Trust Policy	NHS Worcestershire Acute Hospitals NHS Trust

DOMICILLARY NON-INVASIVE VENTILATION SERVICE

Department / Service:	Respiratory Medical, CNS service
Originator:	Emma Hurst & Katie Brown Respiratory Specialist Nurses
Accountable Director:	Jane Newport
Approved by:	Respiratory Directorate Meeting
Approved by Medicines Safety Committee: *Where medicines included in guideline*	Not required, no medication included.
Date of approval:	20th August 2024
First Revision Due: This is the most current document and should be used until a revised version is in place	20th August 2027
Target Organisation(s)	Worcestershire Acute Hospitals NHS Trust
Target Departments	Respiratory Specialist Nurses Cardiopulmonary
Target staff categories	Respiratory Specialist Nurses Respiratory Consultants Cardiopulmonary Department Staff

Policy Overview:
To provide a domiciliary service to house bound patients with Non-Invasive Ventilation (NIV), for assessment and review of their ventilation equipment and obtain a capillary blood gas sample. Cardiopulmonary department to provide a domiciliary service for housebound patients with Continuous Positive Airway Pressure (CPAP) and NIV under the care of the cardiopulmonary department for review of CPAP and NIV therapy and equipment

Key amendments to this document

Date	Amendment	Approved by:
20th August 2024	*New SOP Approved*	*Respiratory Directorate*

Contents page:

Quick Reference Guide

1. Introduction.

2. Scope of this document

3. Definitions

4. Responsibility and Duties

4.1 Duties Involved

5. Policy detail

6. Implementation of key document

6.1 Plan for implementation

6.2 Dissemination

6.3 Training and awareness

7. Monitoring and compliance

8. Policy review

9. References

10. Background

10.1 Equality requirements

10.2 Financial Risk Assessment

10.3 Consultation Process

10.4 Approval Process

10.5 Version Control

11. Clause

Appendices

Appendix 1

Supporting Documents

Supporting Document 1 Equality Impact Assessment

Supporting Document 2 Financial Risk Assessment

1. Introduction

Patients with chronic respiratory failure may require long term non-invasive ventilation (NIV). These patients can be high risk of deterioration, requiring specialist review. Additional long term health conditions can contribute to patients becoming house bound, such as reduced mobility, morbid obesity, heart failure, depression and mental health conditions. A proportion of these patients will be bed bound.

Inability to access the NIV service in secondary care setting can result in patients not having a regular assessment and review. This can result in lower adherence, suboptimal NIV therapy and possible admission to an acute hospital.

2. Scope of this document

This document applies to all employees who will be involved in conducting home visits with the purpose of reviewing patient's domiciliary (DOM) NIV therapy. This will include a review of their NIV machine and consumables, NIV data and carrying out a Capillary blood gas.

3. Definitions

Non Invasive Ventilation (NIV)

"NIV is the delivery of mechanical pressure to support the patient's inspiratory effort via a full face mask, nasal mask, nasal pillows or hood. Application of Inspiratory Positive Airway Pressure (IPAP) and Expiratory Positive Airway Pressure (EPAP) decrease the work of breathing thereby improving alveolar ventilation and facilitating oxygenation without raising PaCO2. There is a range of evidence indicating that the use of NIV reduces PaCO2, eases breathlessness, reduces the need for intubation, reduces hospital stay and reduces in patient mortality, in COPD patients with decompensated respiratory acidosis despite maximal medical therapy" [Roberts et al, 2008, Bott et al, 1993; Brochard et al, 1995].

Capillary Blood Gas (CBG)

"Earlobe blood gas also known as capillary blood gas (CBG) sampling is a useful alternative to ABG's. Properly obtained capillary blood samples accurately reflect arterial blood gas measures of PO2, PCO2 and pH" [Wimpress, Vara, Brightling 2005, Zavorsky et al 2007].

Housebound Patients

A patient who is deemed to be housebound is when they are unable to leave their home environment through a physical or psychological illness but moving around within the home may be possible. A patient is not considered housebound if he or she is able to leave their house with minimal assistance or support [Schirghuber, Schrems B 2021].
The decision regarding if the patient is housebound and therefore able to have home visits is made by the patient's consultant or by the Respiratory Specialist Nurses.

4. Responsibility and Duties

Healthcare organisations have an obligation to provide safe and effective care to all their patients.

