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Analytics for Streamlining the Storage of Simplist®

University of Colorado Hospital Case Study

Introduction

The University of Colorado Hospital (UCH) is part of UCHHealth, which is a regional, integrated, not-for-profit health care system headquartered in Aurora, Colorado, serving the Colorado, Wyoming, and Nebraska region. UCHHealth offers primary, specialty, emergency, and urgent care. Ranked among the best hospitals in the country by US News & World Report and other rating services, UCHHealth is also rated a Level 1 Trauma Center and recognized as a Comprehensive Stroke Center.

The Challenge

In 2018, UCH experienced a severe supply shortage of controlled substances, which began to affect patient care. To help address this shortage, the Pharmacy selected a new offering: Simplist®, a ready-to-administer (RTA) prefilled syringe from Fresenius Kabi. The switch to Simplist provided the Pharmacy with a consistent, reliable supply of critical medication at a critical time.

After a shortage of controlled substances resulted in an introduction to Simplist prefilled syringes from Fresenius Kabi, the University of Colorado Hospital Pharmacy Division ran into a challenge of optimally fitting these prefilled syringes into their ADCs. Fresenius Kabi used their Optilytics technology to help them find a solution.

Although their original supply of controlled substances eventually improved, the Pharmacy chose to keep using Fresenius Kabi medications in prefilled syringes. However, UCH's Automated Dispensing Cabinet (ADC) system was originally designed to accommodate vials, not syringes; vials are much smaller on average than syringes. The Pharmacy had to find space for the ready-to-administer syringes along with existing medications. The size was especially a challenge for Intensive Care Units (ICU), which rely heavily on injectable controlled substances for pain management. The space required for the prefilled syringes reduced the quantity of drugs available in the ICU, which placed a bigger burden on the Pharmacy staff to replenish drugs more frequently.

That same year Fresenius Kabi introduced additional Simplist presentations of Dilaudid, which come in lower strengths than some traditional vials. These smaller strength options are better portioned to patient administration needs. (If an RTA syringe is only available in larger doses, this creates the necessity to waste product and opens the door to diversion. With smaller strength options, there is less waste.) UCH eventually decided to add Dilaudid 0.5 mg/0.5 mL syringes in their ADCs.

To realize the full benefits of the ready-to-administer syringes, Pharmacy Operations was interested in strategies and tactics to improve their current storage of Simplist products. UCH's storage ADC network is comprised of 110 existing Pyxis ADCs of differing configurations at different locations throughout the medical center. The operations team had to determine best locations, stock levels, and space available for this project. **"With a stable product such as Simplist, we can use our decentralized medication distribution model to store drugs in the ADCs,"** says the Manager of Pharmacy Operations, Ganesh Chandran, PharmD, MBA. **"Being able to put the medications where the nurses are working directly with patients improves efficiency and care."**

The Solution

In 2019, Pharmacy Operations created a new position, Pyxis Optimization Coordinator, to manage the medication inventory throughout the ADC network. In that role, Jennifer Blair, CPhT, was able to achieve content and PAR optimization; however, spatial optimization was more difficult to achieve with their existing tools.

Fresenius Kabi offered a solution to improve cabinet spatial optimization with its Optilytics analysis, which provides analytics for streamlining the storage of Simplist syringes by looking holistically at how the cabinets were currently being used. Optilytics analyzes existing data from ADCs and provides a succinct road map for storage reorganization - enabling hospitals to place the right mix of drugs, in the right locations for clinicians and patients, and reducing the frequency of ADC replenishment.

The Process

Experienced informatics pharmacists from Fresenius Kabi led the process in collaboration with Jennifer Blair. Optilytics produced a roadmap of the most efficient and effective way to store Simplist. The team used a three-step process:



Data Collection: Gather information on existing inventory locations from the ADC network (note: no patient or proprietary data is collected or shared)



Analysis: Optilytics analyzes the data to uncover the most efficient way to relocate medications to provide space for Simplist



Reporting: Optilytics provides instructions for the selective optimization of Simplist including time estimates and inventory changes

According to Blair, it was quite easy to provide the current inventory levels and current locations of medications needed for the analysis as all the required reports are standard in their automated dispensing system.

