

**THAMES VALLEY & WESSEX AND KENT, SURREY & SUSSEX NEONATAL OPERATIONAL DELIVERY NETWORKS**

<b>South East (TVW &amp; KSS ODN) Neonatal Home Oxygen Guideline</b>	
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# South East (TVW & KSS ODN) Neonatal Home Oxygen Guideline

## Contents

1.0 Aims of guideline .....	3
2.0 Acknowledgements.....	3
3.0 Scope of guideline .....	3
3.0 Definitions.....	4
4.0 Guideline summary.....	5
5.0 Detailed guideline .....	7
5.1 Background .....	7
5.2 Planning for home care.....	7
5.2.1 Pre-discharge criteria for home oxygen .....	7
5.2.2 Discharge planning meeting .....	8
5.2.3 Ordering home oxygen .....	9
5.2.4 Parent education .....	10
5.3 Transitioning into the community .....	10
5.3.1 Home monitoring .....	10
5.3.2 Community follow up .....	11
5.3.3 Immunisations .....	12
5.3.4 Weaning oxygen.....	12
5.3.5 Sleep study analysis.....	13
5.3.6 Removal of home oxygen .....	13
6.0 Appendices.....	14
Appendix 1 – Guidelines for completing home oxygen risk assessment form .....	14
Appendix 2 - Initial Home Oxygen Risk Mitigation Form (IHORM) and Home Oxygen Consent Form (HOCP) for new patients only.....	22
Appendix 3 – Home oxygen knowledge & skills framework for parents/carers.....	24
Appendix 4 – Home Oxygen Weaning Calendar for 0.1l/min of oxygen – <i>Adapted from PPLOG</i> .....	26
Appendix 5 – Analysing Sleep Studies .....	28

## 1.0 Aims of guideline

To provide standardised guidance to the multi-disciplinary team when supporting neonates who are being discharged from the neonatal unit and into the community requiring home oxygen therapy.

To promote consistent evidence-based practise across the network and reduce variations in practice.

The guideline includes practical, evidence-based strategies on discharge planning and on-going care in the community for neonates needing home oxygen therapy.

## 2.0 Acknowledgements

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National Neonatal Network Scotland  
Paediatric Pan London Oxygen Group (PPLOG)  
TV&W and KSS ODN's Parent Advisory Groups  
Bliss Charity

## 3.0 Scope of guideline

The guideline applies to all neonates who are born in neonatal units and maternity units covered by Thames Valley & Wessex Neonatal ODN and Kent, Surrey & Sussex Neonatal ODN. This includes the following hospitals:

Thames Valley		
Trust	Hospital	Designation
Buckinghamshire Healthcare NHS Trust	- Stoke Mandeville Hospital, Aylesbury	LNU
Frimley Health NHS Foundation Trust	- Wexham Park Hospital, Slough	LNU
Oxford University Hospitals NHS Foundation Trust	- John Radcliffe Hospital, Oxford	NICU
Milton Keynes University Hospital NHS Foundation Trust	- Milton Keynes General Hospital	LNU
Royal Berkshire NHS Foundation Trust	- Reading	LNU

Wessex		
Trust	Hospital	Designation
Dorset County Hospital NHS Foundation Trust	- Dorset County Hospital, Dorchester	SCU
Hampshire Hospitals NHS Foundation Trust	- Basingstoke and North Hampshire Hospital	SCU
Hampshire Hospitals NHS Foundation Trust	- Royal Hampshire County Hospital, Winchester	SCU
Isle of Wight NHS Trust	- St Mary's Hospital	SCU
Portsmouth Hospitals University NHS Trust	- Queen Alexandra Hospital	NICU
Salisbury NHS Foundation Trust	- Salisbury District Hospital	LNU
University Hospitals Dorset NHS Foundation Trust	- Poole Hospital	LNU
University Hospital Southampton NHS Foundation Trust	- Princess Anne Hospital	NICU
University Hospitals Sussex NHS Foundation Trust	- St Richard's Hospital, Chichester	SCU

Kent		
Trust	Hospital	Designation
Dartford and Gravesham NHS Trust	- Darent Valley Hospital, Dartford	SCU
East Kent Hospitals University NHS Foundation Trust	- The Queen Elizabeth The Queen Mother Hospital, Margate	SCU
East Kent Hospitals University NHS Foundation Trust	- William Harvey Hospital, Ashford, Kent	NICU
Maidstone and Tunbridge Wells NHS Trust	- Tunbridge Wells Hospital, Pembury	LNU
Medway NHS Foundation Trust	- Medway Maritime Hospital, Kent	NICU

Surrey		
Trust	Hospital	Designation
Ashford and St Peters Hospitals NHS Foundation Trust	- St Peters Hospital, Surrey	NICU
Frimley Health NHS Foundation Trust	- Frimley Park Hospital, Frimley	LNU
Royal Surrey NHS Foundation Trust	- Royal Surrey County Hospital	SCU
Surrey and Sussex Healthcare NHS Trust	- East Surrey Hospital, Redhill	LNU

Sussex		
Trust	Hospital	Designation
East Sussex Healthcare NHS Trust	- Conquest Hospital, St Leonards-on-Sea	SCU
University Hospitals Sussex NHS Foundation Trust	- Princess Royal Hospital, Haywards Heath	SCU
University Hospitals Sussex NHS Foundation Trust	- Royal Sussex County Hospital, Brighton	NICU
University Hospitals Sussex NHS Foundation Trust	- Worthing Hospital, Worthing	SCU

Most neonates discharged from the neonatal unit on home oxygen have bronchopulmonary dysplasia (BPD) and this **guidance is primarily aimed at infants with this diagnosis and requiring oxygen for up to 6 months post discharge**. Long-term oxygen therapy is also required for infants secondary to a variety of other conditions. These include meconium aspiration syndrome, interstitial lung disease, pneumonia, pulmonary hypoplasia, and neurological conditions. Much of the advice in this guideline is applicable to these infants also but their care requires more individualised planning.

### 3.0 Definitions

BPD – Bronchopulmonary Dysplasia  
 BTS – British Thoracic Society  
 CCN – Community Childrens Nurse  
 CLDP – Chronic Lung Disease of Prematurity  
 DLA – Disability Living Allowance  
 HOCF – Home Oxygen Consent Form  
 IH – Intermittent Hypoxia  
 IHORM – Initial Home Oxygen Risk Mitigation Form  
 KSS – Kent, Surrey, and Sussex  
 ODN – Operational Delivery Network  
 PPLOG – Paediatric Pan London Oxygen Group  
 RSV – Respiratory Syncytial Virus  
 TVW – Thames Valley and Wessex

## 4.0 Guideline summary

### IN HOSPITAL

#### When is a baby considered for home oxygen?

≥36 weeks corrected gestation  
Clinically stable with no conditions precluding discharge  
Stable oxygen requirement and Inpatient sleep study to determine oxygen level  
Oxygen saturations consistently ≥95%

#### Baby requiring 0.1L/min – 0.2L/min

Confirmed by overnight  
sleep study

#### Baby requiring >0.2L/min-0.4L/min

Plan made with a respiratory  
consultant if available or based  
on satisfactory sleep study  
testing.

#### Baby requiring ≥0.5L/min

Based on sleep study testing.  
Further discussion/consultation  
must be gained from a  
specialist respiratory team  
within the network and  
individualised plan made pre  
hospital discharge.

#### Conduct an air challenge (Refer to Section 5:2:1)

With the parents present, turn off oxygen cylinders and assess the babies' oxygen saturations for **up to 30 minutes maximum**. If the baby drops oxygen saturations under 80% during challenge place back into oxygen and give additional safety advice. Including:

- Importance of not disconnecting the oxygen supply.
- Ensuring families are confident in knowing how to use the oxygen equipment.
- Are provided with portable oxygen for ease of mobility.
- Consider for use of a home saturation monitor.

