

Medicines Optimisation

Best Practice Guidance for Care Homes – *Bulletin 16*

Oxygen safety

Home oxygen treatment (therapy) involves breathing in air that contains more oxygen than normal. It is supplied from specialist equipment in a patient's own home.

Oxygen treatment may be prescribed for people with a condition that causes low oxygen levels in their blood. Low oxygen levels can damage body systems, and the patient may experience distressing breathlessness. Health conditions which can lead to low levels of oxygen in the blood can include:

- Chronic obstructive pulmonary disease (COPD) – the name given to a group of lung conditions that cause breathing difficulties and include emphysema and chronic bronchitis.
- Severe long-term asthma
- Pulmonary hypertension – high pressure inside the blood vessels which supply the lungs, which damages the right-hand side of the heart.
- Cystic fibrosis and other fibrotic lung conditions
- Heart failure – when the heart fails to pump enough blood around the body at the right pressure.

Patients who are prescribed home oxygen therapy will have undergone an assessment to ensure that it is safe and appropriate for them to receive home oxygen therapy, and to establish how much oxygen is needed (the flow rate) and for how many hours per day.

Oxygen equipment will then be delivered and installed by an oxygen company engineer, who will provide training and advice on how to use it and set it to the prescribed flow rate.

Never adjust the controls or attempt to change the flow rate. Too much oxygen can be harmful (even fatal) for people with certain lung conditions. Similarly, too little will fail to provide the necessary treatment.

New Residents

When an existing resident is newly prescribed oxygen therapy, the situation is very straightforward, and you will receive full training and support from the oxygen contractor supplying/installing the equipment.

Problems can arise when a resident who is already using home oxygen therapy transfers to the home, but there are steps you can take to reduce the likelihood of problems and ensure staff receive full support. Much of this can be dealt with at the initial assessment prior to admission to the home.

- Check that the contractor has been informed of the move – this allows for change of address and to allow for safe installation and provide appropriate training.

- Inform the contractor if the stay is short term only – in this situation they will usually install new equipment and leave the original at the resident’s usual address for when they return.
- Inform the contractor if the move is to be permanent – they will then be able to de-install the equipment at the previous address and re-install it at the new address, plus arrange training for the staff on the use of oxygen for this person.

If an emergency admission results in the resident arriving unexpectedly with an oxygen supply, the contractor should be contacted as soon as possible to inform them, and the supply which arrives with the resident should be for emergency use only until the contractor can arrange a visit. If the resident is changing location within the care home, the contractor should be informed so the equipment can be safely installed (i.e. effectively a change of address)

Types of equipment

- **Large Oxygen cylinders** may be prescribed for people who only need oxygen for short periods to relieve attacks of breathlessness. The oxygen is breathed in via a face mask or a soft tube with nasal prongs (a nasal cannula). Large cylinders will also be provided as a back-up to an oxygen concentrator for use in case of equipment failure or power cuts.
- **Oxygen concentrators** are machines which are plugged into the electricity supply and filter oxygen from the air in the room before delivering it to a face mask or nasal cannula. Concentrators are usually installed when patients need oxygen for many hours per day, including whilst asleep. A back-up cylinder is supplied in case of breakdown (see above). This must be stored at the same location as the concentrator.
- **Portable oxygen cylinders** are small, relatively lightweight cylinders which can be used where the patient must move away from their fixed oxygen supply, and where continuation of oxygen therapy is necessary. They are occasionally provided to patients who do not need a fixed supply but do need oxygen whilst exercising or moving around. They are not, however, suitable for all patients, and will only be provided where need has been assessed.

Oxygen safety

The majority of reported serious incidents associated with home oxygen therapy are fires (particularly where patients smoke whilst using oxygen), and trips and falls.

Oxygen, whilst not flammable itself, does increase fire hazards, and it is important to take precautions where residents are prescribed home oxygen. The supplier of home oxygen will inform the local fire and rescue service to make them aware that there's oxygen in your home. They may also request a fire risk assessment. There are a few steps you should take to help ensure safety of residents using oxygen, other residents in the home and staff:

- Be aware that when a resident has been using oxygen therapy their hair, clothing, bedding, and any soft furnishings will become enriched with oxygen and will be more likely to catch fire if near a source of ignition. This saturation can last for quite a long time after the oxygen supply has been turned off, so it is important that residents do not approach a naked flame or source of ignition, or smoke, for at least 20 minutes after using their oxygen.
- Never smoke or let anyone else smoke where a resident is using oxygen, or near oxygen equipment. Put up no smoking signs and be aware of people smoking near you if a resident is using oxygen outside of the home. Please note this also applies to e-cigarettes.
- Keep oxygen at least six feet (two metres) away from any flames or heat sources such as gas cookers, paraffin, gas, or electric heaters, candles, cigarettes, cigars, and fireplaces.