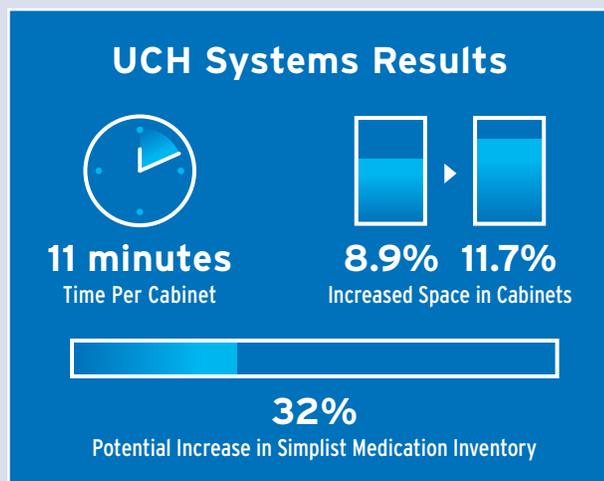
Once she received the final Optilytics analysis, Blair started working on the cabinets: **“One by one, I physically made the changes and adjustments needed. The [Optilytics] report was very clear and easy to follow. Instead of ten steps, it took only three or four steps to reorganize the target cabinets. Overall, the report cut the time in half to complete the moves,”** she says.

The Results

Optilytics was run for all 58 cabinets with Simplist. Overall, the tool found that across 58 cabinets, 16.9% of space was currently available in the system. The analysis demonstrated that an additional 3.9% of space could be created across those cabinets, along with an 18.6% increase in potential inventory levels.

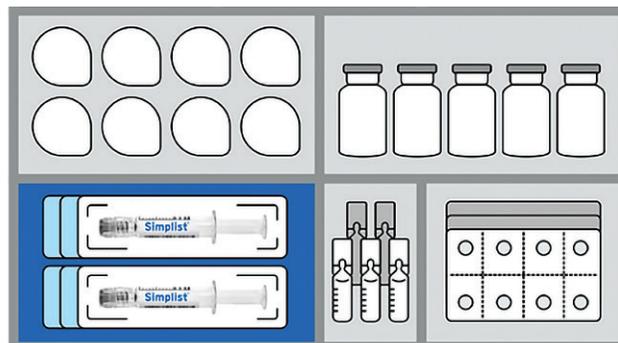
High-impact areas were chosen to complete the suggested changes for Simplist. The focused results showed that current Simplist inventory could be maintained while increasing the total space in the cabinets. Overall the hospital could increase their Simplist inventory levels by 32% while also increasing their available pocket space by 2.8%.

From a workload perspective, the moves performed by the technician took, on average, 11 minutes per station to complete.



Benefits

UCH was successful in improving spatial optimization to accommodate Simplist prefilled syringes in the existing Pyxis system without additional investment. This transition provided numerous benefits for Pharmacy Operations, for the nursing staff and ultimately for patients.



When Simplist was selected for its many valuable attributes, the challenge of storage became top of mind for UCH. Optilytics provided the information to optimize the space to accommodate more products. Optilytics helped UCH find the right spaces for their Simplist RTA syringes and also increased overall space available in their cabinets for all products.

“The unexpected benefit that I did not think about until we implemented the project was saving technicians’ time needed to replenish the supply to meet patient demand,” says Ganesh Chandran, Manager of Pharmacy Operations. **“The technicians who are replenishing the cabinets every day are the ones who feel the pain of not having the space they need in the cabinet. If we do not have adequate inventory in our ADCs, technicians are going back to the cabinets 2 or 3 times a day.”**

At University of Colorado Hospital, patients are always first. Ensuring the right medications are always available for patients is a top priority. According to Jennifer Blair, **“Optilytics helped us spatially optimize our ADCs to accommodate RTA syringes, while maintaining overall ADC inventory levels. As a result, our nurses can be more confident that the medications they need are readily available in their unit. Nurses can spend less time locating medications and more time with patients.”**

For more information on Pharmacy Storage Support visit: <https://simplist-us.com/resources/pharmacy-storage-support/>

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