**Ensure safe environment and risk assess** - Complete risk assessment (Refer to appendix 2 & 3)

**Give immunisations (including in line with childhood, RSV and Flu Programmes)** (Refer to Section 5:3:3)

**Arrange open access for paediatric assessment services according to local pathway**

**Conduct a car seat trial as per local guidance**

**Arrange a discharge planning meeting with parents and multidisciplinary team** (Refer to 5:2:2)

#### Order Home oxygen from Dolby Vivisol

(Refer to 5:2:3) Contact 0800 077 8020 (Professionals Line) if requiring support

#### Ensure parents have knowledge and skills

(Refer to 5:2:4)

#### Consider for home saturation monitoring

(Refer to 5:3:1)

**Ensure parents have been introduced and have access to contact numbers of teams supporting the transition to the home environment**

## AT HOME

**Care plan arranged with parents, consultant, and neonatal outreach team**  
(including input from any specialists involved in infants care)

**Home visit within 48 hours of hospital discharge by the neonatal outreach service**  
(or community children's nurse (CCN) if outreach unavailable)

**A minimum of weekly monitoring of oxygen saturations for first 4 weeks at home,**  
**then further visits as per agreed care plan**

**Saturation monitoring recommended for minimum of 30 minutes**

**Nutrition and growth monitored by neonatal outreach service/CCN/Health Visitor. If concerned liaise with consultant and/or dietitian.**

### OXYGEN WEANING AND SLEEP STUDIES

Sleep studies are carried out **4-weekly minimum** and include a **minimum of 4-weekly with a minimum of artefact free 4 hours of sleep data which should include at least 2 episodes of active sleep** to guide oxygen weaning (Refer to 5.3.5)

Aim to **reduce oxygen by 0.1L/min in a 4-week period.**

If difficulties weaning to air to consider using PPLOG weaning programme (Refer to appendix 4)

Once babies >2.5kg consider weaning in **increments of 0.1L/min**

Use the **ODI3, mean saturations, and percentage of time below 90% saturations alongside other published and the oximeter manufacturer's reference ranges** to analyse sleep studies  
(Refer to appendix 5)

Sleep studies are analysed and reported by an appropriately trained clinical professional within a week

Once oxygen is no longer required, contact Dolby Vivisol 0800 077 8020 (Professionals Line) to arrange **removal of the oxygen from the home**

## 5.0 Detailed guideline

### 5.1 Background

There are various clinical reasons why an infant may require supplementary home oxygen therapy; the main indication for home oxygen therapy in neonatal care is Bronchopulmonary Dysplasia (BPD)/Chronic Lung Disease of Prematurity (CLDP). Such therapy aims to prevent harm from chronic hypoxaemia and to improve relevant symptoms.

There are **benefits of home supplemental oxygen** for infants with BPD which include:

- 1) Reducing or preventing pulmonary hypertension
- 2) Reducing episodes of intermittent hypoxia (IH) which has thought to be associated with adverse neurodevelopmental outcomes
- 3) Improved growth
- 4) Prevents a prolonged hospital stay and the consequential psychological impact for the infant, parents and families

It is recommended that any infant likely to require continuous oxygen therapy for longer than 2-3 weeks should be considered for discharge on home oxygen therapy. The majority will need short term home oxygen therapy, but duration is variable, and some may require home oxygen therapy into early infancy and childhood.

The decision for an infant to have home oxygen therapy is usually made by a neonatologist or paediatric consultant, confirming that it is necessary to maintain the child's health.

Once a decision has been made to do so, excellent planning and communication between the multi-disciplinary team is essential to facilitate seamless discharge from hospital to the community. There is then a need for frequent assessment once at home to ensure oxygen is weaned appropriately and discontinued promptly when no longer required. This has additional benefit in reducing the burden of care for the family.

### 5.2 Planning for home care

Planning the transfer of care from hospital to home is carried out in accordance with ODN and local guidelines.

#### 5.2.1 Pre-discharge criteria for home oxygen

Infants should be considered for home oxygen when all the following criteria has been met:

- **Gestation** – 36 weeks corrected gestational age or greater.
- **Clinically stable** - Clinically stable with no other conditions precluding discharge.
- **Stable oxygen requirement and in-patient sleep study** - Oxygen saturations consistently at or above 95%.

Usually corresponding with oxygen flow of 0.1L/min - 0.2L/min and confirmed by overnight sleep study (Refer to section 5.3.5).

For babies requiring >0.2 L/min – 0.4L/min a plan should be made with a respiratory consultant if available or based on satisfactory sleep study testing.

For babies requiring  $\geq 0.5\text{L}/\text{min}$  based on sleep study testing, further discussion/consultation must be gained from a specialist respiratory team within the network and individualised plan made pre hospital discharge.

- **Air Challenge** - Prior to hospital discharge an “air challenge” should be undertaken to determine the infant’s likely response to accidental discontinuation of oxygen, due to equipment failure or dislodged nasal prongs. An air challenge is carried out by turning off oxygen cylinders and assessing the babies’ oxygen saturations. This should be carried out with the parents for **up to 30 minutes maximum**. If oxygen saturations drop below 80% during the challenge they should be placed back into oxygen and additional safety advice should be given<sup>1</sup>. This should include:
  - Reinforcing the importance of not disconnecting the oxygen supply
  - Ensuring families are confident in knowing how to use the oxygen equipment
  - Provided with portable oxygen for ease of mobility
  - Considered for a home saturation monitor.
- **Safe environment** - It is safe and practical for the infant/child to be cared for at home (Refer to Appendix 1 for example PPLOG Home Oxygen Risk Assessment Form). An Initial Home Oxygen Risk Mitigation (IHORM) Form must be completed (Appendix 2).
- **Parental/Carer confidence** - Parents/Carers understand the need for oxygen therapy and are willing and feel capable to look after the infant/child at home (with knowledge and skills packages and support provided)
- **Open access to hospital** - Local pathway arranged for open access to the hospital (i.e. paediatric assessment unit), should they become unwell, and parents have access to contact details. Parents must be provided with information on who to contact in what eventuality, i.e. when to phone 999, when to contact GP, when to utilise open access.
- **Car seat trial** - All infants in home oxygen should undergo a car seat trial.
- **Emergency contacts** – The family have contact details for the neonatal outreach team or CCN Team, are aware of their working hours and where to access help/support outside of these hours.
- **Multidisciplinary planning meeting** - Arranged as soon as possible (Refer to section 5.2.2)
- **Care plans documented** – All MDT plans are documented on Badgernet Discharge Summary.

## 5.2.2 Discharge planning meeting

Along with any other relevant professionals within the multi-disciplinary team, a discharge planning meeting could include:

- Parents/carer and/or family members
- Neonatal/Paediatric Consultant
- Respiratory Consultant (if available)
- Neonatal Nurse
- Neonatal Outreach Team and/or Community Children’s Nurse (CCN)
- Health Visitor (if available)
- G.P. (if applicable)
- Social Worker (if applicable)

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<sup>1</sup> Aleem, S (2024) The association of the room air challenge with long-term outcomes in extremely preterm infants, Journal of Perinatology, 44, pg 1300-1306

The following should be discussed and clearly documented in medical notes and badgernet discharge summary:

- Medical overview
- Introduction to any MDT members and contact details
- Parent/Carer Education Needs
- Provision of Oxygen
- Safety/Transport Issues
- Any travelling plans
- Infant specific Emergency Plan
- Planned Discharge Date
- Arranged Follow up/Review Date

Community care provision can be determined by the families address or GP, therefore teams may differ to the hospital of birth. Follow up care should be arranged amongst the MDT in the best interests of the family. Care may have to be transferred to a different consultant at discharge or joint care arranged.