4.1 Duties involved

- Review of DOM NIV therapy and NIV data/compliance report.
- Upload NIV data to patient's hospital medical record.
- Carry out CBG's in order to assess Oxygen prescriptions and NIV settings.
- Conduct mask fits for use with NIV machines, assess if support is required to use therapy an action.
- Provide education regarding cleaning of equipment and consumables, assess if support is required for cleaning an action.
- Issuing new consumables for use with DOM NIV machine
- Provide contact details for Respiratory Specialist Nurse team
- Refer patients on to further teams as necessary for patient's clinical need.
- Escalate patients with out of range blood gas results, deteriorating general health, social heath concerns, and acute unwell patients to their respiratory Consultant, General Practitioner, senior respiratory nurse, and emergency services as necessary for assessment and review.

5. Policy detail

House bound patients will be offered home visits by the Respiratory Specialist Nursing team for the purpose of reviewing domiciliary NIV therapy. Those patients can also be fitted for a new domiciliary NIV mask and provided with consumables for their machine if required. Capillary blood gases will be obtained to assess and review NIV therapy settings and adjust machine settings as required. Capillary blood gas results will be analysed for reviewing these patients on NIV who have oxygen either as long term oxygen therapy or nocturnal oxygen therapy. The Respiratory Nursing Specialist teams will also provide patient education and information leaflets as required for cleaning and care of NIV machine. These patients can also be discussed with their Respiratory consultants at Worcestershire Acute Hospital NHS Trust for further advice or advice regarding their care and can be further referred on to different specialties as necessary for that patient. These patients will be able to contact Respiratory Specialist Nurse team via telephone and email for advice or concerns which they may have regarding their NIV therapy. All patient who are out of area, outside of Worcestershire, will be assessed on an individual basis to qualify for home service visits.

6. Implementation

6.1 Plan for implementation.

Upon approval of this policy, housebound patients will have their appointments reviewed to enable the Respiratory Specialist Nurse team to organise and arrange a home visit. This will be arranged effectively with minimise travel time between patient's addresses to maximise the number of appointments be conducted in a day.

6.2 Dissemination

Patients who are currently have NIV telephone consultation reviews and a capillary blood gas with the Home Oxygen team will be informed that they will receive a home visits from the Respiratory Specialist Nursing team.

All new patients who are started on domiciliary NIV therapy who are housebound will be added to the housebound patient's lists and will be reviewed by the Respiratory Specialist Nursing team at home.

Any patients who currently have their NIV therapy reviews in a secondary care setting within the Worcestershire Acute Hospitals NHS Trust and have deteriorated to the point that they have

become housebound and no longer able to come to clinic appointments will be offered Home visits by the Respiratory Specialist Nursing team.

6.3 Training and awareness

In-house training will be provided and competences completed before lone working in the community. CBG training to be completed as per CBG policy and competency assessed in the hospital setting. Lone worker policy must be adhered to at all times, all lone workers must report to their colleagues when they have returned back to their department. Respiratory nurses competent of NIV therapy assessment and review will carry out the home visit.

During the home assessment and review if any concerns arise from blood gas results, NIV therapy or patients general heath /social care needs then this must be escalated to the patients Respiratory Consultant, patients General Practitioner and lead respiratory nurse for escalation. For urgent medical care an emergency ambulance may be called, in line with patients consent and Respect form. All lone workers who attend the patient's home address will have the appropriate access to phone numbers and contact information to escalate any concerns.

7. Monitoring and compliance

Wherever possible all housebound patients on NIV therapy will have their NIV data available on Airview to enable Respiratory Specialist Nurse team to review their data and settings as needed. CBG results will be scanned to CLIP under respiratory results and/or in the patient's letters in correspondence.

All Housebound patients on NIV therapy will have an annual review from Respiratory Specialist Nurse team booked in at their home address. Further NIV reviews will be conducted as a mix of home visits and remote telephone reviews as capacity of Respiratory Specialist Nurse team allows and clinical requirements of the patient.

A list will be collated of all housebound patients who use NIV therapy and will be updated at minimum of biannually but also as necessary when there is changes in patient conditions or circumstances

8. Policy Review

Document to be reviewed every three years

9. References

Roberts M. Royal College of Physicians, British Thoracic Society, Intensive Care Society document. Chronic obstructive pulmonary disease: non-invasive ventilation with bi-phasic positive airways pressure in the management of patients with acute type II respiratory failure. (With particular reference to Bi-level positive pressure ventilation). Concise Guidance to Good Practice series, No 11. London RCP, 2008.

