

MEDICAL GASES POLICY

| | |
|------------------------------------|---|
| Version number : | 4.2 |
| Consultation Groups | The CHS Policy Alignment group Medical Gases Group Lead Nurses Governance and risk team Quality Assurance & Safety Team |
| Approved by (Sponsor Group) | Medical Gases Group |
| Ratified by: | Medicines Committee |
| Date ratified: | September 2023 |
| Name of originator/author: | Lead Pharmacist Vaccinations and Antimicrobials |
| Executive Director lead : | Chief Medical Director |
| Implementation Date : | September 2023 |
| Last Review Date | September 2023 |
| Next Review date: | September 2026 |

| Services | Applicable |
|---------------------------|-------------------|
| Trust wide | X |
| Mental Health and LD | |
| Community Health Services | |

Version Control Summary

| Version | Date | Author | Status | Comment |
|----------------|---------------|---|---------------|--|
| 1.0 | July 2011 | Shameem Mir | Final | |
| 2.0 | November 2014 | Manpreet Saini, Community Health Newham Directorate Pharmacist and Shameem Mir (Chief Pharmacist) | Final | Updated to include the training that staff at East Ham Care Centre undertake Updated to include and make reference to fire protocol Updated in light of NHS Protect Circular S/G/06/2014-15 'Guidance on the security and storage of medical gas cylinders'. |
| 3.0 | January 2020 | Charity Okoli CHS Lead Pharmacist, Newham | Final | Updated in line with recent medical gas alerts in 2016 and 2018 |
| 4.0 | April 2023 | Roberta Contino | Draft | Updated in line with the new ordering procedure. Updated oxygen cylinders sizes to keep in ELFT Draft Circulated to the Medical Gases Group on 26 th April 23 for comments |
| 4.1 | August 2023 | Roberta Contino | Final | TOR reviewed |
| 4.2 | November 2023 | | | Minor amendment |

Contents

| | Page |
|--|-------------|
| 1. PURPOSE and SCOPE | 4 |
| 2. ROLES AND RESPONSIBILITIES | 4 |
| 3. TRAINING | 5 |
| 4. MEDICAL GASES GROUP | 5 |
| 5. PROCEDURE/POLICY | 5 |
| 5.1 ORDERING | 5 |
| 5.2 RECEIVING DELIVERY OF OXYGEN CYLINDERS by BOC | 7 |
| 5.3 STORAGE | 7 |
| 5.4 SAFETY | 8 |
| 5.5 PRESCRIBING AND ADMINISTERING OXYGEN | 8 |
| 6. MONITORING COMPLIANCE AND EFFECTIVENESS | 9 |
| 7. REFERENCES | 10 |
| | |
| APPENDIX 1 – SITES HOLDING OXYGEN GAS CYLINDERS | 11 |
| APPENDIX 2 – ROLES AND RESPONSIBILITIES WITHIN THE MEDICAL GASES PIPELINE SYSTEMS (MGPS) | 12 |
| APPENDIX 3 – MEDICAL GASES GROUP – Terms of References | 17 |
| APPENDIX 4 – CYLINDERS SIZES AND HOW TO USE THEM | 20 |
| APPENDIX 5 - STORAGE REQUIREMENTS OF A MEDICAL GAS | 23 |
| APPENDIX 6 – OXYGEN CYLINDERS ORDERING and RETURNING FORM | 24 |
| APPENDIX 7 - FULL OXYGEN CYLINDER RUN TIMES | 25 |

1. PURPOSE AND SCOPE

The aim of this policy is to promote the safe, effective and secure use, handling, storage and maintenance of medical gases within the Trust. This policy reflects the advice provided by the Medicines and Healthcare Regulatory Agency (MHRA) and recommendations of the National Patient Safety Agency (NPSA) alert on Oxygen safety in hospitals (2009).

This policy should be read in conjunction with the following policies of ELFT NHS Foundation Trust:

- Medicines Policy
- Medical Devices Policy
- Cardiopulmonary Resuscitation Policy
- Manual Handling Policy
- Personal Protective Equipment (PPE) Policy
- Infection Prevention and Control Policy
- Policy for Prescribing, Storage, Dispensing and Administration of Medicines to Patients

This policy will refer to the Oxygen gas only (no other medical gases are used within ELFT). It covers the supply, safe storage, prescribing and administration of the Oxygen across all ELFT NHS Foundation Trust sites.

Details of sites holding oxygen cylinders are listed in *Appendix 1*

2. ROLES AND RESPONSIBILITIES

All Clinical Staff involved directly and indirectly in health care provision are responsible for ensuring the following:

- Use medical gases in a safe and effective manner in accordance with their intended use.
- Maintain ongoing records of their training in relation to the Medical Gases Pipeline Systems (MGPS) within their personal development portfolio
- Report any concerns relating to the safe usage of medical gas to their line manager.
- Decline to use or operate any medical gas system which they have not been adequately trained to use and/or do not feel competent and confident to operate.

The key personnel with specific responsibilities within the Medical Gases Pipeline Systems (MGPS) are shown in *Appendix 2*

3. TRAINING

It is essential for the safety of patients that no person should operate, or work on, any part of an MGPS unless adequately trained or supervised.

