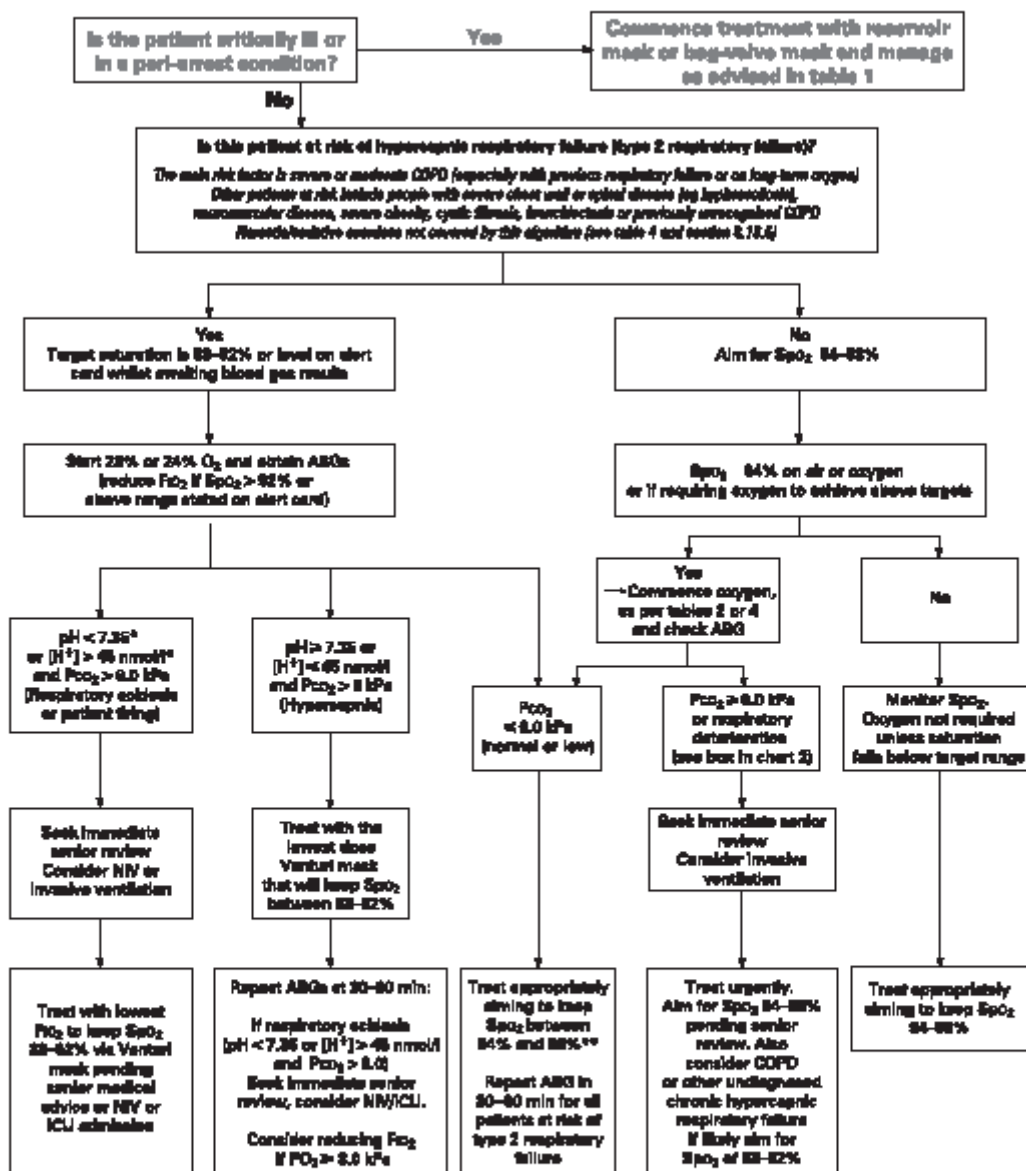
17.0 References

- O'Driscoll B R, Howard L S, Davison A G. BTS guideline for emergency oxygen use in adult patients. Thorax 2008; 63: Supplement VI.
- Summary guideline for prescribing oxygen emergency oxygen in hospital.
Available on BTS website: www.brit-thoracic.org.uk/emergencyoxygen/
- Summary of prescription, administration and discontinuation of oxygen therapy.
Available on BTS website: www.brit-thoracic.org.uk/emergencyoxygen/