### 5.2.3 Ordering home oxygen

Following the meeting, a planned discharge date should be set and at this point the home oxygen can be ordered.

Dolby Vivisol is the current home oxygen company contracted for the South East region.

An Initial Home Oxygen Risk Mitigation Form (IHORM) and Home Oxygen Consent Form (HOOF) are to be completed by the neonatal team and the Parents/carers (Appendix 2) and filed into the infant's notes.

A prescription, determining the flow rate and number of hours oxygen required per day should be specified by the infant's neonatal/paediatric consultant. The oxygen is then ordered by completing a Home Oxygen Order Form (HOOF). Ensure the correct flow rate is stated. If discharged in >0.1L/min, please state 'variable flow rate' on form to allow weaning to 0.1L. This can be completed by their online 'Vivimedical' system: <https://sintesi.dolbyvivisol.com/Vivimedical-NSS/pages/VvmHomePage.aspx>. The clinical team at Vivisol can provide guidance on equipment and provide advice if needed.

When ordering please note:

<u>Equipment</u>	<u>Flow rate equipment is suitable for</u>
Static Cylinder	Can be ordered for any flow rate
Static Concentrator	0.1L/min or more
Low Flow Meter	0.1-1L/min

Ensure that tender grips are requested on the HOOF. Families are required to choose either a static cylinder or a static concentrator. The flow rate and expected duration of oxygen therapy will influence this decision, so should be discussed with the baby's consultant and family. All babies will also require a lightweight ambulatory cylinder for use outside the home.

The maximum duration of supply from static and portable cylinders is as below:

<b>10 Litre Static cylinder</b>		<b>2 Litre portable cylinder</b>	
<b>Flow rate (L/min)</b>	<b>Maximum duration</b>	<b>Flow Rate (L/min)</b>	<b>Maximum duration</b>
0.1	16 Days 16 Hours	0.1	3 Days 8 Hours
0.2	8 Days 8 Hours	0.2	1 Day 16 Hours
0.3	5 Days 13 Hours	0.3	1 Day 2.5 Hours
0.4	4 Days 4 Hours	0.4	20 Hours
0.5	3 Days 8 Hours	0.5	16 Hours
0.6	2 Days 18.5 Hours	0.6	13 Hours
0.7	2 Days 9 Hours	0.7	11 Hours

Vivisol will:

- Contact the family to arrange a risk assessment and installation of equipment into the home environment
- Discuss safe administration, storage and transportation of oxygen
- Provide written information and emergency contacts for advice/support
- Ensure the family are aware of the processes for arranging on-going supplies, maintenance, and reordering of equipment.
- Administer a financial rebate to offset electricity costs of using an oxygen concentrator if applicable.  
NB: Additional support may be required for the family to help claim this.

## 5.2.4 Parent education

Families must be educated and prepared before discharge to facilitate safe home oxygen use. Evidence suggests that thorough education enables families to utilise home oxygen effectively, maximising concordance and minimising risk<sup>2</sup>. Through discussions with the infant's Consultant and the neonatal team, all parents/carers should:

- Understand the need for oxygen therapy and be willing and able to look after the baby at home.
- Be confident in the use of the equipment (Video available: <https://youtu.be/si5HLJNytz0?si=cdkikDFEU9SXA83n> 'Dolby Vivisol – How to use your paediatric Oxygen Cylinder')
- Be able to recognise signs of respiratory deterioration such as tachypnoea, nasal flaring, grunting, chest recession, and use of accessory muscles or tracheal tug.
- Be able to recognise signs of a baby becoming unwell such as cyanosis, lethargy, irritability, or poor feeding.
- Be aware of the risks of respiratory illness.
- Be aware of importance of preventative measures against respiratory viral illness:
  - Vaccination against influenza from 6 months of age
  - Attending monthly appointments for Palivizumab injections to protect against Respiratory syncytial virus (RSV) through the winter.
- Be given written information for Parents of babies going home in Oxygen. Refer to Bliss website for 'Taking Baby Home in Oxygen' booklet.  
<https://www.bliss.org.uk/parents/going-home-from-the-neonatal-unit/going-home-on-oxygen>
- Completed a Basic Life Support Training session.
- Be aware of benefit eligibility, i.e. Disability Living Allowance (DLA)
- Be offered information about their local Smoking Cessation support groups and be encouraged to quit (if applicable).
- Offered the opportunity to room in on the neonatal unit before transfer of care to home.

All families should have completed a knowledge and skills framework and can be tailored to individual family or Trust specific need. This should be family centred and designed to empower parents to ensure they have the knowledge to safely care for their baby at home (Refer to Appendix 3 for example).

## 5.3 Transitioning into the community

### 5.3.1 Home monitoring

There is currently no evidence on whether the routine use of saturation monitors at home is of benefit or harm, and it cannot be recommended. Nevertheless, some clinicians and parents may find it helpful in certain circumstances, i.e. If an air challenge indicates that the babies' oxygen saturations drop very quickly when off oxygen.

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<sup>2</sup> British Thoracic Society (2009) Guidelines for home oxygen in Children, *Journal of the British Thorax*, 64 (2), pg 1-26.

If clinicians or parents choose to use or recommend home monitors, then information on current devices and their challenges/risks should be provided.

Consideration should be given to the advantages and disadvantages of having a home saturation monitor (BTS, 2009):

Advantages	Disadvantages
Reducing anxiety	Increasing anxiety
Detects oxygen disconnection or nasal cannulae displacement	Undue reliance on monitor with difficulty for parents weaning off it
May provide early indication of worsening respiratory status (e.g. with an intercurrent infection)	Unnecessary minor adjustments of oxygen flows
May provide warning of sudden severe hypoxaemia	False reassurance of respiratory status leading to a lack of clinical wellbeing assessment.
Can assess response after oxygen therapy has been stopped	False alarms (less of a concern with newer technology)
	Cost

In chronic lung disease, oxygen therapy should be administered to maintain saturations of  $\geq 95\%$  to reduce the risk of pulmonary hypertension, optimise growth and quality of sleep<sup>3</sup>. However, target saturations can vary on other co-morbidities and therefore should be determined on an individual basis by the infant/child's paediatric consultant and clearly documented in the notes.

Monitoring should include various activity states, including awake, asleep and feeding. Respiration rate and work of breathing should be recorded in infant's notes.

### 5.3.2 Community follow up

To support the family and alleviate parental concern, and promote good health outcomes the following is recommended:

- All babies on home oxygen should have neonatal outreach or community nurse input with consultant support.
- A home visit within the first 48 hours of hospital discharge should be undertaken and subsequent arrangements for review / saturation checks with community teams arranged and agreed with parents after this review.
- Liaise with the neonatologist/paediatrician to make an individualised weaning plan (refer to section 5:3:4).
- Oxygen saturations should be monitored at least weekly in the first month following discharge from hospital.
- Weight and nutrition should be monitored routinely by outreach/CCN's/health visitor. Team to liaise with dietitian if concerns in the community.
- Infants should have hospital follow-up within 6-8 weeks of discharge and be seen regularly by the specialist to monitor the underlying condition as well as weight/growth and neurodevelopment.

<sup>3</sup> Everitt, L.H., Awoseyila, A., Bhatt, J.M., Johnson, M., Vollmer, B., Evans, H. (2021) Weaning oxygen in infants with bronchopulmonary dysplasia, *Paediatric Respiratory Reviews*, 39, 82-89.

- Infants should continue to have allied health professional involvement as part of outreach, neurodevelopmental follow up or with in community therapy teams.

### 5.3.3 Immunisations

It is advised that infants over the age of 6 months with chronic conditions, such as lung disease, should receive the flu vaccine each year<sup>4</sup>.