MGPS training at ELFT NHSFT for appropriate staff is administered by an independent training body. A record of those trained is kept in the relevant department. It is the duty of departmental managers to ensure that all staff working with the MGPS are appropriately trained. The Authorised Person (MGPS) may request training records of contractors' staff. Training on MGPS will be provided as follows in accordance to HTM 02:

| Personnel | Training | Assessment |
|----------------------------|----------------------------------|---------------|
| Authorising Engineer | Every 3 years | Every 3 years |
| Authorising Person | Every 3 years | Every 3 years |
| Competent Person | Every 3 years | Every 3 years |
| Designated Nursing Officer | Every 3 years | Every 3 years |
| Designated Medical Officer | Every 3 years | Every 3 years |
| Quality Controller | Every 3 years | Every 3 years |
| Designated Porter | Every 3 years | Every 3 years |
| Nursing Staff | As per mandatory training policy | |

4. MEDICAL GASES GROUP

The Chair of the Medical Gases Group reports to the Trust 'Medicines Committee'. They have executive manager responsibility for the MGPS and Medical Gas Cylinders. The Medical Gases Group membership is detailed as per the group terms of reference (*Appendix 3*). Other subject matter experts shall also be invited to join the group when appropriate.

5. PROCEDURE/POLICY

5.1 ORDERING

All oxygen cylinders used by the Trust are rented from the supplier BOC and are not Trust property. Cylinders sizes and how to use them are shown in *Appendix 4*

Oxygen cylinders will be ordered through the Pharmacy department.

Ward and clinic staff are responsible for requesting replacement of the oxygen cylinders from the pharmacy, once they are empty or have expired.

For every location, a ward administrator to complete the oxygen cylinders ordering form (see **Appendix 6**) and to send it to Pharmacy Procurement email address (elft.pharmacyprocurement@nhs.net)

Pharmacy Procurement to place the order of required replacement oxygen cylinders and their sizes with BOC directly. When placing the order, quote BOC account number, purchase order and site location. See table below.

BOC requirements are for all requests for replacement 'Full for Empty' cylinders to reach them by 3.00pm to ensure delivery next day.

| Borough | Site Location | BOC Account Number |
|---------|-------------------------------------|---------------------------|
| Bedford | Cauldwell Medical Centre | 3315192 |
| Bedford | Cedar House | 2538630 |
| Bedford | Fountains Court | 2278504, 2736947 |
| Luton | Leighton Road Surgery | 3090929, 3130901, 2990587 |
| Luton | Treatment Centre (ECT) | 2081030 |
| Luton | Coral Ward | 2538620, 3248967 |
| Luton | Onyx Ward | 3543123 |
| Luton | Ash ward | 3300268 |
| Luton | Jade Ward | 2998277 |
| Luton | Townsend Court | 2538647 |
| Luton | Poplar Old Persons Mental Health | 2538650 |
| Luton | Crystal Ward | 3345659 |
| Luton | Evergreen Inpatient Unit | 3570941 |
| London | John Howard Centre | 2825538 |
| London | Wolfson House | 2905260 |
| London | Newham Centre E13 8RU | 2272973 |
| London | Cherry Tree Way E13 8SP | 3556606 |
| London | East Ham Care Centre | 2624977 |
| London | Reception - Newham Trans PCT | 3375381 |
| London | Health E1 Homeless Medical Centre | 3602253 |
| London | Sickle Cell and Thalassaemia Centre | 3170986 |

| | | |
|--------|-------------------|---------|
| London | Transitional Team | 3366203 |
|--------|-------------------|---------|

Oxygen cylinders, code size CD, should be kept for use in an emergency. The CD size is a white cylinder with oxygen written in black.

Larger cylinders, cylinder code size (i.e. HX or E) are for use at the bedside of patients with respiratory conditions requiring continuous treatment. These oxygen cylinders (except code size CD) have a black body and a solid white collar

5.2 RECEIVING DELIVERY OF OXYGEN CYLINDERS by BOC

BOC to contact porters at each site on arrival to facilitate movement of cylinders into the on-site storage area.

Oxygen Coordinator to ensure all orders placed the day before have arrived at the designated location as per the order. Any discrepancies must be escalated to line manager and followed up with BOC.

Ward staff to contact the designated porter to collect the full cylinder from the onsite storage area to the ward.

5.3 STORAGE

CD Oxygen cylinders for emergency use should be stored in the General Practice Airway Management Bag (Life-line Grab-bag or Green MERT Bag).

Larger cylinders (i.e. size HX or E) must always be secured to either the patient's trolley or to a cylinder trolley and only moved with an appropriate sized trolley. These cylinders should be stored in an upright position and locked in the clinic room when not in use.

ELFT staff are responsible for the storage of cylinders following receipt of delivery.

Only full or in use cylinders should be stored in the clinical area. All empty cylinders should be returned immediately to the main cylinder store, or returned to the supplier. It is recommended that cylinders used for prescribed oxygen therapy are exchanged when they reach the red section on the cylinder contents gauge which is 25%, while the cylinders used for medical emergency are replaced after each patient's use.



1.3 Check the gauge to confirm the cylinder contents. For new cylinders the needle should be in the green zone.



1.4 To determine there is enough gas in the cylinder check the duration chart for the required flow or use the BOC Remaining Time Estimator app. If the needle is in the red zone consider selecting a new cylinder.

It is the responsibility of the ward/department nurse in charge to ensure that a tag is displayed in each cylinder and remain clearly visible at all times as follows:

1. Full
2. In use
3. Empty

Only the exact numbers of cylinders appropriate for the area/ patient group should be stored. It is the responsibility of the ward/department nurse in charge to ensure stock levels are reviewed weekly to ensure there are adequate supplies available on the ward/department and any unnecessary stock piling is minimised.

