Bwrdd Iechyd Addysgu Powys
Powys Teaching Health Board

Bronllys Hospital, Bronllys, Brecon, Powys, LD3 0LU

This protocol must only be used by registered health professionals who have been named and authorised by their organisation to practice under it. The most recent and in date final signed version of the protocol should be used. Health professionals should always access the protocol via the PTHB internet to ensure that they are always working to the most up to date version

Protocol

for the administration of

Oxygen

for emergency situations

by Registered Healthcare Professionals

in Powys Teaching Health Board (PTHB)

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Scope:	Registered Healthcare Professionals in PTHB	

Do not print this document. The latest version will be accessible via the internet. If the expiry date has passed please contact the Author for advice.

Change history

Version number	Change details	Date
PLT 009	Initial issue	20/01/2003
PLT 009-A	Review	01/09/2010
PLT 009-B	Review	01/03/2014
MMPr009-C	Review issue: to include dosing update, broadening settings to PTHB-wide, oxygen information and formatting changes.	6/6/2022
MMP 405 (new number)	Minor amendment to remove reference to MMPr 003, which has been withdrawn. Updated section 5.8.7 to incorporate Resuscitation Council UK advice for the vaccination setting. Updated safeguarding information, training recommendations, and audit responsibilities. Format change to appendix A. Appendix C added.	08/11/2023
MMP 405A	Document transferred into PTHB medicines protocol format. Link to BOC e-learning 'Oxygen Integral Valve Cylinder Guide' added. Review of protocol following the Oxygen Cylinders – Regulation 28 report and Patient Safety Notice (PSN)041 reminder. Updated according to BNFC Oxygen treatment summary and current reference sources, linking to online resources where possible. Appendix C renamed to Appendix B	Xx/xx/2024

For advice on protocol use in practice/advised supporting governance please refer to When not to use a PGD.

This protocol describes the identification of hypoxaemia and administration of oxygen and provides a framework to support registered healthcare professionals to administer oxygen in emergency situations without a prescription. The objective of this protocol is to ensure all staff are aware of how to operate oxygen cylinders safely, the safety procedures required for administration of oxygen to hypoxaemic patients and also the procedure for the safe storage of cylinders in PTHB community hospitals.

Protocol authorisation

Name	Job title and organisation	Signature	Date
Senior doctor Dr Kate Wright	Lead doctor for PTHB	DocuSigned by: Kate Wright 1F267952823F473...	1/3/2025
Chief Pharmacist Jacqui Seaton	Chief Pharmacist for PTHB	Signed by: Jacqui Seaton 71E8089DE3634C4...	12/30/2024
Senior representative of professional group using the PGD Claire Roche	Executive Director of Nursing and Midwifery for PTHB	DocuSigned by: Claire Roche F07413E114E04B1...	12/23/2024
Clinical Governance Lead Amanda Edwards	Clinical Governance Lead for PTHB – Assistant Director for Innovation and Improvement	DocuSigned by: Amanda Edwards 74A4E51A42E9473...	1/7/2025

Appendix A provides a Staff permitted to use protocol Signature Sheet. Individual practitioners must be authorised by name to work to this protocol.

The final authorised copy of this protocol should be kept by Powys Teaching Health Board (PTHB) for 25 years after the protocol expires.

Competencies of registered health professionals working under the protocol	
Qualifications and professional registration	Practitioners must only work under this protocol where they are competent to do so. Practitioners working under this protocol must be a registered healthcare professional with a current contract of employment with PTHB. Every registered healthcare professional must adhere to their appropriate professional code of conduct and the Royal Pharmaceutical Society Professional Guidance on the Administration of Medicines (2019). The practitioners must also fulfil the training and additional requirements detailed below. Check Appendix A: Staff permitted to use the protocol to confirm whether all practitioners listed above have organisational authorisation to work under this protocol.
Initial training	• The administration of oxygen and knowledge of its actions, uses, contraindications, adverse effects and hazards, and the correct operating procedures for oxygen cylinders. Teaching aides are available from www.brit-thoracic.org.uk. • Be alert to changes in the BNF/ Medical Oxygen Safety Data Sheet. • The individual must be competent in the recognition, management and reporting of recognised adverse reactions, including anaphylaxis. Must be competent in the administration of adrenaline and have up to date Basic Life Support (BLS) skills. • Completion of the e-Learning for Healthcare course: The safe use, storage and set up of medical gases and cylinders used in healthcare. This can be found on the NHSE e-Learning for Healthcare hub (e-lfh.org.uk) and should be included as part of the induction process for new appointees. • Completion of the BOC e-learning 'Oxygen Integral Valve Cylinder Guide' via this link https://boc.dayonetech.uk/login.aspx?registrationcode=BO26556