Preventative treatment for RSV should be arranged in line with the current national RSV programme<sup>5</sup> as outlined in the Green Book on immunisation Chapter 27a Respiratory syncytial virus.<sup>6</sup>

Most babies on home oxygen will have had their first set of immunisations during their neonatal inpatient stay. Some babies may require admission for observation with subsequent immunisations. The majority of babies will then be able to have subsequent immunisations at the GP practice. The use of RSV preventative drugs is subject to individual patient approval by NHS England. Ensure this is obtained before prescribing.

### 5.3.4 Weaning oxygen

The principle of weaning oxygen therapy described in this guideline applies to infants with chronic lung disease and some other neonatal lung conditions occurring in early infancy. The length of time infants remain on oxygen therapy will vary.

Due to a lack of evidence, there is significant variation in practice for optimum time and method for weaning oxygen therapy in the community setting<sup>7</sup>; however, it should be done in conjunction with the community service and the neonatal/paediatric consultant. It is recommended that infants should have supervised weaning to reduced flow rates or into air with continuous overnight monitoring sleep studies (that will include periods of active sleep).

On weaning:

- For consistency in practise across the network consideration should be given to base weaning on **reducing oxygen flow by 0.1L/min in a 4-week period** which can be adapted if required to suit the individual needs of the infant and family and staffing. Although very low flow meters do exist (0.025-0.2 L/min), it is usually unnecessary, and babies can be safely weaned in increments of 0.1L/min to air. Once infants reach a weight of 2.5kg the amount of entrained air dilutes the supplemental oxygen significantly so adjustments of <0.1L/min have a negligible effect on oxygen delivery to the posterior pharyngeal space<sup>8</sup>.
- Do not wean if infant acutely unwell, medical attention should be sought knowing that there is a higher chance of increased oxygen requirement.
- Following weaning episodes there should be a minimum of 1 week before the next oxygen decrease or increase in time off oxygen.
- On daytime weaning oxygen into air, oxygen saturations should be monitored for 30-60 minutes.

Weaning is preferably done at home as it minimises the chances of nosocomial infection, although may sometimes need a brief hospital admission. Oxygen delivery equipment can be removed from the home as soon as it is no longer needed.

<sup>4</sup> NHS England (<https://www.nhs.uk/conditions/vaccinations/child-flu-vaccine/>)

<sup>5</sup> DoH (2023) Respiratory syncytial virus (RSV) immunisation programme for infants and older adults: JCVI full statement, 11 September 2023.

<sup>6</sup> [www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book](http://www.gov.uk/government/collections/immunisation-against-infectious-disease-the-green-book)

<sup>7</sup> Garde, AJ *et al* (2021) Home Oxygen in neonatal chronic lung disease, *Infant*, 17(1) pg 21-23.

<sup>8</sup> Finer, N.N., Bates, R., and Tomat, P (1996) Low flow oxygen delivery via nasal cannula to neonates, *Pediatric Pulmonology*, 21(1) pg 48-51.

### 5.3.5 Sleep study analysis

Pulse Oximetry is a non-invasive, widely available and commonly used tool allowing continuous or intermittent estimation of arterial oxygenation and can facilitate active weaning of home oxygen.

Overnight sleep studies should be undertaken to guide weaning of home oxygen. They should be undertaken a **minimum of 4-weekly** with a **minimum of artefact free 4 hours of active sleep data which should include at least 2 episodes of active sleep data.**

Sleep studies undertaken should **aim to be reported within a week** of being undertaken to guide oxygen weaning. Sleep studies can be analysed and reported by an appropriately trained clinical professional i.e. an outreach/community nurse led weaning programme with support from the neonatal or paediatric team if any concerns.

Modern pulse oximeters benefit from shorter averaging times and have artefact rejection algorithms that eliminate the effect of motion. Shorter averaging times of 2-4 seconds reliably detect transient drops in saturations and avoid the smoothing out of brief desaturations that can artificially lower the mean saturations<sup>9</sup>. In some saturation monitors, the default averaging times change when in 'sleep study mode'. This also silences the monitor and can be less emotionally triggering for the parents. It is important to familiarise yourself with the manufacturers guidelines of the monitor being used.

ODI (number of times per hour of sleep that the oxygen saturations drop by a certain degree from the baseline), mean oxygen saturations, and percentage of time below 90% saturations, should be used alongside other published parameters to analyse sleep studies. When weaning using saturation indices it is important to refer to the published reference ranges for the oximeter being used (Refer to appendix 5 for guidance).

### 5.3.6 Removal of home oxygen

If a joint decision is made by the neonatologist/paediatrician, multi-disciplinary team and family that oxygen is no longer required in the home, the outreach nurse or CCN will contact the oxygen supplier to inform them. The supplier will then contact the family and any other locations where oxygen is supplied to arrange collection of any supplies. It is the outreach/CCNs responsibility to inform all necessary professionals that the child no longer has oxygen in the home.

Parents should be advised to contact the following where applicable, to advise them that oxygen has been removed from the home:

- Landlords or local authority
- Home insurance providers
- DLA

The outreach nurse/CCN should contact ambulance control to remove any alerts linked to home oxygen once it has been removed from the home.

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<sup>9</sup> Everitt, L.H, Bhatt, J.M., and Evans, H (2021) Chapter 10 – Structured approach to monitoring and weaning off home oxygen therapy in neonatal respiratory disease, in 'Respiratory Diseases of the Newborn Infant' Book, pg 133-146.

## 6.0 Appendices

### Appendix 1 – Guidelines for completing home oxygen risk assessment form

These guidelines have been written based on the information provided by the current commissioned Home Oxygen Provider for London and using the safety guidelines stated in the BTS (2009). They can be used to guide your home oxygen risk assessment in place of other adult focussed risk assessment forms required before home oxygen can be ordered and can be given to the family so that they are aware of your assessment criteria and the risks associated with home oxygen.

#### 1. Housing:

What type of housing the family are residing in will determine who they need to inform about using oxygen. If the property is rented, they will need to inform their landlord and if they are in a council property the council in which they reside will need to be alerted to oxygen being placed in the property. Home conditions must be satisfactory before oxygen can be placed in a home. BTS guidelines (2009) state there should be;

- Enough space for oxygen equipment
- Conditions of hygiene/cleanliness
- Clear atmosphere (i.e. not smoky)
- Landline telephone installed (see 3 for further details)
- No anticipated problems with electricity supply i.e. not on a Prepay electricity meter (if a concentrator is required)
- Easy access to take infant out in buggy with oxygen cylinder (e.g. a lift in a block of flats)

Whether the child is discharged on an oxygen concentrator or on cylinders depends on the amount of flow prescribed and the predicted duration they will remain on oxygen. Oxygen cylinders may be more appropriate if the initial flow rate is lower than 0.3L/min and the anticipated duration of oxygen therapy is less than 3 months (BTS, 2009).

If the child requires continuous Oxygen Therapy, 2 oxygen concentrators may be required, one in the child's bedroom and one in the main living room area. They are plugged into the mains and work by filtering the room air and removing the nitrogen to increase the oxygen concentration so that purified oxygen with a concentration of 95% can be delivered to the patient (BTS, 2009).

It is important that the house is free from obstruction both inside and outside. Obstruction, e.g. rubbish/building materials, may be a safety risk for those delivering oxygen, professionals visiting and parents coming in and out whilst traveling with equipment. It is also a fire risk (see 5).

#### Storing the equipment:

- Oxygen equipment needs to be kept in a well-ventilated area. It should never be stored in the same environment as flammable liquids (e.g. petrol, paint, oil, grease or aerosols) or combustible materials (such as paper, card, clothing, toys and any other items that may burn easily)
- Cylinders need to be kept clean and dry and protected from extremes of heat and cold. Also away from any sources of heat including direct sunlight and radiators
- If there are any concerns regarding the leakage of gas, the supplier should be contacted as soon as possible
- Cylinders must be stored either laid down flat or secured upright to prevent them from falling over, especially if there are young children in the house

#### 2. Heating:

See storing equipment in 1.