No smoking signs must be displayed in the vicinity of oxygen cylinders. A sign warning of hazards must also be visible in the store and in the wards, where oxygen cylinders are kept. Ensure separation of full and empty cylinders at all times.

Bulk storage of medical gases must conform to HTM 02-01 see *Appendix 5*.

5.4 SAFETY

Universal Rules for Medical Gases

- Do not smoke near any cylinder containing a medical gas
- Do not use oil, wax or grease on any part of the unit
- Do not allow cylinders to fall over or lean cylinders against a wall
- Do not roll cylinders
- Do not mix empty cylinders with full ones in storage areas
- Do not tamper with the equipment or use excessive force
- Do not use sealing compound or tape to seal the regulator to the cylinder
- Do not apply any unauthorized labels or markings to cylinders unless advised by BOC to identify faulty or incident cylinders

- Do wash your hands before changing the cylinder
- Do change the cylinder when the contents needle enters the red sector
- Do keep the cylinder free from dust and water – keep in grab bag (unless too large)
- Do wear appropriate Personal Protective Equipment (PPE) when moving large cylinders

Porters, nursing and clinic staff should not handle medical gases and associated equipment until they have been trained and this has been documented.

How to use a medical gas cylinder and deal with any leaks is detailed in Appendix 4

5.5 PRESCRIBING AND ADMINISTERING OXYGEN

Oxygen may be used in an emergency without a pre-existing prescription. The administration of oxygen must be documented in the patient's notes immediately after the incident. Nurses and health care professionals must be trained in the administration of oxygen in such situations.

Long term use of oxygen for respiratory insufficiency must be prescribed on the patient's medicines e-chart and the flow rate, percentage of oxygen and duration of use should be specified. This should always be in accordance with British Thoracic Society (BTS) guidelines www.brit_thoracic.org.gov and on the advice of a specialist respiratory service.

Administration of oxygen therapy is essential for anyone in respiratory distress such as with any acute illness (asthma), traumatic event or if they have taken drugs such as opioids that will suppress ventilation. A high flow (Venturi) non-rebreathe oxygen mask with a reservoir bag, such as the Hudson mask, should be used.

Only appropriately trained practitioners should administer oxygen to patients

Before administering oxygen to a patient, the practitioner must confirm the identity of the gas, check the expiry date of the gas and ensure adequate supplies of oxygen are available to maintain the flow rate prescribed

Appropriate monitoring and flow rate devices including pulse oximetry must be used to achieve the target saturation prescribed

Practitioners must regularly monitor saturation levels and adjust flow rates to keep within the target saturation range

Accurate documentation of flow rates and target saturations achieved must be recorded in the patient's notes

Details on how to prescribe and administer Oxygen as per enclosed EPMA:



6. MONITORING COMPLIANCE AND EFFECTIVENESS

The Nurse in Charge or Service Lead has the overall responsibility for ensuring that medical gases and equipment checks are undertaken daily in accordance with the ELFT *Cardiopulmonary Resuscitation Policy*. This task may be delegated to another registered nurse on duty or healthcare professional. An electronic or paper log book should be kept on each unit to record the daily check and any action taken.

Clinical Staff are responsible to report any expired oxygen cylinders to pharmacy procurement and to request a replacement accordingly.

Equipment must be kept serviceable. Oxygen cylinders bear a label which includes the filling date and the expiry date. Any equipment that needs to be replaced should be done so promptly, ensuring that all necessary equipment is available at all times.

The Nurse in Charge or service lead must ensure that oxygen cylinders and equipment are rechecked following any emergency incident or use and that an adequate supply of oxygen is available at all times.

Emergency equipment including oxygen should be checked at the start of every shift or clinic session. Documentation of the checks should be kept on the unit and be available for the Resuscitation Lead and pharmacy, on request, for the purpose of annual audit.

Any incidents involving medical gases will be reviewed by the Medicines Safety Officer. Failure of flow regulators should be reported via Datix/Inphase and to the Medical devices Lead.

In addition to the daily monitoring of cylinders and equipments, there will be two annual audits:

- The Trust Resuscitation Lead is responsible for ensuring that an annual audit of resuscitation equipment is undertaken.
- The Pharmacy department will audit the storage and expiry date of medical gas cylinders during the bi-annual safe and secure handling of medicines audit.

7. REFERENCES

1. Health Technical Memorandum 02-01: Medical Gas Pipeline Systems. Part B: Operational Management: <https://www.gov.uk/government/publications/medical-gas-pipeline-systems-part-a-design-installation-validation-and-verification>
2. Medical Act 1968
3. Health and Safety at Work Act
4. Management of Health and Safety at Work Regulations 1999
5. Control of Substances Hazardous to Health Regulations 2002
6. DH Estates and Facilities Division (2006) Health Technical Memorandum 02-01 Medical Gas Pipeline systems Part A and B
7. Oxygen cylinders and their regulators – top tips on care and handling (Department of Health and MHRA) April 2008
8. National Patient Safety Agency 2009. Rapid response report RRR006/2009 Safer Use of Oxygen in Hospitals - www.nrls.npsa.nhs.uk/resources/type/alerts/
9. British Thoracic Society clinical guidelines - www.brit-thoracic.org.uk/guidelines
10. BOC medical gases safety - www.bocindustrial.co.uk

