

Title

Utilization of critical low data to optimize automated dispensing cabinet inventory levels using rotational pharmacy students.

Purpose

After installation of new automated dispensing cabinets (ADC) at Saint Luke's Hospital (SLH), there was a marked increase in critically low and stocked out medication levels throughout the hospital. This resulted in an increased effort for pharmacy staff to maintain inventory levels, ultimately delaying medication administration. The objective of this study is to measure the effectiveness of our ADC optimization at SLH in reducing the incidence of critical low and stocked out pockets in an effort to facilitate timely medication administration and reduced work load on pharmacy personnel.

Methods

A two-week report of ADC average medication use was generated for retrospective analysis to identify all medication pockets that had reached its stock out or critical level. A standardized method was developed to assign new pocket capacity and par levels to the pockets. The adjustment in pocket capacity was based on medication use over a two-week period for each medication in its respective ADC pocket. The max use in a single day was multiplied by four, representative of a period able to stock the ADC over long holiday weekends, to reach the new capacity needed. The critical low threshold was set at 20% of the new par. Procedural areas were excluded. Primary endpoints include the number of critical low and stocked out pockets total and per machine. Secondary endpoints included the number of pockets that needed modification based on the set criteria and the number of medications that needed to be re-assigned to a larger pocket due to increased pocket capacity.

Results

There were a total of 16,281 pockets represented in the ADC inventory from 5/1/19-5/14/19. Of these medication pockets there were 393 pockets that stocked out and 3,573 pockets that went below critical low levels before any adjustments were made. There were a total of 15,964 pockets represented in the ADC inventory from 7/1/19-7/14/19. Of these, 323 reached stock out and 2,117 reached critical low after adjustments were made. 121 medications were re-assigned to a more suitable size pocket to allow more stock to be kept in the ADC. 1,097 pockets were modified based on the criteria used for the study.

Conclusions

The number of critical lows and stock outs were reduced 41% and 18% respectively after adjusting inventory levels. There was a marked reduction in the number of unscheduled restocks the pharmacy staff performed due to critical low levels being reached. Additional improvements could be reached by improving central pharmacy inventory practices and more active management of the ADC during drug shortages.