Medical Gases Policy

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Author/s:	Head of Quality Risk & Governance, Pharmacy Lead Health & Safety Adviser, Health & Safety Assurance Manager, Estates & Facilities		
Policy Owner/s:	NHS Lothian Medical Gas Committee and Pharmacy Leadership Team		
Executive Lead:	Director of Pharmacy & Medicines		
Target Audience:	All NHS Lothian staff and staff (agency staff, students supervised in practice) working in NHS premises where medical gas pipelines are operational and cylinders are stored, handled and used.		
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Apr 2026	Head of Quality Risk & Governance, Pharmacy Lead Health & Safety Adviser, H&S Assurance Manager, Estates & Facilities	v0.1-2	Draft new policy under development
July 2026	Head of Quality Risk & Governance, Pharmacy Lead Health & Safety Adviser, H&S Assurance Manager, Estates & Facilities	V1.0	Approved by the Policy Approval Group

Executive Summary

Medical gases are medicinal products under the provision of the Medicines Act 1968/Human Medicines Regulations 2012 and are afforded the same degree of control as other medicinal products regarding the authorisation to prescribe, order and administer.

This policy has been prepared to direct users on the safe management and use of medical gas pipeline systems and cylinders within NHS Lothian premises including facilities used by NHS Lothian staff or under Private Finance Initiative (PFI) arrangements.

Implementation of this policy and associated procedures establishes a framework for control of medical gases from both pipeline supplies and individual local-use cylinders, and encompasses related issues. This document will be reviewed 3 yearly or earlier if there is any significant change to standards or legislation involving medical gas pipeline systems and cylinders or personnel involved with the management of these systems.

This policy will help NHS Lothian to reinforce its commitment to the health, safety, and welfare of its employees and stakeholders and ensure measures are in place to comply with current legislation and guidance. Implementation of site and service specific operating procedures will define how effective management of medical gas pipeline systems and cylinders will be achieved.

The policy outlines how the provision of adequate information, instruction and training of employees who work on or with medical gas pipeline systems or cylinders, or manage/supervise those who do, relevant to their level of responsibility will be provided.

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Contents

1.0 Purpose

This policy document and associated site operational procedures must be made available to personnel in all departments within NHS Lothian that regularly use medical gases whether in pipelines or in cylinders. The overall aim is to exercise control over the safety, delivery, storage, handling and use of medical gases for the following reasons:

- To ensure that adequate supplies of medical gases are available at all times
- To ensure proper handling and safety for staff, students (under supervision), patients and others in any clinical setting
- To maintain the quality of medical gases
- To ensure proper storage and the efficient rotation of stock of medical gas cylinders
- To ensure that the correct cylinders are received, used and are traceable
- To minimise the costs to NHS Lothian by decommissioning underutilised systems, reducing unnecessary use and controlling the number of cylinders in circulation
- To ensure appropriate information, instruction and training of staff (and patients, where required)
- To ensure cylinders are held securely to minimise the risk of theft/diversion.

The aims of the policy document will be achieved by implementing the requirements of the document.

2.0 Policy statement

Medical gases are medicinal products under the provision of the Medicines Act 1968/Human Medicines Regulations 2012 and are afforded the same degree of control as other medicinal products regarding the authorisation to prescribe, order and administer.

All medical gases used in NHS Lothian will be procured from suitably licensed suppliers on frameworks approved through NHS Scotland National Procurement.

NHS Lothian has a duty to ensure the safe use of medical gases used in patient care. Medical gases may be delivered to patient areas via a pipeline system or contained under pressure in purpose designed cylinders to enable gases to be conveniently stored, transported and used in small quantities in any desired location.

This policy provides a statement of how NHS Lothian intends its managers and staff to manage the safe operation of medical gas pipeline systems (MGPS) and cylinders within its properties and consequently discharge its duties in law as far as is reasonably practicable.

Implementation of this policy and associated site and service operational procedures establishes a framework for control of medical gases and encompasses all related issues. NHS Lothian recognises its responsibility to implement in full, the safe management of the MGPS in accordance with the statutory requirements and guidelines listed in this policy. NHS Lothian accepts that safe management of the

MGPS requires a high level of commitment, professional competence and adequate resources.

NHS Lothian recognises that it is essential for key personnel to be appointed to key roles and to receive appropriate training relevant to their particular roles and activities. NHS Lothian management recognises its commitment to maintaining the MGPS to the required standards and the safe operations of medical gas cylinders through the training of all relevant personnel.

3.0 Scope

This policy covers all NHS Lothian owned, leased or occupied premises, including facilities used under PFI or other arrangements and operated by NHS Lothian or external staff.

The prime objective is to create a safe working environment that ensures that all medical gases, whether in pipeline systems or cylinders, used in NHS Lothian premises are maintained, serviced and handled correctly, in accordance with standards and practice defined in references listed in sections 6 and 7 of this policy.