APPENDIX 1: SITES HOLDING OXYGEN GAS CYLINDERS

Oxygen cylinders are held at the following sites:

| Borough | Site Location | BOC Account Number |
|----------------|-------------------------------------|---------------------------|
| Bedford | Cauldwell Medical Centre | 3315192 |
| Bedford | Cedar House | 2538630 |
| Bedford | Fountains Court | 2278504, 2736947 |
| Luton | Leighton Road Surgery | 3090929, 3130901, 2990587 |
| Luton | Treatment Centre (ECT) | 2081030 |
| Luton | Coral Ward | 2538620, 3248967 |
| Luton | Onyx Ward | 3543123 |
| Luton | Ash ward | 3300268 |
| Luton | Jade Ward | 2998277 |
| Luton | Townsend Court | 2538647 |
| Luton | Poplar Old Persons Mental Health | 2538650 |
| Luton | Crystal Ward | 3345659 |
| Luton | Evergreen Inpatient Unit | 3570941 |
| London | John Howard Centre | 2825538 |
| London | Wolfson House | 2905260 |
| London | Newham Centre E13 8RU | 2272973 |
| London | Cherry Tree Way E13 8SP | 3556606 |
| London | East Ham Care Centre | 2624977 |
| London | Reception - Newham Trans PCT | 3375381 |
| London | Health E1 Homeless Medical Centre | 3602253 |
| London | Sickle Cell and Thalassaemia Centre | 3170986 |
| London | Transitional Team | 3366203 |

APPENDIX 2: ROLES AND RESPONSIBILITIES WITHIN THE MEDICAL GASES PIPELINE SYSTEMS (MGPS)

Chief Executive

The Chief Executive is the person with ultimate responsibility for the use of the MGPS and medical gas cylinders used within the trust. They are responsible for the allocation of resources and appointment of personnel in relation to both the MGPS and Medical Gas Cylinders. The formal responsibility for the MGPS rests with the Chief Executive, although the Authorised Person (MGPS) retains effective responsibility for day-to-day management of the MGPS.

Director of Estates and Facilities

The Director of Estates and Facilities has the delegated responsibility for the integrity of the MGPS. They will:

- Ensure, on the recommendation of the AE (Medical Gases), that the appropriate Authorised Persons are in place across the Trust,
- Monitor the implementation of the MGPS aspects of this policy,
- Ensure that any work carried out on the MGPS is carried out in accordance with HTM 02-01.
- Check the training and competency of the Authorised Persons, and approve them to for day-to-day management and maintenance of the MGPS

Authorising Engineer (AE)

Is a person with suitable qualifications and sufficient relevant experience to oversee and audit a number of medical gas systems and their associated Authorised Persons, and who can offer expert technical advice to MGPS managers and users.

The duties and responsibilities of the Authorising Engineer are:

- To recommend to the Chief Executive those persons who, through individual assessment, are suitable to be Authorised Persons (MGPS)
- To ensure that all Authorised Persons (MGPS) have satisfactorily completed an appropriate training course
- To ensure that all Authorised Persons (MGPS) are re-assessed every three years and have attended a refresher or other training course before such re-assessment
- To review the management systems of the MGPS, including the permit-to-work system
- To monitor the implementation of the operational policy and procedures

Authorised Person (MGPS)

Access to an AP with site specific knowledge must be available 24 hours, 7 days a week. This means that it may be necessary to appoint several APs, one of which is nominated as the Co-ordinating Authorised Person (MGPS). The APs assume effective responsibility for the day-to-day management and maintenance of the MGPS.

The duties and responsibilities of Authorised Persons are:

- To ensure that the MGPS is operated safely and efficiently in accordance with the statutory requirements and guidelines
- To manage the permit-to-work system, including the issue of permits to Competent Persons for all servicing, repair, alteration and extension work carried out on the existing MGPS

- To supervise the work carried out by Competent Persons and monitor the standard of that work (a register of Competent Persons must be kept)
- To ensure that the Trust MGPS maintenance specification and schedule of equipment (including all plant, manifolds, pipe work, valves, terminal units and alarm systems) are kept up to date
- To liaise closely with Designated Nursing/Medical Officers, the Quality Controller and others who need to agree all non-emergency interruption or testing of the MGPS
- To provide technical advice to those responsible for the purchase of any medical equipment which will be connected to the MGPS in order to avoid insufficient capacity and inadequate flow rates
- In accordance with the Trust policy on provision of services, provide advice on the provision and/or replacement of MGPS central plant and associated systems (the Estates department will hold overall responsibility for the provision and maintenance of MGPS services within the Trust)
- To organise such training of staff (and other staff if requested) and/or transfer of MGPS information as is needed for the efficient and safe operation of the MGPS
- Ensure all quality control documentation including instrument calibration certificates are forwarded to the Chief Pharmacist
- Responsible for coordinating and updating of all MGPS schematics as required by national and local policy or regulations
- Responsible for ensuring a system is in place to manage the labelling and key numbering of all MGPS valves
- Ensuring cylinders in external manifolds are checked during periods of heavy rainfall to ensure they are not standing in water
- In partnership with the Project Manager to identify and appoint appropriate contractors and sub-contractors in accordance with the HTM02

Competent Person (MGPS)

Is a person having sufficient technical knowledge, training and experience to carry out his/her duties in a competent manner and understand fully the dangers involved, and whose name is on the register of competent persons. The competent person may be a member of a specialist contractor's staff or estates maintained contractor. Copies of all registrations must be held by the maintenance service contractors.