APPENDICES

Appendix (a) Oxygen prescription for acutely hypoxaemic patients in hospital

BTS guideline



Any increase in FiO_2 must be followed by repeat ABGs in 1 h (or sooner if anaemic or level deteriorates)
 *If pH is < 7.35 ($[H^+] > 45$ nmol/l) with normal or low $PaCO_2$, investigate and treat for metabolic acidosis and keep SpO_2 94-98%
 **Patients previously requiring NV or IPPV should have a target range of 88-92%, even if the initial $PaCO_2$ is normal.

Figure 1 Chart 1: Oxygen prescription for acutely hypoxaemic patients in hospital. ABG, arterial blood gas; COPD, chronic obstructive pulmonary disease; FiO_2 , fraction of inspired oxygen; ICU, intensive care unit; NV, non-invasive ventilation; $PaCO_2$, carbon dioxide tension; SpO_2 , arterial oxygen saturation measured by pulse oximetry.

Appendix (b) Example of local oxygen prescription chart

Name..... Number			REGULAR													
<input type="checkbox"/> OXYGEN Circle target oxygen saturation 94-96% Other _____			DATE													
<input type="checkbox"/> Full face mask Flow rate _____ (FBN: oxygen is delivered to C ₂ modified)			0600													
<input type="checkbox"/> Full face mask Flow rate _____ Date of signature _____ Pharmacy _____			0800													
<input type="checkbox"/> Full face mask Flow rate _____ Date of signature _____ Pharmacy _____			1200													
<input type="checkbox"/> Full face mask Flow rate _____ Date of signature _____ Pharmacy _____			1400													
<input type="checkbox"/> Full face mask Flow rate _____ Date of signature _____ Pharmacy _____			1800													
<input type="checkbox"/> Full face mask Flow rate _____ Date of signature _____ Pharmacy _____			2200													
Drug (Approved Name)			0600													
Dose	Route	Notes	0800													
Start Date	Signature NAME		1200													
Date Discontinued & Initials		Pharmacy	1400													
Date Discontinued & Initials			1800													
Date Discontinued & Initials			2200													
Drug (Approved Name)			0600													
Dose	Route	Notes	0800													
Start Date	Signature NAME		1200													
Date Discontinued & Initials		Pharmacy	1400													
Date Discontinued & Initials			1800													
Date Discontinued & Initials			2200													
Drug (Approved Name)			0600													
Dose	Route	Notes	0800													
Start Date	Signature NAME		1200													
Date Discontinued & Initials		Pharmacy	1400													
Date Discontinued & Initials			1800													
Date Discontinued & Initials			2200													
Drug (Approved Name)			0600													
Dose	Route	Notes	0800													
Start Date	Signature NAME		1200													
Date Discontinued & Initials		Pharmacy	1400													
Date Discontinued & Initials			1800													
Date Discontinued & Initials			2200													
Drug (Approved Name)			0600													
Dose	Route	Notes	0800													
Start Date	Signature NAME		1200													
Date Discontinued & Initials		Pharmacy	1400													
Date Discontinued & Initials			1800													
Date Discontinued & Initials			2200													

Appendix (c) ADMINISTERING 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 nurses role to assess the patient and use the prescribed system.	To provide accurate oxygen delivery to the patient. Most stable patients prefer nasal cannulae to masks.
3. Ensure oxygen is prescribed on prescription chart. In some situations a protocol may be in place to allow designated nurses to administer oxygen. In these cases the doctor must review the patients 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 indicated. If nasal cannula or reservoir masks are being used check that the flow rate is clearly indicated.	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 as shown in Appendix (h).	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 manufacturers instructions.	For oxygen to be administered to patient.
10. Turn on oxygen flow in accordance with prescription and manufacturers instruction.	To administer correct % of oxygen.
11. Ensure patient has either a drink or a mouthwash within reach.	To prevent drying of the oral mucosa.
12. Clean oxygen mask as required with general purpose detergent and dry thoroughly needed. Discard systems after use.	To minimise risk of infection (Single patient device)

