Service Specification

Home Oxygen Assessment and Review Service
Service Specification: Home Oxygen Assessment and Review Service

DH INFORMATION READER BOX

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Document Purpose
Best Practice Guidance

Gateway Reference
17874

Title
COPD Commissioning Toolkit: Home Oxygen Assessment and Review Service Specification

Author
NHS Medical Directorate

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Target Audience
PCT Cluster CEs, NHS Trust CEs, SHA Cluster CEs, Care Trust CEs, Foundation Trust CEs, Medical Directors, Directors of Nursing, PCT Cluster Chairs, NHS Trust Board Chairs, Special HA CEs, Directors of HR, Directors of Finance, Allied Health Professionals, GPs, Communications Leads, Emergency Care Leads

Circulation List
Directors of PH, Local Authority CEs, Directors of Adult SSs

Description
The COPD Commissioning Toolkit aims to make it easier to commission better services for people with COPD by bringing together the clinical, financial and commercial aspects of commissioning in one place.

Cross Ref
An Outcomes Strategy for COPD and Asthma

Superseded Docs
N/A

Action Required
N/A

Timing
N/A

Contact Details
Joanna Clarke
NHS Medical Directorate
Department of Health
133 - 155 Waterloo Road
SE1 8UG
020 7972 4267

For Recipient’s Use
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A: Purpose of the Service

Key objectives of a Home Oxygen Assessment and Review Service

The aim of the Home Oxygen Assessment and Review Service (HOS-AR) is to ensure that home oxygen is appropriately prescribed to those people who clinically need it. It should ensure that people prescribed oxygen and prescribing clinicians alike are well informed about the nature, scope and capability of the home oxygen service, and that provision is evidence-based, clinically-led and continually strives to improve outcomes.

The high-level objectives of the HOS-AR are:

- to provide a systematic and integrated Service
- to provide easy access to assessment and follow up procedures carried out by appropriately qualified and trained healthcare professionals using appropriate diagnostic equipment.
- to reduce/eliminate waste and poor quality care, and strengthen affordability and value, through targeting the service on those who will benefit from home oxygen
- to ensure a higher standard of clinical treatment and improved outcomes, through more effective and speedier diagnosis
- to ensure that users of the Service have a positive experience of care

What is COPD?

COPD describes lung damage that is gradual in onset and that results in progressive airflow limitation. This lung damage, when fully established, is irreversible and, if it is not identified and treated early, leads to disability and eventually death. The principal cause of COPD is smoking. Other factors include workplace exposure, genetic make-up and general environmental pollution.
COPD causes around 23,000 deaths in England each year, with one person dying from the condition every 20 minutes.

**Why is Home Oxygen Assessment and Review important for improving outcomes?**

- Long-term oxygen therapy in appropriate individuals can improve survival rates by around 40%.
- At the same time 30% of people on home oxygen therapy currently derive no clinical benefit from it.
- In a recent study, at least 15,000 people were found to have no recorded oxygen usage in a six-month period, at a cost nationally of £13m per annum.
- Conversely, 20% of people with COPD would benefit from home oxygen therapy but do not get it.
- The total annual cost of the service in England is approximately £120m. PCTs that have introduced a review of their oxygen registers coupled with the introduction of a formal assessment service have reduced their annual spend by up to 20%. If the scale of savings were replicated across England, it is estimated that they could amount to between £10-20m of savings a year.
B: National and Local Context

National context

Several publications at the national level have recommended home oxygen assessment and review.

The Outcomes Strategy for COPD and Asthma and the subsequent NHS Companion Document to the Strategy suggested the NHS could:

- ensure routine pulse oximetry in people with COPD whose FEV1 is lower than 50% predicted to identify those who may need long-term home oxygen therapy and, for those identified, ensure structured assessment of need by a home oxygen assessment and review service

The NICE Clinical Guideline for COPD recommends home oxygen assessment and review, stating that:

- the need for oxygen therapy should be assessed in:
  - all patients with very severe airflow obstruction (FEV1 < 30% predicted)
  - patients with cyanosis
  - patients with polycythaemia
  - patients with peripheral oedema
  - patients with a raised jugular venous pressure
  - patients with oxygen saturations ≤ 92% breathing air.
- assessment should also be considered in patients with severe airflow obstruction (FEV1 30–49% predicted).
- the assessment of patients for long-term oxygen therapy (LTOT) should comprise the measurement of arterial blood gases on two occasions at least 3 weeks apart in patients who have a confident diagnosis of COPD, who are receiving optimum medical management and whose COPD is stable.
- patients receiving LTOT should be reviewed at least once per year by practitioners familiar with LTOT and this review should include pulse oximetry.