All competent persons must be registered nationally with clearly defined registration criteria. The duties and responsibilities of the competent person are:

- To carry out work on the MGPS in accordance with the Trusts' maintenance specification
- To carry out repair, alteration or extension work as directed by an AP in accordance with the permit-to-work system and HTM02
- To perform engineering tests appropriate to all work carried out and inform the AP of all test results;
- To carry out all work in accordance with the Trust Health and Safety policy

Quality Controller (QC)

The Authorised Person (MGPS) and the Chief Pharmacist will identify a suitably qualified person to designate as the QC. The QC is the person designated as the controller for MGPS. They are responsible for the quality control of medical gases and must be registered as per national

requirements. The Authorised Person (MGPS) and the Chief Pharmacist will be responsible for liaising with the QC and organising attendance as required.

The duties and responsibilities of the QC are:

- To assume responsibility for the quality control of the medical gases at the terminal units (that is, the wall or pendant medical gas outlets)
- To liaise with the AP in carrying out specific quality and identity tests on the MGPS in accordance with the permit-to-work system and relevant Pharmacopoeia standards
- He/she should have received training on the verification and validation of MGPS and be familiar with the requirements of this MGPS operational policy

Chief Pharmacist (ChPh)

The Chief Pharmacist (ChPh) has the overall responsibility for the safe and secure handling of medicines with the Trust. Therefore this responsibility extends to any gases which are classed as medicinal products as specified by the Medicines Act 1968. The ChPh should be consulted regarding any issues relating to the safe and secure handling of medical gases. The ChPh may identify a suitably trained and competent pharmacist to act as the Designated Pharmacist (DPh) who may be responsible for certain elements.

The ChPh or the DPh is responsible for:

- Identifying a suitably qualified person to designate as the 'Quality Controller'
- Ensuring the Medical Gas store (where applicable) is organised and labelled in accordance with HTM 02
- Performing biannual audits of the medical gas store to ensure that all cylinders are stored correctly and signs are clearly displayed
- Leading biannual audits on wards and departments to audit stockholding against agreed stock lists
- Ensuring stock checks take place within the medical gas store twice weekly and cylinders are reordered as required as well as conducting 'stock takes'
- Assisting with conducting of annual stock takes with the representative from the medical gas cylinder supplier
- Ensuring procedures are followed in the event of medical gas product recalls
- Liaising with the Head Porter (HP) regarding any issues relating to the receipt or storage of medical gases
- Liaising with the pharmacy procurement department to ensure any extra cylinders are ordered in advance of planned works or events that may result in a change in medical gas cylinder requirements
- Organise training for the designated Medical/Nursing Officer (DMO/DNO) as required.

Designated Medical Officer (MGPS) or Designated Nursing Officer (MGPS)

The Designated Medical/Nursing Officer (DMO/DNO) is the Medical or Nursing officer authorised to liaise with the clinical and technical teams on matters of MGPS and who give permission for interruption of supply once contingency has been put in place.

The DMO or DNO have responsibility for the MGPS must be consulted to determine the likely impact and any potential risks to patients and staff in affected areas for any planned works. The DMO or DNO (as applicable) is responsible for:

- Assessing the impact and risk to patients and staff, and providing permission for any works to proceed
- Maintaining a working knowledge of the HTM and the Trust gas pipeline systems
- Advising other clinical staff and department heads, including the Senior Nurse in Charge of all designated areas, that the relevant part(s) of the MGPS will not be available for use and the potential clinical risk associated with the interruption
- Signing the Permit to Work authorising the MGPS to be taken out of use for servicing or maintenance (but see below*)
- Determining the quantity and nature of any extra gas cylinders or portable suction units that are required whilst the works are being carried out
- Informing the Authorised Person and the Chief Pharmacist or Designated Pharmacist of any extra gas cylinder requirements before the planned works
- Informing the AP of where back feed of medical gas will be a requirement and work with the AP to ensure this is working satisfactorily before commencing any supply interruption
- Liaising with the Head Porter to ensure that portering staff will be available to deliver agreed cylinders to relevant wards/departments prior to the work
- Advising other clinical staff and department heads, including the Senior Nurse in Charge of all designated areas, when work is complete and service restored
- The DMO or DNO is required to sign the relevant Permit(s) to Work (a) before works are carried out and (b) once the work has been completed and the appropriate quality checks have been performed. The DMO and DNO are responsible for ensuring that suitably trained deputies are identified to undertake the role in their absence. This function may be delegated to a Senior Nurse in Charge of designated area or Clinical Site Manager if the DMO or DNO will not be available when the works are carried out (for instance, out of hours). The DMO and DNO however, must ensure the Senior Nurse in Charge of designated area or Clinical Site Manager have been adequately briefed and is aware of any known risks

The Head Porter (or equivalent role within ELFT)

The Head Porter is responsible for:

- Ensuring that all portering staff who receive, store or transport gas cylinders are appropriately trained, and that documentation of that training is maintained
- Ensuring appropriate procedures are in place and up to date to ensure the safe and secure handling of gas cylinders by portering staff.
- Communicating to portering staff any issues relating to the receipt or storage of medical gases as highlighted by the pharmacy department and implementing any necessary actions
- Communicating to pharmacy any issues relating to medical gas cylinders noted by portering staff in day-to-day working
- Assisting the Pharmacy Department with the conducting of the biannual audits of medical gas cylinder stock holding and storage on wards/departments and in the gas store.
- The Head Porter is also responsible for ensuring that all porters:
- Store gas cylinders in accordance with HTM02

- Deliver gas cylinders safely to wards/departments as requested, including cylinders for temporary manifolds
- Receive an accuracy check by an appropriate member of the ward/department staff to ensure that the correct cylinder(s) have been received, obtain a signature as proof of this check, and return documentation to the portering department for filing
- Maintain safe keeping of the gas store key
- Conduct continuous cylinder stock rotation to ensure the cylinders bearing the earliest filling date are used first
- Assess expiry dates of all cylinders including those in emergency manifolds and any associated spare cylinders located in these areas on regular basis and inform the pharmacy department if any expired cylinders need to be returned and new cylinders ordered
- Change gas cylinders on designated emergency manifolds as required
- Ensure that the gas cylinder store is kept tidy and that all cylinders are in the correct location

Designated Porter (DP)

A Designated Porter is a Porter with particular responsibilities for medical gases at applicable sites. He/she will have undergone specialist training in the identification and safe handling and storage of medical gas cylinders, including relevant manual handling training.