	• The individual must work in line with professional guidelines and standards. • Must have read and understood the BTS guideline for oxygen use in adults in healthcare and emergency settings, the Resuscitation Council UK : Management of anaphylaxis in the vaccination setting and Paediatric Cardiac arrest in vaccination settings (if applicable) and the Oxygen section in Treatment Summaries of the BNFC. • Must be competent in the identification and management of hypoxaemia, including assessment of patient's oxygen saturation level and requirement, and reviewing/updating their care plan. • Must be competent to discuss the treatment to be administered with the patient (if possible) and/or the carer and obtain consent (if possible). • Must have current competence in assessing capacity and follow the Mental Capacity Act guidance regarding consent to treatment in the emergency situation. • Must be competent to manage patients and administer oxygen in accordance with this protocol. • Must be competent to monitor the effect of oxygen supplementation and review patient's response to treatment. • The individual must understand how to record the assessment, any intervention and arrangement for review in the nursing notes, care plan or care pathway. Additionally, practitioners: • must have undertaken appropriate training for working under protocols for supply/administration of medicines (Team leaders may access 'Protocol and guideline awareness training' by sending a request to info.medicinesmanagement.powys@wales.nhs.uk; the team leader will then train their team) • must have access to the protocol and associated online resources • must have undertaken and completed at least level 2 Safeguarding of Children, Young people

	and Vulnerable adults – Training and Competency passport, as applicable to the role **THE PRACTITIONER MUST BE AUTHORISED BY NAME, UNDER THE CURRENT VERSION OF THIS PROTOCOL BEFORE WORKING ACCORDING TO IT.**
Competency assessment	Evidence of ongoing protocol training to be submitted to Line Manager annually. Practitioners must be competent, recognise their own limitations and personal accountability and act accordingly. Individuals operating under this protocol must be assessed as competent (see Appendix A), this should be recorded using the competency checklist in Appendix A. Practitioners must make a self-declaration of competency in their PADR– the personal development plan (yellow) section of the PADR booklet should be used to record completion of annual protocol training. ESR records of mandatory NHS training.
Ongoing training and competency	Updating at least every year on the use of protocols and Oxygen, or earlier in response to new local/national guidance (practitioners should be constantly alert to any sources of medicines information). Practitioners must ensure they are up to date with relevant issues and clinical skills and management of anaphylaxis, BLS, a minimum of level 2 safeguarding, with evidence of appropriate Continued Professional Development (CPD), which must be retained and made available on request. Compliance with all mandatory NHS training. **It is the responsibility of the healthcare professional to maintain their own competency to practice within this protocol. If any training needs are identified these should be discussed with the senior individual responsible for authorising individuals to act**

	under the protocol and further training provided as required.

Clinical condition or situation to which this protocol applies	
Clinical condition or situation	Administration of oxygen to correct hypoxaemia whilst awaiting medical / paramedic support. Oxygen should be regarded as a drug and should normally be administered only on prescription; however oxygen can be administered without prescription in an emergency as long as this protocol is followed. Pulse oximetry must be available at all locations where emergency oxygen therapy is used, but practitioners should never delay oxygen therapy for seriously ill patients. (For example, if administering oxygen as part of the management of anaphylaxis in the vaccination setting, do not delay giving oxygen while waiting for a pulse oximeter). **THE DECISION TO ADMINISTER ANY MEDICATION RESTS WITH THE INDIVIDUAL REGISTERED PRACTITIONER WHO MUST ABIDE BY THIS PROTOCOL, AND follow the relevant guidelines (depending on patients age and clinical scenario):** • **BTS guideline for oxygen use in adults in healthcare and emergency settings** • **Resuscitation Council UK: Management of anaphylaxis in the vaccination setting** • **Resuscitation Council UK: Paediatric Cardiac arrest in vaccination settings** • **Oxygen section in Treatment Summaries of the BNFC** **It is the responsibility of the administering healthcare professional to ensure that the individual is within the inclusion criteria, and that there are no reasons for exclusion before proceeding with the treatment. If there is any reason for concern, seek medical advice.**