The policy relates only to the acquisition, storage, transport and handling of medical gases up to the point of use. It does NOT relate to the administration of any medical gas, whether from a pipeline or cylinder to patients which are clinical interventions covered by separate policy documents. (Safe Use of Medicines Policy).

4.0 Definitions

For the purposes of this policy, the following definitions apply:

- **Flowmeter** – equipment that is plugged into a piped medical gas system to allow the medical gas to be delivered to the patient at a defined flow rate.

- **Permit To Work (PTW)** - Safety rules and procedures for an MGPS are necessary to ensure that the integrity and performance of the system are maintained. The purpose of the permit issued under this permit-to-work system is to safeguard the integrity of the MGPS and hence, patient safety.

- **Medical Gas Committee** – committee drawn from pharmacy, nursing, medical, logistics, Estates, Medical Physics with the responsibility for overseeing policy and procedures in relation to medical gases. The committee Terms of Reference (Appendix 1) describe the committee operation.

- **Medical gas cylinders** – a cylinder is a portable container for storage of pressurised gas. “Cylinders manufactured, colour coded and labelled in accordance with relevant standards for the containment of medical gases”

- **Medical gas cylinder valves** – “Cylinder valves conforming to BS EN ISO 407:2021”

- **Medical gases** – may be defined as those gases which are inhaled by patients as directed by a medical practitioner. At the present time medical gases are mainly

(but not exclusively) used in the treatment of respiratory disorders and for producing a state of anaesthesia, analgesia or sedation.

- **Medical Gas Pipeline Systems (MGPS)** – means by which medical gases are distributed from a central source of supply of the gas (e.g. Vacuum Insulated Evaporator [VIE], manifold, compressor, pump) to multiple areas via a network of pipes to clinical areas, where a flowmeter or other similar piece of equipment can be plugged in to a terminal unit to connect to the patient and supply the required gas.

- **Regulator and flowmeter** – equipment attached to a medical gas cylinder that will allow the pressure to be reduced and gas to be delivered to a patient at a specific flow rate. These may be integral to the cylinder or be attached via a specific pin index system (for small cylinders generally) or threaded headset for larger cylinders.

- **Scottish Health Technical Memorandum (SHTM) 02-01 Medical Gas Pipeline Systems** – documented comprehensive advice and guidance on the design, installation and operation of specialised building and engineering technology used in the delivery of healthcare.

5.0 Implementation roles and responsibilities

In order to maintain the four fundamental tenets (identity, adequacy, continuity and quality of supply) associated with a safe and reliable piped MGPS system, a management regime is required to ensure that the systems are operated correctly and for maintaining the integrity of the systems during any repair or modification works. This requires the involvement of a number of key personnel in differing roles with each having specific defined responsibilities. The procurement of medical gas cylinders for patient treatment lies with NHS Lothian pharmacy services. The operational management involves a number of personnel in differing roles with each having specific defined responsibilities.

5.1 Staff responsibilities

5.1.1 NHS Lothian Chief Executive

The Chief Executive has overall responsibility for the management of the use, storage and transportation of medical gases whether piped or in cylinders within NHS Lothian sites and for:

- Ensuring there is a written policy in place which is regularly updated
- Ensuring adequate allocation of resources and the formal appointment of personnel involved in the use, installation, and maintenance of medical gas systems/equipment
- Ensuring the effective implementation of this policy and operational procedures by Directors/Staff

- Ensuring that all employees are fully aware of their responsibilities under the policy and that these responsibilities are fulfilled

The Chief Executive has delegated the responsibility and day to day management for ensuring the satisfactory undertaking of the above to the NHS Lothian Heads of Estates, Logistics, Medical Physics, Nursing and Pharmacy Services.

5.1.2 Director of Pharmacy

The governance for medical gases is the responsibility of the Director of Pharmacy. The unique nature of medicinal gases and their delivery/dispensing systems gives the Director of Pharmacy additional responsibilities to those already in place for other medicinal products.

- The Director of Pharmacy (DoP) will take a lead role within the Medical Gas Committee, either directly or via appropriate delegation to a member of pharmacy with sufficient authority and knowledge to act. The responsibilities of the Medical Gas Committee will be defined within its Terms of Reference which will be reviewed on a regular basis.
- Establish links with other Healthcare professionals handling/using/maintaining and qualifying medical gases especially Estates.
- Ensure continuity of supply through the implementation of 'good housekeeping' arrangements.
- Ensure the pharmacy team has appropriate skills and knowledge and understands their responsibilities including safe and appropriate use of medical gases.
- Ensure that there are written policies and procedures in place for the management and safe operation of all aspects of medical gas supply and administration.

5.1.3 NHS Lothian Assurance Team

The assurance team within NHS Lothian Estates is responsible for providing independent oversight of medical gases whether piped or in cylinders within NHS Lothian sites, ensuring they are safe, compliant, and effectively governed in line with SHTM 02-01. This includes:

- confirming that appropriate governance arrangements, policies, and procedures are in place.
- that key roles such as, but not limited to, Authorised and Competent Persons are formally appointed.
- ensure that accurate, up-to-date documentation and maintenance records are held and accessible to demonstrate compliance and support safe system operation.