The NICE Quality Standard for COPD also highlights the importance home oxygen assessment and review:

- People with COPD potentially requiring long-term oxygen therapy are assessed in accordance with NICE guidance by a specialist oxygen service.
- People with COPD receiving long-term oxygen therapy are reviewed in accordance with NICE guidance, at least annually, by a specialist oxygen service as part of the integrated clinical management of their COPD.

The Home Oxygen Service: Good practice guide for assessment and review, published by Primary Care Commissioning, describes the content of a HOS-AR Service for people who might require oxygen therapy.
Local Context

[The commissioner should insert information about the Home Oxygen Assessment and Review Service which is relevant to local factors that will influence the way the Provider delivers the Service. This should include information on:

- demographics
- epidemiology
- the organisations commissioning the service
- Joint Strategic Needs Assessment (JSNA) and interrelationship with local Health & Well-being Board]
C: Scope

Disease areas

Adults who are prescribed oxygen often have respiratory disease, typically Chronic Obstructive Pulmonary Disease (COPD), cystic fibrosis or pulmonary fibrosis. It is also used as treatment for some hypoxic patients with cardiac disease and some neurological disorders, e.g. cluster headaches. Children with chronic lung disease who live in the community, including survivors of premature birth, may require home oxygen. Oxygen is sometimes also of value for palliation in end-of-life care.

The HOS-AR Service is designed to meet the needs of people who might benefit from home oxygen. In most cases such people will show resting hypoxaemia with a SaO2 less than or equal to 92%.

Exclusion criteria for this Service

- People who cannot clinically benefit from home oxygen.
- Children (as they are under paediatric services and usually have their own community services. The care pathways for children are set out in Appendix 5 to the Good Practice Guide).
- People who have not had a clinical assessment and quality assured diagnosis (except palliative patients who are not assessed or reviewed through the normal service. Palliative patients should have evidence of hypoxaemia. Some assessment of equipment may be needed and thus prescribers for palliative patients may need discussion with the HOS-AR service).

Equity of access to services, venues and operational hours

[Describe the Commissioner’s requirements for ensuring that its services are accessible to all, regardless of age, disability, race, gender reassignment, religious/belief, sex, pregnancy and maternity or sexual orientation, or income levels, and deals sensitively with all service users and potential service users and their family/friends and advocates. This needs to reflect The Equalities Act 2010. Commissioners are advised that they may, depending on existing local services and resources, have to commission appropriate venues and transport services separately. Language services may also be required in order to assist with translation requirements where patients do not speak English. The general points listed below will apply in all cases.]

- The HOS-AR Service will need to be sited so as to be suitable and easily accessible to people. There should be adequate parking and good public transport links, with easily accessible buildings, including provision for people with disabilities.
- Special consideration should be given to those people who are most limited by their breathlessness (i.e. MRC score of 5 – housebound) with regards to the provision of transport or at home assessment.
- A risk and suitability assessment of the venue must be undertaken.¹

¹ The HOS Supplier will be expected to conduct this and may veto clinical selection if any equipment selected is deemed unsafe or is otherwise unsuitable or inappropriate.
Referral sources

The Provider can receive referrals from a broad range of sources that have made an assessment, which include but are not be limited to, organisations in the following settings:

- Primary Care
- Community services
- Secondary Care
- Tertiary Care
- Others (for example: Occupational health, private health, self referral by patients who have an assessment)

Interdependencies with other services

[Describe all relationships between the Service and other providers of health and other services locally. This will include but not be limited to COPD and other respiratory services (including lung function), cardiac services, neurology, care for the elderly, social care, smoking cessation services, pharmacists and palliative care services.]

The fire service should conduct an on-site safety check/risk assessment when liquid or cylinder oxygen is provided. Households where people smoke have a higher risk of domestic fire which could be potentially dangerous when liquid or cylinder oxygen is involved. Fire services must be notified whenever liquid or cylinder oxygen is installed.

