

STANDARD OPERATING PROCEDURE DOCUMENT (SOP)

Title	Handling, Use and Storage of Emergency Oxygen within UC24 Services	Doc. No.	OP236
Scope	Clinical and Operational Personnel		
Purpose	<p>To cover all aspects of storing, checking and use of oxygen cylinders.</p> <p>To ensure safe and secure storage and use of oxygen at all times by all staff working within services that stock oxygen for emergency use.</p>		
Guidelines	<p>This SOP outlines the role of ALL clinical staff and operational staff involved in the handling, using and storage of oxygen.</p> <p>The following guideline was used in developing this SOP:</p> <p>https://www.brit-thoracic.org.uk/document-library/clinical-information/oxygen/2017-emergency-oxygen-guideline/web-appendix-5-summary-for-ambulance-and-prehospital-settings/</p>		
PROCEDURE		RESPONSIBILITY	
1	<p>Equipment Required</p> <ul style="list-style-type: none"> • Pulse oximetry meters • Masks (to include non-re-breathing mask and 28% or 24% Venturi mask, tubing and oxygen cylinder) 	Urgent Care 24 Clinician	
2	<p>Equipment Checks</p> <p>A documented check must be made at the start of each day and after each emergency.</p> <p>Oxygen cylinder check:</p> <ul style="list-style-type: none"> • The amount of oxygen in cylinder • The expiry date • Sign and date the check sheet <p>In the case of emergency bags that are sealed, these checks are only required when the seal is broken.</p>	Urgent Care 24 Clinician / Medicines Management	

3	Tubing and Masks Check: <ul style="list-style-type: none"> • Tubing and masks are in date and have not been used • Sign and date the check sheet 	Urgent Care 24 Clinician / Medicines Management
4	Pulse Oximetry Check: Battery operated meters to ensure the battery is functioning appropriately.	Urgent Care 24 Clinician
5	Pulse oximetry must be available where emergency oxygen is used.	Urgent Care 24 Clinician
6	A record of checks to be kept for a minimum of 2 years.	Urgent Care 24
7	Ordering There are currently two suppliers of oxygen across UC24. Services will order oxygen with their current suppliers.	Urgent Care 24 Operational Manager / Practice Manager
8	Receiving Stock On receipt of cylinders a clinician or appropriate medicines management staff will check that the supply cylinder is full and the valve and regulator function.	Urgent Care 24 Clinician / Medicines Management
9	Storage <ul style="list-style-type: none"> • Keep away from extremes of temperature e.g. do not store close to windows or radiators • Store in a well ventilated area • Cylinders should be secured in a cylinder trolley, rack or with chain • Keep away from combustible materials • Keep away from naked flames e.g. fires, cookers • Ensure no smoking anywhere in the vicinity of oxygen cylinders, including outside <p>When being transported in UC24 'MED' cars, oxygen cylinders should be secured in the vehicle within the sealed emergency bag which is again positioned securely in the vehicle.</p> <p>Warning notices should be placed on the outside of doors where cylinders are stored, to warn firefighters of their presence and to warn against naked lights. Warning notices should also be placed on the 'MED' cars.</p>	All Urgent Care 24 Staff

10	The supplier must be contacted for removal and replacement of expired stock or empty cylinders. Safe storage instructions still apply whilst awaiting collection and replacement.	Urgent Care 24 Operational Manager / Practice Manager
11	Infection Control Oxygen masks and tubing are single patient use items and must be discarded immediately after use.	Urgent Care 24 Clinician
12	Before using oxygen cylinders: The valve must be fully opened, by either turning the knob or engaging the key and turning (depending on the type of cylinder) ensure the knob or key is turned as far towards the open position as it will go. Before administering to the patient, ensure the gas is flowing freely and there is sufficient in the cylinder for what you require. Set the flow meter to the desired setting, attach the delivery system and prepare to administer to the patient. NB: Different size cylinders are available across UC24. All medical and nursing staff must familiarise themselves with the type of oxygen cylinders and delivery systems that are available in the emergency bags, within the urgent care vehicles, the urgent care centres and General Practices as relevant to their work areas.	Urgent Care 24 Clinician
13	Administration of Oxygen Clinicians should follow clinical guidelines as to the appropriate percentage and flow of oxygen in accordance with BTS guidance. NB: if the patient has an alert card the use of oxygen will be guided by the instruction on the alert card. The oxygen saturation should be monitored continuously until the patient is stable or transported to hospital for full assessment. Summary of BTS Guideline emergency oxygen use in ambulances, community and pre-hospital settings: The suggested target saturation range for most patients is 94-98%. Patients at risk of hypercapnic respiratory failure have a lower target saturation range, usually 88-92%. A sudden reduction of more than 3% in a patient's oxygen saturation within the target saturation range should prompt fuller assessment of	Urgent Care 24 Clinician