Inclusion criteria	• Individual with hypoxaemia from any cause • Critically ill individual requiring high levels of supplemental oxygen: high concentration oxygen should be administered immediately, and this should be recorded afterwards in the patient's health record. For adults, see Table 1 and Figure 1 of the BTS guideline for oxygen use in adults in healthcare and emergency settings. **Consent to treatment** - if the patient is unable to give consent due to a life-threatening situation, or if parent/guardian is not present, oxygen should be administered where treatment is judged to be in the best interests of the patient. NB Refer to PTHB Consent to Treatment and Examination Policy **In the context of the clinical scenario described in this protocol, the patient may not be able to make an informed choice nor consent to treatment. Therefore, the practitioner should act in the best interests of the patient at all times and within their professional competency and code of conduct.** • Medical and drug history taken (when possible), no reason for exclusion • In case of any doubt, contact medical team

Exclusion criteria (Exclusion under this protocol does not necessarily mean the medication is contraindicated, but it would be outside its remit and another form of authorisation will be required)	• Conditions outside of the clinical situations criteria, including arterial oxygen saturation measured by pulse oximetry (SpO_2) >98% • Patients receiving oxygen as part of palliative care. Patients on the end-of-life care pathway are excluded from this protocol. For further information, refer to BTS guideline for oxygen use in healthcare and emergency settings • There are no absolute contraindications to oxygen therapy if indications for treatment are judged to be present, but the inspired concentration should be limited in the case of premature infants and those patients with chronic bronchitis and emphysema • Oxygen should be discontinued prior to defibrillation - take off any oxygen mask or nasal cannulae and place them at least 1 m away from the patient's chest.
Cautions /reasons for seeking further advice from a prescriber	NB This list is not exhaustive. Ensure relevant guidelines (depending on patients age and clinical scenario) are followed: • **BTS guideline for oxygen use in adults in healthcare and emergency settings** • **Resuscitation Council UK: Management of anaphylaxis in the vaccination setting** • **Resuscitation Council UK: Paediatric Cardiac arrest in vaccination settings** • **Oxygen section in Treatment Summaries of the BNFC** • Consider if the patient may be at risk of hypercapnic respiratory failure. Refer to **BTS guideline for oxygen use in adults in healthcare and emergency settings.** If possible, ask if the patient has an oxygen alert card and their own mask, or if they have ever received mechanical ventilation in the past – this may allude to CO_2 retention in COPD patients: see dose section. • Medical/paramedic support should be sought as appropriate for all patients requiring emergency oxygen administration. • The use of higher levels of oxygen can increase the risk of pulmonary toxicity in patients who have been administered bleomycin, amiodarone and nitrofurantoin (or similar antibiotics). In these

	cases, oxygen should be administered with caution and at levels kept as low as possible.
	• In poisoning by paraquat and poisoning by bleomycin, give oxygen only if the saturation falls below 85% and reduce or stop oxygen therapy if the saturation rises above 88%.
	• Special care is needed when medical oxygen is administered to:
	  ○ neonates where the inspired concentration should not exceed 40% because of the risk of retrolenticular fibroplasia
	  ○ elderly chronic bronchitic patients in whom the inspired concentration should only be raised in stages of 1% and probably should not exceed 30%
	• If possible, check for any other medications that the individual is taking, including topical or inhaled products, food supplements and herbal or homeopathic products. A detailed list of drug interactions is available in the Medical Oxygen Safety Data Sheet.
	• Individuals with complex multiple pathologies, polypharmacy or multiple allergies.
	• The healthcare professional must recognise their limitations and seek medical advice if they are concerned about the patient's overall condition or if oxygen supplementation has been ineffective.
	
	Under Section 128 and 130 of the Social Services and Wellbeing (Wales) Act 2014, staff have a duty to inform the Local Authority if they have reasonable cause to suspect that an adult or child is at risk. Any vulnerable adult or child protection concerns should be referred to Safeguarding and the PTHB safeguarding policies followed. Consider discussing with GP.
	
