Save Money. Mitigate Shortages. Reduce Diversion.

Novel approaches to using medication transaction data.

Overview

This white paper illustrates novel approaches to using medication administration data to drive clinical and financial outcomes for health systems. Given the cost of medications and their associated potential for harm, a robust monitoring system is essential to understand how medications are actually used.

Tracking medication use to identify potential inefficiencies in the process can lead to the prevention of drug waste, which impacts numerous outcomes like cost-savings, diversion mitigation and shortage management. The case examples in this document are based on de-identified, real-world examples from Bainbridge Health network partners.

Evolving from Traditional Approaches

Traditionally, medication administration data has been used for high-level Continuous Quality Improvement (CQI), such as Dose Error Reduction Software compliance, Alert Management, and monitoring Overrides and Good Catches. These use cases are essential, but only one application of the data. From working with diverse health systems across the country (including academic-affiliated, community-based, pediatric and adult hospitals), the Bainbridge Health team has developed applications to leverage existing data from existing technologies to reduce drug waste in order to save money, mitigate shortages and even reduce the risk of narcotic diversion.

Data Fragmentation & Complexity

Medication delivery is one of the most complex processes in the hospital. Due to the fragmentation of medical technologies that gather important data about how medication is being ordered, prepared, dispensed and administered, it can be challenging to obtain a full-spectrum view about medication use. For example, the Electronic Health Record, Dispensing Cabinets and Smart Infusion Pumps are often siloed and limited in their ability to share data. Most health systems do not have the time and internal resources to centralize, analyze and manage this siloed data. Therefore, pharmacy leaders often do not have a comprehensive line of sight into medication use. Instead, analysis is often limited to just a "point on the spectrum" or requires extremely time- and labor-intensive audits.

Centralizing Data to Drive Value

Bainbridge Health's Med O.S.® Platform acts as a connective tissue among these technologies by aggregating and organizing data, as well as creating a single source of truth for how medication is being used. Empowered with this continuous data stream, hospital systems can quickly assess discrepancies in preparation, dispensing and administration practices. Moreover, by incorporating further attributes—such as cost and shortage data—systems can surface up "material waste" that is, for example, associated with significant cost, as well as an actionable intervention.

# Using Medication Transaction Data to Identify Cost-Savings & Mitigate Diversion

Overview

A 550-bed hospital on the East Coast launched a financial stewardship initiative to identify drug waste and reduce avoidable cost of medications. Using Bainbridge Health's Med O.S.® Platform, the organization was able to quickly analyze medication use practices and collate preparation, dispensing and administration data. The application allowed clinicians to seamlessly identify:

- **Drugs producing greatest amount of waste**

- **Drugs associated with greatest cost-savings opportunities**
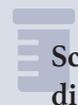
- **Schedule II narcotics that were being over-dispensed**

Findings & Interventions

Among the findings from this analysis was a high-alert opioid that can cause respiratory distress and death when given at high doses. The hospital prepared and dispensed this high-alert drug in 250 mcg/mL in 50 mL syringes. Bainbridge Health's Med O.S.® application revealed that on average, the amount administered per patient was only 20.1 mL. Furthermore, approximately 80% of the time, less than 30 mL was administered to the patient. As a result, the organization was wasting 20 mL of the drug more than 75% of the time.

Based on these findings, it was recommended that the pharmacy prepare the drug in 250 mcg/mL in 30 mL rather than in 50 mL. In addition to the cost-savings and diversion-reduction potential, Bainbridge Health considered additional factors that determine the actionability of, and any incremental costs associated with, the intervention, such as workflow impact, pharmacy technician time, IV flush volumes and pharmacoeconomic considerations.

