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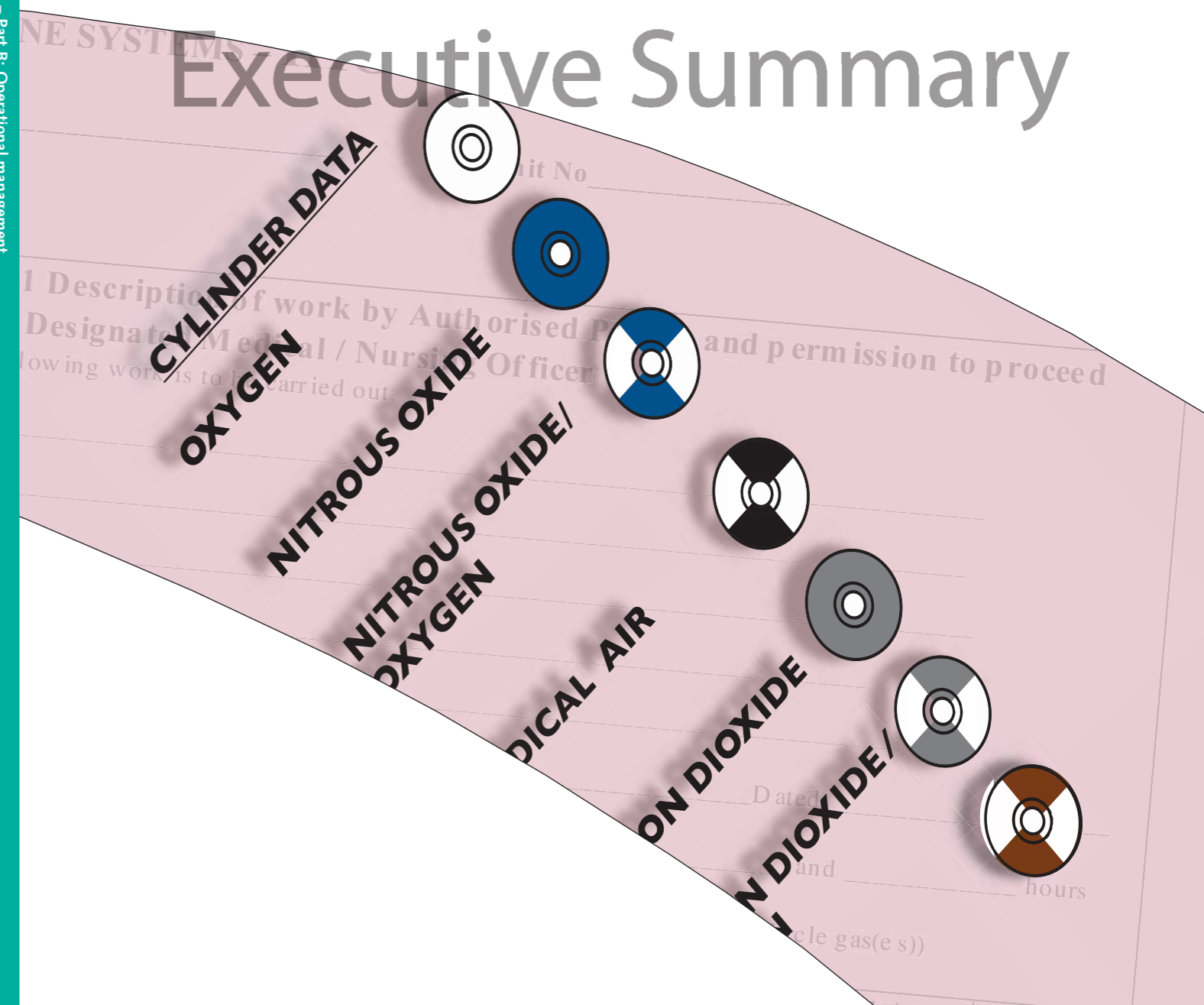
Medical gases

Health Technical Memorandum

02-01: Medical gas pipeline systems

Part B: Operational management

Executive Summary



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Document Purpose Best Practice Guidance

ROCR Ref: **Gateway Ref:** 6544

Title Health Technical Memorandum 02-01 : Medical Gas Pipeline Systems - Part B Operational Management