	Any safeguarding concerns need to be directed to Safeguarding Hub:
	  • To generic email address: PowysTHB.Safeguarding@wales.nhs.uk
	And
	  • Central Safeguarding number: 01686 252806
	  • Out of hours: 0345 0544847

	Advice can also be sought from local Safeguarding leads
Arrangements for referral for medical advice	Record reason, contact medical team or the emergency on-call service and document advice given.
Action to be taken if individual excluded	Record reason for exclusion, call 999/seek medical advice urgently and record advice given. Ensure the reason for exclusion is included in the handover given to the paramedics and receiving hospital. Explain reason to individual / carer.
Action to be taken if individual/ carer declines treatment	Explain consequences of refusing treatment. If patient has capacity to consent and refuses treatment, follow locally agreed pathway. Call 999 as appropriate for emergency ambulance and seek immediate medical advice. Document refusal, any advice given and follow local procedures as appropriate. In the unlikley situation, if patient's carer/representative refuses treatment for the patient, the decision would be overridden by a *decision to treat* in the individual's best interests in accordance with the Mental Capacity Act 2005. Record action taken in the consultation record.
Details of the medicine	
Name, form and strength of medicine	Compressed Medical Oxygen purity 99.5%(min) Medicinal gas, compressed
Legal category	GSL

Dose and frequency, route/ method of administration	Oxygen is administered by inhalation through the lungs. Oxygen should be administered by staff who are trained in oxygen administration. Staff should use appropriate devices and flow rates in order to achieve the target saturation range: **For adults** refer to the BTS guideline for oxygen use in adults in healthcare and emergency settings and Resuscitation Council UK : Management of anaphylaxis in the vaccination setting (if applicable). Oxygen should be prescribed to achieve a target saturation of 94–98% for most acutely ill patients or 88–92% or patient-specific target range (stated on patient's oxygen alert card or by a Patient Specific Protocol, if available) for those at risk of hypercapnic respiratory failure. For critically ill patients, high concentration oxygen should be administered immediately, and this should be recorded afterwards in the patient's health record. Oxygen delivery devices and flow rates should be adjusted to keep the oxygen saturation in the target range. Prompt clinical assessment is required if oxygen therapy needs to be initiated or increased due to a falling saturation level. Oxygen should be reduced in stable patients with satisfactory oxygen saturation, then discontinued once the patient can maintain saturation within or above the target range breathing air. Oxygenation is reduced in the supine position, if otherwise clinically appropriate the patient should ideally be allowed to maintain the most upright posture comfortably possible. **For children under 16** refer to Oxygen section in Treatment Summaries of the BNFC and Resuscitation Council UK: Paediatric Cardiac arrest in vaccination settings (if applicable). In most acutely ill children with an expected or known normal or low arterial carbon dioxide, oxygen saturation should be maintained above 92%; some clinicians may aim for a target of 94–98%. In some

	clinical conditions, such as carbon monoxide poisoning, it is more appropriate to aim for the highest possible oxygen saturation until the child is stable. Hypercapnic respiratory failure is rare in children; in those children at risk, a lower oxygen saturation target of 88–92% is indicated. Oxygen should not be given to neonates except under expert supervision. Particular care is required in preterm neonates because of the risk of hyperoxia. **Monitoring**- refer to the **BTS guideline for oxygen use in adults in healthcare and emergency settings, and the Oxygen section in Treatment Summaries of the BNFC**. • All patients should have pulse oximetry measured but never discontinue oxygen therapy to obtain an oximetry measurement on room air in patients who clearly require oxygen therapy, or delay oxygen therapy for seriously ill patients (NB. If administering oxygen as part of the management of anaphylaxis in the vaccination setting, do not delay giving oxygen while waiting for a pulse oximeter). • Any fall in oxygen saturation should lead, if possible, to clinical evaluation of the patient and in most cases, measurement of blood gases. • Frequency of monitoring depends on the condition – follow departmental procedure. • Skin colour, respiratory rate and vital signs should also be monitored. • Oxygen saturation on air should be monitored for 5 minutes after stopping oxygen therapy. If it remains in the desired range it should be rechecked at 1 hour. For oxygen cylinder duration chart, see Appendix B. **Safety** information: **NB. This list is not exhaustive.** Refer to Medical Oxygen Safety Data Sheet and Medical Oxygen, integral valve cylinders. • Care is needed when handling and using compressed medical oxygen cylinders, which contain gas under pressure and may explode if heated (or if involved in a fire). Use a suitable trolley to transport large cylinders. Any