In order to minimise the risk of hypercapnic respiratory failure, the ambulance service should also be notified in the event of emergency transport to hospital.
D: Service Delivery

HOS-AR Service Pathway

The HOS-AR Service must ensure good integration with a number of different patient pathways. Good communication between all staff – multidisciplinary and multi-professional – is essential: the person’s record needs to be up-to-date and there should be a register in every locality of all people prescribed home oxygen. Integration with acute care is necessary if the oxygen is prescribed in acute care.

The purpose of this document is to set out the principal requirements and characteristics which are expected of a systematic and integrated service for HOS-AR.

There are four principal stages as follows:

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The detailed requirements for each stage are set out below, including the key deliverables and associated indicators at each stage. Stage 0 is included in the service specification to confirm the obligations to be placed on the Stage 0 Provider by the Commissioner as it is critical to the success of the service being commissioned.

Stage 0 – Identify and refer patient for home oxygen assessment

Overview

People should have a quality-assured clinical diagnosis and be medically optimised before referral. Assessment needs to be linked with regular reviews of those already prescribed oxygen, to ensure that oxygen is provided only for those who benefit clinically from it.

In considering the need for oxygen therapy, the first step is pulse oximetry, to determine whether the individual is hypoxaemic. Pulse oximetry should be routinely available in general practice - modest investment in the provision of pulse oximeters for example (one per practice at less than £40 per oximeter) would enable general practice to screen patients. People who are shown by oximetry to be hypoxaemic i.e. where SpO2 is less than or equal to 92%, and whose condition is stable, should be referred to the HOS-AR Service to have a full assessment carried out.

Any person with COPD who is hypoxaemic needs a confirmed and quality-assured diagnosis. Where the person’s diagnosis is unclear or when significant co-morbidity might contribute to breathlessness or hypoxaemia, e.g. heart failure, they should be referred to an appropriate specialist physician. People with potential hypercapnic respiratory failure should be also reviewed by a physician.

People whose oxygen saturation levels are satisfactory (above 95%) do not need to be seen by a HOS-AR service.
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Patients whose level is borderline (between 92 and 95%) may need further assessment if breathless on exertion or when sleep disordered breathing is a possibility and specialist referral required

People who show intermittent or fluctuating hypoxaemia will need to be followed up and assessed more frequently.

**Stage 1 – Home Oxygen Assessment**

**Assessment**

The assessment should include quality-assured diagnosis where not recorded, assessment of resting and when indicated, ambulatory finger or earlobe oximetry. In addition measurement of arterial/capillary blood gases will be required.

If oxygen therapy is indicated, the safety, flow rate and duration of oxygen should be determined for each person (usually at least 15 hours per day for long term oxygen therapy but of shorter duration, e.g. overnight for some indications, e.g. hypoventilation).

Following consultation with the person requiring oxygen, the clinician should identify the nature of the equipment/delivery system most suited to the person’s lifestyle.

Once identified, this equipment is made available to the patient by the oxygen supply companies (see Good Practice Guide Appendix 4). From 2011, the contracts impose an obligation on companies to ensure that any improvements or innovation in relation to such equipment are adopted rapidly.

The Provider should ensure that people prescribed oxygen and their carers understand how to use the oxygen equipment and manage their treatment. Training and written information (in appropriate languages for non-English speakers) should be offered to the patient/carer and repeated at reviews. Information about safety should be provided and repeated at every opportunity. A full risk assessment (e.g. smoking, risk of falls etc) should be undertaken.

In addition people who make regular trips out of the home for work or leisure will need assessment for ambulatory oxygen and consideration for pulmonary rehabilitation. If possible pulmonary rehabilitation should be given before ambulatory oxygen.

In some cases referral to social, psychological, dietary, occupational therapy and/or palliative care services will be required.

The Home Oxygen Order Form (electronic, or paper where electronically transmitting is not available), should be completed and sent to the relevant oxygen supplier and details of the plan for managing the person’s condition should be sent to his/her GP and, where appropriate, consultant physician and home care team.

Appendix 5 of the Good Practice Guide sets out the care pathway.

**Skills**

The assessment service should be provided by an appropriately trained health professional with a suitable clinical qualification (Appendix 3 in the Good Practice Guide has a description of
the skills/competences required) and the service should have input from a clinical specialist who will normally be a respiratory physician.