Appendix (d)

EQUIPMENT USED IN THE DELIVERY OF OXYGEN (Choose the appropriate delivery device)

1. Oxygen source (piped or cylinder)
2. Flow meter
3. Saturation monitor
4. Oxygen Delivery system - (see appendix j for advice on use of each device);

A) Nasal cannula

DEVICE	DESCRIPTION	PURPOSE
<p>Nasal Cannulae</p> 	<p>Nasal cannulae consist of pair of tubes about 2cm long, each projecting into the nostril and stemming from a tube which passes over the ears and which is thus self-retaining.</p> <p>Uncontrolled oxygen therapy</p> 	<p>Cannulae are preferred to masks by most patients. They have the advantage of not interfering with feeding and are not as inconvenient as masks during coughing and sneezing.</p> <p>It is not advisable to assume what percent oxygen (FI₀₂) the patient is receiving according to the Litres delivered but this is not important if the patient is in the correct target range.</p>

ACTION	RATIONALE
<p>1. (When using nasal cannula). Position the tips of the cannula in the patient's nose so that the tips do not extend more than 1.5cm into the nose.</p>	<p>Overlong tubing is uncomfortable, which may make the patient reject the procedure. Sore nasal mucosa can result from pressure or friction of tubing that is too long.</p>
<p>2. Place tubing over the ears and under the chin as shown above. Educate patient re prevention of pressure areas on the back of the ear.</p>	<p>To allow optimum comfort for the patient. To prevent pressure sores.</p>
<p>3. Adjust flow rate, usually 2-4 l/min but may vary from 1-6 l/min in some circumstances.</p>	<p>Set the flow rate to achieve the desired target oxygen saturation.</p>

B) **Fixed performance mask (Venturi mask and valve)**

DEVICE

DESCRIPTION

PURPOSE

Venturi mask



A mask incorporating a device to enable a fixed concentration of oxygen to be delivered independent of patient factors or fit to the face or flow rate. Oxygen is forced out through a small hole causing a Venturi effect which enables air to mix with oxygen.

This is a high performance oxygen mask designed to deliver a specified oxygen concentration regardless of breathing rate or tidal volume.

Venturi devices come in different colours for %

- Blue = 24%
- White = 28%
- Yellow = 35%
- Red = 40%
- Green = 60%

Controlled oxygen therapy

ACTION

RATIONALE

1. (When using Venturi mask)
Connect the mask to the appropriate Venturi barrel attached firmly into the mask inlet.

To ensure that patient receives the correct concentration of oxygen

2. Fasten oxygen tubing securely.

Correctly secured tubing is comfortable and prevents displacement of mask/cannulae.

3. Assess the patient's condition and functioning of equipment at regular intervals according to care plan.

To ensure patient's safety and that oxygen is being administered as prescribed.

4. Adjust flow rate. The minimum flow rate is indicated on the mask or packet. The flow should be doubled if the patient has a respiratory rate above 30 per minute.

Higher flows are required for patients with rapid respiration and high inspiratory flow rates. This does not affect the concentration of oxygen but allows the gas flow rate to match the patient's breathing pattern.

C) **Simple face mask (variable flow)**

DEVICE



Simple face mask

Variable Percentage
(Delivers unpredictable concentrations that vary with flow rate)

Nasal cannulae should be used for most patients who require medium dose oxygen but a simple face mask may be used due to patient preference or if the nose is blocked

DESCRIPTION

Mask has a soft plastic face piece, vent holes are provided to allow air to escape.
Maximum 50%-60% at 15ltrs/minute flow.

Uncontrolled Oxygen therapy

PURPOSE

This is a variable performance device. The oxygen concentration delivered will be influenced by:

a. the oxygen flow rate (litres per minute) used, leakage between the mask and face;

b. the patient's tidal volume and breathing rate.