The role involves the collation, analysis, and reporting of assurance information to provide clear, evidence-based updates to senior leadership and/or governance groups/committees. This includes:

- monitoring compliance, reviewing audit outcomes, and ensuring that risks relating to medical gas systems are appropriately identified, recorded, and effectively mitigated.

- provides appropriate challenge to ensure that any gaps in compliance are addressed and that agreed actions are implemented and completed.

In addition, the assurance team oversees audit processes, contractor assurance, and incident management to ensure that medical gas systems are maintained and managed safely by suitably qualified personnel. This includes:

- ensuring that incidents are properly reported, investigated, and that learning is embedded into practice.
- Where full assurance cannot be demonstrated, the assurance team is responsible for escalating concerns and supporting sites to take timely and effective corrective action.

5.1.4 Authorising Engineer (AE) (MGPS)

A person with suitable qualifications (e.g. chartered engineer or incorporated engineer) 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 AE working within the NHS will be named on a register maintained by the Institute of Healthcare Engineering & Estates Management (IHEEM) (ref). The specific duties and responsibilities of the Authorising Engineer for NHS Lothian are:

- To assess candidates for the AP (MGPS) and Coordinating Authorised Person (CAP) (MGPS) roles as proposed by the relevant NHS Lothian manager and make recommendation for their appointment to the relevant Designated Person/Executive Manager
- Undertake an annual audit of the management of the MGPS systems and subsequently produce a written audit report documenting any issues and making recommendations
- To monitor the implementation of operational policy and procedures document
- Provide technical, design, operational and contractual advice on matters relating to the MGPS systems where required

5.1.5 Authorised Persons (AP) (MGPS)

The key role in the maintenance and management of a piped MGPS is that of Authorised Person (MGPS). The AP (MGPS) has the delegated responsibility for ensuring that the MGPS are operated and maintained safely and efficiently on a day-to-day basis. The AP (MGPS) is responsible for managing an MGPS being taken into or out of use once permission is provided by the Clinical Lead, in this case the appointed Designated Clinical Officer (DCO).

The AP (MGPS) role is site-specific. Authorised Person(s) are required for NHSL and will be based in their allocated site. The duties and responsibilities of Authorised Persons are to:

- Ensure that the medical gas is operated safely and efficiently in accordance with SHTM 02-01 Parts A&B and all other statutory requirements and guidelines.

- Manage the permit-to-work system, including the issue of permits to Competent Persons for all maintenance, repair, alteration and extension work carried out on the existing MGPS.
- Assess the training requirements and competency of in-house Competent Persons (MGPS), and subsequently appoint these CPs to their roles; maintain a register of all CPs appointed to the site
- Ensure that all external contractors undertaking maintenance or other works on the MGPS are qualified in accordance with the requirements of SHTM 02-01 Parts A&B, are registered to BS EN ISO 9001 or 13485 with the scope of registration defined as design, installation, commissioning and maintenance of MGPS as appropriate, and have assessed their CPs undertaking these works on site as suitably trained and competent to do so.
- Ensure that the maintenance specification and schedule of equipment (including all plant, manifolds, pipework, valves, terminal units and alarm systems) are kept up to date.
- Liaise closely with Designated Clinical Officers, the Quality Controller and all other disciplines involved in the operational usage of the MGPS, including with regards to the purchase of any medical equipment which will be connected to the MGPS.
- Provide all necessary assistance to the Competent Person (Pressure Systems) for the purpose of facilitating statutory inspections on relevant parts of the MGPS.
- Manage, maintain and update all relevant/record information relating to the MGPS including Operation & Maintenance information and as-installed drawings upon alteration to the installed plant, pipework installation or associated ancillary equipment.
- Provide advice on the provision and/or replacement of MGPS central plant and associated systems e.g. medical gas cylinder stores, in accordance with the NHSL policy on provision of services, (the Estates department will hold overall responsibility for the provision and maintenance of MGPS services within the NHS Lothian.
- Organise such training of estates staff (and other staff if requested) and/or transfer of MGPS information as is needed for the efficient and safe operation.

The Authorised Persons (MGPS) for individual Hospital sites will be formally appointed and named in the Site Operational Procedure Manual.

5.1.6 Coordinating Authorised Person (CAP) (MGPS)

Where multiple APs (MGPS) are appointed on a site, it may be appropriate to appoint a Coordinating Authorised Person (MGPS). The CAP (MGPS) shall, in addition to typical AP (MGPS) duties as detailed above, undertake the following duties:

- Be the primary the point of contact for MGPS issues including receiving / issuing communications from/to the AE MGPS and for disseminating information to the other Authorised Persons (MGPS) for the site
- Be responsible for managing the Permit to Work system and for coordinating the other APs (MGPS) on that site

The CAP shall be assessed and recommended for the role by the AE (MGPS) and appointed by the relevant Designated Person/Executive Manager.