The health professional should have knowledge of other conditions causing hypoxaemia and of the equipment provided by the local oxygen supplier.

They should have appropriate administrative support (Band 3), and operate within a clear clinical accountability structure.

**Location**

The assessment should take place within premises that are in accordance with appropriate physiology testing facilities especially with respect to infection control, risk assessment and health and safety policy; and are spacious enough to allow for the patient’s capacity for exercise to be assessed safely when assessment of ambulatory oxygen requirement is performed.

Co-location with other diagnostic facilities (e.g. chest x-ray) would be advantageous.

The assessment can also be carried out in the person’s own place of residence, provided that infection control, risk assessment and health and safety policy are adhered to.

**Equipment**

The assessment requires measurement of arterial or capillary blood gases as well as oximetry, and such equipment, properly maintained, must be available. In addition, a variety of oxygen equipment, both for long term and ambulatory use, must be available in order to assess the person and ensure they are given the most appropriate equipment for their needs.

**Stage 1a  Assessment for long-term oxygen therapy**

Oxygen therapy is appropriate for a clinically stable person where the arterial blood oxygen measurement is at or below 7.3 kPa (or under 8kPa if complicated by pulmonary hypertension).

In such circumstances, the acceptability and safety of supplemental oxygen should be assessed by providing sufficient oxygen to increase SaO2 to 92-94% for at least 30 minutes. In people with an elevated PaCO2 (> 6.0 kPa) the blood gases should be repeated to exclude a significant (>1.0kPa) rise in arterial CO2.

People with incipient hypercapnic respiratory failure or with complex co-morbidity, e.g. sleep apnoea may need to be referred for further specialist medical assessment.

The assessing clinician should explain the rationale for long-term oxygen therapy (LTOT) and its use. If ambulatory or portable oxygen is indicated the home oxygen equipment that best meets the person’s needs and preferences should be provided. Examples of the different types of equipment should therefore be available for demonstration to the patient in order to facilitate informed choice and correct operation. Once chosen, the clinician should complete a home oxygen order form (electronic or paper).

The rationale for oxygen therapy should be explained and supported by written information.
A risk assessment should be undertaken.

**Stage 1b  Assessment for ambulatory oxygen**

Certain people may require ambulatory oxygen. This should primarily be to support normal activities of daily living including undertaking exercise and trips out of the home and allow a longer daily use of LTOT. In these circumstances assessment should be carried out to simulate daily activities with the aim of avoiding significant de-saturation and relieving breathlessness.

Ambulatory oxygen is appropriate where the SpO2 reading falls by 4% or more and to less than 90% and the person demonstrates improved exercise tolerance or comfort with oxygen. The main purpose of ambulatory oxygen is to maximise quality of life for the person on long-term oxygen therapy. In most cases a simple titration of the oxygen flow rate to minimise oxygen de-saturation during the relevant activity is all that is required.

Some people who de-saturate on exertion do not show resting hypoxaemia. Improved performance with ambulatory oxygen should be demonstrated before prescription. Higher flow rates and/or pulsed oxygen delivery systems may be indicated. Staff with additional experience of exercise assessment may be required in such cases.

The clinician should demonstrate the types of ambulatory equipment available and agree with the person what would best meet his/her needs and preferences. The clinician should have confidence that the person will make sufficient use of any ambulatory equipment provided, and ensure that he/she has the capacity – with adequate training\(^4\) – to operate it effectively (if necessary with the help of a carer). A HOOF (electronic or paper) should then be completed. (One issue is that people cannot be provided with more than one equipment type for ambulatory oxygen).

**Stage 2  Follow up home visits**

When home oxygen therapy has been started during acute illness a follow up visit that includes a review of the need to continue home oxygen should occur within six weeks. This specialist and holistic review should be provided by suitably competent staff.

For people starting home oxygen electively, a review at home should be undertaken in four weeks to enable re-assessment of the person’s clinical status, adherence to the oxygen therapy regime (including the appropriateness of the equipment), safety review to reduce risks including fire and falls and whether further action is necessary (e.g. referral back to a specialist clinician – whether respiratory or the person’s main specialty – or social services). The review should be undertaken by a healthcare professional who is competent to assess and advise the person.

