

## USING THE SKILLS OF A TECHNICIAN TO COORDINATE A MEDICAL GASES SERVICE

By M.A ORCHISTON



Horizontal storage for medical gas cylinders, introduced with pharmacy input, makes accessing cylinders easier

*Medical gases services have traditionally been an area where pharmacy staff have had little input. This article describes how a pharmacy technician has taken a more active role in the running of the medical gases service*

**P**harmacy staff had little to do with the supply of medical gases at the Royal Hospital for Sick Children in Edinburgh (RHSCE) before May 1999. Ward deliveries and maintenance of stock levels were handled by the hospital portering service. Pharmacy staff were responsible only for placing the orders with the supplier.

A Scotland-wide contract change for medical gases supply occurred in July 1999. The changeover provided an ideal opportunity for pharmacy staff to take a greater role in running the medical gases service. It was decided that a pharmacy technician would co-ordinate the changeover from one supplier to another and, in the process, review the systems for ordering, storing and delivering gas cylinders at RHSCE, with a view to improving the service. The change in equipment also provided an opportunity to train nursing, medical, theatre and portering staff.

Approximately five hours per week were allocated to undertake this work throughout the period that the changeover was being

planned and implemented. Coordinating the changeover and reviewing the service involved:

- Establishing current usage
- Improving storage facilities
- Improving cylinder stock control and ordering processes
- Coordinating the changeover itself

### CURRENT USAGE

**B**efore the new supplier took over, their staff wanted to know various details about the current use of gas cylinders. This included information on the:

- Types of medical gases currently used
- Different cylinder sizes used for each medical gas
- Numbers of cylinders used on a weekly, monthly and annual basis
- Planned future order and delivery dates
- Compatibility of the gas delivery systems currently in place with the cylinders of the new supplier

This information was gathered at meetings with senior staff from all the clinical areas and from the special schools in the Lothian area to which the RHSCE supplied

cylinders. Staff from maintenance, facilities and pharmacy within RHSCE and from the anaesthetics department at the Royal Infirmary, Edinburgh were also consulted. The information received was discussed with the new supplier.

Stock levels in wards and departments and in the main gas store were checked. It was noted that many of the wards and departments were carrying excess stock. New stock levels were put in place, which would then be monitored regularly.

The vast majority of the equipment held within RHSCE was found to be compatible with the new cylinders. One carbon dioxide machine was found to be incompatible with the new cylinders, and was sent to its manufacturer for adjustment.

### NEW STORE

**I**t was revealed that the existing medical gas storeroom was no longer suitable for use. Improvements were needed, in accordance with the requirements set out in HTM2022<sup>1</sup> (health and technology memorandum on medical gases). For example, the room was not large enough to house the bigger cylinders or the bank of cylinders that were to be available for home use by patients. Suitable vertical or horizontal storage was also not

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available, and the ventilation was inadequate. It was decided, in conjunction with maintenance and facility managers, that the storeroom should be rebuilt, at its existing site. The new storeroom would optimise the space available and improve access for portering staff to the medical gas store. New transport trolleys would also be purchased.

The maintenance department arranged for the planning and building of the new medical gas storeroom. All work was completed within the required timescale of three months. The finished facility met all the health and safety requirements and satisfied the HTM2022 guideline. It was also more convenient for staff to use.

## — STOCK CONTROL

In order to provide better stock control, gas cylinders were entered as stock items onto the ASCRibe pharmacy system. This helped make the issuing and costing of medical gas cylinders to wards and departments more efficient. It also enabled pharmacy to have full control of the stock levels and stock rotation, therefore reducing the amount of expired and misplaced stock. The new system ensured that the requests from the porters were managed as part of the overall stock control processes. Setting up the new stock control system involved:

- Allocating appropriate product codes for each cylinder type held
- Setting maximum and minimum stock levels for ASCRibe
- Starting weekly stock checks
- Developing and introducing a paper-based medical gas ordering form for use by the portering staff
- Training porters in the use of the medical gas order form
- Setting up a system where cylinders for manifolds were checked every six months, and the expiry dates were checked every month

The benefits of purchasing a cylinder managing service, which is often offered by gas suppliers, were investigated. In view of the stock control capabilities available with the current pharmacy system, it was decided that the use of an external cylinder managing service was unnecessary.

## — TRAINING

As the new supplier's cylinders operated differently from those of the previous company, it was decided that staff on the wards and departments would need additional training. Information about how to use the new cylinders, the new ward stock levels and ordering procedures, and obtaining assistance

and advice from pharmacy staff if required was included. Advice was also given on the reporting and handling of defective cylinders.