5.1.7 Competent Person (CP) (MGPS)

Competent Persons (CP) (MGPS) shall typically fall under two categories; those employed directly by NHS Lothian (identified as in-house or internal CPs), and those employed by external specialist contractors (identified as external CPs).

Internal CPs (MGPS) shall be provided with suitable training, and then individually assessed for competence and appointed for specific duties to the site by the AP (MGPS)

External CPs (MGPS) shall be similarly trained and assessed for competency by the specialist external contractor employing them, and suitable documentary evidence provided by the contractor to the AP's satisfaction prior to any work being undertaken.

The duties and responsibilities of Competent Persons are to:

- Carry out work on in accordance with the maintenance specification.
- Carry out repair, alteration or extension work as directed by an Authorised Person in accordance with the permit-to-work system and Scottish Health Technical Memorandum 02-01.
- Perform engineering tests appropriate to all work carried out and inform the Authorised Person (MGPS) of all test results.
- Carry out all work in accordance with the NHS Lothian Health & Safety policy.

5.1.8 Quality Controller (QC)

The person designated as the quality controller for MGPS is responsible for the quality control of the medical gases at terminal units and manufacturing systems such as medical air compressors. It is the responsibility of the Chief Executive to appoint, in writing, on the recommendation of the Director of Pharmacy a QC MGPS. The QC MGPS is named on a register, after completing appropriate training, maintained by the NHS Medical Gas Subgroup on behalf of the NHS Pharmaceutical Quality Assurance Committee.

The Authorised Person will be responsible for liaising with the Quality Controller and organising attendance as required.

The duties and responsibilities of the Quality Controller are to:

- Assume responsibility for the quality control of the medical gases at the terminal units (that is, the wall or pendant medical gas terminal units).
- Liaise with the Authorised Person in carrying out specific quality and identity tests in accordance with the permit-to-work system and relevant Pharmacopoeial standards.
- Organise training of pharmacy staff who may deputise for the Quality Controller.
- Undertake appropriate training on the verification and validation of MGPS and be familiar with the requirements of this operational policy.

5.1.9 Designated Clinical Officer (DCO)

The Authorised Person (MGPS) is required to consult with an individual within each ward/department on matters affecting the MGPS within that ward/department. SHTM 02-01 describes this person as the Designated Clinical Officer. The DCO should understand and be trained to carry out the role.

The duties and responsibilities of the Designated Clinical Officer are to:

- Participate in/operate the MGPS Permit-to-Work procedure and would give permission for a planned interruption to the supply.
- Ensure that no patients within the ward / department under their control are connected to or dependent upon the MGPS prior to giving the Authorised Person (MGPS) permission to interrupt the supply.
- Ensure that all relevant medical and nursing staff are aware of the interruption to the MGPS and for informing them of which MGPS terminal units cannot be used.
- Isolate MGPS supplies via the relevant Area Valve Service Units (AVSUs) in the event of an emergency in accordance with the site Emergency Operating Procedures.

The provision of emergency cylinders and action to take in the event of an emergency falls within this remit and all Designated Clinical Officers should be formally appointed in accordance with local site procedures and receive training on the MGPS relevant to their ward / department.

5.1.10 Designated Staff (Nursing/Medicine/Midwifery/Dental/Community)

Designated Staff (Team leader/Charge Nurse/Ward or Duty Manager or equivalent in e.g. Midwifery/Medicine/Dental/Community) who, for the purposes of this policy, will assume responsibility for the safe and secure storage, handling and use of medical gases in their area of control. This includes ensuring the availability and maintenance of the necessary equipment for administration of medical gases to patients, and storage of medical gas cylinders, including medical gas cylinder trolleys.

Designated staff are responsible for agreeing cylinder stock levels with NHS Lothian Pharmacy Services.

Designated Staff are responsible for liaising with Medical Physics and/or Estates for equipment to be plugged into the MGPS or where there are changes in practice that will have a significant effect on the MGPS (e.g. CPAP)

Designated Staff are responsible for ensuring effective and efficient stock control of any medical gas cylinders held, in addition to ensuring that:

- Staff are trained and competent in the use and preparation of medical gas pipelines and cylinders and these staff are readily available whatever time of day they may be required.
- Sufficient equipment (e.g. trolleys, flowmeters, regulators etc) is clean and available for immediate use on medical gas pipelines and cylinders.
- Operating procedures for medical gas pipeline and cylinders are adhered to.

- Pipeline and cylinders/administration equipment in wards/departments are cleaned and maintained ready for use and the contents checked (in accordance with approved NHS Lothian checklists) and recorded at least weekly by designated staff.
- Keys are available to open medical gas cylinders, as required. (Keys are available to purchase through PECOS)
- Changing cylinders regulators and ensuring appropriate checks are carried out for equipment required to be used from an emergency (trolley).

