1. FUNCTION

If a GP assesses that a patient requires oxygen at home they should contact the appropriate Consultant to arrange a Scottish Home Oxygen Form (SHOOF) and supply by Dolby Vivisol. Where supply is required VERY urgently at the end of life for distressing symptoms caused by hypoxaemia a GP may use this Standard Operating Procedure (SOP) to arrange the supply and set-up of an oxygen concentrator within FOUR hours in the patient's own home.

See Appendix 1 – Scottish Palliative Care Guidelines, NHS Scotland/ HIS. Available at: ‘http://www.palliativecareguidelines.scot.nhs.uk/’ and Appendix 2 – ‘Primary Care Oxygen Assessment / Supply Flow Chart’

2. LOCATION

All NHS Fife GP Practices and domiciliary settings supported by them.

3. RESPONSIBILITY

3.1 Where appropriate NHS Fife GPs are responsible for assessing patients, in their own homes, at the end of life, who may require a domiciliary supply of oxygen and for requesting oxygen when appropriate and in accordance with this SOP.

3.2 The GP is responsible for prescribing the oxygen at an appropriate flow rate – no more than 3 litres per minute, which is the maximum flow-rate of the portable oxygen concentrators. If a higher flow rate is required at Scottish Home Oxygen Order Form (SHOOF) must be completed by an appropriate Specialist Hospital Consultant and an emergency set-up requested.

Further information regarding home oxygen including prescribing guidance and frequently asked questions etc. can be found at:

Intranet FAQs:
3.3 NHS Fife Pharmacy Services are responsible for assisting GPs in facilitating the supply of oxygen concentrators to enable GPs to supply oxygen to patients in domiciliary settings across Fife.

4. OPERATIONAL SYSTEM

4.1 5 x 3 litre oxygen concentrators will be supplied by Dolby Vivisol to NHS Fife to enable very urgent supply of oxygen to be made to patients in their own home at the end of life.
3 x concentrators will be hosted at Pentland House, Lynebank Hospital, Dunfermline.
1 x concentrator will be hosted at Pharmacy Office, Stratheden Hospital.
1 x concentrator will be hosted at Ward 2, St Andrews Community Hospital.
Telephone: 01383 565351 to access a concentrator irrespective of where it is stored.

4.2 The concentrators must be stored with fully charged batteries, new filter and adult masks and tubing to allow safe and timely set-up in the patient’s home.

Accessing an Oxygen Concentrator

4.3 Where the patient’s GP is managing end of life care they must consider whether or not oxygen may be required for the patient as part of anticipatory care planning. **Whenever possible a routine request must be arranged by contacting the appropriate Specialist Hospital Consultant to arrange for a Scottish Home Oxygen Order Form (SHOOF) to be completed and for the oxygen to be supplied directly by Dolby Vivisol.** The guidance at 1 and 3.2 should be followed to aid decision making in these circumstances.

4.4 **When a decision has been made by the clinician that oxygen supply is required to be set-up in less than the 24 hours required for an emergency SHOOF,** an oxygen concentrator can be accessed by contacting Pharmacy Services on **01383 565351** to agree how the concentrator will be supplied / accessed. A completed form (appendix 4) must then be emailed to: Fife-UHB.medicalgastraining@nhs.net
All requests must be made between 8.30am and 2.30pm Monday to Friday to allow time for set-up.
**Fife Primary Care Emergency Service has access to portable concentrators for urgent supply in the out-of-hours period only.**
The Pharmacy Technician team based at Pentland House, Lynebank will, when necessary transport the concentrators stored at Lynebank, Stratheden Hospital and St Andrews Community Hospital Ward 2 either to the GP practice or directly to the patients home as agreed with the requesting clinician.

On occasions where this is not possible, for example due to staff pressures in the Pharmacy Technician Team, a member of the Primary Care team will be able to collect the concentrator themselves from the most appropriate storage point.

Where a Pharmacy Technician delivers the oxygen concentrator directly to a patient’s home they will demonstrate its safe operation and correct flow-rate to the appropriate carer. It is expected that a member of the primary care team will also be present in the patient’s home to facilitate this change in patient care.