NOT to be used for CO₂ retaining patients.

ACTION

RATIONALE

(If using simple face mask) Gently place mask over the patient's face, position the strap behind the head or the loops over the ears then carefully pull both ends through the front of the mask until secure.

Ensure a comfortable fit and delivery of prescribed oxygen is maintained.

Check that strap is not across ears and if necessary insert padding between the strap and head.

To prevent irritation.

Adjust the oxygen flow rate. Must never be below 5L/min

Flows below 5L/m do not give enough oxygen and may cause increased resistance to breathing and may also cause CO₂ re-breathing due to the small mask size.

D) Reservoir mask (non re-breathe mask)

DEVICE

Reservoir Mask (Non-rebreathe Mask)



DESCRIPTION

Mask has a soft plastic face piece with flap-valve exhalation ports which may be removed for emergency air-intake. There is also a one-way valve between the face mask and reservoir bag.

PURPOSE

In non re-breathing systems the oxygen may be stored in the reservoir bag during exhalation by means of a one-way valve. High concentrations of oxygen 80-90% can be achieved at relatively low flow rates.

Uncontrolled oxygen therapy

NOT to be used for CO₂ retaining patients except in life-threatening emergencies such as cardiac arrest or major trauma.

ACTION

1. (Non Rebreathe Reservoir Mask)

Ensure the reservoir bag is inflated before placing mask on patient, this can be maintained by using 15 litres of oxygen per min.

2. Adjust the oxygen flow to the prescribed rate.

RATIONALE

To ensure the optimal flow of oxygen to the patient.

Inadequate flow rates may result in administration of inadequate oxygen concentration to the patient.

In disposable reservoir, oxygen flows directly into the mask during inspiration and into the reservoir bag during exhalation. All exhaled air is vented through a port in the mask and a one-way valve between the bag and mask, which prevents re-breathing.

E) Tracheostomy mask for patients with tracheostomy or laryngectomy

DEVICE



DESCRIPTION

Mask designed for "neck breathing patients". Fits comfortably over tracheostomy or tracheotomy. Exhalation port on front of mask.

PURPOSE

This is a variable performance device for patients with tracheostomy or tracheotomy. The oxygen concentration delivered will be influenced by:
a. the oxygen flow rate (litres per minute) used.
b. the patient's tidal volume and breathing rate.

Tracheostomy mask

Variable Percentage (Delivers unpredictable concentrations that vary with flow rate)

Uncontrolled Oxygen therapy

Use cautiously at low flow rates in CO2 retaining patients as there may be no alternative.

ACTION

RATIONALE

Gently place mask over the patient's airway, position the strap behind the head then carefully pull both ends through the front of the mask until secure.

Ensure a comfortable fit and delivery of prescribed oxygen is maintained.

Adjust the oxygen flow rate to achieve the desired target saturation range. Start at 4 l/min and adjust the flow up or down as necessary to achieve the desired oxygen saturation range.

To ensure that the correct amount of oxygen is given to keep the patient in the target range.

F) Oxygen Flow Meter

DEVICE



Oxygen flow meter

Delivers oxygen to the patient.

DESCRIPTION

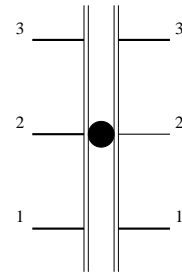
Device to allow the patient to receive an accurate flow of oxygen, usually between 2 and 15 litres per minute.

May be wall-mounted or on a cylinder.

Take special care if your hospital uses a twin oxygen outlets or if there are air outlets which may be mistaken for oxygen outlets.

PURPOSE

To ensure that the patient receives the correct amount of oxygen.



Correct Setting for 2 l/min

ACTION

Attach the oxygen tubing to the nozzle on the flow meter.

Turn the finger-valve to obtain the desired flow rate. The CENTRE of the ball shows the correct flow rate. The diagrams shows the correct setting to deliver 2 l/min.