5.1.11 Designated Staff (Logistics [Portering] Services)

Designated staff with specific responsibilities for medical gases will have undergone specialist training in the identification and safe handling and storage of medical gas cylinders, including relevant manual handling training.

5.1.12 Site Logistics Managers

Site Logistics Managers are responsible for ensuring that:

- Logistics staff inform the pharmacy ordering staff when supplies of medical gas cylinders require to be re-ordered, with reference to a minimum stock list issued by the Pharmacy.
- Cylinder management procedures are complied with and that pharmacy is informed in the event of defective/faulty cylinders being identified
- The safety, and security of cylinder storage areas and associated transportation equipment. Cylinders stored centrally are properly stored and when required transported to and from departments.
- Logistics staff are appropriately trained in the storage, handling and preparation of medical gas cylinders for use as appropriate and procedures are complied with.
    - assist with the delivery of gas cylinders by BOC.
    - deliver full gas cylinders from the cylinder stores to relevant areas and return empty cylinders to these stores.
    - transfer gas delivery notes from the delivery driver to the pharmacy.
    - ensure that all cylinder contents are used within the three-year fill/refill timescale specified by the gas supplier.
- Continuous supply from the oxygen, nitrous oxide, medical air and Entonox® manifolds, where installed. Ensuring that there are adequate numbers of cylinders held in reserve to replace banks of empty cylinders.
- Medical gas cylinder security within central stores and sub-stores, particularly to minimise the risk of theft of those gases considered for use recreationally e.g. nitrous oxide.
- Cylinders are exchanged on a full for empty basis and in accordance with the ward / clinic/department stock list, except where cylinders are required for emergency use.
- There is documentation that all cylinders, on all manifolds and all back-up cylinders are changed when required and routinely on an annual basis to ensure they remain

in date, except where Estates Services have agreed to carry this out for medical air compressor back-up manifolds. This includes:

  - the back-up cylinders for the air compressors
  - the back-up nitrous oxide and Entonox® manifolds, where installed

- Leak checks are carried out on manifolds when cylinders are replaced and that records of cylinder changes are maintained in a logbook.

Logistics staff must work safely at all times, using the appropriate personal protective and manual handling equipment, damage to which must be reported immediately.

5.1.13 Designated Porters (MGPS)

Designated Porters (MGPS) within NHSL premises will undertake the following duties in relation to cylinder management:

- Assist with the delivery of gas cylinders by BOC (current gas supplier).
- Deliver full gas cylinders from the cylinder stores to relevant areas in accordance with site procedures and return empty cylinders to these stores.
- Transfer gas delivery notes from the delivery driver to the pharmacy.
- Attach to and remove from cylinders, medical equipment regulators (or regulator/flowmeter combinations) and manifold tailpipes, as required.
- Identify, and remove from service, faulty (e.g. leaking) cylinders and subsequently notify pharmacy of the location of such cylinders.
- Perform a weekly check on cylinder stock levels and report any deficiencies.
- Ensure that all cylinder contents are used within the three-year fill/refill timescale specified by the gas supplier.
- Are responsible for ensuring that cylinders are exchanged on a full for empty basis and in accordance with the ward/clinic/department stock list, except where cylinders are required for emergency use.

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

Where there is no Designated Porter available, e.g. within community health premises, an appropriate professional person is identified as having responsibility for the moving, handling and storage of medical gas cylinders. The responsibilities are documented.

5.2 Service responsibilities

5.2.1 Pharmacy

The Head of Pharmacy Medicines Supply has delegated responsibility for the procurement and supply of medical gas cylinders, as these are considered medicines under the provisions of the Medicines Act 1968/Human Medicines Regulations 2012.

NHS Lothian Pharmacy Services will have procedures in place for ordering liquid oxygen and for medical gas cylinders from the approved NHS suppliers. Pharmacy Services will ensure that there are adequate supplies of medical gases in accordance with agreed stock levels for medical gas cylinders. Liquid oxygen supplies are monitored remotely/automatically by the supplier (currently Air Products) and they are responsible for organising refills when set volumes in tanks are reached (50% registered at tank).

5.2.2 Estates Services

Estates Services are responsible for the maintenance of all manifolds, including the back-up manifolds for the medical air compressors. This includes planned preventative maintenance to include both testing the gas supply, i.e. cylinder contents, and the switching mechanism.

Responsible for suitability and fitness for purpose of central and sub-store areas. This includes ensuring that there are adequate amounts of racking for full and empty cylinders held and that signage for the storage areas is appropriate and in accordance with fire regulations.

5.2.3 Medical Physics

Medical Physics or Estates Services (depending on local arrangements) ensure equipment (regulators and flowmeters) are serviced at prescribed intervals by competent engineers

Medical Physics or Estates Services (depending on local arrangements) are responsible for the issue of flowmeters/other equipment installed into the MGPS and all standard medical regulators for fitting to medical gas cylinders on a service exchange basis.

Medical Physics maintains an asset register of all regulators and flowmeters in NHS Lothian.