	stationary trolleys should be fixed in place to prevent it falling over and potentially causing injury. Oxygen cylinders larger than CD size or equivalent, must NOT be transported by any member of PTHB staff, transport must be undertaken by a recognised medical gas courier (e.g. BOC). • Staff must ensure that there is sufficient oxygen in all cylinders, at least ¾ full, if a cylinder on the resuscitation trolley is below ¾ full a second cylinder must be ordered from the central storage department. • Once the initial cylinder is empty the second cylinder will become the main cylinder, staff must notify the Support Services department to arrange collection and replacement of the empty cylinder. The current medical gas cylinder supplier will not accept returns of cylinders which still have some medical gas remaining in them. • Compressed Medical Oxygen Cylinders should be set up and tested before placing near the patient. • Do not place the cylinder on the patient's bed unless there is no suitable alternative for retaining the cylinder. Where the cylinder is being used in accident and emergency/ambulance situations the cylinder should only be placed on the trolley after the valve has been turned on and the flow rate set. Always use an appropriately designed cylinder support to hold the cylinder whilst in use adjacent to the patient, to avoid cylinders falling over and causing injury. • Staff must be able to safely operate cylinder controls. • Medical gas cylinders shall only be procured via nominated supplier under NHS contract for provision of medical gases: BOC. • Compressed medical oxygen is non-flammable but is a very strong oxidant and will strongly support and intensify combustion (including some materials that do not normally burn in air) and should not be used near naked flames, sources of ignition, or combustible materials.

	Fire hazard: Smoking is prohibited when using compressed medical oxygen. • It is highly dangerous in the presence of oils, greases, tarry substances and many plastics due to the risk of spontaneous combustion in the presence of oxygen in relatively high concentrations. Under no circumstances should oils or grease be used to lubricate any part of the compressed medical oxygen cylinder or the associated equipment used to deliver the gas to the patient. Do not use oil or grease (or any oil-based products which includes hand creams) in the vicinity of an oxygen cylinder. • Where moisturising creams are required for use with a facemask or in nasal passages, oil-based creams should **not** be used. • Check that hands are clean and free from any oils or grease before handling (special care is needed with the use of hand creams as this could provide sufficient contamination to the cylinder to cause ignition when the valve is turned on). • Where alcohol gels are used, ensure that all alcohol has evaporated before handling compressed medical oxygen cylinders or equipment. • Close cylinder valve after each use and when empty. • If you need to clean the cylinder do not use any materials which contain ammonium or chloride compounds. • Replace valve outlet cap, where fitted, as soon as container is disconnected from equipment. • Do not refill or tamper with the cylinder package. • Appropriate masks must be available for use. **The administering of oxygen cannot be delegated and so the registered healthcare professional making the decision to administer oxygen under this protocol must carry out the administration to the patient.**

Maximum dose to be administered under this protocol	Treatment is to be commenced as soon as need is identified as per inclusion criteria, call 999 to summon medical / paramedic support as appropriate. Continue until passing responsibility of patient care to a paramedic or a doctor, or until oxygen can be safely discontinued – see dose section above.
Off-label use	Not applicable

Storage	• Fire Hazard: medical gas cylinders must be stored undercover, away from sunlight, securely in a clean, dry, well-ventilated dedicated central store, not subjected to extremes of heat or cold and away from stocks of combustible material, clothing, naked flames, other sources of ignition, and smoking. The room should display appropriate signage to indicate the presence of compressed gas. Warning notices prohibiting smoking and naked lights must be posted clearly in the cylinder storage area and the Emergency Services should be advised of the location of the cylinder store. Cylinders will be distributed to departments/wards as required. • F size cylinders and larger should be stored vertically. As AZ, CD, DD, ZD and IQD have flat bottoms, they may be stored vertically. Cylinders stored vertically should be secured to prevent them from falling over and causing injury. • E size cylinders and smaller should be stored horizontally. • Cylinders should be chained to the wall or kept in a purpose designed storage trolley. Further information is available from:- https://www.sps.nhs.uk/wp-content/uploads/2021/01/guidance-on-the-security-and-storage-of-medical-gas-cylinders.pdf • Cylinders should be used in rotation so that cylinders with the earliest filling date are used first. No cylinder shall be kept for more than three years (Oxygen has a shelf life of 36 months). • Compressed medical oxygen cylinders should be stored to maintain separation between full and empty cylinders. • Compressed medical oxygen cylinders should be stored separately from other medical cylinders within the store. • A fire extinguisher should be readily available. • In case of fire: stop leak if safe to do so. Refer to Medical Oxygen Safety Data Sheet for further information. **NB. Wards should have a back-up cylinder for the emergency trolley in case of delayed attendance.**

Drug Interactions	See Cautions: The use of higher levels of oxygen can increase the risk of pulmonary toxicity in patients who have been administered bleomycin, amiodarone and nitrofurantoin (or similar antibiotics). In these cases, oxygen should be administered with caution and at levels kept as low as possible. Check for any other medications that the individual is taking, including topical or inhaled products, food supplements and herbal or homeopathic medications. NB. Refer to BNF/ Medical Oxygen Safety Data Sheet for full list of potential interactions. Refer for medical advice as appropriate and document advice given.