Author DH Estates and Facilities Division

Publication Date May 2006

Target Audience PCT CEs, NHS Trust CEs, Care Trust CEs, Foundation Trust CEs, Medical Directors, Directors of Nursing, PCT PEC Chairs, NHS Trust Board Chairs, Special HA CEs

Circulation List Department of Health libraries, House of Commons library, Strategic Health Authority, UK Health Departments

Executive Summary

Description This document covers management and maintenance of systems for the supply by pipeline of; medical oxygen, nitrous oxide, nitrous oxide / oxygen mixture (50% v/v), medical air for respiratory applications (at 400 kPa) and surgical air tools (at 700kPa), medical vacuum, helium / oxygen (oxygen 21%). Waste anaesthetic gases scavenging systems (AGSS) are also covered.

Cross Ref n/a

Superseded Docs HTM 2022 : Operational Management

Action Required n/a

Timing n/a

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For Recipient's Use

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02-01 Medical gas pipeline systems

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London: The Stationery Office



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ISBN 0-11-322743-4

978-0-11-322743-3

First published 2006

Printed in the United Kingdom for The Stationery Office

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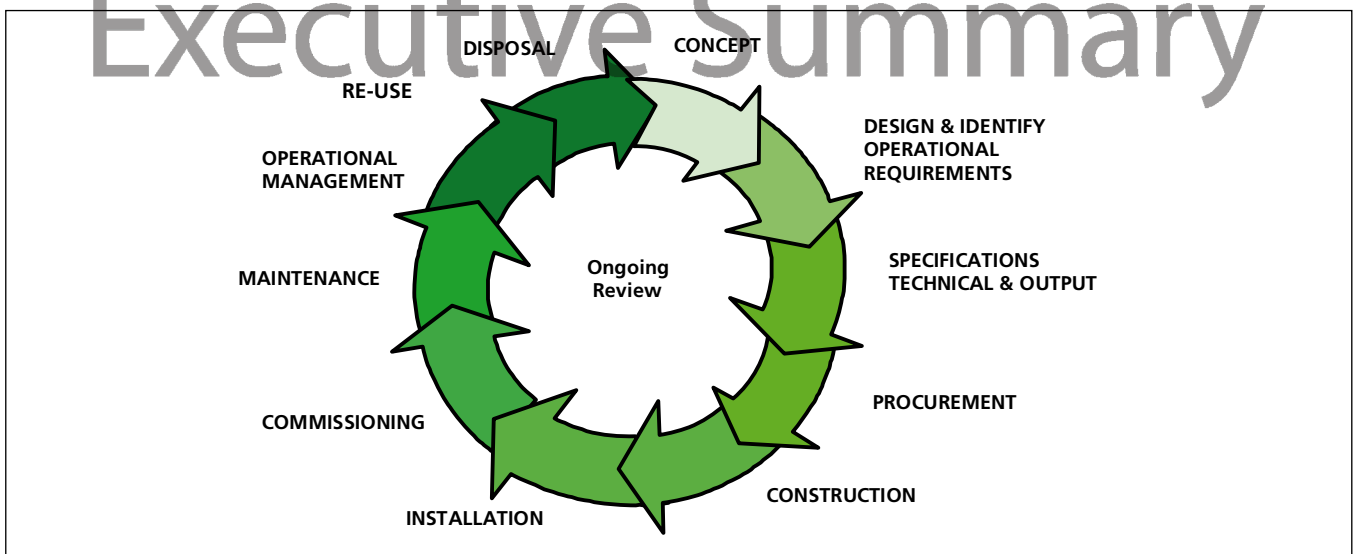
Preface

About Health Technical Memoranda

Engineering Health Technical Memoranda (HTMs) give comprehensive advice and guidance on the design, installation and operation of specialised building and engineering technology used in the delivery of healthcare.

The focus of HTM guidance remains on healthcare-specific elements of standards, policies and up-to-date established best practice. They are applicable to new and existing sites, and are for use at various stages during the whole building lifecycle:

Figure 1 Healthcare building life-cycle



Healthcare providers have a duty of care to ensure that appropriate engineering governance arrangements are in place and are managed effectively. The Engineering Health Technical Memorandum series provides best practice engineering standards and policy to enable management of this duty of care.