Bott J, Carroll MP, Conway JH, Keilty SE, Ward EM, Brown AM, Paul EA, Elliott MW, Godfrey RC, Wedizicha JA and Moxham J. (1993) Randomised controlled trial of nasal ventilation in acute ventilatory failure due to chronic obstructive airways disease. Lancet Vol. 341 p1555 -1557

Brochard L, Mancebo J, Wysocki M, Lofaso F, Conti G, Rauss A, Simonneau G, Benito S, Gasparetto A, Lemaire F, Isabey D and Harf A. (1995) Noninvasive ventilation for acute exacerbations of chronic obstructive pulmonary disease. The New England Journal of Medicine Vol. 333 p817-822

Schirghuber J, Schrems B. (2021) Homebound: A concept analysis. Nurs Forum. 2021 Jul;56(3):742-751.

Wimpress, S, Vara, DD, Brightling, CE (2005) Improving the sampling technique of arterialised capillary samples to obtain more accurate PaO2 measurements. Chronic Respiratory Disease [online] .2(1):47-50.[viewed 30/10/2020].Available from: doi:10.1191/1479972305cd052oa.

Zavorsky, GS Cao, JMayo, NE Gabbay, R Murias, JM (2007) Arterial versus capillary blood gases: a meta-analysis Respiratory Physiology Neurobiology . Mar15,155 (3)p268-279

Ear Lobe Capillary Blood Gas Sampling for Respiratory Practitioners.PDF (2022) Worcestershire Acute Hospital NHS trust. Available from: Clinical Guidelines or Policies (worcsacute.nhs.uk)

Lone Worker Policy (2022) Worcestershire Acute Hospital NHS trust. Available from: Clinical Guidelines or Policies (worcsacute.nhs.uk)

10. Background

10.1 Equality requirements

All patients who are housebound will be offered home visit for reviews of their DOM NIV therapy.

10.2 Financial risk assessment

For staff providing home visits to claim travel expenses.

10.3 Consultation

Provide housebound patient's on domiciliary NIV, who are under a Worcester Respiratory Consultant, optimal care by providing annual home visits to assess and modify NIV therapy settings and complete CBG's.

Contribution List

This key document has been circulated to the following individuals for consultation;

Designation
Jane Newport Band 8 Respiratory lead
Donna Hurlhutt Band 7 Respiratory nurse
Patrycja Pucilowska Band 6 Respiratory Nurse
Dr Claire Hooper Consultant Respiratory Medicine
Dr Andrew Crawford Consultant Respiratory Medicine
Dr Abhimanyu LAL Consultant Respiratory Medicine
Shiji Mathew Band 6 Respiratory Nurse
Rebecca Thomas Band 6 Respiratory Nurse
Nicholas John Cardiopulmonary Service Manager
Robert MacDonald Countywide Respiratory Physiology Lead
Lewis Gidden Cardiopulmonary Sleep Lead

This key document has been circulated to the chair(s) of the following committee's / groups for comments;

Committee
Respiratory Directorate Meeting

10.4 Approval Process

This policy has been circulated to all respiratory consultants who are based at Worcestershire Royal Hospital as part of Worcester Acute Hospitals NHS Trust as well as all Respiratory Nurse Specialist to review. Once this has been agreed upon this will be submitted to directorate meeting and then governance.

11. Clause

This policy can also be applied to the cardiopulmonary department for use of home visits of patients under their care for review of NIV and CPAP therapy.

Supporting Document 1 – Equality Impact Assessment form

To be completed by the key document author and included as an appendix to key document when submitted to the appropriate committee for consideration and approval.

Please complete assessment form on next page;

NHS Worcestershire Acute Hospitals NHS Trust

Herefordshire & Worcestershire STP - Equality Impact Assessment (EIA) Form
Please read EIA guidelines when completing this form

Section 1 - Name of Organisation (please tick)

Herefordshire & Worcestershire STP		Herefordshire Council		Herefordshire CCG	
Worcestershire Acute Hospitals NHS Trust	X	Worcestershire County Council		Worcestershire CCGs	
Worcestershire Health and Care NHS Trust		Wye Valley NHS Trust		Other (please state)	

Name of Lead for Activity	

Details of individuals completing this assessment	**Name**	**Job title**	**e-mail contact**
	Emma Hurst	**Respiratory Specialist Nurse**	**Emma.Hurst1@nhs.net**
	Katie Brown	**Respiratory Specialist Nurse**	**Katie.Brown64@nhs.net**
Date assessment completed	**20/08/2024**		