If any adjustment of the oxygen therapy is required, an amended HOOF (electronic or paper) will need to be completed.

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\(^4\) Training is also to be provided by the HOS Supplier on installation with a two-week follow-up call to ensure patient has retained training and can operate the equipment safely and appropriately.
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The Provider will be required to comply with the new Order provided it is clinically safe, e.g. compliant with BTS Guidelines.

People who are stable should then be reviewed every six months including monitoring of oxygen saturations and enquiry about household smoking habits.

People whose condition is less stable will require more frequent review and follow up, including blood gas measurement. They may need referral for specialist physician review.

People should be reviewed by the HOS-AR service with repeat blood gases annually when clinically indicated.

People in receipt of home oxygen should be reviewed after any acute hospital admission or severe exacerbation treated at home.

Stage 3 Withdrawal of oxygen therapy

When at review people are found to no longer meet the criteria for home oxygen, this should be explained, the oxygen provision discontinued (order to gas company required) and other prescribed treatments reviewed.

Where the person continues to meet the criteria but is not using the oxygen as prescribed, he or she should be counselled on the merits of the therapy and encouraged to increase usage to the recommended level.

In the case of continued smoking, (by the patient or other members of the household), education and expert support to stop should be offered. In the persistent smoker a risk/benefit analysis should be undertaken with medical review. In some circumstances it may be appropriate to withhold or withdraw oxygen because of public safety and risk to others.

A sample protocol for withdrawal of LTOT/ambulatory oxygen is set out at Appendix 8 of the GPG.

Documenting results and Oxygen Register

The Provider will be provided with the local oxygen register and concordance reports and will have a grace period of [ ] months to review and update it to accurately reflect the provision of home oxygen.

The Provider shall employ a comprehensive and rigorous system of data collection, storage, retrieval and transmission in order to verify the information provided by the oxygen supplier and to keep the oxygen register accurate and up to date, including:

- a comprehensive record of the identities and numbers of people who have been referred for an HOS-AR assessment and who have been provided with HOS therapy
- appropriate records of the HOS-AR assessments, follow up home visits, adjustments to HOS treatment and review and details of when HOS therapy is withdrawn

The Provider will report all the above information to [the Commissioners or other appropriate counterparty] in an agreed format [daily / weekly] or otherwise have it available on line on a real-time basis.
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Patient confidentiality and data protection requirements should be observed at all times in this process.

Patient Care Plan

The Provider shall ensure that the records of all referrals for HOS-AR assessment and those patients who receive HOS therapy are made available to GPs in order to have this information recorded in care plans.

Review and Audit

The Provider agrees to allow the [Commissioner]:

- To review and audit the provision of the Service at least annually and to provide a summary of the overall results and its performance of the Service to confirm compliance with the Indicators; and

- To have reasonable rights of audit and access to any of the Provider’s premises, personnel, the Provider’s systems, sub-contractors and their facilities and premises and the relevant records (including the right to copy) and other reasonable support as the [Commissioner] may require whilst the Service is being provided [and for twenty four (24) months following the end of [the Contract]] in order to verify any aspect of the Service or Provider’s performance.

Interdependencies with other services

The HOS-AR is interdependent with all other respiratory services (including lung function), cardiac services, neurology, care for the elderly, social care, smoking cessation services, pharmacists and palliative care and the Provider must liaise as appropriate with these services.

Local fire service

The [Supplier] will notify the local fire service where oxygen equipment is provided and, in the case of persistent smokers, a risk assessment of the premises requested of the fire service.

Commissioners should check that this is undertaken by the Supplier as part of their contract specification.

Ambulance service

Whilst ambulance services now employ universal precautions (28% oxygen) with respect to the risk of high concentration oxygen in acutely unwell people with COPD, and others at risk from oxygen induced hypercapnia, people known to be at risk should be advised and oxygen alert cards provided. In some cases, a specific protocol (PSP) may be appropriate depending on local ambulance service arrangements.
E: Indicators

When reporting progress against outcomes the Provider may wish to consider measures and calculations similar to those set out below. Data should be obtained from local audit, unless otherwise stated.

The Commissioner may wish to consider Remedial Action Plans to ensure compliance with the required threshold for certain measures if selected, withholding [2]% of monthly revenues under Clause 32 until the Remedial Action Plan has been implemented. [Commissioner to insert any bespoke consequences to apply in accordance with Clause 31.6 of the NHS Standard Contracts.]