Where a member of the Primary Care team delivers the concentrator to the patient’s home it is their responsibility to ensure that appropriate carers are trained in its safe use and correct flow-rate.

For further details see 4.11 and 4.12

### Setting up the Oxygen Concentrator

**4.7** The concentrator must be plugged directly into the main electricity supply at the most convenient socket for patient need. An extension socket must not be used; the length of oxygen tubing can be varied to reach the patient as appropriate. The power indicator will light up confirming that it is connected to the mains. It must be positioned at least six inches from walls, curtains etc. to enable a proper airflow to the machine. The concentrator does not need to be removed from the black transport case.

**4.8** Press the on-off button for 3 seconds until it beeps to indicate that it has come on-line. Once the machine has built up a concentration of oxygen in its storage cells the green light indicator will come on and the machine will be ready to use. **For full instructions refer to the manufacturer’s brief guide (appendix 3).**

**4.9** Attach the oxygen tubing, which must have a fire-break and bacterial filter fitted, usually about 40cm from the concentrator. The firebreak is placed closest to the concentrator. An appropriate mask/ nasal cannula must be provided. These can all be found in the black bag or front pouch of the concentrator transport case.

**4.10** Select the flow-rate as specified by the prescriber.

**4.11** The GP/Nurse/ Pharmacy Technician must explain how the concentrator works to the patient and/or carer as appropriate and instruct them on how to set it to the correct flow-rate.

A leaflet with operating instructions and health and safety information must be left with the patient. This can be found in the accessories bag or front pouch of the concentrator transport case.

**4.12** The GP/ Nurse / Pharmacy Technician must explain the health and safety requirements to the patient/ carer (These instructions are also included in the patient leaflet).
This must include the following:

- No smoking or naked lights i.e. candles, electronic cigarettes
- Ensure the room is well ventilated when oxygen is in use
- The requirement to have a good flow of air around the machine to ensure it can work properly; it must not be placed in a cupboard for example.
- The concentrator must be placed at 3m away from any source of heat, ensure the oxygen tubing does not pose a trip hazard.
- No use of flammable chemicals or other substances on or near the concentrator, i.e. cleaning materials, oils, grease or aerosols
- Avoid the use of personal flammable items such as hand cream or alcohol gel
- The risks of environments that have higher than normal concentrations of oxygen.
- The machine must not be covered at anytime i.e. with clothing or bed linen
- Do not leave the concentrator running when not in use. The concentrator must be switched off at all times when not in use.

4.13 **Should there be any issues with the concentrator Dolby Vivisol have a 24 hour contact number for equipment and supplies: 0800 833531.**

**When the Concentrator is No Longer Required**

4.14

- The urgent provision of an oxygen concentrator is for a maximum of 5 days. If on review the patient needs oxygen supplementation for longer, a routine SHOOF should be completed so the concentrator can be returned to the supplying base.
- When the concentrator is no longer required or, if a longer term supply from Dolby Vivisol has been established, it is the responsibility of the practice team to either contact Pharmacy Services to arrange to have the machine uplifted or to return it to the supplying base.

4.15 On return to the supplying base the responsible person at the base must ensure that the concentrator is inspected for any obvious damage. If any is found the concentrator must be inspected by a Dolby Vivisol engineer on the above number, before it is used again.

- The concentrator must be wiped down using a damp cloth and a mild household detergent. The unit must be unplugged while this is carried out.
- If the concentrator has been used the filter, mask and tubing must be replaced. There is no need to replace the fire-break.
- The back-up battery must be fully charged if necessary by attaching it to the mains electricity supply.

The concentrator must then be stored in a cool dry place.