### 3. Telephone:

Landline is considered essential (BTS guidelines, 2009) or provision should be made for a spare, fully charged battery to be available for a mobile phone in an emergency. Parents/ carers may need to make emergency calls and mobile may be low in battery charge or reception poor. Calling healthcare professionals can also be more costly on a mobile. Consider a landline for incoming and emergency calls only.

### 4. Electricity:

See 1 for storage of concentrator and electricity points needed.

If using an oxygen concentrator, the Electricity Company should be informed (see 7) so that if there is a power cut in the area, they would be prioritised for turning back on. If the Electricity was going to be off for some time, the company would need to provide house with a temporary generator.

### 5. Health promotion:

Before prescribing oxygen, it is important that you carry out a risk assessment to ensure that the carer, understands the safety advice around the use of home oxygen, this includes the dangers of smoking cigarettes and e-cigarettes near to their oxygen equipment.

### 6. Fire Risk:

Materials burn much faster in oxygen than in air alone, it is therefore important that parents know the risks.

- NEVER smoke or let anyone else smoke near your child when they are using their oxygen equipment, this includes E-Cigarettes
- NEVER charge an E-Cigarette or similar device close to their child on oxygen or near the equipment itself. Whilst the effects of inhaling an E-Cigarette vapour may be different, they are still a potential ignition source and, in the context of oxygen rich environment, have the same fire risk as traditional cigarettes (British Compressed Gases Association, 2014)
- NEVER use oxygen equipment near an open fire or naked flames, such as matches, lighters, gas cookers or candles (within 3 metres). Remember that birthday candles are also a naked flame
- NEVER use their oxygen near other heat sources such as electric or gas heaters or boilers (within 1.5 metres)

For further information please visit:

- <https://firesafety.campaign.gov.uk/>
- <https://www.london-fire.gov.uk/safety/>

### 7. Environment:

When oxygen equipment is turned on, oxygen can build up unnoticed on materials such as clothing, hair, fabrics, wood and paper. This can cause them to burn more easily if they catch fire. Because of this, parents should:

- ALWAYS turn off their oxygen equipment when they are not using it
- ALWAYS use or store their oxygen equipment in a well-ventilated area
- NEVER place their oxygen equipment near curtains or cover it with coats, blankets or other materials that may restrict the air circulation around it
- Aerosol cylinders (e.g. furniture polish) should not be discharged near oxygen source
- NEVER leave the nasal cannula on the bed or chair when oxygen equipment is switched on

## 8. Handling the equipment:

- Oxygen concentrators must be placed with room around to get to the child should any problems occur
- Always make sure hands are always clean and only use water based soluble creams or products like K-Y jelly when using oxygen equipment
- Never use oils or grease with oxygen equipment
- Never use Vaseline or other oil-based creams to soothe a sore area around the child's nose or mouth
- If using sun cream ensure it is not oil or petroleum based
- Many commonly used products such as Vaseline or E45 contain a high percentage of petroleum or other oils, which, when mixed with a high concentration of oxygen can lead to an increased risk of fire and burns to the skin. If you have to use oil based nappy cream, ensure you stay away from the oxygen and thoroughly wash hands before and after use. For cradle cap avoid using baby oil and instead wash scalp with a gentle baby shampoo and use a soft brush to help remove flaky skin.

## 9. Trip Hazards:

The Oxygen technician will provide them with a safe amount of tubing to meet their needs around the home up to a maximum distance of 15 metres. (Over 15 meters will reduce flow).

Parents/ carers need to be aware that any oxygen tubing is a potential trip hazard for them and others.

They should:

- ALWAYS take care to ensure their tubing does not get kinked, damaged, trapped in doors or crushed under equipment and furniture like cots and highchairs, as this could affect the flow of their oxygen
- ALWAYS ensure their tubing does not pass close to naked flames including gas fires, gas cookers and candles, or hot items such as, electric cookers and electric heaters. These could damage or melt the tubing and cut off the oxygen supply or even cause a fire
- ALWAYS be aware of children and pets that may trip on tubing, chew tubing or knock over oxygen cylinders
- NEVER modify or tamper with their own oxygen tubing by adding to it, or changing components
- NEVER remove or tamper with the firebreaks in the tubing

## 10. Travelling with equipment:

### By car/taxi

- A no smoking rule must be observed in any vehicle carrying oxygen
- Must keep vehicle well-ventilated when travelling with oxygen
- Cylinders should be inspected prior to journey for any signs of problems
- Cylinders need to be kept out of direct sunlight and heat
- Secure cylinders appropriately prior to journey so that they cannot move about freely as this could lead to cylinder damage, or potentially cause harm to people in the vehicle.
- Oxygen cylinders should not be carried in front passenger seat
- Car insurance company must be aware of need to carry oxygen

### Pushchairs/Buggies

- Be aware of oxygen cylinder changing the centre of gravity.
- Ensure cylinder is located as low as possible so it is less likely to fall.
- Take note of weight restrictions on buggies.

## Bus/train

- Cylinders can be taken on public transport as long as they are in good condition and safety measures are undertaken.
- Local arrangements vary with companies, so it is advisable that parents/carers are to contact individual companies for advice regarding transport with oxygen equipment.

## 11. Holiday

- Not impossible but often has to be funded privately by the family if wanting to travel abroad.
- The oxygen provider requires a minimum of 3 working days' notice but if possible, planning at least 6-8 weeks in advance is preferable.
- The oxygen provider can arrange for oxygen delivery within the UK but not abroad. Your cylinders from your usual order cannot be taken abroad.
- Before contacting your oxygen provider, contact your planned accommodation destination within the UK to gain permission for the oxygen equipment to be delivered and stored in the accommodation.
- Some centres may want your child to have a fitness to fly test before flying on an aeroplane or the flow of oxygen may need to be increased while in the air- please contact your managing centre and inform them of intention to travel ASAP if they plan to travel abroad regardless of if you plan to travel by aeroplane or not.
- Consider using a checklist, such as the British Lung Foundation Holiday Checklist ([https://www.blf.org.uk/sites/default/files/Going\\_on\\_holiday\\_checklist\\_June\\_2015.pdf](https://www.blf.org.uk/sites/default/files/Going_on_holiday_checklist_June_2015.pdf)) to help make sure that you are prepared for the holiday.
- If travelling within Europe apply for the European Health Insurance Card (EHIC) for your child and check on the website if eligible for cover within Europe:  
<https://www.nhs.uk/NHSEngland/Healthcareabroad/countryguide/Pages/EEAcountries.aspx>

## 12. Family Support:

When parents are completing the disability living allowance form, the NCOT/CCNT will only be able to write the supporting statement. The rest of the form is completed by the family.

## 13. Notifying relevant companies

- Home insurer needs to be informed. It should not affect premiums, but it means you are covered if you needed to make a claim. The oxygen equipment is covered by the oxygen provider, so you do not need to insure them.
- Car insurer needs informing, but no warning stickers or medical cards are to be displayed as this can mislead the emergency services if oxygen isn't always on board.
- Electricity Company so that priority can be ensured in a power cut (if a concentrator is in use).

The patient's details will be shared with the local Fire and Rescue Service so that in the event of a fire, the Fire and Rescue Services know that there is home oxygen equipment at the address.

The patient may receive a home safety visit from their local Fire and Rescue Service to help manage any risks and plan how to evacuate the building in the event of a fire. It is important that they allow this to take place.

Parents/ carers should be aware that oxygen provision is continuously assessed, and equipment may be increased or decreased as required and will be removed when appropriate.