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<th>Indicator description</th>
<th>Indicator threshold</th>
<th>Measurement</th>
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| More eligible people are referred for a HOS assessment | [TBA] [TBA] [TBA] | The percentage of eligible people referred for a HOS assessment | [100%] | (x) The number of eligible people* referred for a HOS assessment  
(y) The number of eligible people*  
\[\frac{x}{y} \times 100 = \text{percentage of eligible people* referred for a HOS assessment} \]  
*‘eligible people’ defined as: those with oxygen saturation less than or equal to 92% when clinically stable |
| More eligible people booked for their HOS assessment attend their appointment | [TBA] [TBA] [TBA] | The percentage of eligible people booked for their HOS assessment who attend their appointment | [90%] | (x) The number of eligible people* booked for their HOS assessment who attend their appointment  
(y) The number of eligible people* booked for their HOS assessment  
\[\frac{x}{y} \times 100 = \text{percentage of eligible people* booked for their HOS assessment who attend their appointment} \]  
*‘eligible people’ defined as: those with oxygen saturation less than or equal to 92% when clinically stable |
| More eligible people requiring ambulatory oxygen are assessed | [TBA] [TBA] [TBA] | The percentage of eligible people requiring ambulatory oxygen who are assessed | [100%] | (x) The number of eligible people requiring ambulatory oxygen* who are assessed  
(y) The number of eligible people requiring ambulatory oxygen*  
\[\frac{x}{y} \times 100 = \text{percentage of eligible people requiring ambulatory oxygen who are assessed} \]  
*‘eligible people’ defined as: those with oxygen saturation less than or equal to 92% when clinically stable |
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<th>Assessment/Review</th>
<th>Calculation</th>
<th>Notes</th>
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</table>
| More people requiring ambulatory oxygen have the preferred modality        | [TBA]             | The percentage of people requiring ambulatory oxygen who have the preferred modality | 90%                                                                                       
|                                                                             |                   | (x) The number of people requiring ambulatory oxygen who have the preferred modality  
|                                                                             |                   | (y) The number of people requiring ambulatory oxygen                        | [x/y] x 100 = percentage of people requiring ambulatory oxygen who have the preferred modality                                      |
| More eligible patients receive home oxygen therapy                          | [TBA]             | The percentage of eligible patients who receive home oxygen therapy          | [TBA]                                                                                                                                   |
|                                                                             |                   | (x) The number of eligible patients* who receive home oxygen therapy  
|                                                                             |                   | (y) The number of eligible patients*                                      | [x/y] x 100 = percentage of eligible patients* who receive home oxygen therapy                                                                                                                   |
|                                                                             |                   | *eligible patients’ defined as: those who are clinically stable person where the arterial blood oxygen measurement is at or below 7.3 kPa (or under 8kPa if complicated by pulmonary hypertension) |                                                                                                                                                                                                     |
| More people prescribed oxygen therapy have a follow up home visit within 4 weeks | [TBA]             | The percentage of people prescribed oxygen therapy who have a follow up home visit within 4 weeks | 100%                                                                                       
|                                                                             |                   | (x) The number of people prescribed oxygen therapy who have a follow up home visit within 4 weeks  
|                                                                             |                   | (y) The number of people prescribed oxygen therapy                        | [x/y] x 100 = percentage of people who have a follow up home visit within 4 weeks                                                                                                                   |
| More people on long-term oxygen therapy have a review every 6 months       | [TBA]             | The percentage of people on long-term oxygen therapy who have had a review in the last 9 months | [TBA]                                                                                       
|                                                                             |                   | (x) The number of people on long-term oxygen therapy who have had a review in the last 9 months  
|                                                                             |                   | (y) The number of people on long-term oxygen therapy                        | [x/y] x 100 = percentage of people on long-term oxygen therapy who have had a review in the last 9 months                                                                                         |
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| Oxygen is withdrawn in more cases where people not hypoxaemic and/or not deriving benefit from home oxygen, and withdrawal is recommended | [TBA] | [TBA] | [TBA] | [95%] | (x) The number of people not hypoxaemic and/or deriving no benefit from home oxygen where oxygen is withdrawn if recommended. 
(y) The number of people not hypoxaemic and/or deriving no benefit from home oxygen where withdrawal is recommended. 
\[ \frac{x}{y} \times 100 = \text{percentage of people not hypoxaemic and/or deriving no benefit from home oxygen where oxygen is withdrawn if recommended} \] |

