

Implementation of a pharmacy robotic and inventory dispensing system (PRIDS)



Before Rowa Technologies

Background

The Barwon Health University Hospital Geelong is a 500 bed acute regional teaching hospital affiliated with Deakin University medical school. The pharmacy comprises 81 FTE staff across three campuses covering the acute site, an aged care and rehabilitation facility and a private hospital. The dispensary in the acute site dispenses an average of 3270 outpatient, 3250 inpatient and 10,000 discharge prescriptions items a month. The acute site pharmacy store held \$1,332 million in stock.

Why robotics?

Robotic dispensing systems are well established in UK, USA & European hospitals. The Australian Commission on Safety and Quality in Health Care recommended the adoption of safe medication distribution systems in the acute sector.

“Roll-out of robotic dispensing to all large acute hospitals should be pursued in light of the safety improvements, financial savings and the process efficiencies they offer.” (Robotic dispensing, Automation in pharmacy, Deloitte, June 2011.)

In summary the benefits were seen to be:

Process Optimisation

- Improved stock rotation and reduction in expired stock wastage
- Faster dispensing process to reduce patient waiting times
- Less chaotic staff movement within dispensary and store leading to greater efficiency
- Improved space utilisation with capacity to expand
- Increased security of holdings
- Instant stocktake for the majority of stock holdings reducing the cost of stocktake

Helps improving safety

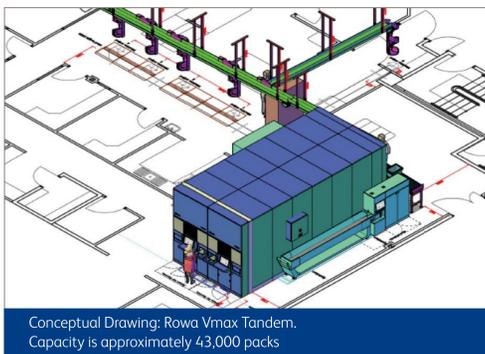
- Reduced stock selection and dispensing errors
- Decreased risk of repetitive strain injuries for staff from bending and lifting

Resource Optimisation

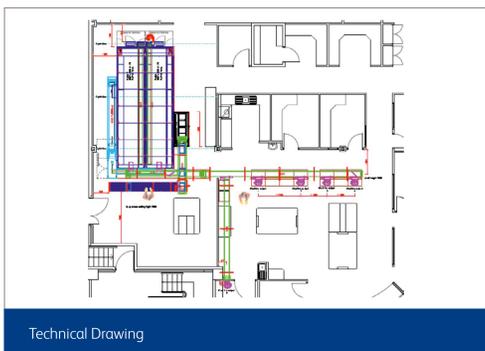
- Redeployment of staff from store and dispensary to support the direct patient care pharmacy services and reduced store staffing levels
- Reduced out of hours recall activity via on call remote access
- Removal of boring repetitive stocking and unstocking tasks

Integration with Pharmacy Inventory System (PIS)

- Device interoperability with Pharmacy Information Systems
- Direct interfaces with Pharmos-Merlin via the BD Coordination Engine was achieved to ensure complete automation
- Interfaces for stock maintenance, single and multi-input and multi-output, ward box/impress filling, storage location management, ordering and return
- Ongoing collaboration between Merlin and BD reduced time to develop the ICT integration



Conceptual Drawing: Rowa Vmax Tandem. Capacity is approximately 43,000 packs



Technical Drawing



Rowa Picking Head

Why Rowa technologies?

The Rowa Vmax™ system exhibited features and functionality that allowed greater automation.

The features of automated stock loading and a ward box system would enable Barwon Health to fulfil their vision of an automated pharmacy solution. Optimising processes and resource while ensuring patient safety remained a priority.

Business case

The business case focused on medication safety issues, improved stock management and a return on investment during the fifth year after implementation. PRIDS objectives aligned with a number of strategic priorities of Barwon Health.

Forecast cost offsets included:

- Interest earned on reduced stock holding of \$250,000 (includes consolidating outpatient pharmacy stock of \$180,000 into main store)
- Staff reduction equivalent to 0.5 FTE storeman and reduced casual relief
- Reduction in pharmacist recalls for after-hours stock
- Reduction in expired stock

Implementation costs included:

- Project pharmacy technician 3 months
- Interfacing with the Merlin pharmacy system
- Electrical supply, data points, moving air conditioning ducts and fire sprinklers, and an assessment of floor strength

Implementation

The initial robot build was two weeks, commissioning 8 weeks and integration with Merlin pharmacy software 3 weeks. Issues faced included opening extended hours to allow testing with Germany, redefining stock levels, software upgrades, changes in workflow and training multiple staff.

Evaluation

Pre-implementation data were collected to compare with post implementation data (in progress). Data included near misses, value of inventory, stock on hand variance, staffing levels, restocking time, prescription preparation time etc.

Conclusion

A successful robot implementation was achieved by teamwork and commitment from all parties. Staff have adjusted to the new workflow required when introducing automation and are enjoying the functionality that the Rowa Vmax System has provided in the pharmacy. Interfacing with pharmacy software is a key hurdle to overcome. No major functional issues are apparent.

“The rollout of robotic systems in hospitals will see medication safety improvements and financial savings, as well as improving overall efficiency” said Greg Weeks, Barwon Health’s Director of Pharmacy. “The dispensary in the acute site dispenses an average of 3270 outpatient, 3250 inpatient and 10,000 discharge prescription items a month. Staff workflows have adjusted to the new functionality. Interfacing with pharmacy software was a key hurdle to overcome, but teamwork and commitment by all parties has seen a successful robot implementation.”



Inside Rowa

“The dispensary is much more organised, less hectic movements ...”
“It works hard every shift, and the best bit? it doesn’t complain. Faster than a speeding pharmacist ...”
“Reduced boring packing and top up tasks ...”
“Reduced brand selection errors ...”
“Most of store stocktake is now automated ...”
“Dispensing in the 21st Century.”
 Views of staff



Spiral Chute



Rowa ProLog™



Barwon Health
 University Hospital Geelong
 PO Box 281
 Geelong Victoria
 Australia