5. **RELATED DOCUMENTS**

5.1 SOP 13 - The Supply And Use Of Just In Case Boxes To Community Patients In Fife By General Practitioners, Nursing Staff And Community Pharmacies, October 2014

6. **RELEVANT DOCUMENTS/APPENDICES**

6.1 Appendix 1 - Scottish Palliative Care Guidelines, NHS Scotland/ HIS. Available at: [http://www.palliativecareguidelines.scot.nhs.uk/](http://www.palliativecareguidelines.scot.nhs.uk/)

6.2 Appendix 2 – Primary Care Oxygen Assessment / Supply Flow Chart

6.3 Appendix 3 –Your Oxygen Concentrator ‘A Brief Guide’
6.4 Appendix 4- Oxygen Concentrator Request Form

7. REFERENCES

7.1 NHS Fife SOP – PCES Staff Installing and Oxygen Concentrator in a Patient’s Home

7.2 NHS Fife General Policy- GP/M3 Management of Medical Gases
Appendix 1  
**Breathlessness (from Scottish Palliative Care Guidelines)**

**Introduction**
Breathlessness is a common symptom for patients with advanced cancer, chronic obstructive pulmonary disease (COPD), lung fibrosis and heart failure. It can be associated with any combination of physiological, psychological, social and spiritual factors. The impact and distress caused by breathlessness is often underestimated.

**Assessment**
- Undertake a holistic assessment using a multiprofessional approach.
- Ask the patient to rate symptom severity and assess the level of associated distress/anxiety.
- Explore the patient's understanding of the reasons for breathlessness, fears, impact on functional abilities and quality of life.
- Clarify pattern of breathlessness, precipitating/alleviating factors and associated symptoms.
- Look for any potentially reversible causes of breathlessness, such as infection, pleural effusion, anaemia, arrhythmia, pulmonary embolism, bronchospasm or hypoxia (check oxygen saturation levels using pulse oximeter).
- Determine if treatment of the underlying disease is appropriate. Seek advice if in doubt.
- If in last days of life, see section on **Last Days of Life**

**Management**
- If stridor or signs of superior vena cava obstruction, refer urgently to the appropriate specialist for consideration of, for example, stenting or radiotherapy.
  - Give high-dose steroids:
    - dexamethasone 16mg orally or subcutaneously, or
    - prednisolone 60mg orally
    - Consider gastric protection
- Treat any potentially reversible causes if appropriate.
- Optimise current therapy (non-pharmacological and pharmacological management).
- Acknowledge fear and anxieties and provide supportive care. For example, offer verbal explanation of symptom and written information.

**Non-pharmacological management**
- Consider using a self-management plan, including smoking cessation advice where appropriate. Advise a smoke-free environment.
- Consider using a hand-held fan or opening a window to improve ventilation.
- Enhance coping and functional ability using positioning, relaxation, controlled breathing (such as pursed lip breathing) and anxiety.
management techniques, and by planning and pacing activities. Consider using a cognitive behavioural approach.

- Maintain activity levels.
- Consider the need for equipment, aids and a package of care.
- Refer to a breathlessness support service (such as pulmonary rehabilitation) depending on prognosis.

**Medication**

**Pharmacological management**

**Opioids:**

- Can reduce breathlessness at rest and in the end-of-life phase.
- Give as a therapeutic trial; monitor patient response and side effects.
- Consider proactive prescribing for constipation, and nausea and vomiting.

<table>
<thead>
<tr>
<th>Patient</th>
<th>Drug</th>
<th>Route</th>
<th>Dose</th>
<th>Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td>Has not taken opioid before and is able to take oral medication</td>
<td>Immediate release morphine</td>
<td>Oral</td>
<td>2mg; titrate by 30 to 50% if required and tolerated</td>
<td>Every 4 to 6 hours and/or 2 hourly as required</td>
</tr>
<tr>
<td>Has not taken opioid before and is unable to take oral medication</td>
<td>Morphine sulfate</td>
<td>Subcutaneous</td>
<td>1 to 2mg; titrate as above</td>
<td>Every 4 to 6 hours and/or 2 hourly as required</td>
</tr>
<tr>
<td>Takes an opioid regularly for pain control</td>
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<td></td>
<td>Use the existing immediate-release breakthrough analgesic dose (oral if able, or subcutaneous bolus injection equivalent) for the relief of breathlessness. A maximum of six doses can be taken in 24 hours for all indications (pain, breathlessness and cough). Titrate both regular and breakthrough dose according to response.</td>
<td></td>
</tr>
<tr>
<td>Is frail/elderly</td>
<td>Immediate release morphine</td>
<td>Oral</td>
<td>1 to 2mg; titrate cautiously</td>
<td>Every 6 to 8 hours as required – monitor closely for side effects</td>
</tr>
<tr>
<td>Has impaired renal function</td>
<td>See Renal End of Life Care</td>
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<tr>
<td>Patient</td>
<td>Drug</td>
<td>Route</td>
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<tr>
<td>Cannot tolerate morphine due to side effects</td>
<td>Second-line opioids may be effective for breathlessness</td>
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<td>(See ‘Choosing and changing opioids’).</td>
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<tr>
<td>Has ongoing breathlessness</td>
<td>Try modified release (long-acting) oral morphine, plus a</td>
<td>4 hourly</td>
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<td>4 hourly equivalent dose of immediate release oral</td>
<td>equivalent dose</td>
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<td>morphine as required for additional episodes of</td>
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<td></td>
<td>breathlessness.</td>
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</table>