| Fewer people with COPD who smoke | [TBA] | [TBA] | [TBA] | [TBA] | (x) The number of people using the HOS-AR service who are smokers who are offered stop smoking support and pharmacotherapy. 
(y) The number of people using the HOS-AR service who are smokers. 
\[ \frac{x}{y} \times 100 = \text{percentage of people using the HOS-AR service who are smokers who are offered stop smoking support and pharmacotherapy} \] |

| More people using the HOS-AR service are referred to pulmonary rehabilitation services | [TBA] | [TBA] | [TBA] | [TBA] | (x) The number of people using the HOS-AR service who are referred to pulmonary rehabilitation services. 
(y) The number of people using the HOS-AR service who are referred to pulmonary rehabilitation services. 
\[ \frac{x}{y} \times 100 = \text{percentage of people using the HOS-AR service who are referred to pulmonary rehabilitation services} \] |

| More people receiving home oxygen have oxygen alert cards | [TBA] | [TBA] | [TBA] | [TBA] | (x) The number of people receiving home oxygen who have oxygen alert cards. 
(y) The number of people receiving home oxygen. 
\[ \frac{x}{y} \times 100 = \text{percentage of people receiving home oxygen who have oxygen alert cards} \] |
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<th>Baseline</th>
<th>Operational</th>
<th>Change</th>
<th>Equation</th>
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| No or fewer payments are made to the supplier for people have moved out of the [commissioning] area or have died | [TBA] | [TBA] | [TBA] | (x) The number of payments made to the supplier for people have moved out of the [commissioning] area or have died in baseline year  
(y) The number of payments made to the supplier for people have moved out of the [commissioning] area or have died in operational year  
(x)-(y) = change in number of payments made |
| No inappropriate oxygen prescriptions are identified on assessment | [TBA] | [TBA] | [TBA] | (x) The number of inappropriate oxygen prescriptions identified on assessment in baseline year  
(y) The number of inappropriate oxygen prescriptions identified on assessment in operational year  
(x)-(y) = change in number of inappropriate oxygen prescriptions identified on assessment |
| More people using the service and their carers are satisfied with the service | [TBA] | [TBA] | [TBA] | (x) The number of surveys received with a satisfactory score  
(y) The number of people and carers surveyed  

\[
\frac{x}{y} \times 100 = \text{percentage of people and carers surveyed who are satisfied with the service}
\]
## F: Logic Model

A logic model is a representation of how an activity is intended to deliver particular results. The model shows the logical relationships between the resources that are invested, the activities that take place and the benefits or change that can result. The model is another way of showing indicators and can be used by commissioners when considering their approach to developing services locally. Attached is a suggested logic model for HOS AR.

| Impact | Reduction in respiratory mortality.  
|        | Reduction in inappropriate prescribing and costs.  
|        | Reduction in variation in prescribing. |
| Outcome | Increase the number of patients concordant with LTOT  
|         | Increase the number of patients concordant with ambulatory oxygen.  
|         | Reduction in hospital admissions. |
| Output | % of people prescribed oxygen who had a follow-up home visit within 4 weeks.  
|         | % of patients requiring adjustment of treatment.  
|         | % of patients not hypoxaemic and/or deriving no benefit where withdrawal recommended.  
|         | % of patients on oxygen after withdrawal recommended.  
|         | % of patients and carers who are satisfied with the service.  
|         | % of patients accurately prescribed oxygen. |
| Intervention | Full and comprehensive service [including home visits] delivered as per British Thoracic Society Guidelines and in line with recommendations from Primary Care Commissioning GPG.  
|             | Conducted by suitably qualified and trained health professionals with appropriate premises and equipment.  
|             | HOS-AR service should be integrated within a comprehensive patient pathway. |
| Input | Patients that have respiratory disease, typically cystic fibrosis, pulmonary fibrosis or COPD (exclusion criteria for COPD – patients who have not had quality-assured spirometry and who are not hypoxaemic i.e. where the patient’s oxygen saturation is greater than 92% SpO2). |