The DPs within ELFT will undertake the following duties:

- Assist with the delivery of gas cylinders
- Deliver full gas cylinders from the cylinder store (as appropriate) to wards and return empty cylinders to these stores
- Transfer gas delivery notes from the delivery driver to the Pharmacy department
- Attach to and remove from cylinders any medical equipment regulators (or regulator/flowmeter combinations) and manifold tail-pipes
- Identify, and remove from service, faulty (e.g. leaking) cylinders and subsequently notify Pharmacy of the location of such cylinders
- Ensure that all cylinder contents are used within the three-year fill/refill timescale specified by the gas supplier
- Checking the ambient temperature in the gas store and escalating any reading that are outside of range to the AP

The Designated Porter (MGPS) must work safely at all times, using the appropriate personal protective and manual handling equipment, damage to which must be reported immediately to their line manager.

APPENDIX 3: MEDICAL GASES GROUP (Oxygen) Terms of Reference

CONSTITUTION

The members hereby resolve to establish a Committee which is a subgroup to the Medicines Committee to be known as the Medical Gases Group which is directly accountable to the Medicines Committee and Quality Committee.

All procedural matters in respect of conduct of meetings shall follow the Trust's Standing Orders.

MEMBERSHIP

The membership of the Committee shall comprise:

- Chief Pharmacist (Chair)
- Director of Estates and Facilities (Deputy Chair)
- Clinical Directors, (when required)
- Director of Nursing CHS, or Deputy
- Director of Nursing Older People
- Deputy Director of Physical Health and Infection Control, or Deputy
- Lead Pharmacists CHS (Newham, TH and Bedford)
- Medicines Safety Officer (when required)
- Non-Medical Prescribing Leads (CHN & MH, when required)
- EHCC Nursing Representative
- Education and Training Representative
- Fire Safety Representative
- ELFT Resuscitation Lead

QUORUM

A minimum of five group members which must include at least one Authorised Person, a representative from Pharmacy and DNO and representative from CHS are required for a quorum

ATTENDANCE REQUIREMENTS

All members of the group are expected to attend a minimum of 2/3 group meetings and where they are not able to attend they must ensure that a deputy attends in their absence.

The Committee Secretary shall be nominated by the Chairman of the Committee.

FREQUENCY OF MEETINGS

Meetings shall be held quarterly.

AUTHORITY

The Committee is authorised by the Medicines Committee to investigate any activity within its terms of reference.

DUTIES

Aim

To provide expert advice to the Trust and its partners regarding the commissioning, provision, storage and maintenance of all medical gases uses within ELFT, as well as ensuring all individuals are appropriately aware and trained for their role in medical gas compliance.

The duties of the Committee can be categorised as follows:

- To advise the Trust and its partners on all matters relating to the safe and secure use and storage of all medical gases, gas equipment and plant.
- To develop and maintain an operational policy for the Trust and its partners, for the safe use of all medical and other compressed gases, with reference to expert opinion (both within and external to the Trust) national and international standards.
- To advise the Trust and its partners on the impact of any planned projects on the provision of medical gases.
- To advise the Trust and its partners on any capital expenditure necessary to maintain or upgrade the MGPS in line with national and international standards.
- To agree and have oversight of medical gas training needs evaluation and Medical gas training programme, and ensure % uptake across ELFT
- To aid the Trust's Risk Management Group in its duty of investigating and analysing critical incidents related to medical gases (piped/cylinder) incidents and be responsible for implementing any recommendations.
- To receive and note all medical gas related risks described in ward and team medical gas risk assessments and hold a risk register;
- To ensure that the Trust has an appropriate agreement in place with external contractors for the continuous provision of medical gases.
- To have an overview of medical gas Cylinder management in the Trust;
- To receive quarterly reports from the quality controller for medical gases.
- To review the annual audit of the MGPS from the Authorising Engineer for medical gases.
- To receive reports from capital project groups relating to medical gases.

REPORTING

The minutes of the Group meetings shall be formally recorded and submitted to the Medicines Committee.

The Chair of the Committee shall draw to the attention of the Trust Board any issues that require disclosure to the Board, or require executive action.

The Committee will report to the medicines committee annually on its work.

OTHER ROUTINE REPORTS RECEIVED BY THE GROUP

Quarterly summary reports from the quality controller for medical gases.

Annual audit of the MGPS from the Authorising Engineer for medical gases.

COMMITTEE SECRETARY

The group will be supported administratively by the group Secretary, whose duties in this respect will include:

- Agreement of agenda with Chair and attendees, and collation of papers;
- Taking the minutes and action log;
- Keeping a record of attendance at meetings;
- Under the direction of the Chair, drafting the Committee's annual report.