**Breathlessness in palliative care Table 1. Version 1 May 2014**

**Steroids:**

- Trial dexamethasone 8 to 16mg daily (orally or subcutaneously) for lymphangitis or tumour-associated airway obstruction. Consider gastric protection.
- Unless starting emergency therapy, give steroids in the morning.
- Review after 1 week, and reduce gradually to lowest effective dose where appropriate.
- If no effect, stop treatment.

**Benzodiazepines:**

- May relieve anxiety and panic associated with severe breathlessness, but are less effective than opioids for breathlessness and should be a third-line treatment for patients with symptoms unresponsive to non-drug measures and opioids. The following can be considered:
  - lorazepam (scored tablet) sublingual 500 micrograms, given 4 to 6 hourly as required (The Genus, PVL and TEVA brands are all blue, oblong, scored tablets and are suitable for sublingual use).
  - diazepam oral 2 to 5mg at night, if there is continuous distressing anxiety.
  - midazolam subcutaneously 2 to 5mg, given 4 to 6 hourly as required, if oral or sublingual routes are not available.

**Oxygen:**

- Should only be given after careful individual patient assessment.
- Important to avoid psychological dependence.
- If oxygen saturation is less than 92%, consider a trial of oxygen for symptom relief. Be aware that there may be a poor relationship between hypoxaemia and breathlessness and response to oxygen.
- For emergency oxygen treatment in adults in hospital please refer to local guidelines where applicable.

Inhaled therapy:

- Reassess current inhaler technique and appropriateness of devices.
- Nebulised sodium chloride 0.9% 5ml as required may aid expectoration.
- If wheeze or COPD, give 2.5 to 5mg salbutamol nebulises four times per day.
- If still wheezy, add ipratropium bromide 250 to 500 micrograms nebulises four times per day.

Practice Points

- Non-pharmacological management techniques that help patients and families cope are essential. Using a self-management plan can help with symptom relief.
- However as the illness progresses, medication to relieve breathlessness may be required.
- Starting opioids at a low dose and titrating carefully is safe and does not cause respiratory depression in patients with cancer, COPD or heart failure.

Patient/carer advice points

- Becoming breathlessness on exertion is not harmful and will settle with rest after a few minutes.
- It is important to maintain activity levels.
- Keep rooms well ventilated: open a window, use a fan and keep the face cool.
- Carefully explain that while breathlessness, anxiety and panic are distressing they do not cause harm or worsen the patient’s condition.

Resources

- Macmillan Cancer Support
- Roy Castle Lung Foundation
- Chest Heart and Stroke Scotland
- British Lung Foundation
- NHS inform and Long Term Health Conditions and Mental Health
- My condition, my terms, my life – Self management
- Addenbrookes breathlessness intervention service, Cambridge University Hospitals Foundation Trust

References

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Last Updated: 11 Nov 2014
Created: 13 Nov 2013

† Indicates this use is off licence
‖ Indicates this medication is associated with QT prolongation
Appendix 2

PRIMARY CARE HOME OXYGEN ASSESSMENT / SUPPLY FLOWCHART

Access to emergency ‘in hours’ oxygen - Palliative but not imminent end of life

Confirmed diagnosis of Hypoxaemia

COPD confirmed

Does the patient have:
- \( \text{SpO}_2 \leq 92\% \) breathing air when clinically stable
- FEV1 = 39\%
- Polycythaemia
- Raised Jugular Venous Pressure (JVP) with peripheral oedema