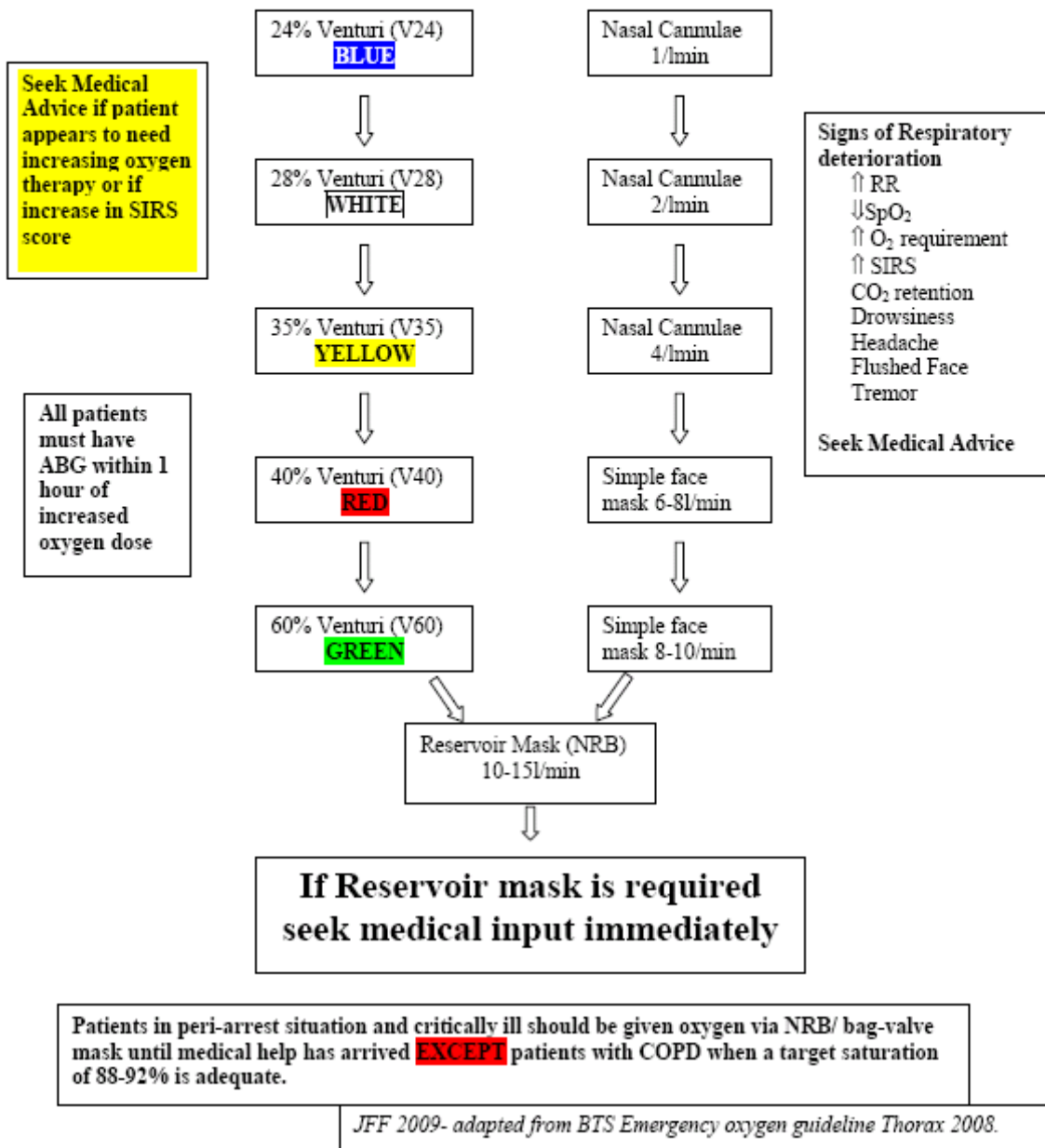
RATIONALE

To ensure that the patient receives the correct amount of oxygen.