Identification management and reporting of adverse reactions	The most serious side effects that may occur are severe difficulty in breathing, so called respiratory distress syndrome. Too liberal oxygen administration may also cause respiratory depression in susceptible patients with reduced chemoreceptor sensitivity as seen in e.g. some patients with chronic obstructive pulmonary disease (COPD) causing hypercapnia (frequency not known).
	
	Complications and risk associated with oxygen therapy:
	• Drying of mucous membranes
	• Discomfort of masks or nasal cannulae
	• Oxygen toxicity:
	  ○ Pulmonary toxicity
	  ○ Absorption atelectasis
	  ○ Coronary and cerebral vasoconstriction
	  ○ Reduced cardiac output
	  ○ Damage from oxygen free radicals
	  ○ Increased systemic vascular resistance
	  ○ Retrolenticular fibroplasia in premature infants exposed to oxygen concentrations greater than 40%
	  ○ Convulsions
	  ○ Retrosternal soreness associated with coughing and breathing difficulties, made worse by smoking and exposure to cold air after breathing pure medical oxygen at atmospheric pressure for several hours.
	
	Refer for medical advice as appropriate if an adverse reaction occurs.
	
	NB. This list is not exhaustive. Refer to BNF or Medical Oxygen Safety Data Sheet for complete list. Report any suspected adverse reactions to a doctor, record in the individual's medical record and report any suspected adverse reactions at handover of care to paramedic or medical staff.
	
	Anaphylaxis and resuscitation equipment including adrenaline (1 in 1000) injection and a working telephone to summon assistance if required.
	In case of anaphylaxis:-
	• Refer to adrenaline (epinephrine) PGD0017 and anaphylaxis procedure

	• Request medical assistance urgently. If the GP is not immediately available dial 999 to transfer to A&E • Ensure reaction is fully documented in individual's notes • Ensure all patient records are marked **ALLERGIC TO OXYGEN administered via:……** • The individual may be advised to wear a MedicAlert or similar device to alert other healthcare providers Healthcare professionals and individuals/carers are encouraged to report suspected adverse reactions to the Medicines and Healthcare products Regulatory Agency (MHRA) using the Yellow Card reporting scheme at: http://yellowcard.mhra.gov.uk or search for MHRA Yellow Card in the Google Play or Apple App Store. For established medicines, serious adverse events in adults or all suspected adverse reactions in children that may be attributable to the medication/ vaccine should be reported. Guidance on the yellow card system is available at the back of the BNF, or using the above link. All significant adverse drug reactions, any administration errors or untoward incidents, and all oxygen cylinder incidents must be recorded via the Once for Wales Reporting System and reported through the yellow card scheme.

Records to be kept	Record consultation details as required by local procedures. Administration of any medication must be clearly recorded on the individual's medication record. In addition, record: • Name, address and date of birth of individual • Name and address of GP • Medical and drug history taken (if possible), including any allergies and previous adverse events • Any reasons for exclusion or referral, including actions taken • Record title, number and version of protocol and reason for administering • Any advice received from medical cover and advice given to individual/carer (including recommendations for ongoing symptoms and when and who to refer to if symptoms are ongoing or worsen) • That valid informed patient consent to treatment was obtained, or a decision to treat made in the individual's best interests in accordance with the Mental Capacity Act 2005. Record name of representative who gave consent if appropriate- refer to PTHB Consent to Treatment and Examination Policy • If the individual has refused treatment, and any advice given in this circumstance • Arrangements made for review • Date and time oxygen therapy started • Form, route, delivery system (if mask, specify type used) flow rate and frequency • For inpatients record administration in the 'once only' section of the medication administration chart • Batch number and expiry date • Patient's oxygen saturations, target, respiratory rate, skin colour and vital signs • If medical/paramedic support was required • If there is handover to any external services - that medication has been given in accordance with this protocol and details of what was given • Details of any adverse reactions and actions taken The record must include the printed name and signature (which may be electronic) of the healthcare professional responsible for administration. All records should be clear, legible and contemporaneous.