Section 2

Activity being assessed (e.g. policy/procedure, document, service redesign, policy, strategy etc.)	**Title:** Policy			
What is the aim, purpose and/or intended outcomes of this Activity?	To provide a domiciliary service to house bound patients with Non-Invasive Ventilation (NIV), for assessment and review of their ventilation equipment and obtain a capillary blood gas sample.			
Who will be affected by the development & implementation of this activity?	❑x ❑x ❑x ❑	Service User Patient Carers Visitors	❑x ❑ ❑ ❑	Staff Communities Other _____
Is this:	❑ Review of an existing activity x❑ New activity			

	❑ Planning to withdraw or reduce a service, activity or presence?
What information and evidence have you reviewed to help inform this assessment? (Please name sources, eg demographic information for patients / services / staff groups affected, complaints etc.	Currently no domiciliary NIV or CPAP service therefore housebound patients reviewed by HOS-AR team. This is not a service HOS-AR provide and has been an additional workload for their service. We have an increasing caseload of morbidly obese and bedbound patients who are unable to travel to outpatient appointments.
Summary of engagement or consultation undertaken (e.g. who and how have you engaged with, or why do you believe this is not required)	Consulted with respiratory consultants, respiratory specialist nurses and cardiopulmonary staff.
Summary of relevant findings	

Section 3

Please consider the potential impact of this activity (during development & implementation) on each of the equality groups outlined below. **Please tick one or more impact box below for each Equality Group and explain your rationale**. Please note it is possible for the potential impact to be both positive and negative within the same equality group and this should be recorded. Remember to consider the impact on e.g. staff, public, patients, carers etc. in these equality groups.

Equality Group	Potential positive impact	Potential neutral impact	Potential negative impact	Please explain your reasons for any potential positive, neutral or negative impact identified
Age		X		
Disability		X		
Gender Reassignment		X		
Marriage & Civil Partnerships		X		
Pregnancy & Maternity		X		
Race including Traveling Communities		X		
Religion & Belief		X		
Sex		X		
Sexual Orientation		X		

Equality Group	Potential positive impact	Potential neutral impact	Potential negative impact	Please explain your reasons for any potential positive, neutral or negative impact identified
Other Vulnerable and Disadvantaged Groups (e.g. carers; care leavers; homeless; Social/Economic deprivation, travelling communities etc.)		X		
Health Inequalities (any preventable, unfair & unjust differences in health status between groups, populations or individuals that arise from the unequal distribution of social, environmental & economic conditions within societies)		x		

Section 4

What actions will you take to mitigate any potential negative impacts?	Risk identified	Actions required to reduce / eliminate negative impact	Who will lead on the action?	Timeframe
		.		
How will you monitor these actions?				
When will you review this EIA? (e.g in a service redesign, this EIA should be revisited regularly throughout the design & implementation)	**20th August 2027**			

Section 5 - Please read and agree to the following Equality Statement

1. Equality Statement

1.1. All public bodies have a statutory duty under the Equality Act 2010 to set out arrangements to assess and consult on how their policies and functions impact on the 9 protected characteristics: Age; Disability; Gender Reassignment; Marriage & Civil Partnership; Pregnancy & Maternity; Race; Religion & Belief; Sex; Sexual Orientation

1.2. Our Organisations will challenge discrimination, promote equality, respect human rights, and aims to design and implement services, policies and measures that meet the diverse

needs of our service, and population, ensuring that none are placed at a disadvantage over others.

1.3. All staff are expected to deliver services and provide services and care in a manner which respects the individuality of service users, patients, carer's etc, and as such treat them and members of the workforce respectfully, paying due regard to the 9 protected characteristics.

Signature of person completing EIA	Emma Hurst
Date signed	29/08/2024
Comments:	
Signature of person the Leader Person for this activity	Jane Newport
Date signed	29/08/2024
Comments:	

Supporting Document 2 – Financial Impact Assessment

To be completed by the key document author and attached to key document when submitted to the appropriate committee for consideration and approval.

	Title of document:	Yes/No
1.	Does the implementation of this document require any additional Capital resources	Yes
2.	Does the implementation of this document require additional revenue	Yes
3.	Does the implementation of this document require additional manpower	No
4.	Does the implementation of this document release any manpower costs through a change in practice	Yes
5.	Are there additional staff training costs associated with implementing this document which cannot be delivered through current training programmes or allocated training times for staff	No
	Other comments:	

If the response to any of the above is yes, please complete a business case and which is signed by your Finance Manager and Directorate Manager for consideration by the Accountable Director before progressing to the relevant committee for approval