

Transition to Unit-Dose Distribution and Automated Dispensing Cabinets at Colchester East Hants Health Authority, Truro, Nova Scotia

The Colchester Regional Hospital is the main acute care facility serving the people of Colchester East Hants Health Authority. It is a 126-bed facility based in Truro, Nova Scotia, serving a population of 73,000. In fall 2007, research began on automated dispensing solutions for the new hospital site that was being constructed, with a planned opening date of spring 2012. At the time, the pharmacy had a centralized dispensing system based on 8-day blister cards. The key goals of the project were to adopt a unit-dose distribution system, to reduce waste, to save time for pharmacy and nursing staff, to improve safety, to minimize the number of missing doses, and to secure controlled substances in the hospital. The work began with searching the literature and visiting a number of other sites to see what other institutions were already doing. Meetings with representatives of several vendors were held to gather ideas about the products and services they could provide. In early 2008, funding became available for the automation equipment, and approval was granted to implement the system in the existing facility. This case study describes the implementation process.

After receipt of funding approval, a vendor showcase was hosted. As well, a request for information was issued, with a view gathering more details about these systems, as automation was uncommon in Nova Scotia at the time. On the basis of information gathered through this process, as well as guidance from the Institute for Safe Medication Practices Canada, a request for proposal was developed and subsequently released in December 2008. A team of pharmacists, pharmacy technicians, and nurses evaluated all of the proposals and recommended a preferred provider to the senior leadership team. In March 2009, the SLT awarded a preferred provider agreement to the successful bidder.

At that point, early spring 2009, the budget for implementation was released, and a project team consisting of a pharmacist and a pharmacy technician from within the pharmacy department were assigned to the project full-time. Costing information for all of the interface requirements was provided. It would take 6 months for the information technology (IT)/pharmacy information system (PIS) group to deliver the necessary software (i.e., September 2009). At this point, effort was made to finalize the drug distribution model and to see what could be accomplished with the assigned budget. A key element of success in this process was early input from the nursing units regarding stock requirements for the automated dispensing cabinets (ADCs), which permitted appropriate sizing and design of the cabinets. This in turn allowed for

optimization of the budget allocation and also allowed the addition of other key software solutions. In addition to the input from nursing units, 6 months of historical usage data was reviewed to ensure that both frequently used and emergency medications would be stocked appropriately.

During this period, the team visited a few more established sites to validate its implementation plan and drug distribution model and also began preparing its own site. In particular, a decision had to be made regarding where the equipment would be located both before and after the move to the new facility. Other needs included additional data and power lines, as well as some redesign of the medication rooms. Equipment needs and budget were finalized in September 2009, and in October 2010 the team began to create its testing and implementation plan, in consultation with the IT and vendor project team. Interface testing took place from December 2009 to February 2010. Also in December 2009, before the interface was activated, the unit-dose packager was installed and pharmacy technicians were trained to use it, so that stocking shelves with unit doses could begin, allowing staff members to practise, and prepare the cabinet stock list ahead of time.

The team began training nursing staff about 2 weeks before the cabinets were scheduled to “go live” in their respective units, so that training would be fresh in the minds of staff members. The first cabinet was installed on March 8, 2010, and one or more new units were installed every week thereafter. After 5 weeks, all nursing units were using a decentralized ADC dispensing model interfaced with the PIS to dispense medications. Although the implementation went very well, it was an extremely busy time, trying to balance training and preparation of the ADC for the next week’s implementation with supporting staff whose units were already using the system. The only problem encountered was a delay in delivery of the cabinets, so the opportunity to stock the ADCs ahead of time was lost. As a result, to maintain the project schedule, the cabinets were stocked during the implementation phase.

After the ADCs were installed, a computerized narcotic vault system was incorporated over a 1-week period, and an electronic order-scanning system was introduced over a 2-week period. These projects were straightforward, but time was required to train staff and to provide continued support of the new ADC and unit-dose packager system. After these installations, 3 weeks was taken to install the medication carousel software. The physical carousel will be installed at the new site, when it opens in a couple of years’ time, but the decision was made to mirror the carousel workflow in the current facility. The biggest tasks associated with the carousel were logging in

the bar codes for all medications, along with testing the interface and designing the labels.

Once the installation was complete, the team spent a few months performing some quality improvement processes, providing further education to staff and drafting policies and procedures. The project has been a success, but the transition has been more challenging for pharmacy staff than for nursing staff. The entire pharmacy system and workflow have changed, and pharmacy staff have had to learn how to operate 5 new pieces of equipment and to understand their integration. The workload is still substantial with the new system, but the work can be scheduled more easily and is more predictable for pharmacy staff. Members of the project team each worked about eight 75-hour weeks, including 24-hour on-call support. It is important to remember that automated drug distribution systems are not “plug and play” systems; they require consistent support, in terms of administration and process. However, in the first 3 months after implementation, reportable medication-related occurrences decreased by 37% and departmental medication costs decreased by 24% relative to the same period 1 year earlier.