Maximise therapy as per Respiratory MCN COPD guidelines

Other causes

Palliative Care

e.g.:
- Neuromuscular
- Heart failure

Should only be considered for hypoxaemic patients who have an established diagnosis and who are distressed by breathlessness unrelieved by other therapy

Yes

No

Consider:
- Pulmonary Rehabilitation
- Self-management
- Symptom palliation
- Referral to secondary care for management advice (not \( \text{O}_2 \) assessment)

GP to contact medical consultant named on patient’s medical notes to discuss potential oxygen requirements. Only if the patient has been referred on to, and is known to, Palliative Medicine should the Palliative Care Consultant be contacted. If prescription of oxygen deemed appropriate, the consultant will complete the SHOOF form for Dolby.

Note: in Palliative / Anticipatory Care Planning situations, it will be the decision of the consultant and service whether the patient is invited to the hospital for further assessment or following discussions with Primary Care colleagues a prescription can be offered. Thorough discussions and trust for colleagues’ judgements is essential in these circumstances.

Access to emergency ‘in hours’ oxygen – imminent End of Life e.g. hours / days

5 x 3 litre oxygen concentrators are available to enable very urgent supply of oxygen to patients in their own home at the end of life. The concentrators will be hosted at:

3 at Fentland House, Lynebank Hospital
1 at Ward 2, St Andrews Community Hospital
1 at Pharmacy Office, Stratheden Hospital

GP to contact Pharmacy Services in the first instance - 01383 565351 between the hours of 8.30am - 2.30pm Mon-Fri (to allow time for set up).

The Oxygen Concentrator Request Form must be completed (appendix 4, SOP 14) and emailed to file-uhb.medicalgastaining@nhs.net

Refer to Standard Operating Procedure 14 for further guidance and set up instructions

If delivery is required:
- The Pharmacy Technician Team will transport the concentrators from any of the three bases to either the GP Practice or directly to the patient’s home as agreed with the requesting clinician.
- Where a Pharmacy Technician delivers the oxygen concentrator directly to a patient’s home, they will demonstrate its safe operation and correct flow rate to the appropriate carer. It is expected that a member of the Primary Care Team will also be present in the patient’s home to facilitate this change in patient care.

If delivery is not required (or Pharmacy Team unable to deliver due to e.g. staff pressures):
- Where a member of the Primary Care Team delivers the concentrator to the patient’s home, it is their responsibility to ensure that appropriate carers are trained in its safe use and current flow rate.
Health and Safety

Many of the precautions you have been observing with respect to your static concentrator apply equally to your portable concentrator.

In particular:

- DO NOT cover the machine or place it in a confined space.
- Place it in a clean dry area where air can flow around it.
- DO NOT use any cleaning materials, oil or grease on the machine.
- DO avoid the personal use of face or hand creams which may themselves contain oily ingredients.
- Keep the machine and yourself away from all sources of ignition. In particular, do not permit smoking within 1.5 metres (5 feet) of your machine.
- Ensure the area is well ventilated when Oxygen is in use.

Important Contact details

This equipment has been provided through Dolby Medical to satisfy your requirement for Oxygen during your holiday.

If you have any enquiries regarding the operation of your concentrator, please call:

Dolby Medical
0800 833531

Your Oxygen Concentrator

A Brief Guide
Introduction
## Appendix 4  
**OXYGEN CONCENTRATOR REQUEST FORM**

This form is to be completed once supply has been agreed by telephoning Pharmacy Services on 01383 565351

Tab through the form and complete (use the space bar to select a check box if not using a mouse) and email completed form to Fife-UHB.medicalgastraining@nhs.net

<table>
<thead>
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<th>Date:</th>
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<tbody>
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<td>GP name and address:</td>
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<tr>
<td>Post code:</td>
<td>Practice code</td>
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### Patient name and address

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<th>Telephone no:</th>
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<tbody>
<tr>
<td>Alternate contact telephone no:</td>
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### This section to be completed by Pharmacy Technician

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<td>Pharmacy Technician Name:</td>
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</tr>
<tr>
<td>Date Concentrator Returned :</td>
<td>Base to which concentrator was returned:</td>
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