Appendix (e) Flow chart for oxygen administration on general wards in hospitals

Emergency Oxygen Use in Adult Patients

- Choose most suitable system and flow rate
- If saturations above 94%, oxygen is NOT required and may be detrimental to the patient.
- Titrate oxygen up or down to maintain target saturation



Appendix (f)

PERSONNEL WHO MAY ADMINISTER OXYGEN

Any qualified nurse, doctor, RSCN, RN or physiotherapist.
In accordance with policy for administration of medicines.

Appendix (g) – Bedside Observation Chart –SIRS chart



NAME OR ADDRESSOGRAPH

DATE:
DATE OF ADMISSION:
CONSULTANT:

HT

WT

BMI

SPECIMENS	
RSOU	<input type="checkbox"/>
MSU	<input type="checkbox"/>
BLOOD CULTURES	<input type="checkbox"/>
SPUTUM CULTURES	<input type="checkbox"/>

**SIRS SCORE ASSESSES FOR SIGNS OF SEPSIS
PLEASE CALCULATE AND RECORD REGULARLY**

If any 2 scores cross into **shaded area** repeat within 15 minutes.
If any 2 scores cross into **shaded area** - inform Outreach Team
- check Arterial SaO₂
Base Excess urgently
- inform Medical Staff

Commence ½ hourly observations
Refer to protocol on back for action.

Peripheral Hypoperfusion - 1 + any other

1. Peripheral cyanosis
2. Capillary return sluggish
3. Cold hands/feet
4. Cold below elbow/knee
5. Cold above elbow/knee
6. Extensive mottling

SEPSIS

- THINK:
O₂
IV FLUIDS
BLOOD CULTURES
IV ANTIBIOTICS
LACTATE
ABG
URINE OUTPUT

PREV DAY INPUT	
OUTPUT	
BALANCE	
CUMULATIVE	

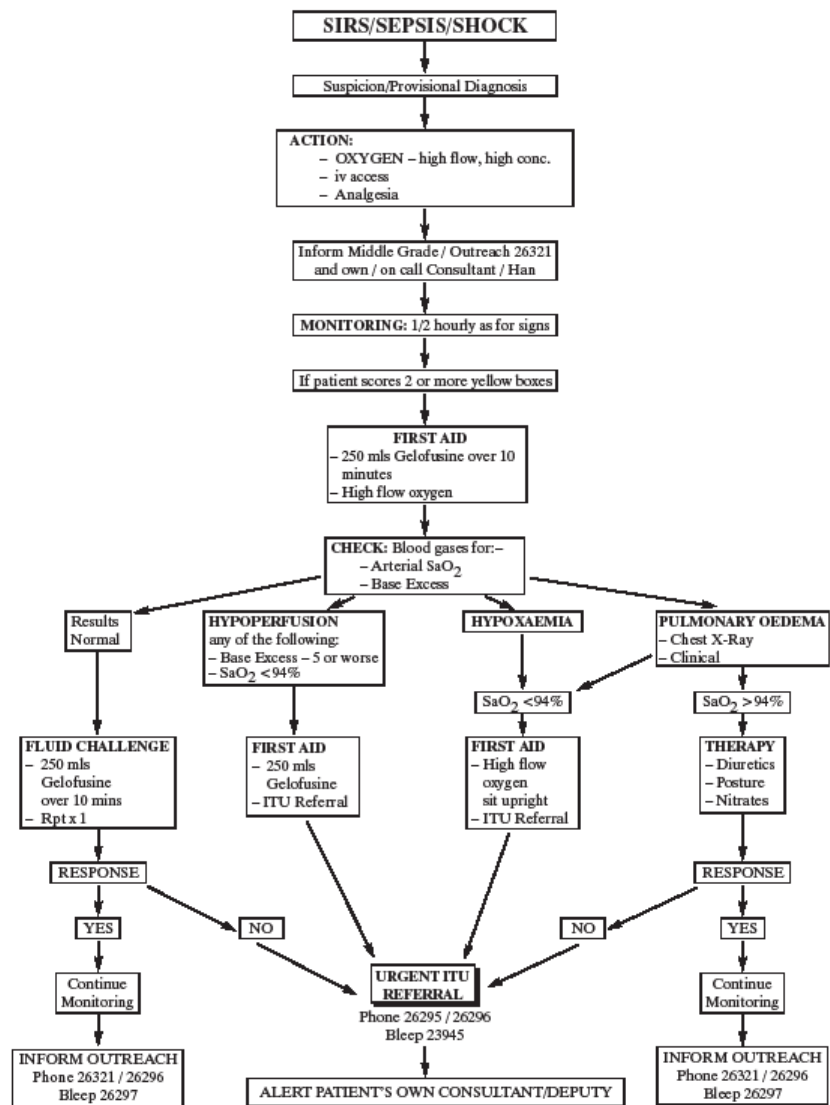
	01:00	02:00	03:00	04:00	05:00	06:00	07:00	08:00	09:00	10:00	11:00	12:00	13:00	14:00	15:00	16:00	17:00	18:00	19:00	20:00	21:00	22:00	23:00	24:00
TEMP																								
200-40																								
190-38																								
180-36																								
170-34																								
160																								
150																								
140																								
130																								
120																								
110																								
100																								
90																								
80																								
70																								
60																								
50																								
40																								