New ordering procedures were written for both pharmacy staff and the wards and departments. These were approved by the principal pharmacist. A training package for ward-based staff was designed, covering safe handling and correct operating procedures for medical gas cylinders and details of estimated life spans of medical gas cylinders. The training packages were delivered to staff on the wards and departments before the changeover. To log any problems that staff experienced, medical gas enquiry forms were also produced.

The porters had previously received no formal training on the transport and handling of gas cylinders. A more formal training process was introduced for them, including, for example, the wearing of safety clothes, other aspects of personal safety, handling of the cylinders and being aware of the dangers and signs of problems with cylinders.

## — CHANGEOVER

Before the final changeover took place, an action plan was drawn up outlining the specific duties that would need to be carried out by the senior pharmacy technician. These included:

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- Implementing the new standard operating policy
- Taking receipt of the new supplier's cylinders
- Coordinating the collection of the old supplier's cylinders from wards and departments and their replacement with cylinders from the new supplier
- Coordinating the return of the current supplier's cylinders and completing the paperwork
- Charging the cylinders to the wards and departments and special schools appropriately
- Arranging the layout of the new medical gas store room
- Completing all the changeover paperwork so that the first order with the new supplier could be placed and processed smoothly

All tasks were carried out with minimum disruption to the running of the wards and

departments, with the changeover completed within three days.

### — EMERGENCY PLANNING

It was realised during the changeover that there would be a shortage of bull nose and pin index regulators, as well as insufficient numbers of trained staff to change medical gas cylinders, if there were a major incident.

More bull nose and pin index regulators were therefore ordered for the wards and departments and for the facility manager, so that he could retain a back-up supply. A hospital management team looked into training issues.

### — DECANTING OXYGEN

When reviewing the use of medical gases within the hospital, it was noticed that staff at some clinical areas were

transferring oxygen from a large cylinder to a more portable cylinder (ie "decanting" oxygen) so that the parents or guardians of patients could have a cylinder to take home. This was not ideal, and so a portable cylinder bank was set up instead. The parent or guardian signed for receipt of portable cylinder(s). It was explained to them that they would be liable for loss or damage to the cylinder(s). This system has now been in place for 12 months and has been running smoothly.

Decanting was also an issue in the magnetic resonance imaging (MRI) unit. Staff needed to transfer gases from ferrous cylinders (in which they were delivered) to aluminium cylinders, because ferrous cylinders are unsuitable for use within the MRI unit due to the strong magnetic field.

A questionnaire was sent out to several adult and paediatric hospitals nationally seeking information on the practices involving medical gas cylinders at their MRI units.

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The results were analysed and showed that several other hospitals have aluminium cylinder banks, eliminating the need for decanting. A recommendation was made that an aluminium cylinder bank should be developed at the RHSCE, and this suggestion is currently being investigated.

## — THE FUTURE

Many staff throughout the RHSCE recognised the contribution of the pharmacy technician in co-ordinating the changeover process and reviewing the cylinder ordering, storage and delivery processes. It was therefore decided that the postholder would maintain and develop the service. Between one and three hours per week is now allocated to this and further progress and developments have been identified. Numerous requests for staff training, information, advice and help from both within and outside the trust are now received. The

details from the medical gas enquiry forms are added to the medicine information database so that all staff can access the information.

Ongoing stock management, the allocation of rental charges for medical gas cylinders and the development of a training package, covering the use of medical gas cylinders are other extensions of the role. The current postholder has also been asked to join a trust-wide multi-disciplinary and multi-professional group assessing all aspects of medical gases. The group considers issues including dealing with power failures and emergency planning.

## — SUMMARY

Several problems with the way the medical gases service was run were identified by the pharmacy technician while co-ordinating the changeover from one supplier to another and reviewing the systems in place. For exam-

ple, there were inappropriate cylinder stock levels, incorrect regulators for the cylinder types held, an insufficient stock holdings of regulators to cope with a piped gas failure and staff training was generally poor, with little pharmacy input.

The documentation systems that have been introduced at ward level and for use by the nursing, portering and pharmacy staff help ensure that the stocks of medical gas cylinders are appropriate and that the ordering and delivery processes run efficiently. Medical gases are now costed to wards and departments in the same way as other medicines issued by pharmacy. The role of the pharmacy technician in running the medical gases service continues to expand.

## REFERENCES

1. Health Technical Memorandum (HTM) 2022. NHS Estates. London.: HMSO, 1994