5.2.4 Laboratories and other departments

Laboratories and other departments that use special and industrial gases, which are not classified as medicines, are responsible for ordering their own supplies of gas cylinders. These cylinders may be stored in the main cylinder store segregated from medical gas cylinders and distributed by Logistics staff. Specific site operational arrangements should be agreed with Logistics staff.

5.2.5 Community Health/General Practice Services/Transportation Services

Within community services the individual healthcare disciplines e.g. podiatry, midwifery, family planning, Southeast Scotland Breast Screening Service or others, are responsible for the safe handling, storage, transportation and use of medical gases within and outwith e.g. patient transportation services, their designated area. Compliance with the policy for medical gases applies equally in the community setting.

5.2.6 Dental Services

Medical gas cylinders are ordered by the senior dental nurse direct from the current approved medical gas cylinder supplier. Deliveries are made to the dental departments and distributed to surgeries/stores by dental nursing staff.

Senior dental nurses are responsible for:

- the maintenance, cleanliness, safety and security of cylinders, storage areas and associated transportation equipment
- ensuring continuous supply and changing cylinders as required
- staff training in the preparation of cylinders for use.

Edinburgh Dental Institute order medical gas cylinders through the Pharmacy Department at the Royal Infirmary of Edinburgh. The Dental nurse in charge is responsible for ordering, safe storage and use of medical gas cylinders.

5.2.7 Diagnostic/Radiology Services

Medical gas cylinders are ordered by pharmacy staff at the request of staff in Diagnostic/Radiology services for specialist uses e.g. in MRI facilities, from the current approved medical gas cylinder supplier. Deliveries are made to the main cylinder store and distributed to units by portering staff on each site.

Senior staff are responsible for:

- ensuring and checking the correct cylinders are received, and that these are appropriate for the area in which they may be used
- ensuring that the cylinders are labelled (MR conditional to 1.5/3T), as appropriate
- the maintenance, cleanliness, safety and security of cylinders, storage areas and associated transportation equipment
- ensuring continuous supply and changing cylinders as required
- staff training in the preparation of cylinders for use.

5.3 Medical Gas Committee (MGC)

The NHS Lothian Medical Gas Committee is established as an organisation wide committee to oversee the general operation and management of medical gases and the respective operational procedures for MGPS and cylinders. The MGC shall operate in accordance with the agreed Terms of Reference.

The Medical Gas Committee should include:

- Director of Pharmacy or senior deputy with appropriate knowledge and decision-making authority
- Authorised Persons (MGPS) (Area/Sector Leads)
- Authorising Engineer (MGPS, Co-ordinating)
- Head/Director of Estates or senior deputy
- Estates Assurance

- Other relevant Pharmacy Manager e.g. Procurement
- QC (MGPS)
- Corporate Health and Safety
- Medical Physics
- Facilities/Portering
- Clinical representation including Senior Nursing Staff/Anaesthetists/Clinicians/ HSCPs
- Primary medical gas supplier representative (where appropriate)
- Staff-side Representative (where appropriate)
- Others may be co-opted as required for specific areas of work

Committee members should have the appropriate knowledge and skills and have the authority to act. In addition, membership should include those involved in planning and directing clinical pathways during periods of increased oxygen demand and usage, where appropriate.

5.4 The MGPS Permit-to-Work system

The purpose of the MGPS Permit-to-Work system is to safeguard the integrity of the piped medical gas system and, therefore, the safety of the patients.

It is the policy of NHS Lothian that any and all work undertaken on the MGPS shall only be carried out under the appropriate Permit to Work as per the guidance in SHTM 02-01 Part B Section 6, save for the specific exceptions noted in paras 6.19 – 6.23.

All Permits to Work shall be prepared by the AP (MGPS) in coordination with the relevant CPs (MGPS), DCO and QC as required by the nature of the works and Hazard level, and with any other necessary relevant disciplines consulted to ensure safe isolation and reinstatement of supplies. The AE (MGPS) may call upon to prepare Permits to Work in certain circumstances e.g. in the absence of the site AP (MGPS).

It is policy that only one Permit book of each type (High Hazard / Low Hazard / Bacterial Filter Change) be in use at any one time for each site and completed Permit books be clearly identified as “completed” and retained in archive for the lifespan of the MGPS.

5.5 Emergency Procedures

All sites will have specific documented procedures relating to emergency situations involving medical gases provided either from a pipeline system or from cylinders.

These will identify key staff and their role/responsibilities:

- Designated Clinical Officers
- Designated staff
- Portering/Logistics
- Authorised Person (Estates)

- Medical Physics
- Pharmacy
- Fire Officer
- Patient Transportation services

5.6 Training and Education

NHS Lothian has a legal duty as an employer to ensure that staff who use medical gases are trained and assessed in the safe use of the MGPS and the transportation/ handling/use of medical gas cylinders, where appropriate. It is essential for the safety of staff/students/patients that no person should operate, or work on, any part of an MGPS or use a medical gas cylinder unless trained or supervised.