Addressograph

## Home Oxygen Risk Assessment Form (pre-discharge)

Criteria	Assessment	Action
<p><b>Type of housing</b></p> <ul style="list-style-type: none"> <li>○ House [ ]</li> <li>○ Flat [ ] Floors..... Lift</li> <li>○ Maisonette [ ] Floors ..... Lift [ ]</li> <li>○ Housing association [ ] Council [ ]</li> <li>○ Own occupier [ ] Privately rented [ ]</li> <li>○ Shared occupancy [ ]</li> </ul> <ul style="list-style-type: none"> <li>● Is the house free from obstructions/clutter free? <b>Yes / No</b></li> <li>● Is this the only address the baby will reside at? <b>Yes / No</b></li> <li>● How many bedrooms in the home?</li> <li>● Where will the baby sleep?</li> <li>● How many people occupying the house (including visiting relatives)?</li> <li>● Is there a pet in the home? <b>Yes / No</b></li> <li>● Is there a working smoke detector? <b>Yes / No</b> Tested? [ ]</li> <li>● Where will the oxygen be stored?</li> </ul>	<p><i>High risk if a flat high up in an apartment block – ensure emergency escape routes discussed</i></p> <p><i>If property not owned, discuss parent/carer need to inform property owner of the need for oxygen before it can be installed</i></p> <p><i>Higher risk if multiply occupancy – ensure emergency escape routes discussed</i></p> <p><i>Discuss general cleanliness &amp; tidiness – fire risk</i></p> <p><i>Discuss escape routes</i></p> <p><i>Alternate address that oxygen will be required at</i></p> <p><i>Increased risk for broken tubing / falling cylinders</i></p> <p><i>Oxygen cylinders in a cool dry place out of sunlight. Concentrators in an open space away from open fire/ gas fire/ radiator &amp; near a plug.</i></p>	
<p><b>Heating</b></p> <ul style="list-style-type: none"> <li>● Is heating adequate and functioning?</li> <li>● What type is it?</li> <li>● Any visible signs or smells of damp?</li> </ul>	<p><b>Good / Satisfactory / Poor</b> <b>Electric / Gas</b> <b>Yes / No</b></p>	

<p><b>Telephone</b></p> <ul style="list-style-type: none"> <li>Family has access to a telephone for emergency purposes <b>Yes / No</b></li> </ul> <p><i>Landline or spare fully charged battery for mobile phone is considered essential for emergency calls as mobile may be low on battery.</i></p>	<p><b>Mobile – contract / pay as you go</b> (higher risk as may run out of credit)  <b>Number:</b>  <b>Landline:</b>  <b>Other contact:</b></p>	
<p><b>Electricity</b></p> <ul style="list-style-type: none"> <li>Electric power points for concentrator / other equipment are located in an appropriate place / adequate number of electricity points</li> <li>Is electricity supplied via key meter?</li> <li><b>If family have a concentrator a date for continuous supply must be in place before discharge</b></li> </ul>	<p><i>Location:</i>  <i>Number of power points available:</i></p> <p><b>Yes / No</b>  <i>(If concentrator is used – electricity supplier must be notified)</i></p>	
<p><b>Health Promotion</b></p> <ul style="list-style-type: none"> <li>Do any of the members of the family smoke in the house? <b>Higher risk – discuss hazards with smoking</b></li> <li>Does anyone use e-cigarettes? <i>Higher risk – discuss hazards</i></li> <li>Discuss type of oxygen and how this will affect family life and how this impacts their ordering of cylinders</li> <li>Discuss using water-based creams only on baby</li> <li>Discuss travelling with equipment using car/pushchair/bus/train</li> <li>Discuss oxygen tubing and hazards with other children/elderly relatives in house and pets tripping over it</li> <li>Remind family they need to bring portable cylinder to the hospital ready for discharge</li> </ul>	<p><b>Yes / No; who? Primary carer?</b></p> <p><b>Yes / No who?</b></p> <p><i>Parents to discuss with oxygen technician if tubing needs to be secured better to avoid tripping</i></p>	
<p><b>Family Support</b></p> <ul style="list-style-type: none"> <li>Do family have adequate support to care for their baby at home?</li> <li>Who will be the main carer?</li> </ul>	<p><i>Who lives at home?</i>  <i>Who provides support?</i>  <i>Is support adequate?</i>  <i>Is there enough room?</i></p>	

<ul style="list-style-type: none"> <li>• Do they speak English? <b>Yes / No</b></li> <li>• Is an interpreter required? <b>Yes / No</b></li> <li>• Are they known to social services? <b>Yes / No</b></li> <li>• Provide details for DLA</li> <li>• Is a Discharge planning meeting (DPM) arranged?</li> <li>• Are they known to other services?</li> </ul>	<p><i>Will they have their own room?</i></p> <p><b>Date of DPM:</b> .....</p>	
<p><b>Relevant people to notify by the family if home oxygen is used:</b></p> <ul style="list-style-type: none"> <li>• Home insurance</li> <li>• Car insurance</li> <li>• Dolby Vivisol notify Fire brigade</li> <li>• Ambulance service</li> <li>• Electricity company (<i>if using concentrator</i>)</li> </ul>	<p><i>If there are concerns about the house, the fire brigade should visit to assess prior to oxygen being ordered. Parents can also request a home visit.</i></p>	
<p><b>Naked flames</b> (Advise parents to keep 3m away from naked flames)</p> <ul style="list-style-type: none"> <li>• Gas fire / open fire [ ]</li> <li>• Gas cooker [ ]</li> <li>• Candles (including birthday candles) [ ]</li> <li>• Incense [ ]</li> </ul>		
<p><b>Transport</b></p> <ul style="list-style-type: none"> <li>• Nearest train station</li> <li>• Nearest bus stop</li> <li>• Parking available</li> </ul>		

**IS HOME SUITABLE FOR OXYGEN?**

- YES: Low risk. No alterations required, all identified risks discussed with parent/ carer**
- YES: Some increased risk. All identified risks discussed with parent/ carer and advised steps to reduce risks (see above actions)**
- NO: Very high risk. Home unsuitable for oxygen due to**

.....  
.....  
.....

**Home assessment completed by:**

Name: ..... Signature: ..... Job Designation:  
..... Date: .....

**Parent / carer present:**

Name: ..... Signature: ..... Date: .....

**PLEASE FILE A COPY OF THIS FORM IN THE BABY'S NOTES**

## Appendix 2 - Initial Home Oxygen Risk Mitigation Form (IHORM) and Home Oxygen Consent Form (HOCF) for new patients only

**BOTH FORMS MUST BE COMPLETED AND SIGNED BEFORE OXYGEN CAN BE INSTALLED.**

**DO NOT SEND FORMS TO SUPPLIER FORMS WILL BE PLACED IN PATIENT NOTES**

**THERE ARE CONFIRMATION BOXES ON THE HOME OXYGEN ORDER FORMS.**

Oxygen can pose a risk of harm to the user and others in the event of fires, falls and inability to use complex equipment. The initial identification and onward communication of these risks is the responsibility of the health care professional ordering the oxygen and remains so until that prescription ceases or is superseded. The table below reflects risk factors that are based on evidence of real life serious and untoward incidents, 90% of which are smoking and e-cigarette/charger related.