	<p>the patient because this may be the first evidence of an acute illness. (The narrower target range in younger patients is to ensure prompt assessment if a patient falls outside the age-specific normal range, not due to greater vulnerability to hypoxia).</p> <p>The oxygen flow should be adjusted upwards or downwards to maintain a saturation of 94-98% for most patients apart from those at risk of hypercapnic respiratory failure. Some people aged above 70 years may have saturation measurements in the range of 92-94% when clinically stable. These people do not require oxygen therapy unless the oxygen saturation falls below the level that is known to be normal for the individual patient.</p> <p>Patients with COPD should initially be given oxygen via a Venturi 24% at 2-4 l/min or 28% mask at a flow rate of 4 l/min or nasal cannulae at 1-2 l/min and oxygen saturation should be 88-92% in most cases or else an individualised saturation range based on the patient's blood gas measurements during previous exacerbations.</p> <p>Patients over 50 years of age who are long-term smokers with a history of exertional breathlessness and no other known cause of breathlessness should be treated as if having COPD.</p> <p>COPD patients and other patients who have had an episode of hypercapnic respiratory failure should be issued with an Oxygen Alert warning card with a 24% or 28% Venturi mask and instructed to show the Alert Card in the event of an exacerbation.</p> <p>Alert Card: Use of oxygen in these patients will be guided by the instructions on the Alert Card.</p>	
14	<p>Waiting for Emergency Transfer</p> <ul style="list-style-type: none"> • Call 999 for paramedic ambulance • Monitor patients colour and saturations until help arrives • Perform basic life support if indicated • Report clinical incident in Datix post event 	Urgent Care 24 Clinician
15	<p>Following Use of Oxygen</p> <p>The following process must be followed to ensure that it is safe to store away:</p> <ul style="list-style-type: none"> • Remove from the patient • Remove and dispose of used delivery device • Turn off the valve using knob or key as appropriate • Cylinder now needs venting to empty any remaining gas from inside the valve 	Urgent Care 24 Clinician

	<ul style="list-style-type: none"> • Switch the flow meter back on briefly on a high setting, you will hear a hissing noise denoting that gas is being expelled • The gauge will now read empty and the cylinder can be stored away • Report to the shift manager or practice manager so that stock can be replaced if required 	
16	<p>Replacing Cylinders</p> <p>It is imperative that there is sufficient oxygen available at all times.</p> <p>UC24 use two oxygen suppliers.</p> <p>Baywater 430 litre cylinders - these should be replaced after each use. (See Appendix 1).</p> <p>BOC 460 litre cylinders – these should be replaced after each use BOC 605 litre cylinders and any larger cylinders – these should be replaced at no less than 50% capacity. (See Appendix 2).</p>	Urgent Care 24 Operational Manager / Practice Manager
17	<p>Shared Oxygen – NB With Bridgewater Trust at Widnes UCC</p> <p>To assure patient safety within Bridgewater Trust and UC24 it is agreed to share oxygen and associated oxygen equipment for the safe delivery of patient care, when required in emergency situations.</p> <p>UC24 staff have a duty of care to inform Bridgewater UCC's co-ordinator on duty that oxygen and equipment has been removed from the department.</p> <p>The UC24 staff member will complete the 'Oxygen Transfer' sheet inclusive of date, time, current oxygen literate, mask, tubing and designated staff name and signature.</p> <p>The oxygen must be returned to the department upon conclusion of the patient treatment and the 'Oxygen Transfer' sheet is completed. Ensuring that all relevant equipment is returned and co-ordinator advised re stock requirements (oxygen cylinder, mask and oxygen tubing).</p>	GP/Nurse (working from Bridgewater premises)
18	<p>Documentation</p> <p>Document in the patient record the oxygen therapy that was given, including pulse oximetry readings and times taken, for example SpO2 5 minutes after start of oxygen therapy.</p>	Urgent Care 24 Clinician

	<p>Pulse oximetry measurements should state whether the patient is breathing air or a specified dose of supplemental oxygen, when readings were recorded.</p> <p>This information must be shared on patient transfer/handover.</p>	
19	<p>Monitoring Compliance and Effectiveness</p> <p>Medical gas audits will be carried out as part of the audit programme to include daily checking of cylinders, accessibility, training needs analysis and storage.</p>	<p>Urgent Care 24 Operational Manager / Practice Manager</p>

STANDARD OPERATING PROCEDURE DOCUMENT (SOP)