Bainbridge Health Intervention

Sessions by Volume Infused
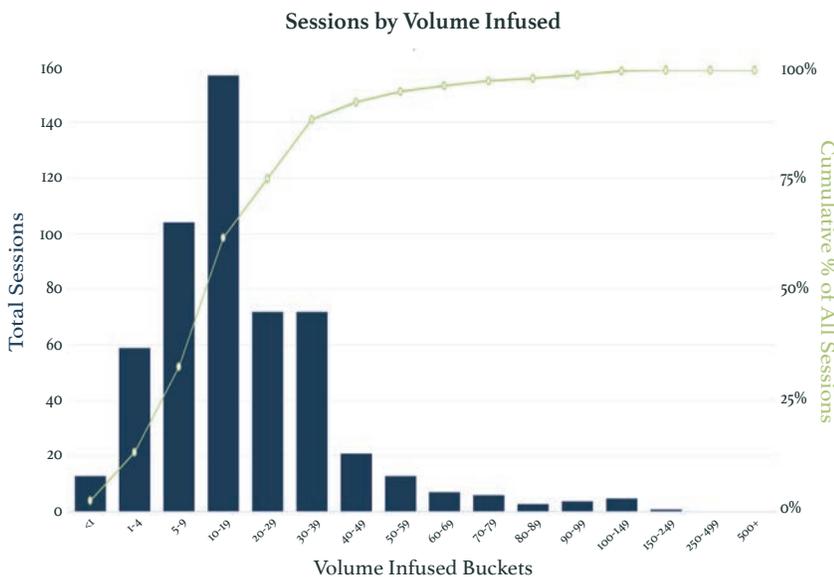
Results

The hospital implemented Bainbridge Health's recommendations, transitioning from 50 mL to 30 mL syringes. The smaller volume only requires an additional 0.3 bags per patient per day. Over the course of a year, the hospital is projected to conserve 40% of this high-cost opioid relative to the previous year, resulting in annual savings of $180,171.

40% projected conservation of high-cost opiod relative to the previous year

$180,171 in projected savings as a result of the conservation

0.3 additional bags per patient per day

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A large mid-atlantic adult facility was facing rising costs and supply issues with a ß2-adrenergic bronchodilator. The price of this drug had skyrocketed 3677% within a 3-year time frame due to the acquisition of the original manufacturer. In addition to the cost increase, the only supplier who participated in the 340B program went out of business, further exacerbating the supply and cost challenges.

Finding & Intervention

Bainbridge Health identified that the organization was dispensing the drug in 0.004 mcg/mL in 250 mL. Using Bainbridge Health's Med O.S.® platform, the organization was able to identify misalignment between preparation and dispensing practices relative to administration. The data showed that 85.1% of patients were being administered less than 50 mL of the drug. Based on this finding, it was recommended that the hospital prepare the drug in 0.004 mcg/mL in 50 mL, due to the fact that most patients were being administered less than 50 mL.

Results

The hospital implemented Bainbridge Health's recommendations, now preparing the drug in 0.004 mcg/mL in 50 mL. This change had minimal impact on the number of bags prepared per year. Over the course of the year, this led to projected annual savings of $269,848.

$269,848

Bainbridge Health Intervention

Sessions by Volume Infused
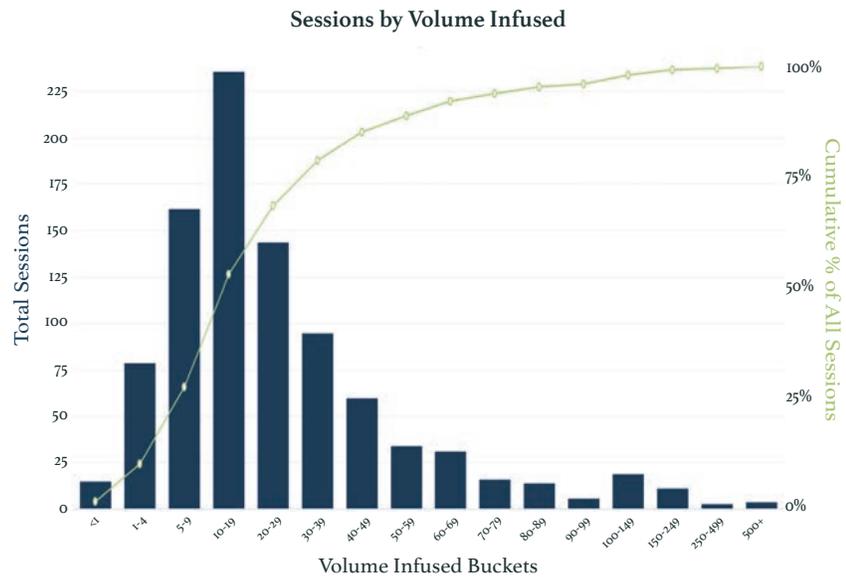
Key Takeaways

1 Medication use data can be a rich source of clinical, financial and operational insight. However, due to the fragmentation of that data among disparate technologies, much of the value never materializes.

2 By centralizing disparate data streams and applying data science, hospital systems can achieve a more comprehensive view into medication use and, in turn, leverage the new insights to improve safety, save money, and mitigate shortages and diversion opportunities.