For relevant sites, Designated staff/Team leaders, delegated senior pharmacy professional, the Site Logistics Manager, the Estates Manager, the Senior Anaesthetics Technician, and the relevant laboratory manager (or staff filling equivalent roles or positions in e.g. doctors [where relevant], midwifery, radiography, physiotherapy) must ensure that all staff in their area of responsibility are adequately trained regarding medical gases, both in routine use and in emergency situations.

Training will be in accordance with the requirements in SHTM 02-01 for key personnel. A record of those trained is kept on TURAS.

The Chief Executive will delegate the maintenance of record keeping of all Authorised Persons (MGPS) appointed for the NHSL to the Head of Estates including date of commencement of appointment, scope and when refresher training and re-appointment is required.

The Authorised Person (MGPS) will maintain a record of all Competent Persons (MGPS) employed directly by the Estates Department and through continued liaison with all relevant wards and departments will maintain the list of the Designated Clinical Officers for these areas.

Competent Persons (MGPS) employed by a specialist contractor, will have a record of their appointment and training maintained by the contractor, which will be made available to the Authorised Person (MGPS) upon request.

The Authorised Person (MGPS) may request training records of contractors' staff.

All MGPS training received by staff will be recorded in the individual's training file. Prior to being considered for appointment as an Authorised Person (MGPS) and Competent Person (MGPS), all persons must have satisfactorily completed an appropriate training course. The assessment will then focus on the persons knowledge of the content of SHTM 02-01 and of their familiarity with the MGPS installed at the relevant NHSL Site.

Designated Clinical Officer (DCO) – should be formally appointed and receive training every three years covering role duties specifically in relation to the permit to work system.

Quality Controller (MGPS) – QC MGPS are required to attend a suitable refresher course every five years and pass an assessment to remain on the register. The Director of pharmacy will advise the Chief Executive of appointees every five years and carry out all

necessary checks of suitability to act as QC MGPS. This will be based on advice from the Head of Pharmacy QRGS.

Training on MGPS will be provided as follows:

Member of Staff	**Responsible Manager**	**Frequency of Training**
Portering Staff	General Services Manager	Annually
Designated staff (Medical/ Nursing) working in all areas where there are medical gas pipelines	Medical Director Associate Director of Nursing, Acute Services. Associate Director of Nursing H&SC Partnership	Annually
Other staff e.g. physiotherapy, radiography, dental	Responsible leads of those services	Annually
Every Two Years Authorised Persons (MGPS)	Estates Manager	Every 3 years
Designated Clinical Officers (MGPS)	Medical Director Associate Director of Nursing, Acute Services. Associate Director of Nursing H&SC Partnership	Every 3 years
Quality Controller (MGPS)	Director of Pharmacy – MUST ensure outside contractor is QC registered	Every 5 years
Authorising Engineer (MGPS)	Chief Executive NHS Lothian	Every 3 years

Training Schedules for Staff Working with Medical Gas Cylinders only

Member of Staff	**Responsible Manager**	**Frequency of Training**
Logistics/Portering Staff	General Services Manager	Annually
Nursing Staff	Director of Nursing, Operational Division Chief Nurse, Community Services	Annually
Other staff handling or using medical gas cylinders e.g. community	Responsible leads of those services	Annually

staff, GP services, ambulance technicians, physiotherapy, radiography, dental		

6.0 Associated materials

Medical Gas Cylinder Operational Procedures [in development]

Medical Gas Pipeline System Operational Procedures [in development]

Safe Use of Medicines Policy, approved by the Policy Approval Group, June 2023

NHS Lothian Adverse Event Management Policy, approved by the Policy Approval Group, September 2023

NHS Lothian Adverse Event Management Procedure, approved by the Policy Approval Group, approved by the Executive Medical Director, September 2023

NHS Lothian Control of Contractors Policy, approved by the Policy Approval Group, October 2025

NHS Lothian Health and Safety Policy, approval by Lothian Health Board, April 2021

In addition, this policy should be read in conjunction with relevant NHS Lothian operational procedures and local site documentation.

7.0 Evidence base

British Compressed Gas Association Alerts

BS EN 1089-3: 2011/Transportable gas cylinders. Gas cylinder identification (excluding LPG)

BS EN ISO 10524-1: 2019. Pressure regulators for use with medical gases. Part 1: Pressure regulators and pressure regulators with flowmetering devices

BS EN ISO 407: 2021. Small medical gas cylinders. Pin index yoke type valve connections.