The Initial Home Oxygen Risk Mitigation (IHORM) is to be completed in conjunction with the Home Oxygen Consent Form (HOCF) prior to oxygen being ordered from the oxygen supplier via the Home Oxygen Order Form (HOOF). **It is the responsibility of the registered health care professional who is gaining consent to complete and add the IHORM with the HOOF and HOCF to the patient's notes. If all documents are not confirmed as being completed in full the Home Oxygen Order cannot be fulfilled.**

If the risks identified on the IHORM indicate significant levels of risk the patient should be discussed directly with the local Home Oxygen Service or Clinical Oxygen Lead for a full risk assessment prior to oxygen being ordered as recommended in the British Thoracic Home Oxygen Guidelines June 2015. **Regardless of risk or diagnosis all adult patients should be referred the Home Oxygen Assessment and Review Service (HOS-AR) for the team to determine next steps if deemed relevant.**

**If any responses below fall within a shaded box, please refer to the Required Action column and supporting notes.**

All actions should be explained to the patient and why they are being taken in line with service contracts. Ensure that both verbal and written information has been given to the patient or their representative

Patient Name		DOB	
Address		Oxygen requested?	<b>Yes - Sending HOOF No - Risk is too high</b>
Recorded at	Please indicate:- Hospital / Clinic / Home / other location	NHS No	
<b>Risk Level</b>	<b>Risks</b>	<b>No</b>	<b>Yes</b>
<b>HIGH</b>	Does the patient smoke cigarettes / e-cigarettes?		
	Have they smoked in the last 6 months? Quit date.		
	Does anyone else smoke at the patients premises?		
	A recent history of drug or alcohol dependency?		
	Patient reported they have had a fall in the last 3 months?		
	Have they had previous burns or fires in the home?		
	Does the person have identified mental capacity issues?		
<b>MODERATE</b>	Can the patient leave their property un-aided?		
	Is the patient or any dependents/ in the property vulnerable? E.G. disabilities/ children		
	Do they live in a home that is joined to another?		
	Patient reports they have working smoke alarms at home? (if unknown please state no)		
	Do they live in a multiple occupancy premises (Bedsit/flat)		

**Mitigation actions taken e.g. contacted falls team Referred to Fire and Rescue**

Declaration I confirm that I am the healthcare professional responsible for the care of this patient. I have discussed the risks listed on this form with the patient/carer/ guardian (delete as necessary) and from the responses given Oxygen can/cannot (delete as necessary) be requested at this time.

Clinicians Signature		Profession	
Print Name		HOS team	Yes / No
Contact No.		Date	
Lead Consultant is	(Hospital Discharge only)		

# Patient agreement to sharing information



<b>Form issued by:</b>			
<b>Unit/Surgery</b>		<b>Address</b>	
<b>Contact name</b>			
<b>Tel no.</b>			
<b>Email</b>			<b>Postcode</b>

<b>Patient</b>			
<b>Name</b>		<b>Address</b>	
<b>D.O.B.</b>			
<b>NHS number</b>			
<b>Tel/mobile no.</b>			<b>Postcode</b>
<b>E-mail</b>		(only include if the patient agrees to email contact)	

My doctor or a member of my care team has explained the arrangements for supplying Oxygen at my premises, that my personal information will be managed and shared in line with the Data Protection Act 1998, Human Rights Act 1998, and common law duty of confidentiality and I understand these arrangements, such that:

1. Information about my condition/condition of the patient named above\* will be provided to the Home Oxygen Service (HOS) Supplier to enable them to deliver the Oxygen treatment as per the Home Oxygen Order Form (HOOF).
2. The HOS Supplier will be granted reasonable access to my premises, so that the Oxygen equipment can be installed, serviced, refilled and removed (as appropriate).
3. Information will be exchanged between my hospital care team, my doctor, the home care team and other teams (e.g. NHS administration) as necessary related to the provision, usage, and review, of my Oxygen treatment, and safety.
4. Information will also be shared with the local Fire Rescue Services team to allow them to offer safety advice at my premises and where appropriate install/deliver suitable equipment for safety.
5. Information will also be shared with my electricity supplier/distributor where electrical devices have been installed.
6. From time to time, I may be contacted to participate in a patient satisfaction survey/audit. *(delete should you wish not to participate)*
7. I understand that I may withdraw my consent at any time (at which point my HOS equipment will be removed).

\* Delete as applicable

<b>Patient's signature</b>		<b>Date</b>	
(see note 4 where signed and witnessed on patient's behalf)			

I confirm that I have responsibility for the above-named patient e.g. parental responsibility, lasting power of attorney.

<b>Signature</b>		<b>Name</b>	
<b>Relationship to patient</b>		<b>Date</b>	

I confirm that I am the healthcare professional responsible for the care of this patient and I have completed this form on his/her behalf as s/he is unable to provide/withhold consent. The patient has been given a copy of this form.

<b>Clinician's signature</b>		<b>Date</b>	
<b>Name</b>			

## Appendix 3 – Home oxygen knowledge & skills framework for parents/carers

Goal for Parents/Carers	Questions to be asked and how a medical/nursing professional can provide answers to support your knowledge and confidence:	Discussed with parents (medical/nursing professional signature and date) * Can be discussed more than once as required	Knowledge, confidence and skills achieved (parent signature and date)
Awareness of why home oxygen is required and understanding of medical condition	<b>Why is oxygen required?</b> <ul style="list-style-type: none"> <li>- Explain any diagnosis made for our baby.</li> <li>- Signpost to or given the information leaflet on home oxygen provided by Bliss Charity</li> </ul>		
Awareness of the health and safety risks of oxygen	<b>What are the risks of home oxygen?</b> <ul style="list-style-type: none"> <li>- Carry out a risk assessment of the home, explaining the risks of fire (i.e. smoking, naked flames/candles, use of oil-based creams) and guidance on how to minimise the risks</li> </ul> <b>Will it be ok with pets in the house?</b> <ul style="list-style-type: none"> <li>- Explain need for reducing risks of oxygen tubing being damaged.</li> </ul>		
Landlords and home/car insurance companies are aware of oxygen in the home	<b>Who do I need to inform?</b> <ul style="list-style-type: none"> <li>- The requirement and risk of difficulties claiming insurance if needed and previously not informed.</li> </ul>		
Consent given for home oxygen to be in the home	<b>How do I give permission for oxygen to be in the home?</b> <ul style="list-style-type: none"> <li>- Share the consent form needed for ordering home oxygen</li> </ul>		
Knowledge of the set oxygen flow rate and when the oxygen has been ordered	<b>How much oxygen does my baby need?</b> <ul style="list-style-type: none"> <li>- The amount of oxygen required: .....l/min</li> <li>- Oxygen ordered on: ..... (Date)</li> <li>- Fitted into the house on: ..... (Date)</li> </ul> <b>Can I adjust this at home?</b> <ul style="list-style-type: none"> <li>- Oxygen flow rates should only be adjusted on discussion with a healthcare professional.</li> </ul>		
Knowledge of how to use and store the oxygen equipment. How to get disposables (i.e. nasal prongs)	<b>How do I use the equipment and where can I get more nasal prongs from?</b> <ul style="list-style-type: none"> <li>- Dolby Vivisol (Oxygen company) discuss safety, storage, and provide all equipment.</li> <li>- Demonstrate how to correctly use equipment (i.e. turning cylinders on/off) and support to gain confidence in changing nasal prongs.</li> </ul>		

