

# Cover Story

## AUTOMATED DRUG DISTRIBUTION SYSTEM: THE CROMWELL HOSPITAL EXPERIENCE



Dr. Henry McCullagh, BSc(Pharm), MRPharmS, Chief Pharmacist, Cromwell Hospital

### INTRODUCTION

The Cromwell Hospital is one of the UK's premier independent hospitals. Major specialities include cancer treatment, liver disease and transplant, neuro, gamma knife, spinal and heart surgery, paediatric care and urology. The hospital has 150 beds, including 7 adult and 4 paediatric intensive care beds.

Pharmacy delivers a patient-focused clinical pharmacy service. In addition, the department provides a procurement and supply service, a dispensing service, a medicines information and usage counselling service, and a chemotherapy reconstitution service. The department uses Pyxis Med2000® from Cardinal Health as the main method of stock supply to the inpatient wards. The advanced point-of-use system automates the distribution, management and control of medication.

### HISTORY

Both pharmacy service delivery and revenue capture were impeded by the utilisation of manual processes and non-interfaced IT systems. The majority of the pharmacy staff's working time was spent in administrative-associated processes, resulting in an underdeveloped clinical pharmacy service. Revenue losses were estimated at up to 50% in some wards. In 2000, a Pharmacy IT Strategy was developed that embraced the interfacing of existing systems and introduction of new systems. Key drivers included the automation of processes in order to improve service delivery and reduce medication errors, reduced time spent by clinically trained staff in administrative and dispensing processes, improved revenue capture and increased support to the hospital's electronic patient record strategy.

### PILOT PROJECT

A six-month pilot to evaluate pharmacy automation technology on two high-acuity wards was initiated in August 2000. The project included input from a multidisciplinary project team including pharmacy, nurses and IT personnel. Agreed objectives included:

- Percentage of drugs available for first dose
- Percentage of drugs used on patient account at the time of billing
- Proper interfacing of ADT (admission, discharge, transfer) information
- Charging interface validity between pharmacy automation products and the Hospital Information System (CompuCare)
- Reduction of dispensing load

Measured outcomes included:

- 93% of drugs available for first dose (66% pre-pilot)
- Revenue capture (gross revenue/patient day) increase of 66%
- 93% of drugs used on patient account at time of first billing
- 25% reduction in dispensing load

Other outcomes included reduction of time away from wards for nurses, increased visibility of pharmacists resulting in increased clinical-contact time and the importance of continuous training programmes for nursing personnel. An independent audit of results supported the purchase of pharmacy automation technology for all 10 inpatient locations and a return on investment was estimated at 2 years.

### EXPANSION PROJECT

In August 2001, the installation of pharmacy automation technology on all inpatient locations commenced.

Objectives were similar to those of the pilot programme with an increased emphasis on user acceptability and the testing of new technology, including Pyxis CUBIE(r), a patented product that utilises intelligent logistics to secure the medication in the automated medication dispensing station.

Outcomes from the project included:

- 91% availability of first doses
- 94% of drugs used on the patient account at the time of billing
- 20% dispensing load reduction

An increase in overall Pharmacy workload of 6% was noted, but this is due to Pharmacy staff becoming involved in all parts of the logistics chain whereas prior to automation, nurses were involved. Pharmacy now has responsibility and control over the entire supply chain. This, in turn, has allowed for an increase in nurse clinical contact time. Pharmacy automation falls outside the current regulations pertaining to the storage and handling of controlled drugs but with the guidance of the British Home Office Drugs Inspectorate a trial is being conducted on one inpatient location on an ongoing basis to demonstrate the validity of the system.

### SUMMARY

The installation of pharmacy automation technology as the main method of inpatient drug distribution and control at the Cromwell Hospital and interfaces to the hospital information system have played an integral part in supporting and ensuring the current success of the Pharmacy IT and service strategies of being a patient-centred, clinically focused service.