



The implementation of an automated medication storage and dispensing system within the Acute Medical Unit (AMU) - Ninewells Hospital, Dundee

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Introduction

The Acute Medical Unit (AMU) at Ninewells Hospital is a 31 bed assessment unit for medically unwell patients within Dundee and surrounding Tayside Area. The average monthly throughput of patients is approximately 1300 with 35% of these patients being discharged directly from the AMU. The safe and secure storage of medicines has been highlighted as an ongoing issue within the AMU as the medicine cupboard is rarely locked. Due to the positioning of the cupboard, when unlocked, medicine stock is in full view of all staff, patients, relatives and visitors to the ward. In addition to this there have been increasing numbers of medications not being given due to the fact nursing staff cannot easily locate items because the stock in the medicine cupboard is untidy and disorganised due to the high usage of the cupboard.

In order to improve security and reduce the number of "missed doses," an automated cabinet seemed to be an appropriate solution. This system did not rely on finding the medicine cupboard keys. Avantec® are the UK distributors of the Omnicell® system. Omnicell is an automated medication storage and dispensing system for use at ward level. Avantec have many automated systems in place throughout hospitals in the UK but no such systems exist in Scotland. It was identified that we could use this opportunity to re-address key roles with regards to medicine supply to the AMU.

Aim

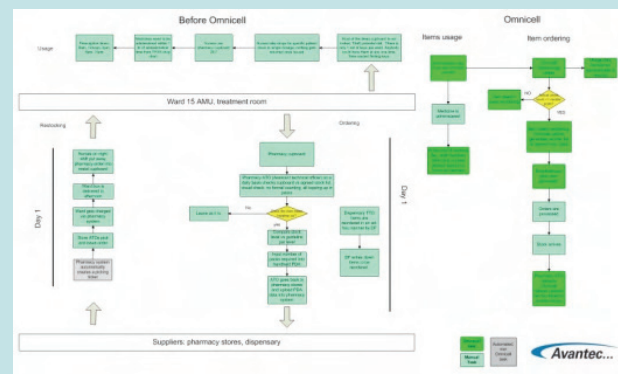
To implement an Omnicell Cabinet within the AMU at Ninewells Hospital to increase security and availability of medicines

- To improve security of medicines
- To reduce opportunity for stock discrepancies via more efficient ordering systems
- To increase availability of medicines in the unit
- To provide an audit trail for each medicine administered
- To free nursing time through Pharmacy Assistants restocking medication cabinet

Method

In July 2008, Avantec approached pharmacy staff within NHS Tayside wanting to hold a demonstration of an Omnicell automated system. This was well attended as the concept for ward automation was new. This idea was presented to the Clinical Team Manager of Acute Medicine as this system could possibly address the current problems surrounding medicines within the AMU. After a lot of discussion with Avantec, it was decided that a cabinet would be set up for six month trial period. Baseline data was collected which included: database of products, prices, stock levels; time in motion studies for ordering, processing and re-stocking; ward activity data; IT server data, was provided to the project team at Avantec. It was decided that a 3-cell cabinet would be suitable for the range of products to be included.

Over a period of four weeks, the cabinet was configured with all 294 products to allow appropriate space for each item and similar items to be separated. All 40 nursing staff in the AMU were given training with the Charge Nurses and Senior Staff Nurses receiving additional "Super-User" training to allow them to re-set passwords and carryout emergency re-stock of the cabinet out-with pharmacy opening hours. Significant collaboration with the hospital IT department was undertaken since the cabinet would be sitting on a server to which there would be access, remotely from the pharmacy department. A go-live date was set and weekly progress meetings were held leading up to this date. During the four-week set up period a project manager from Avantec was on site in Ninewells to lead on the project.



Omnicell Benefits

How can we help Pharmacy? By reducing waste of medicines and staff time and obtaining a full audit trail of activity

- Cut the waste from expiry, carefree usage, damage
- Eliminate costly 'top-up' visits to count - just get your orders daily!
- Trace and account for all use to user, patient, consultant or procedure
- Authorised staff can see all the hospital stock on their PCs.
- Set and control stock levels rationally by reviewing usage - end overstocking.
- Improve patient safety and dispensing accuracy
- End ad-hoc orders - 'we've run out of...' calls
- Get powerful reports on usage, CD registers, everything on your PC

More features for Pharmacy

- Guiding lights on every drawer shelf and compartment to reduce selection risk
- Optional SureStock barcode scan to put stock in or take it out
- Secure locking drawers for CDs and electronic register
- Customised set of reports for UK Pharmacy
- Scheduled Medicines functionality available
- Clinical and Allergy alerts can be built into the system
- Online medicine data sheets available at each cabinet
- Powerful controls on waste meds, partial doses and drug returns

*Information taken from Avantec UK website

Expected Outcomes

- Increased security of medicines within the AMU
- Increased stock availability via strict, automated stock control system
- Provide an audit trail for the administration of medicines
- Accurate financial reports for medicines usage
- Reduction in pharmacy time spent in the AMU with regards to ordering of stock medicines
- Reduction in nurses time with regards to finding keys, re-stocking cupboard and placing emergency orders

Task	Before Omnicell		After Omnicell	
	By Who	Time (mins/day)	By Who	Time (mins/day)
Ordering of stock medicines	Pharmacy Assistant	70	Automated	
Checking of expiry dates	Pharmacy Assistant	360 mins/ 2 x a year	Pharmacy Assistant	There is capacity to use this feature in the system
Adhoc ordering of stock medicines	Nursing staff	Up to 30min/week	Automated	
Checking off Pharmacy order	Nursing staff	20	Pharmacy Assistant	5
Re-stocking medicine cupboard	Nursing staff	20	Pharmacy Assistant	5-10
Searching for ward keys	Nursing staff	Reality is cupboard is open, but can be up to 20min/day looking for keys	Automated	
Searching for items	Nursing staff	45	Automated	
Medicine usage tracking	Available at the end of each month		Available at the cabinet immediately	



Conclusion

Within the AMU at Ninewells, all the Nursing and Pharmacy staff have given positive feedback with regards to the ongoing Omnicell trial. We have found that the security of medicines has improved greatly, medicines are more readily available which assists in the timely administration of medication in the AMU. There has also been a reduction in the time nursing staff spend on pharmacy orders – this has been reduced to no time at all being spent on pharmacy orders. There is extensive data collection underway to gather the information required to prove a successful trial. Work is currently being done, with Avantec on a business case to purchase an Omnicell cabinet. There has also been a lot of interest in the AMU Omnicell Cabinet from other areas within NHS Tayside for an Omnicell system.