	A record of all individuals receiving treatment under this protocol should be kept for audit purposes in accordance with local policy. The head of department must arrange an annual retrospective audit of a minimum of 5 records over a 12-month period. This audit should sample 10% of individuals who have been treated according to this protocol in each location where the protocol has been used, to monitor compliance. The records must be reviewed for rationale behind administering the product, to check this was in accordance with the protocol, that clear documentation is in place and that the competency checklist has been completed when authorising individuals to work to this protocol. The results should be available for review by the medicines management team upon request.

Patient information	
Written/verbal information to be given to individual or carer	Explain why oxygen is being used and its effects. Inform individual of possible side effects and their management. Inform individual that they are being treated within a protocol. Advise that smoking is prohibited when using compressed medical oxygen. Give the patient/carer verbal instructions on how to use the mask, mouthpiece or delivery device.
Follow-up and advice to be given to individual or carer	Pulse oximetry should continue to be monitored for 5 minutes after stopping oxygen therapy. If it remains in the desired range, it should be rechecked at 1 hour. Patients may be referred to PTHB respiratory team respiratory.powys@wales.nhs.uk or 01686 414227. Give appropriate advice dependent on the clinical condition of the patient and if transfer to a DGH is necessary. If patient transfer is not necessary, continued oxygen administration, if needed, will need to be prescribed on the patient medication administration chart, including target oxygen saturation. Patients who require continuous oxygen support are not fit either to drive or to operate machinery. Advise individual to seek medical advice immediately if they have any unexpected reaction or other cause for concern. Contact GP via surgery or emergency on call service.

Key references

1. Medical Gas Data Sheet. Compressed medical oxygen. BOC. 2019-2024
2. BOC Medical Oxygen Integral Valve cylinders 2019
3. NICE BNF Oxygen – treatment summary accessed 21/10/2024
4. NICE BNFC Oxygen – treatment summary accessed 22/10/2024
5. NICE CKS Breathlessness Last revised July 2024
6. BTS Guidelines for emergency Oxygen use in adults in healthcare and emergency settings; Thorax An International Journal Of Respiratory Medicine, June 2017 Volume 72 Supplement 1
7. Resuscitation Council UK : Management of anaphylaxis in the vaccination setting and Paediatric cardiac arrest in vaccination settings
8. WHC/2024/036 Oxygen cylinders: regulation 28 report and patient safety notice 041 reminder
9. PSN041 Risk Of Death And Severe Harm From Failure To Obtain And Continue Flow From Oxygen Cylinders harm du.nhs.wales/files/notices/psn041-flow-failure-from-oxygen-cylinders-pdf/
10. Oxygen cylinder duration chart (updated 8th January 2023), National Association of Medical Device Educators and Trainers

Appendix A Staff Permitted to use the Protocol Signature sheet

Authorising Manager: I confirm that the practitioners named below have declared themselves suitably trained and competent to work under this protocol. I give authorisation on behalf of Powys Teaching Health Board for the named healthcare professionals below who have signed the protocol to work under it.
The authorising manager must use the competency checklist (below).

Practitioner: By signing this protocol you are indicating that you agree to its contents and that you will work within it. Protocols do not remove inherent professional obligations or accountability. It is the responsibility of each professional to practise only within the bounds of their own competence and professional code of conduct.
I confirm that I have read and understood the content of this protocol and that I am willing and competent to work to it within my professional code of conduct.

Printed name of health professional	**Signature of health professional**	**Printed name of senior representative authorising health professional (Authorising Manager)**	**Signature of senior representative authorising health professional (Authorising Manager)**	**Date**

The authorising manager should retain a copy of the list, which should be kept by PTHB for 25 years after the protocol expires. This list must be made available to the medicines management department for audit purposes. The healthcare professional should retain a copy of the document after signing.

Competency check list for manager or senior team lead to use as part of the authorising process for health professionals to work to a protocol. Review of authorisation will take place on each protocol update and at the individual's annual PADR.

	Name: **Role:** Current contract with PTHB (please circle): YES / NO	Sign / Initial	Further training identified (Y/N) Specify in " comments"	Comments
1	The protocol sign off is for the following protocol: MMP405A Administration of Oxygen for emergency situations by Registered Healthcare Professionals in PTHB			
2	We have discussed the expiry of the protocol and are using a version accessed electronically			
3	The member of staff has the appropriate qualifications and professional registration as outlined in the protocol			
4	The protocol has been read in full by the staff member			
5	The identified training has been completed as specified in the protocol and is in date			
6	We have discussed some examples of inclusion criteria and exclusion criteria			
7	The staff member is confident in the administration method and doses			

Staff member print & sign name		Date
Manager or senior team lead to print & sign name		Date

Please send a copy of this completed form to individual's line manager and to the staff member. A copy of this form should be kept by service lead in the training file- this will be subject to audit.

