

# CASE STUDY

## Pharmacists Will be Replaced by Robots: An Updated Time Study on IntelliVault™ From GSL Solutions Inc.



**Michael Kiso, Pharm D. RPh**  
MBA Candidate 2020

### BACKGROUND

Pharmacists have been manually tracking and reconciling physical controlled drugs to a perpetual log since 1971 at the institution of the DEA's Title 21. The importance of tracking controlled substance inventory and dispensing history cannot be understated, but has long been hampering the full potential of pharmacy operations and demoting clinically trained pharmacists to "bookkeepers" and "gatekeepers." GSL Solutions Inc., a company well-known for the RFID-based IntelliCab™ pharmacy will-call system found throughout military, community, and integrated-delivery network (IDN) pharmacies across the globe, has developed a new product, IntelliVault™. This product disrupts the current labor intensive and error-prone controlled-substance inventory management practices within the pharmacy. This unique product aims to replace the typical open-faced "control cabinet" with discrete drug storage featuring real-time workflow tracking to eliminate diversion and drug loss. This optimizes pharmacy operations and reduces labor costs. It achieves this through shifting time-consuming, non-clinical labor away from pharmacists to pharmacy technicians and software automation, while maintaining controlled substance accountability. While accountability was the primary objective for IntelliVault™, it has also demonstrated significant operational benefits via streamlining pharmacy workflows. More specifically, these benefits include:

#### 1. Controlled Substance Stock Receiving

Technicians can now receive controlled substances and associate stock bottles to a SmartBasket™, reducing pharmacist time in drug receiving. As controlled substances are documented by the IntelliVault™ software, the stock is automatically reconciled against the DEA 222 form, ensuring all products are accounted for. Additionally, multiple technicians can receive controlled substance stock simultaneously, allowing for reduced drug shelving time.

#### 2. Drug Retrieval + Filling

Controlled substance stock bottle retrieval, Rx filling, and back counting can now be completely shifted away from pharmacists to pharmacy technicians. The Pick-to-Light™ system of IntelliVault™ directs the technician to the SmartBasket™ with the appropriate stock bottle upon prescription label scanning. This eliminates the "gate-keeper" responsibilities of pharmacists to retrieve the stock bottle from the CII cabinet for the technician to fill. Documentation of the stock bottle's lot and expiration date at receiving allows for the oldest stock bottle to be utilized first. Additionally, NDC verification, tracking and logging the drug pedigree is as simple as picking to the lights.

# CASE STUDY

## BEFORE



## QUANTIFYING THE OPERATIONAL VALUE OF INTELLIVault™

An integrated-delivery network (IDN) hospital system in the United States conducted a time study in one of their several outpatient pharmacies to calculate the direct cost-savings and indirect benefits of utilizing IntelliVault™ for controlled substance inventory tracking. The data collectors followed the lifecycle of a prescription from start to finish and recorded the time to complete each workflow step. Time data was collected pre- and post- institution of IntelliVault™ in the pharmacy workflow. The pre- and post- IntelliVault™ data was then compared to determine if a time savings existed per prescription filled. Total labor cost per prescription was calculated by multiplying the time to complete a workflow step by the wage rate of each respective pharmacy employee type: “pharmacist” or “pharmacy technician.” These labor costs were then summed to calculate the total cost to dispense a single controlled substance prescription in the IntelliVault™ model.

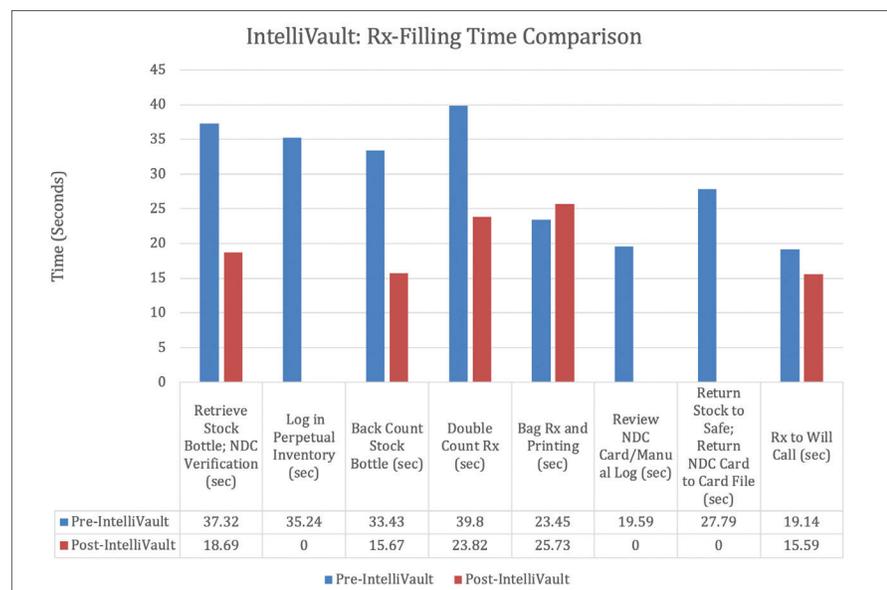
## THE RESULTS

**Table 1. Pharmacy Volume Data**

IDN Rx Volume			
Average Total Rx (Per week)	1,320	Control Rx volume (per week)	307

**Table 2. Total Labor Savings with use of IntelliVault™ for Rx Filling and Ancillary Activities**

Total Labor Savings	Labor Savings Per Year (\$)
Direct Rx Filling Activities	\$ 38,929.14
Ancillary Activities	
Inventory Check-in	\$ 5,590.62
Discrepancy Investigation	\$ 4,020.00
Total	\$ 48,539.76



**Figure 1. Pre- vs. Post- IntelliVault™: Comparison of Total Time-to-Complete Rx Filling Workflow Steps**

# CASE STUDY

## AFTER



1. It should be noted that this IDN pharmacy also has the GSL IntelliCabs for will call. Adding IntelliVault to the efficiency and labor savings is not herein quantified. In broad strokes, retrieval of prescriptions from the antiquated "hanging bag" system of old to one using real-time RFID IntelliCabs saved over 55% in prescription retrieval time and a total of 34% reduction in the time a patient spends at the register. This savings is in addition to the hours gained for automating the return to stock process IntelliCabs now provides.

