Reducing Waste of Isoproterenol, a High-cost Medication, Across Multiple Hospital Settings

Overview
Rising prices of generic medications has impacted drug budgets for hospitals across the country. When Valeant Pharmaceuticals acquired isoproterenol, a life-saving generic medication primarily used in the cardiac and pulmonary hypertension population, prices increased from $208 to $1,700 per ampule. This was the second highest individual drug expense for Children’s Hospital of Philadelphia. A team of pharmacists, cardiac anesthesia providers and quality improvement specialists assembled to define, diagnose and develop rapid tests of change to reduce waste.

Objective
1) Reduce isoproterenol waste in cardiac anesthesia cases by 40 percent by March 2017
2) Reduce the number of isoproterenol ampules required for storage by 40 percent, or $300,000 by May 1, 2017

Methods
The team demonstrated the ability to use a quality improvement framework and robust analytics to reduce pharamceutical spending. This project was initially focused only on ordering and dispensing patterns in cardiac anesthesia. This work identified additional opportunities in cardiac and general anesthesia tray storage, storage throughout the hospital and ICU and cardiac center usage patterns. The cost savings impact as a result of this project was greater than anticipated.

Key Measures
- The amount of isoproterenol ordered and dispensed to cardiac anesthesia per month
- Of the amount ordered per month, the total amount of isoproterenol that went unused and was discarded
- The number of ampules in emergency storage locations

Lessons Learned
Team members from different disciplines involved in a drug utilization process can work together to make changes that improve quality and financial stewardship.
- Transparency in data—both in cost and usage—are powerful motivators to create change. Cost awareness drove a large amount of provider buy-in and unplanned improvement.
- Clinicians want to be good stewards of costly resources. Partnering with nursing in implementing changes was important in maintaining the safety of the interventions.
- The approach used in this project can be spread to other high cost pharmaceuticals.

Improved outcomes
- $1.2 M drug spend savings
- $1.4 M annual waste cost reduction

“Outstanding example of PI methodology use focused on a clear problem with great planning and significant improvement. The aim statement was clear, and the results were an indication of the value of this approach in other areas.”
—2017 PQA judge

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