CASE STUDY

Reconciling Irreconcilable Differences: A 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 drug inventory to a perpetual inventory log since 1971 at the institution of the DEA's Title 21. The importance of tracking controlled substance inventory and dispensing history cannot be overstated, but has long been hampering the full potential of outpatient pharmacy operations. GSL Solutions Inc., a company well-known for the IntelliCab™ pharmacy will-call system found throughout military pharmacies and community pharmacies across the globe, has developed a new product, IntelliVault™. This unique product aims to replace the typical "gun safe" type open-faced and open-access controlled substance cabinet with a real-time discrete storage and tracking system based on Radio Frequency Identification (RFID). The IntelliVault™ system has successfully eliminated diversion and drug loss while optimizing pharmacy operations and reducing labor costs. It achieves this through shifting time consuming, yet non-clinical labor away from pharmacists to pharmacy technicians. It also eliminates time required to reconcile inaccuracies associated with manual logs via three steps:

1. Controlled Substance Stock Receiving
    - Technician coupling of controlled substance stock bottles with a SmartBasket™ with entry of lot number and expiration date.
    - Multiple technicians receiving and filing stock simultaneously.
    - Automatic reconciling of received stock with distributor drug invoice or form 222.
2. Drug Retrieval + Filling
    - Scanning the Rx label prompts a pharmacy technician to retrieve the controlled stock bottle with the Pick to Light™ System.
    - Entry of lot number and expiration date at the receiving step allows for the oldest stock to be used first and allows for simplification of drug recalls.
    - Returned to stock prescriptions will automatically be used on the next fills.
    - Storing a given NDC in multiple SmartBaskets™ allows for multiple technicians to fill that same medication without the inventory worry of managing a "lead bottle."
3. Stock Bottle Back Count + Return to Stock
    - Once the technician fills the Rx, a blind back count ensures accuracy, accountability, and chain-of-custody. Any discrepancies are reviewed by a pharmacist, who can utilize GSL's reports to review any potential issues with their associated users.
    - Software uses Pick to Light™ Technology to prompt technicians to complete return to stock in a matter of seconds.

GSL SOLUTIONS, INC.
"....the Leader in RFID Pharmacy Technology."

CASE STUDY

BEFORE

Calculating 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 investigate the potential value and labor savings with a pharmacy workflow that utilizes IntelliVault™. The data collectors followed the lifecycle of a prescription from start to finish and recorded the amount of time to complete each respective workflow step. Average time to complete each workflow step was calculated and multiplied by the wage rate of each respective pharmacy employee type: "pharmacist (RPh)" or "pharmacy technician." These labor costs were then summed to calculate the total cost to dispense a single controlled prescription in the Standard of Practice model. The total labor costs for the IntelliVault™ integrated model was calculated using the average time data from the old Standard of Practice model but adapted in the following way to conceive the IntelliVault™-integrated model: a) shifting workflow steps from RPh to technician, b) eliminating workflow steps no longer needed with the IntelliVault™-integrated model, and c) reducing average time to complete several workflow steps based on historical average time data of other pharmacies who have a proven IntelliVault™-integrated workflow. The IntelliVault™-integrated model costs of labor were then summed in the same fashion as previously described and compared to the costs of labor from the Standard of Practice model. Figures 1-4 describe the pharmacy volume, changes in workflow steps and average time to complete, labor savings per controlled Rx dispensed, and total yearly labor savings from workflow adaptations, respectively.

The Results

Figure 1. Rx Volume Data

IDN Pharmacy Rx Volume	
Average Total Rx (Rx Per week)	1,500
C-II volume (Rx Per week)	175
C-III through C-V volume (Rx Per week)	132

Figure 2. Change in Workflow Step Time Requirements – Previous Standard of Practice vs. IntelliVault™-Integrated Model