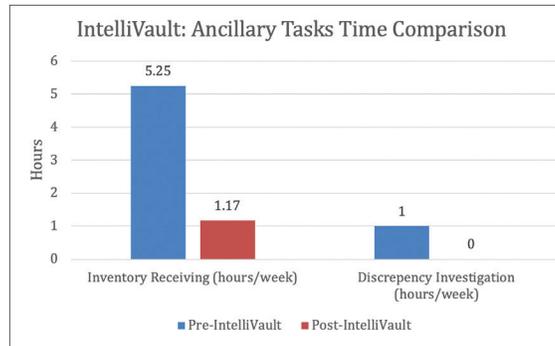


Figure 2. Pre- vs. Post- IntelliVault™: Comparison of Total Time-to-Complete Ancillary Task Activities

## DATA ANALYSIS

From the above data, we can see that IntelliVault™ was found to markedly reduce the total time to fill a controlled prescription. The total time to fill a single controlled substance was reduced by 1.81 minutes. This IDN filled approximately 307 controlled substances per week, so this cost savings could be significantly larger in many retail or hospital pharmacies with larger outputs. Outside of prescription fulfillment, reductions in time to complete inventory receiving and controlled inventory reconciliations were also observed. Inventory receiving was reduced by 4.08 hours per week and inventory discrepancies were eliminated altogether. Labor savings produced by IntelliVault™ for inventory receiving and discrepancy investigations were calculated to be \$5,590.62 and \$4,020.00, respectively (based on this IDN's Pharmacist and Technician hourly rates). In total, combined labor savings were calculated as \$48,539.76 per year. These calculations do not take into account the value of improved customer satisfaction with reduced wait times, nor do they quantify employee satisfaction by allowing technicians and pharmacists to practice at the top of their licenses.<sup>1</sup>

## CONCLUSIONS & OTHER CONSIDERATIONS

From the data collected, we can see that this pharmacy has produced significant labor savings by instituting the IntelliVault™ into their workflow. This savings is largely due to the elimination of pharmacist documentation in the manual perpetual inventory and shifting controlled drug receiving, stock bottle retrieval, prescription filling, and return-to-stock away from pharmacists to pharmacy technicians. For any pharmacist who has spent significant time reviewing a manual perpetual inventory (while questioning why they went to pharmacy school to "manage a log-book"), this is a paradigm shift. IntelliVault™ automatically monitors user access and tracks changes in the controlled substance inventory in real-time, eliminating the potential for human-driven accounting errors and diversion. The most striking finding of this study was the complete elimination of discrepancies in controlled substance inventory since the adoption of IntelliVault™. While other automated controlled drug inventory products exist, they do not share the same unique characteristic of discrete storage as used by IntelliVault™. The use of discrete storage ensures that the individual filling a controlled prescription only has access to the stock bottle that it deems appropriate, based on the scanned Rx label. Should other SmartBaskets™ with other drug product be tampered with, this is documented in the IntelliVault™ user-activity logging feature for future review. A metaphor that can be used to describe this is: if you were going to commit burglary, you would not do so in your own house. That is to say, diversion of drug is less likely to occur if a user's activities are tracked and all drug storage containers are "hermetically sealed" until deemed appropriate by the IntelliVault™ software. This allows for true automated controlled inventory accountability and inventory management, unlike any other product that is currently available.

# Safety, Accountability, Efficiency and Compliance

## See what others have already discovered

### IntelliVault™ WITH AUTOLOG™

BY GSL SOLUTIONS



**BEFORE**

**AFTER**

#### INTELLIVAULT STANDS ALONE OR INTEGRATED WITH INTELICABS

- Eliminates shrink and drug loss by replacing today's "open face / open access" controlled drug storage cabinets
- Replaces today's error-prone and manual perpetual log book
- Logs all transactions and user activities automatically
- Replaces pharmacist labor with technician labor for C2 filling
- Maintains complete chain of custody and pedigree from stock receiving to prescription filling and patient pick up
- Payback from labor savings in as little as 1 year

### IntelliVault MTB™

BY GSL SOLUTIONS MEDS-TO-BED



#### NEW SYSTEM TO SUPPORT STREAMLINED DISPENSING OF PRESCRIPTION MEDICATIONS AT PATIENT'S BEDSIDE

- Physical chain of custody is maintained from filling of prescription through receipt by the patient
- Easy integration to RN notification system and dashboard when prescription is ready
- Signature Capture stores the patient's signature confirming receipt of medications from their bedside
- Real-time inventory of cabinet contents
- Secure storage of patient's home medications
- Patient monographs printed on demand

### IntelliCab™

THE LEADER IN WILL-CALL STORAGE



**BEFORE**

**AFTER**

#### INTELICAB STANDS ALONE OR INTERGRATED WITH INTELLIVAULT

- Secure storage for will-call
- Proven ROI based on labor cost savings
- Improves customer service through a decrease in wait time
- Sends the patient a text message when RXs are ready with AutoNotify
- Integrates with central fill
- Maintains drug pedigree, lot, and expiration date when integrated with IntelliVault



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