Carriage of Dangerous Goods Classification, Packaging and Labelling and Use of Pressure Receptacles Regulations 1996

Control of Substances Hazardous to Health Regulations 2002

Guidance on the security and storage of medical gas cylinders. NHS Protect 2015

Health and Safety at Work Act (HSWA) 1974

Health and Safety Executive (HSE)

Management of Health and Safety at Work Regulations (MHSW) 1999

Manual Handling Operation Regulations 1992

MHRA/IRIC Alerts

Obsolete standards formerly approved under the Carriage of Dangerous Goods (Classification, Packaging and Labelling) and Use of Transportable Pressure Receptacles Regulations 1996 (CDGCPL2 Regulations as amended)

Pressure Equipment Regulations 1999

Pressure Safety Regulations 2000

Provision and Use of Work Equipment Regulations 1998

Relevant Summary of Product Characteristics (SPC) for specific gases

SHTM 00 – Best practice guidance for healthcare engineering – Policies and Principles

SHTM 02-01 Medical Gas Pipeline Systems Part A & B

8.0 Stakeholder consultation

NHS Lothian Pharmacy Senior Leadership Team, Pharmacy Services Team, Staff-side Representative and the NHS Lothian Medical Gases Committee were consulted on the content of this document. The draft of this policy was placed on the NHS Lothian Consultation Zone to provide an opportunity for all NHS Lothian staff to comment/feedback.

NHS Lothian shall provide sufficient resources to ensure that this policy is widely understood, consistently communicated, and is effectively implemented. The following key information is required to be communicated:

- the meaning and purpose of this policy.
- the commitment of senior management to its implementation.
- plans, standards, procedures, and systems relating to its implementation and measurement of performance.
- factual information to help secure the involvement and commitment of all employees.
- comments and ideas for improvement from staff and outside specialist advisers as appropriate.
- the Health and Safety Executive and/or Local Enforcing Authority.
- Health and Safety related or specialist working groups or committees containing advisors internal or external to the organisation.
- the role and responsibilities of the Director of Pharmacy
- the role and responsibilities of the Designated Clinical Officers
- the Authorising Engineer (MGPS).
- the Authorised Person (MGPS).
- the Competent Person (MGPS).
- specialist contractors, sub-contractors, and other external sources.

9.0 Monitoring and review

This policy will be reviewed every 3 years, or earlier if there is any significant change to standards or legislation involving medical gas pipelines or cylinders or personnel involved with the management of these systems.

The table below outlines NHS Lothian's monitoring arrangements for this policy. The Board reserves the right to commission additional work or changes the monitoring arrangements to meet organisational needs.

9.1 Monitoring arrangements for the Medical Gases Policy

Aspect of compliance or effectiveness being monitored	Monitoring Method	Individual responsible for the monitoring	Frequency of the monitoring activity	Group/committee which will receive the findings/ monitoring report	Group/committee/ individual responsible for ensuring that the actions are completed
Policy awareness	Q2 Medical Gas (Clinical Risk) Reporting	All services who have identified Medical Gases as a Clinical Risk/Local H&S Committees	Annual	NHSL H&S Committee and local H&S Committees/Medical Gas Committee	All services who have identified Medical Gases as a Clinical Risk/Local H&S Committees/NHSL H&S Committee
Information, instruction and training	Q2 Medical Gas (Clinical Risk) Reporting	All services who have identified Medical Gases as a Clinical Risk/Local H&S Committees	Annual	NHSL H&S Committee and local H&S Committees/Medical Gas Committee	All services who have identified Medical Gases as a Clinical Risk/Local H&S Committees/NHSL H&S Committee
SCART	Review and action question sets	Assurance Team	Annual	NHSL H&S Committee and local H&S Committees/Medical Gas Committee	All services who have identified Medical Gases as a Clinical Risk/Local H&S Committees/NHSL H&S Committee
Cylinder regulator and flow meter maintenance program	Review meetings/ provision of records as documentary evidence	Estates/ Medical Physics	Annual	Medical Gas Committee Hospital Management Groups	Medical Physics/ Hospital Management Groups
Main medical gas storage compliance audit	Review of records of audit.	Estates Manager/ Logistics	Annual	Medical Gas Committee Hospital Management Groups	Hospital Management Groups
Excess stock of medical gas cylinders is not held	Review of records of audit/ stock list review	Site Pharmacy Lead/ Site Logistics	Annual	Medical Gas Committee	Hospital Management Groups
Training	Audit/Records	Hospital Management Groups	Annual	Medical Gas Committee	Hospital Management Groups
Security medical gas cylinders	Audit	Estates Manager	Annual	Medical Gas Committee	Hospital Management Groups

9.2 Safety Action Notices and Estates Facilities Alerts

Health Facilities Scotland may occasionally issue Hazard/Safety Action Notices/Field Safety Notices or Estates & Facilities Alerts to the NHS in Scotland. These notices may be relevant to one or more clinical practice, type of equipment, type of plant/system, or particular procedure in use on NHS Lothian facilities. Where such a notice is relevant, it should be assessed and actioned by the appropriate discipline (e.g. Estates & Facilities, Nursing Staff, Medical Physics, etc.) at the earliest opportunity. Where the implications are unclear, or require the actions of multiple disciplines/departments, the Medical Gas Committee shall act as the forum for agreement and assigning actions.

Appropriate evidence of such alerts being actioned and resolved shall be recorded and provided for review during the AE's (MGPS) annual MGPS management audit.