The Trust Secretary will ensure that these terms of reference are compliant with NHSLA risk management standards, and monitor compliance with the standards.

REVIEW DATE FOR THE TERMS OF REFERENCE

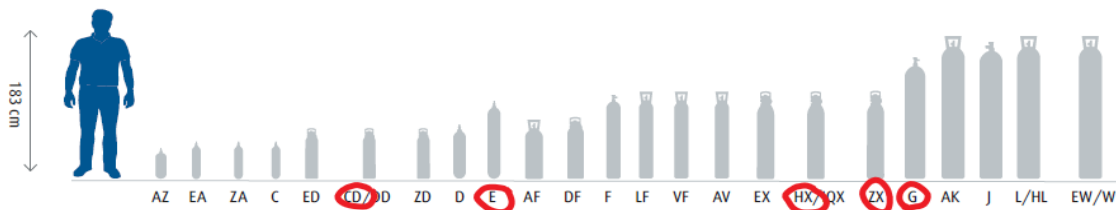
Two yearly

Approved by:

Trust 'Medicines Committee'

APPENDIX 4: CYLINDERS SIZES AND HOW TO USE THEM

Cylinder types



• How to use CD and HX cylinders (integrated regulator)

CD Size (460L)

HX Size (2300L)



- Clean hands by washing or use of alcohol gel to prevent cross infection, allow hands to dry
- Visually inspect cylinder and flow regulator for obvious damage – if damaged do not use
- Turn cylinder key slowly anti clockwise approx. 1- 1.5 turns
- Check the contents gauge
- Attach the oxygen mask and tubing
- Turn the flow regulator control knob on to the desired flow rate (12-15 litres)
- Ensure flow control knob has engaged and is not between two settings
- Fill the reservoir bag with oxygen by placing thumb or finger over safety valve at the top of the reservoir bag, then attach mask to patient
- Inform the patient to breath normally and reassure them that they are only being given oxygen

After Use:

- Turn cylinder key clockwise 1 – 1.5 turns. Do not use excessive force
- Once contents gauge has returned to '0' point flow regulator control knob to off position
- Dispose of single use oxygen mask and tubing and place a new mask in the grab bag or on cylinder.
- Once the oxygen cylinder is empty, or if it is damaged, immediately order a replacement from your supplier, usually your pharmacy.



BOC.504370-Healthcare
Medical Oxygen Instructions

- **How to use E cylinders (without integrated regulators)**

Size E (680L)

- Remove the disposable seal by pulling the tear tag and discard
- For cylinder fitted with bullnose outlet valves, remove the cap from the valve outlet by pulling forward and leaving to one side
- For cylinders fitted with pin-index valves, remove the disposable seal and outlet clip and discard
- Check for signs of oil or grease on the cylinder valve. If either is discovered do not use
- Check that the regulator or equipment to be attached to the cylinder is appropriate for the cylinder to be used
- Ensure that the regulator or equipment to be attached to the cylinder is also free of oil and grease

- Check that the 'O' ring or sealing washer is in good condition. Replace it if shows any signs of wear or damage
- Only reasonable force should be used to attach a regulator to the cylinder. Never use excessive force as this may damage the valve outlet threads.
- Open the cylinder valve slowly with a standard valve key or hand wheel. Fully open the valve and then close a quarter turn to enable subsequent users to distinguish between an open and closed valve
- Leave the spindle key in the valve so that it may be closed in an emergency
- Ensure that the equipment operating instructions are available. Cylinders should be checked regularly whilst in use to ensure that they have sufficient content and that leaks do not occur.
- Use a suitable trolley to transport large cylinders

After Use:

- Close the cylinder valve immediately, using a correctly designed cylinder valve key with moderate force only
- Vent the excess gas from the equipment regulator and connecting hoses by opening the equipment flow control valves for a few seconds
- After venting close the control valves
- Remove the equipment connectors from the cylinder using the correct tool or manually
- On cylinders with bullnose valves, the valve outlet protection is replaced to protect the valve outlet from contamination
- Close the cylinder valve
- Return all empty cylinders



BOC.409080-Healthcare Pin Index Cylinder

Leaks of gas

- Checks must be made to avoid leaks of gas while using gas cylinders. The procedure for checking is as follows:
 - Listen for hissing sound from cylinder connections
 - Close the cylinder valve and verify the leak by noting any fall in the regulator pressure gauge reading
 - Tighten connections and check for leaks again
 - If a leak is still present, do not attempt to use sealing or jointing compounds to stop the leak but notify the supplier as soon as possible to obtain advice. Do not use the cylinder.

APPENDIX 5: STORAGE REQUIREMENTS OF A MEDICAL GAS

Hospital Technical Memorandum (HTM) 02-01 sets out the requirements for a medical gas cylinder store, which should allow the cylinders to be kept dry and in a clean condition.

These requirements are summarised below:

- Be under cover, preferably inside and not subjected to extremes of heat
- Be kept dry, clean and well ventilated (both top and bottom)
- Have good access for delivery vehicles and reasonably level floor areas to enable tail lift operation
- Allow for segregation of full and empty cylinders and permit separation of different gases within the store
- Allow for strict stock rotation of full cylinders to enable the cylinders with the oldest filling date to be used first
- Be totally separate from any non medical cylinder storage area
- Be sited away from storage areas containing highly flammable liquids and other combustible materials
- Be sited away from any sources of heat or ignition
- Allow for F, HX, G and J size cylinders to be stored vertically on concrete floored pens
- Allow for C, CD, D and E size cylinders to be stored horizontally on shelves (made of a material that will not damage the surface of the cylinders)
- Have appropriate signage to provide information, not only to local staff and public but also to provide information to emergency services e.g. fire brigade at any time.