Appendix B

Oxygen cylinder duration chart

Available at www.namdet.org

National Association of Medical Device Educators and Trainers

Cylinder Size	CD	ZD	E	F	HX	ZX	G	J	CD	ZD	E	F	HX	ZX	G	J	CD	ZD	E	F	HX	ZX	G	J
Contents (litres)	*460*	*605*	*680*	*1,360*	*2,300*	*3,040*	*3,400*	*6,800*	*230*	*303*	*340*	*680*	*1,150*	*1,520*	*1,700*	*3,400*	*115*	*151*	*170*	*340*	*575*	*760*	*850*	*1,700*
Contents (gauge may be colour coded)	Full (100%)								Half Full (50%)								Low (approx. 25%)							
Flow Setting (Litres/min) 15	30m	40m	45m	1h31m	2h33m	3h22m	3h47m	7h33m	15m	20m	23m	45m	1h16m	1h41m	1h53m	3h47m	7m	10m	11m	23m	38m	50m	57m	1h53m
12	38m	50m	57m	1h53m	3h11m	4h13m	4h43m	9h27m	19m	25m	28m	57m	1h35m	2h06m	2h21m	4h43m	9m	12m	14m	28m	48m	1h03m	1h10m	2h21m
10	46m	60m	1h08m	2h16m	3h50m	5h04m	5h40m	11h20m	23m	30m	34m	1h08m	1h55m	2h32m	2h50m	5h40m	11m	15m	17m	34m	57m	1h16m	1h25m	2h50m
8	58m	1h15m	1h25m	2h50m	4h47m	6h20m	7h05m	14h10m	29m	37m	43m	1h25m	2h23m	3h10m	3h33m	7h05m	14m	18m	21m	43m	1h11m	1h35m	1h46m	3h33m
7	1h06m	1h26m	1h36m	3h14m	5h28m	7h14m	8h05m	16h11m	33m	43m	48m	1h36m	2h44m	3h37m	4h	8h05m	16m	21m	24m	48m	1h22m	1h48m	2h	4h
6	1h16m	1h40m	1h53m	3h47m	6h23m	8h27m	9h27m	18h53m	38m	50m	57m	1h53m	3h11m	4h13m	4h43m	9h27m	19m	25m	28m	57m	1h35m	2h07m	2h22m	4h43m
5	1h32m	2h	2h16m	4h32m	7h40m	10h08m	11h20m	22h40m	46m	1h	1h08m	2h16m	3h50m	5h	5h40m	11h20m	23m	30m	34m	1h08m	1h55m	2h32m	2h50m	5h40m
4	1h55m	2h30m	2h50m	5h40m	9h35m	12h40m	14h10m	28h20m	57m	1h15m	1h25m	2h50m	4h47m	6h20m	7h05m	14h10m	28m	37m	43m	1h25m	2h23m	3h10m	3h33m	7h05m
3	2h33m	3h21m	3h46m	7h33m	12h46m	16h53m	18h53m	37h46m	1h16m	1h41m	1h53m	3h46m	6h23m	8h27m	9h27m	18h53m	38m	50m	57m	1h53m	3h11m	4h13m	4h43m	9h27m
2	3h50m	5h	5h40m	11h20m	19h09m	25h20m	28h20m	56h40m	1h55m	2h31m	2h50m	5h40m	9h35m	12h40m	14h10m	28h20m	57m	1h15m	1h25m	2h50m	4h47m	6h20m	7h05m	14h10m
1	7h40m	10h05m	11h20m	22h40m	38h20m	50h40m	56h40m	113h 20m	3h50m	5h	5h40m	11h20m	19h10m	25h20m	28h20m	56h40m	1h55m	2h31m	2h50m	5h40m	9h35m	12h40m	14h10m	28h20m

Nominal Time left in cylinder (in hours and minutes)

Note: Cylinder times are based on nominal content of cylinders and the nominal flowrate settings, Nominal contents can vary by +/- 5%. Nominal Flowrates can vary by +/- 20% (+/- 30% for 1 lpm) Some times (minutes) may be rounded up and or down

RED = 30 minutes or less | **Amber = 31 minutes to an hour** | **Green = An hour or more**

Note, every effort has been made to verify the actual times for each size cylinder. If there are any discrepancies or errors please inform us at enquiries@namdet.org