*Executive Summary*

# Process Improvement Case Study:

The Impact of the Intelliguard® Kit and Tray Management System on Medication Kit Checking Efficiency and Accuracy

## The Problem

Control of medications in the hospital is the job of the pharmacy. Continuous review of all areas where medications are stocked, as well as the efficiency and accuracy of floor stock medications is an important ongoing process. Organizationally, Rady Children's Hospital had a specific challenge to take control of medications used by the anesthesiologists.

**Rady Children's Hospital**

- The largest children's hospital in California (based on admissions)
- The sixth largest children's hospital in the country
- The only hospital in the San Diego area dedicated exclusively to pediatric healthcare
- Care provider to 88% of the region's children and 196,905 children in total

## Background

Rady Children's Hospital needed to:

- Provide an efficient method to replenish hundreds of medication kits and trays
- Improve accuracy of the replenishment process including PAR levels and expiration date checking
- And most importantly: improve control of medications used by anesthesiologists.

Three potential solutions:

1. A pharmacy satellite in the OR, requiring considerable construction costs and disruption, and still use manual replenishment processes.
2. Add automated dispensing machines at an estimated cost exceeding $1 million and still using pharmacy staff time and manual processes to prep and loading daily.
3. Add RFID automation for kit and tray replenishment in the central pharmacy.

## The Solution

The conclusion was RFID automation would provide the control, accuracy and efficiency needed with the least expense. The Intelliguard® Kit and Tray Management System was selected and more than 17,000 medications in approximately 200 kits, trays, bags and packs were converted to automated RFID replenishment.
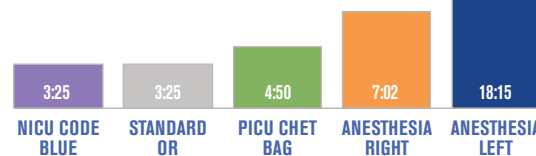
## Process Improvement Results

### Average Time Savings in Minutes by Tray Type

The study conducted confirmed manual processing of a large anesthesia tray can take 30+ minutes. Using RFID, Rady Children's Hospital observed time savings from 3 to more than 18 minutes per tray, with an average time savings of approximately 15 minutes per tray. when using the RFID system.

**Average Time Savings in Minutes by Tray Type**

| NICU CODE BLUE | STANDARD OR | PICU CHET BAG | ANESTHESIA RIGHT | ANESTHESIA LEFT |
|---|---|---|---|---|
| 3:25 | 3:25 | 4:50 | 7:02 | 18:15 |

### Quality Improvement Results

The study also measured accuracy and concluded it was indeed a problem with the manual process—trays were not being filled to specification. Results of the study showed that in all cases, zero errors were recorded when using the RFID system.

## Conclusion

Rady Children's Hospital was able to increase staff efficiency and accuracy in restocking and distribution of kits and trays as well as in monitoring expiration dates and recalled medications. The primary reason Rady Children's Hospital began this process was quality improvement by limiting access to medications by non-pharmacy personnel. Control of medications used by anesthesiologists is now professionally managed by pharmacy personnel. Most importantly, patient safety is enhanced through a decrease in human error by automating error-prone manual tasks and assuring critical steps are not missed in the replenishment process.

## Added Benefit: Clonidine Recall

- Located in 380 trays throughout the hospital
- Reported indicated exactly what trays and what specific medications needed to be pulled

*"The system was used when we had a clonidine recall. This medication was in all of our trays. We ran a report and found the trays that had the lot numbers of the clonidine that were recalled. In the past we would have to check every tray, in every location just to see whether the medication was in the tray. It would take hours or days even! This process was so simple and saved hours and hours of search time and paperwork. This is a safety and quality issue for our patients."*

*- Stephen Wenger, RPh, Senior Clinical Pharmacist*