FiO ₂																								
SaO ₂																								
RR																								
Systolic BP																								
Diastolic BP																								

WCC $<30 \times 10^9/L$																								
HR >100																								
60-100																								
<60																								
RR >20																								
9-20																								
<9																								
Temp. >38 or <36																								
BP Sys >100																								
<100																								
Peripheral Hypoperfusion +																								
-																								
Urine >40																								
<40																								
Sweating +																								
-																								
Confusion +																								
-																								
SIRS Score																								
I																								
N																								
P																								
U																								
T																								
Total																								
O																								
U																								
T																								
P																								
U																								
T																								
Total																								
Balance																								

Oxygen Delivery Recording

Venturi 24% mask	V 24
Venturi 28% mask	V 28
Venturi 35% mask	V 35
Venturi 40% mask	V 40
Venturi 60% mask	V 60
Non re-breather mask	NRB x l/min
CPAP	x l/min
Bilevel	x l/min
Humidified	x l/min
Hudson Mask	x l/min
Nasal sponge	x l/min
Nasal Cannulae	x l/min



Appendix (h)

MONITORING OF PATIENTS

1. Observe the following;

- a. Monitor arterial oxygen saturation levels according to NHS Borders Oxygen policy.
- b. Visual observations of skin colour for central cyanosis (blue lips).
- c. Respiratory rate.
- d. Any sign of respiratory distress should be reported immediately.

2. If the arterial oxygen saturation is above or below the target saturation the observer (often a Health Care Assistant) must inform the personnel who are qualified to administer oxygen (usually a Nurse – see appendix g).

3. Check the patients mouth and nose and behind the ears.

4. Record all observations on appropriate Chart
4 hourly if on continuous oxygen
8 hourly if on intermittent oxygen

In order to accurately monitor the patient for signs of improvement or deterioration.

To identify signs of infection and pressure sores as soon as possible.

To ensure adequate record keeping.

Appendix (i) HUMIDIFICATION



This should only be used if specifically requested by the doctor or physiotherapist in the following circumstances.

1. If the flow rate exceeds 4 litres per minute for several days
2. Tracheotomy or tracheostomy patients ("neck-breathing patients")
3. Cystic Fibrosis patients
4. Bronchiectasis patients
5. Patients with a chest infection retaining secretions

Can be given by warm or cold humidifier systems
(warm humidifier systems are mainly used in critical care areas)

Appendix (k)

HEALTH AND SAFETY

- | | |
|--|--|
| 1. Inform patients and carers about the combustibility of oxygen | Oxygen supports combustion, there is always a danger of fire when oxygen is being used. |
| 2. Oxygen should be stored in an area designated as no smoking. | |
| 3. Electrical appliances should be kept at least five feet away from the source of oxygen. | Oxygen can be potentially dangerous when in contact with sources of ignition and flammable material. |
| 4. Avoid grease or oil coming into contact with apparatus. | |
| 5. Store unused cylinders in a dry well ventilated place. | |