Implementation of Radio Frequency Identification (RFID) for Tray Management

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BACKGROUND

In October 2014, North York General Hospital (NYGH) deployed the Intelliguard®Kit and Tray Management System by MEPS Real-Time, Inc., an automated RFID-enabled kit and tray replenishment solution. The goal was to utilize the Intelliguard® System's ability to quickly and accurately process high-density trays in order to eliminate errors and minimize restocking time.

OBJECTIVES

In November 2014, MEPS® Real-Time and NYGH conducted a quality study

˜ to evaluate time savings with using Intelliguard® Kit and Tray Management System vs. standard manual tray replenishment procedure, and
˜ to validate tray replenishment accuracy with using Intelliguard® Kit and Tray Management System.

METHODS

Four registered pharmacy technicians (RPhT) (study subjects) participated in the study. Each study subject was required to restock four different tray types ranging from 25 to 138 items with specific errors embedded in them. The total number of study tray runs equaled 16 (4 RPhTs x 4 Trays = 16). Each study subject was informed that errors were planted in the trays but did not know the exact number of errors included.

METHODS (cont'd)

Trays were stocked with the following known errors:

˜ Expired Medication – 5
˜ Missing Medication - 41
˜ Open/Used Medication – 8
˜ Overage – 1

Each pharmacy technician restocked trays using the standard manual process, for all four tray categories. Times and errors were recorded.

Each pharmacy technician was then asked to restock each tray using the Intelliguard® Kit and Tray Management System automated workflow, for all four tray categories. Times and errors were recorded.

RESULTS

Restocking Time
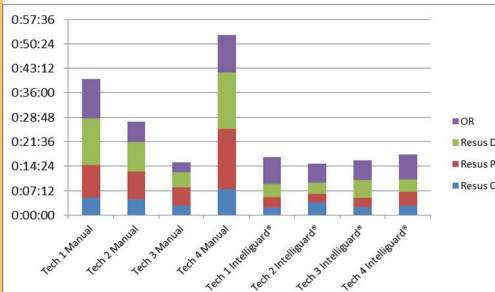
Time savings were observed in 14 out of 16 study tray runs, which ranged from 2 to 14 minutes. Time savings varied proportionally to number of items in each tray type. Average time savings per tray equaled 4.9 minutes (total of 79 minute savings in 16 study tray runs).

RESULTS (cont'd)

Tray Accuracy

As described, errors were embedded in the trays which needed to be restocked. The table below indicates that errors still remained in trays after manual replenishment and approval process by 2 out of 4 study subjects. Among 16 tray study runs, six of them were approved with errors remaining, ranging from 1 (expired) to 8 (missing, opened and expired) items.

	Resus C	Resus P	Resus D	OR
Tech 1 Manual	100%	100%	100%	100%
Tech 2 Manual	100%	60%	33%	79%
Tech 3 Manual	100%	80%	82%	74%
Tech 4 Manual	100%	100%	100%	100%
Tech 1 Intelliguard®	100%	100%	100%	100%
Tech 2 Intelliguard®	100%	100%	100%	100%
Tech 3 Intelliguard®	100%	100%	100%	100%
Tech 4 Intelliguard®	100%	100%	100%	100%

On the other hand, in all 16 tray runs using the Intelliguard® Kit and Tray Management System, errors were completed eliminated.

An additional study observation to note is that pharmacy technicians who processed trays the fastest using the manual method were also the ones who had the highest error percentage. In addition, unlike most other hospitals, NYGH tray exchange process customarily involves only one RPhT to restock and approve each medication tray, without an independent double check.

CONCLUSIONS

Using the manual checking method allows greater possibility for human error; leaving more chance for an expired, used or incorrect medication left in these trays and increasing the likelihood of an audit infraction or worse, a patient medication error.

Using the Intelliguard® Kit and Tray Management System is proven to assure each task is performed with 100% accuracy. Automation eliminates human error, distraction and exhaustion that goes along with manually checking these trays – and the Intelliguard® System does not permit steps in the process to be missed or skipped.

Based on the lowest percentage of tray errors recorded using the current manual method, we can conclude a minimum of 2,664 trays errors will be eradicated annually at NYGH.

Using the Intelliguard® system also saves staff time. The study demonstrated that a pharmacy technician saves an average of 4.9 minutes for each tray exchange processed. The annual number of tray exchanges at NYGH is estimated to be 8,073, which would result in expected time savings of nearly 1/3 of a full-time employee.

ACKNOWLEDGEMENT