- All oxygen equipment has firebreaks fitted to the delivery tubing. Under no circumstances should these be removed, or the position changed.
- Do not use flammable products, such as cleaning fluid, paint thinner, or aerosols in an area where a resident is using oxygen.
- Ensure you know where fire extinguishers are sited and check that fire/ smoke alarms are in working order.
- Oxygen equipment should be turned off when not being used.
- Emollients can transfer from the skin onto clothing, bedding, dressings, and other fabric. Once there, they can dry onto the fabric and build up over time. In the presence of a naked flame, fabric with emollient dried on is easily ignited.
- Although emollients are not flammable in themselves or when on the skin, when dried on to fabric they act as an accelerant, increasing the speed of ignition and intensity of the fire. This applies to all emollients, whether they contain paraffin or not.⁴
- Always make sure your hands are clean before approaching a patient who is using oxygen and never use a paraffin-based emollient on your own hands. If you have used an alcohol hand cleanser, make sure this has been well rubbed in and the hands are dry before touching oxygen equipment.
- Do not use aerosol sprays such as hair sprays or deodorants whilst using your oxygen equipment.
- Concentrators may be supplied with up to 15 metres of tubing. Care is needed as this can be a trip hazard, both to the resident using the oxygen and to other residents and staff.
- Take care that tubing does not become kinked or trapped under doors or around furniture.
- Residents may find carrying portable cylinders can also affect balance due to the additional weight.
- If using oxygen cylinders, ensure that they are kept upright and that they cannot fall over and get damaged, in clean, well ventilated, and dry conditions, not exposed to extremes of heat or cold.
- Never place oxygen equipment near curtains or cover them with clothing or other material objects. This will restrict air circulation and increase the oxygen concentration.
- Never put your cannula or mask on the bed or the chair whilst the oxygen supply is still turned on.
- Never leave the oxygen supply running when it is not being used.
- Never use or carry a portable oxygen cylinder or vessel under any clothing.
- Under no circumstances should static (large cylinders and concentrators) equipment be moved from where installed by the contractor. The location will have been selected, based on a risk assessment, to provide a safe and secure location.
- Where cylinders (large or portable) are being used, the contents should be checked regularly. Replenishment should be arranged with the contractor in good time to ensure continuity of therapy.
- If possible, store portable cylinders with the resident. If this is not possible, the contractor should be informed of this during the initial installation, as they will have to assess the proposed storage location.
- If a resident uses portable oxygen, make sure that any car or other transport used has an oxygen sticker (available from the Fire Service) in case of an accident, and ask your oxygen supplier about safe transport of oxygen cylinders.
- Residents should not share oxygen provisions (including portable supplies), and under no circumstances should residents' oxygen provisions be used to treat any other patient – even in an emergency. If the home/organisation has determined that emergency oxygen should be available, this must be provided as a totally separate supply. (They will also need to have in place appropriate policies and procedures to cover use).
- Therapy should be regularly reviewed by the relevant clinician. Any changes to therapy will be notified to the contractor who will make the necessary changes. If the review shows that oxygen therapy is no longer required, the contractor will be informed, and equipment will be withdrawn.

Cleaning and maintenance

- To clean concentrators and cylinders, use a clean damp cloth and allow equipment to dry before use. If you have been shown how to perform routine care of the equipment (e.g., cleaning filters) by the contractor, you should follow the instructions given.
- If the equipment fails, switch to the back-up cylinder and contact the supplier's customer helpline.
- NEVER attempt to repair or modify any fault yourself.
- Oxygen masks can be washed with warm water and left to air dry.
- When a nasal cannula is used, always have a spare set and do not use if they become hard or discoloured. The contractor will provide you with sufficient consumables (e.g., masks, nasal cannula) to last until the next servicing visit.
- The contractor will conduct regular six-monthly visits to service the equipment, perform any safety checks, and complete a new risk assessment.

Contact numbers:

BOC Helpline: 0800 111333

ICB Medicines Optimisation Team: nwicb.medsqueries@nhs.net marking as urgent if needed and stating Oxygen in the subject header

References

1. <https://www.nhs.uk/conditions/home-oxygen-treatment/> accessed 24.08.2023.
2. <http://www.bohealthcare.co.uk/en/products-and-services/products-and-services-by-category/medical-gases/medical-oxygen/medical-oxygen.html> accessed 24.08.2023.
3. https://www.bohealthcare.co.uk/en/images/406900_Healthcare_Patient_Home_Oxygen_Handbook_NHS_A4_RZ_tcm409-66361.pdf 19.10.20 accessed 24.08.2023
4. <https://www.gov.uk/drug-safety-update/emollients-and-risk-of-severe-and-fatal-burns-new-resources-available> accessed 24.08.2023.

Title	Best Practice Guidance for care homes: Bulletin 16 – Oxygen Safety
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Prepared by	Medicines Optimisation Team
Evidence base / Legislation	Level of Evidence: <i>A. based on national research-based evidence and is considered best evidence</i> B. mix of national and local consensus <i>C. based on local good practice and consensus in the absence of national research based information.</i>
Dissemination	Is there any reason why any part of this document should not be available on the public website? <input type="checkbox"/> Yes / No <input checked="" type="checkbox"/>
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Version Control (To be completed by policy owner)

Version	Date	Author	Status	Comment
0.1	April 2016	Prescribing & Medicines Management Team SW	Draft	Discussed with JR and some amendments suggested
0.2	May 2016	Prescribing & Medicines Management Team SW	Draft	Discussed at SMT and further amendments suggested
0.3	June 2016	Prescribing & Medicines Management Team SW/JR	Draft	Further review and amendments by JR
1.0	June 2016	Prescribing & Medicines Management Team SW/JR	Final	
1.1	August 2018	Prescribing & Medicines Management Team ZD	Updating & Reviewing	Updating document, new logo's, ensuring information is correct and current. Contact details updated. References checked and updated
2.0	Sept 2018	Medicine Optimisation Team	Final	Signed off at STM
2.1	November 2020	Medicine Optimisation Team- ZD	Review	Reviewed and information added from Oxygen handbook (Zoe's additions in red above)
3.0	July 2021	Medicine Optimisation Team	Final	Amendments made and approved by Senior Team July 21.
3.1	October 2023	Medicines Optimisation Team - LE	Draft	Uploaded to new template only
3.2	December 2023	Medicines Optimisation Team – HH	Draft	Clinical review. Minor amendments made
3.3	September 2024	Medicines Optimisation Team – HH	Draft	Clinical review. No amendments but will need review once oxygen contract reviewed