	<p><b>How do I check oxygen equipment is functioning?</b></p> <ul style="list-style-type: none"> <li>- Demonstrate how to test the oxygen is flowing.</li> </ul>		
Knowledge of home monitoring	<p><b>Do I need a monitor at home?</b></p> <ul style="list-style-type: none"> <li>- Explain local guidance for monitoring</li> <li>- If a home monitor is deemed necessary, guidance on when the monitor is to be used and how.</li> </ul>		
Ability to assess your babies' regular breathing and recognise any difficulties	<p><b>What are the signs and symptoms to look out if my baby becomes unwell?</b></p> <ul style="list-style-type: none"> <li>- Explain assessing breathing rate, colour, recession, perfusion, and activity.</li> </ul>		
Knowledge of actions to take in an emergency and have access to telephone	<p><b>Who do I contact in what situation?</b> (i.e. GP/Open access/Community nurse/A&amp;E)</p> <ul style="list-style-type: none"> <li>- Give examples of who to contact and when</li> </ul>		
Trained how to initiate CPR	<p><b>What do I do in the unlikely emergency event of a baby stopping breathing?</b></p> <ul style="list-style-type: none"> <li>- Baby CPR actions demonstrated and given supportive written information and/or signposted to guidance online.</li> </ul>		
Knowledge of safe sleep advice	<p><b>How can I follow guidance on safe sleep?</b></p> <ul style="list-style-type: none"> <li>- Share current guidance from the lullaby trust applicable to my baby.</li> </ul>		
Awareness of potential for readmission to hospital	<p><b>If my baby is readmitted to hospital, where would it be?</b></p> <ul style="list-style-type: none"> <li>- Any readmission will be to the paediatric ward. Explain where this would be in the local hospitals</li> </ul> <p><b>Will my baby have open access to hospital?</b></p> <ul style="list-style-type: none"> <li>- Explain what open access means, when it is to be utilised and how.</li> </ul>		
Knowledge of eligibility criteria for Disability Living Allowance (DLA) and possible blue badge	<p><b>Am I eligible for any benefits and/or a blue badge?</b></p> <ul style="list-style-type: none"> <li>- Explain criteria for DLA and assist in application for blue badge if you deem necessary.</li> </ul>		

## Appendix 4 – Home Oxygen Weaning Calendar for 0.1l/min of oxygen – Adapted from PPLOG

WEEK ONE	DAY ONE	DAY TWO	DAY THREE	DAY FOUR	DAY FIVE	DAY SIX	DAY SEVEN
Times on calendar are for guidance only and should be worked individually around the infant	One hour off O2 e.g., 10am-11am	One hour off twice a day	One hour off twice a day	One hour off twice a day	2 hours off O2 if infant is making good progress and tolerated 1 hour off twice a day	2 hours off twice a day	2 hours off twice a day
	Home visit 10am for at least 45 mins to assess if patient is suitable to start weaning. Nurse to observe for any signs of respiratory distress. O2 sats to be >93 % in air	No home visit unless parent concerned about breathing	No home visit	No home visit		Home visit at 1 hr 30min off O2 to assess if infant can stretch to 2 hours i.e., 10-11am off, visit at 11.30am	No outreach/CCN visit
	If morning visit successful, parent may take infant off O2 for another hour in the afternoon e.g., 3pm-4pm		Phone family to enquire about infant		Two hours off O2 e.g., 8-10am + 2-4pm		
					Recommend parents to allow at least 2 hours gap between periods of time in air		
WEEK TWO	DAY EIGHT	DAY NINE	DAY TEN	DAY ELEVEN	DAY TWELVE	DAY THIRTEEN	DAY FOURTEEN
	2 hours off twice a day	4 hours off O2 if infant is making good progress and tolerated 2 hours off twice a day	4 hours off a day	4 hours off a day	4 hours off a day	4 hours off a day	4 hours off a day
	Phone family to enquire about infant		No Home visit unless parent concerned	No Home visit	No Home visit	No Home visit	No Home visit
	No home visit unless parents concerned	Home visit for respiratory assessment at 3 hr 30min off O2 to assess if infant can stretch to 4 hours i.e., 8am- 12noon off, visit at 11.30		Phone family to enquire about infant (you are looking for any change in activity i.e., lethargy/taking extra naps/slow to feed)			

WEEK THREE	DAY FIFTEEN	DAY SIXTEEN	DAY SEVENTEEN	DAY EIGHTEEN	DAY NINETEEN	DAY TWENTY	DAY TWENTY-ONE
	6 hours off 02 if infant is making good progress and tolerated 4 hours off a day  Home visit for respiratory assessment at 5 hours 30 min i.e., 7am-1pm, visit 12.30pm	6 hours off  No Home visit	6 hours off  No Home visit  Phone family to enquire about infant	6 hours off  No Home visit	8 hours off 02 if infant is making good progress and tolerated 6 hours off  Home visit for respiratory assessment at 7hr 30min off 02 i.e., 8am-4pm, visit at 3.30pm	8 hours off  No Home visit	8 hours off  No Home visit
WEEK FOUR	DAY TWENTY-TWO	DAY TWENTY-THREE	DAY TWENTY-FOUR	DAY TWENTY-FIVE	DAY TWENTY-SIX	DAY TWENTY-SEVEN	DAY TWENTY-EIGHT
	8 hours off  No Home visit unless parent concerned	8 hours off  No Home visit	Day time off 02 if infant is making good progress and tolerated 8 hours off 02  Home visit for respiratory assessment at the end of the 8 <sup>th</sup> hour or 9 <sup>th</sup> hour off 02  Remove nasal cannula when infant is awake in the morning. Continue nighttime 02 when infant goes to bed	Day time off 02  Continue in nighttime 02  No Home visit	Day time off 02  Continue in nighttime 02  No Home visit  Phone family to enquire about infant	Day time off 02  Continue in nighttime 02  No Home visit	Day time off 02  Continue in nighttime 02  No Home visit
WEEK FIVE	DAY TWENTY-NINE	DAY THIRTY	DAY THIRTY-ONE	DAY THIRTY-TWO	DAY THIRTY-THREE	DAY THIRTY-FOUR	DAY THIRTY-FIVE
	Day time off 02  Continue in nighttime oxygen  No Home visit	Day time off 02  Continue in nighttime oxygen  No Home visit	Undertake sleep study in air tonight  Home visit to arrange for sleep study  Take Masimo monitor + activity record sheet	Retrieve monitor  Download, analyse & report sleep study  Email report to referring consultant	Remain in nighttime 02 until sleep study is retrieved and a decision is made		

## Appendix 5 – Analysing Sleep Studies

Maintaining mean saturations of  $\geq 93\%$  and allowing  $<5\%$  of the oximetry time with saturations  $<90\%$  are currently recommended by the BTS guideline. However, there is widespread agreement regarding little evidence base to guide these ranges. Since the 2018 publication of the ATS guidance there has been a progressive increase in age-adjusted reference ranges for saturation parameters, particularly in term and preterm infants.

Normative study data obtained using modern-generation oximeters with motion artefact extraction technology suggest healthy term infants have mean saturations  $>95\%$ . These findings are also replicated in the preterm cohort, in both healthy preterm infants at term and extremely preterm infants with lung disease at term. Oxygen weaning in term and preterm infants at a term-corrected age should target mean saturations  $>93\%$ , and arguably this could be higher at  $95\%$ . Suggested thresholds are outlined below:

**Table 3** Saturation targets for weaning oxygen in ex-preterm infants using motion-resistant oximeters with short averaging times

Corrected age post term	Minimum mean saturations (%)	Time less than 90% (%)	ODI3
37–40 weeks	$>93$	$<3$	$<35$
40–44 weeks	$>93$	$<3$	$<30$
44–56 weeks (1–4 months)	$>93$	$<3$	$<15$
Over 56 weeks (over 4 months)	$>93$	$<3$	$<7$

Reproduced from Everitt *et al.*<sup>25</sup>  
ODI3, Oxygen Desaturation Index at 3%.

### References:

Everitt *et al* (2023) 'Use of pulse oximetry as an investigative test for paediatric respiratory sleep disorders', *Arch Dis Child Educ Pract Ed*, 108, 429-438  
<https://ep.bmj.com/content/108/6/429>

Everitt *et al* (2021) Structured approach to monitoring and weaning off home oxygen therapy in neonatal respiratory disease. *In*: Sinha IP, Bhatt JM, Cleator A, *et al.*, eds. *Respiratory Diseases of the Newborn Infant* (ERS Monograph). Sheffield, European Respiratory Society, pp. 133–146.