APPENDIX 6:

OXYGEN CYLINDERS - ORDERING and RETURNING FORM

| Staff Ordering | |
|--------------------|---|
| Name: | Surname: |
| Site | Borough |
| | <input type="checkbox"/> Luton <input type="checkbox"/> Bedford <input type="checkbox"/> London |
| Site Budget Code | |
| | |
| BOC Account Number | |
| | |

| | CD Cylinder (small size) | HX Cylinder (large size) | Life Line Pack (Small CD Cylinder + mask in a bag) |
|------------------------|-----------------------------|-----------------------------|---|
| Quantity to be ordered | | | |

Cylinders that need to be returned to BOC

| | CD Cylinder | HX Cylinder |
|-------------------------|-------------|-------------|
| Quantity to be returned | | |

Please email completed form to elft.pharmacyprocurement@nhs.net

Please ensure all oxygen cylinders that need to be returned to BOC are in the oxygen storeroom and clearly labelled for BOC to be able to identify & collect

APPENDIX 7: Full Oxygen Cylinder Run Times

| Cylinder s | Nominal content litres | Usage per hour @ 2 l/min | Usage per day @ 2 l/min | cylinders per patient per day @ | Usage per hour @ 5 l/min | Usage per day @ 5 l/min | cylinders per patient per day@ 5 | Usage per hour @ 10 l/min | Usage per day @ 10 l/min | cylinders per patient per day @ | Usage per hour @ 15 l/min | Usage per day @ 15 l/min | cylinders per patient per day @ | Usage per day @ 20 l/min | Usage per day @ 20 l/min | Usage per day @ 20 l/min | Usage per hour @ 25 l/min | Usage per hour @ 25 l/min | cylinders per patient per day @ |
|------------|------------------------|--------------------------|-------------------------|---------------------------------|--------------------------|-------------------------|----------------------------------|---------------------------|--------------------------|---------------------------------|---------------------------|--------------------------|---------------------------------|--------------------------|--------------------------|--------------------------|---------------------------|---------------------------|---------------------------------|
| ZA | 300 | 120 | 2880 | 10.42 | 300 | 7200 | 24.00 | 600 | 14400 | 48.00 | 900 | 21600 | 72.00 | 1200 | 28800 | 96.00 | 1500 | 36000 | 120.00 |
| AZ | 170 | 120 | 2880 | 16.94 | 300 | 7200 | 42.35 | 600 | 14400 | 84.71 | 900 | 21600 | 127.06 | 1200 | 28800 | 169.41 | 1500 | 36000 | 211.76 |
| CD | 460 | 120 | 2880 | 6.26 | 300 | 7200 | 15.65 | 600 | 14400 | 31.30 | 900 | 21600 | 46.96 | 1200 | 28800 | 62.61 | 1500 | 36000 | 78.26 |
| D | 340 | 120 | 2880 | 8.47 | 300 | 7200 | 21.18 | 600 | 14400 | 42.35 | 900 | 21600 | 63.53 | 1200 | 28800 | 84.71 | 1500 | 36000 | 105.88 |
| ZD | 600 | 120 | 2880 | 4.80 | 300 | 7200 | 12.00 | 600 | 14400 | 24.00 | 900 | 21600 | 36.00 | 1200 | 28800 | 48.00 | 1500 | 36000 | 60.00 |
| E | 680 | 120 | 2880 | 4.24 | 300 | 7200 | 10.59 | 600 | 14400 | 21.18 | 900 | 21600 | 31.76 | 1200 | 28800 | 42.35 | 1500 | 36000 | 52.94 |
| F | 1360 | 120 | 2880 | 2.12 | 300 | 7200 | 5.29 | 600 | 14400 | 10.59 | 900 | 21600 | 15.88 | 1200 | 28800 | 21.18 | 1500 | 36000 | 26.47 |
| IQX | 2000 | 120 | 2880 | 1.44 | 300 | 7200 | 3.60 | 600 | 14400 | 7.20 | 900 | 21600 | 10.80 | 1200 | 28800 | 14.40 | 1500 | 36000 | 18.00 |
| HX | 2300 | 120 | 2880 | 1.25 | 300 | 7200 | 3.13 | 600 | 14400 | 6.26 | 900 | 21600 | 9.39 | 1200 | 28800 | 12.52 | 1500 | 36000 | 15.65 |
| ZX | 3040 | 120 | 2880 | 0.95 | 300 | 7200 | 2.37 | 600 | 14400 | 4.74 | 900 | 21600 | 7.11 | 1200 | 28800 | 9.47 | 1500 | 36000 | 11.84 |
| G | 3400 | 120 | 2880 | 0.85 | 300 | 7200 | 2.12 | 600 | 14400 | 4.24 | 900 | 21600 | 6.35 | 1200 | 28800 | 8.47 | 1500 | 36000 | 10.59 |
| J | 6800 | 120 | 2880 | 0.42 | 300 | 7200 | 1.06 | 600 | 14400 | 2.12 | 900 | 21600 | 3.18 | 1200 | 28800 | 4.24 | 1500 | 36000 | 5.29 |
| W | 11300 | 120 | 2880 | 0.25 | 300 | 7200 | 0.64 | 600 | 14400 | 1.27 | 900 | 21600 | 1.91 | 1200 | 28800 | 2.55 | 1500 | 36000 | 3.19 |