It is not the intention within this suite of documents to unnecessarily repeat international or European standards, industry standards or UK Government legislation. Where appropriate, these will be referenced.

Healthcare-specific technical engineering guidance is a vital tool in the safe and efficient operation of healthcare facilities. Health Technical Memorandum guidance is the

main source of specific healthcare-related guidance for estates and facilities professionals.

The new core suite of nine subject areas provides access to guidance which:

- is more streamlined and accessible;
- encapsulates the latest standards and best practice in healthcare engineering;
- provides a structured reference for healthcare engineering.

Structure of the Health Technical Memorandum suite

The new series of engineering-specific guidance contains a suite of nine core subjects:

- Health Technical Memorandum 00
Policies and principles (applicable to all Health Technical Memoranda in this series)
- Health Technical Memorandum 01
Disinfection and sterilization
- Health Technical Memorandum 02
Medical gases

Health Technical Memorandum 03
Ventilation systems

Health Technical Memorandum 04
Water systems

Health Technical Memorandum 05
Fire safety

Health Technical Memorandum 06
Electrical services

Health Technical Memorandum 07
Environment and sustainability

Health Technical Memorandum 08
Specialist services

Some subject areas may be further developed into topics shown as -01, -02 etc and further referenced into Parts A, B etc.

Example: Health Technical Memorandum 06-02 Part A will represent:

Electrical Services – Safety – Low Voltage

Figure 2 Engineering guidance

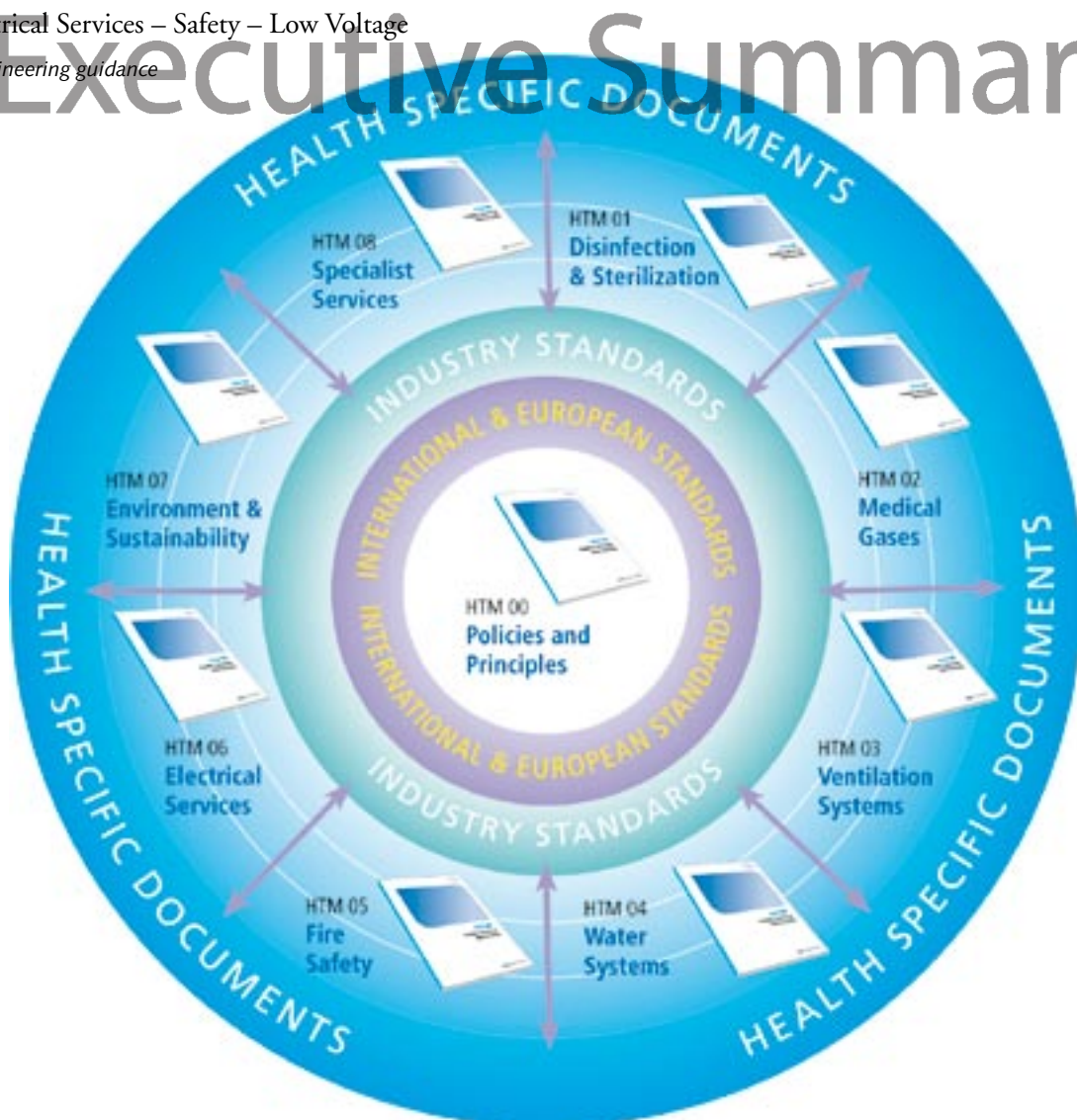
In a similar way Health Technical Memorandum 07-02 will simply represent:

Environment and Sustainability – EnCO₂de.

All Health Technical Memoranda are supported by the initial document Health Technical Memorandum 00 which embraces the management and operational policies from previous documents and explores risk management issues.

Some variation in style and structure is reflected by the topic and approach of the different review working groups.

DH Estates and Facilities Division wishes to acknowledge the contribution made by professional bodies, engineering consultants, healthcare specialists and NHS staff who have contributed to the review.



Executive Summary

Executive summary

Introduction

A medical gas pipeline system (MGPS) is installed to provide a safe, convenient and cost-effective system for the provision of medical gases to the clinical and nursing staff at the point of use. It reduces the problems associated with the use of gas cylinders such as safety, portering, storage and noise.

This Health Technical Memorandum is divided into two parts. Guidance in Part A deals with the design, installation, and validation and verification (testing and commissioning) of an MGPS. This part (Part B) covers operational management.

Health Technical Memorandum 02-01 supersedes all previous versions of Health Technical Memorandum 2022.

Operational management

The safe operation of a medical gas pipeline system relies on skilled staff who understand the system and who can liaise with clinical users to ensure continuing patient safety.

The pipeline systems contain gas under pressure, which can present a hazard to staff. The key to safe operational management is the availability of comprehensive installation data and maintenance manuals.

In addition, to ensure continued patient safety, permit-to-work procedures are essential to manage any intended or possible interruption of a supply.

Users of medical gas pipeline systems similarly need to be aware of the nature of the systems in order to understand the purpose of warning and alarm systems, and to participate in the safe operation of the systems. They should be familiar with the systems and be able to isolate them in the event of an emergency such as damage to terminal units within the clinical space, or in the event of a fire. A comprehensive operational policy that covers these various aspects is essential.

Portering staff responsible for the safe handling and use of medical gas cylinders should receive specific training before being permitted to change cylinders on manifolds or change cylinder regulators. This document should list key personnel involved in the operation, maintenance and use of the system. This will include nominated medical and nursing staff, risk managers/fire safety officers, pharmacy staff and the quality controller for the site, and competent personnel (who may be in-house staff or contractors). The document should list relevant drawings and include schedules of plant, terminal units, area valve service units (AVSUs), alarms, etc.

The Authorised Person (MGPS) has a pivotal role in the preparation of the necessary documentation, for example operational policy and its review and management thereafter, operating the permit-to-work procedure, and in advising users about the systems, and in the need for training of portering staff.

Acknowledgements

Mike Arrowsmith Arrowsmith and Associates

Geoffrey Dillow Geoffrey Dillow and Associates

Ian Fraser Department of Health

Mike Ralph Chair, Medical Gas Association

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- Limits of authorisation
- Cancellation of permits before completion of work
- Loss of permits
- Typographical errors
- Maintaining contact with the Authorised Person (MGPS)
- Permission for work to take place
- Advance notice of work
- Maintaining services during the work
- Essential liaison with the Quality Controller (MGPS)
- Accompanying documents
- Levels of hazard
- Responsibilities of the Authorised Person (MGPS) for the permit-to-work procedure
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