Title	Handling, Use and Storage of Emergency Oxygen within UC24 Services		Doc. No.	OP236
Version	V1			
Supersedes	New SOP			
Approving Managers/Committee	Medical Director			
Date Ratified	07.02.2018			
Department of Originator	Quality and Patient Safety			
Responsible Executive Director	Medical Director			
Responsible Manager/Support	Senior Clinical Advisor			
Date Issued	07.02.2018			
Next Review Date	February 2019			
Target Audience	Clinical and Operational Staff			
Version	Date	Control Reason	Accountable Person for this Version	
V1	07.02.2018	New procedure	Clinical Lead	
Reference documents		Electronic Locations	Locations for Hard Copies	
<p>Guideline for Emergency Oxygen Use in Adult Patients- <i>British Thoracic Society Standards of Care Committee, October 2008</i></p> <p><input type="checkbox"/> Chest Pain of Recent Onset- <i>National Institute for Health and Clinical Excellence March 2010</i></p> <p><input type="checkbox"/> Rapid Response Report Oxygen Safety in Hospitals National Patient Safety Agency 2009/RRR006</p> <p>https://www.brit-thoracic.org.uk/document-library/clinical-information/oxygen/2017-emergency-oxygen-guideline/bts-guideline-for-oxygen-use-in-adults-in-healthcare-and-emergency-settings/</p> <p>https://www.brit-thoracic.org.uk/document-library/clinical-information/oxygen/2017-emergency-oxygen-guideline/web-appendix-5-summary-for-ambulance-and-prehospital-settings/</p> <p>SOP30foremergencyoxygenunplannedCare072012.pdf</p>		Urgent Care 24 Intranet	Standard Operating Procedures File in the Call Centre	

Document Status: This is a controlled document.

Whilst this document may be printed, the electronic version maintained on the UC24 Intranet is the controlled copy. Any printed copies of the document are not controlled.

Appendix 1

OXYGEN SUPPLIED BY BAYWATER HEALTHCARE

FREEDOM 400 OXYGEN CYLINDER



NB: The duration of this cylinder at 15 litres per minute is 28 minutes.

Technical Data – Freedom ® 400 cylinder

Weight full	3.2kg-3.7kg (7lb-8lb)
Height	53cm (20.8in)
Diameter	10cm (3.9in)
Capacity	430 litres
Accessories	Bag and Trolley Available

Freedom 400 cylinder durations – this table shows approximately how long a Freedom 400 home oxygen therapy cylinder will last. Duration with a conservator will vary according to your breathing rate and activity.

Flow rate (lpm)	Duration without conserver	Duration with conserver
0.1	71 hours 40 mins	
0.2	35 hours 50 mins	
0.5	14 hours 20 mins	
1	7 hours 10 mins	21 hours
2	3 hours 35 mins	10 hours
3	2 hours 23 mins	7 hours
4	1 hour 47 mins	5 hours
6	1 hour 11 mins	3 hours
8	53 mins	
10	43 mins	
15	28 mins	

<https://www.baywater.co.uk/clinicians-commissioners/our-therapies/oxygen/equipment/cylinders>

Appendix 2

Oxygen Supplied by BOC



Cylinder duration versus selected flowrate (based on nominal flowrate and normal cylinder contents)

Size	Flowrate (ltr/min)	Gauge contents					
		Full (100%)		Half (50%)		Low (25%)	
		(hr.min)	(mins)	(hr.min)	(mins)	(hr.min)	(mins)
CD oxygen (460 ltrs)	15	0.30	30	0.15	15	0.07	7
	9	0.51	51	0.25	25	0.12	12
	6	1.16	76	0.38	38	0.19	19
	4	1.55	115	0.57	57	0.28	28
	2	3.50	230	1.55	115	0.57	57
ZD oxygen (605 ltrs)	15	0.40	40	0.20	20	0.10	10
	9	1.06	66	0.33	33	0.16	16
	6	1.40	100	0.50	50	0.25	25
	4	2.30	150	1.15	75	0.37	37
	2	5.00	300	2.30	150	1.15	75
HX oxygen (2300 ltrs)	15	2.33	153	1.16	76	0.38	38
	9	4.15	256	2.07	127	1.03	63
	6	6.23	383	3.11	191	1.35	95
	4	9.35	575	4.47	287	2.23	143
	2	19.10	1150	9.35	575	4.47	287
ZX oxygen (3040 ltrs)	15	3.22	202	1.41	101	0.50	50
	9	5.37	337	2.48	168	1.24	84
	6	8.26	507	4.13	253	2.06	127
	4	12.40	760	6.20	380	3.10	190
	2	25.20	1520	12.40	760	6.20	380

http://www.bochealthcare.co.uk/internet.lh.lh.gbr/en/images/504370-Healthcare%20Medical%20Oxygen%20Integral%20Valve%20Cylinders%20leaflet%2006409_54069.pdf?v=5.0