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CASE STUDY: Southern California Client Facility

Reducing Medication Errors and Cost Through Simulation Based Lean Six Sigma and GRASP® Workload Management

Purpose

The objective of this study was to measure cycle time, labor costs and medication errors after implementation of a bar-coded medication management system on a nursing unit located in a large academic medical center.

Methods

Using a lean six sigma approach, 13 GRASP Systems medication administration interventions were modeled on a computer using simulation software. A "smart group" then built a revised computer model after implementation of bar-coded medication administration. The models were then run and compared for significant differences.

Results

The computational model predicted there was not a significant difference in cycle time or nursing labor costs after implementation of bar-coded medication management at the $P < .05$ level. The model did predict a 50% reduction in medication errors. Follow up measurement at one year validated the accuracy of the predicted results from the model.

Bar Coded Med Administration Results

Paper Based System (Before)

□ Annual trips	45,000
□ Med error rate	0.05%
□ Total errors	234
□ Cost/error	\$1,000
□ Annual cost	\$234,000

Bar Coded Med Administration (After)

□ Annual trips	45,000
□ Med error rate	0.025%
□ Total errors	124
□ Cost/error	\$1,000
□ Annual cost	\$234,000

Annual cost savings from a 50% reduction in medication errors

\$110,000