	Previous Standard of Practice		IntelliVault™-Integrated Model	
Workflow Step:	RPh Time (min)	Tech Time (min)	RPh Time (min)	Tech Time (min)
1. Retrieve Stock Bottle + Perform NDC Verification	0.622	–	– (shifted to tech)	0.167 (reduced time)
2. Fill Rx	–	1.177	–	1.177
3. Back Count Stock Bottle	–	0.567	–	0.567
4. Make Entry on Control Card + Perpetual Inventory Log	–	0.587	–	– (eliminated)
5. Perform Rx QC	0.779	–	0.779	–
6. Back Count Stock Bottle	0.557	–	0.557	–
7. Double Count Rx	0.663	–	– (shifted to tech)	0.663
8. Print Paper Work for Rx	0.267	–	0.267	–
9. Bag Rx and Paperwork for Will Call	0.391	–	0.391	–
10. Review NDC Card + Perpetual Inventory Log for Completeness	0.327	–	– (eliminated)	–
11. Return Stock Bottle to Safe + Return NDC Card to File	0.463	–	– (shifted to tech)	0.167 (reduced time)
TOTAL TIME (min)	**4.07**	**2.33**	**1.99**	**2.74**

GSL SOLUTIONS, INC.
"....the Leader in RFID Pharmacy Technology."

CASE STUDY

AFTER

Figure 3. Labor Cost Data Comparison – Without vs. With IntelliVault™

Labor Cost Per Rx Dispense Without IntelliVault™ ($)		Labor Cost Per Rx Dispense With IntelliVault™ ($)	
RPh	$5.45	RPh	$2.67
Tech	$0.91	Tech	$1.07
Total Avg Labor Cost Per Rx Dispense	$6.36	**Total Avg Labor Cost Per Rx Dispense**	$3.74

Figure 4. Total Yearly Savings Per Controlled Substance Dispensing

Savings and Cost Analysis	
Δ Avg Labor Cost Per Rx	$2.62
Savings Per Year	$22,933.66

Data Analysis

On average, there was a calculated labor savings of $2.62 per controlled Rx dispense in favor of an IntelliVault™-integrated system with total savings per year of approximately $23,000 based on the average monthly controlled Rx volume as shown in figure 1. A significant portion of the labor shifted from pharmacists to pharmacy technicians, as shown in figure 2, while still reducing total time to fill a prescription by 1.67 minutes.

Conclusions and Other Considerations

From the data collection, we can see that the pharmacy has an opportunity for significant savings in labor. This is largely due to the elimination of pharmacist entry and review of the manual perpetual inventory log and shifting controlled drug retrieval, filling, and return-to-stock away from pharmacists to pharmacy technicians. This allows for pharmacists to be more heavily integrated in clinical roles and counseling. Additionally, this estimation in labor savings does not quantify nor qualify the time and risk required for reconciliation of inaccurate manual logs. The use of a now automated perpetual inventory via IntelliVault™ tracks changes in controlled drug inventory in real time without the potential for human-driven accounting errors and subsequent time spent counting and reconciling historical dispenses. Additionally, this estimation of labor savings does not account for the improvement in controlled freight receiving processes, which are automatically and electronically received and reconciled against distributor forms 222 and other controlled drug receipts with GSL Solutions' AutoLog™ features. Pharmacists no longer need to manually enter the quantity of controlled inventory received into a manual perpetual log. Additionally, and not studied, a system like IntelliVault™ would speed up quarterly physical inventory and allow for shifting this labor from pharmacists to technicians. IntelliVault™ breaks the paradigm of spending overtime labor for this activity before or after opening to regular technician hours during normal operations.

Pharmacies have been utilizing manual logs since it was first required by the DEA in 1971. Computers and new robotics have digitized and evolved the world of pharmacy records and operations over the last 30 years, but no technology has yet tackled the improvement in controlled drug inventory storage and tracking. As the culture of pharmacy is rapidly advancing with clinical practice roles evolving at an astounding rate, pharmacist time is valuable and often limited. The integration of IntelliVault™ appears to be a natural progression to advance our archaic and outdated manual inventory log to a culture of automation. It mandates improved accuracy and maintenance of chain of custody over the entire filling process. Utilizing pharmacists as accountants for controlled inventory is clearly a disservice to the education and level of expertise we hold in drug therapies. Integrating new technologies like IntelliVault™ allows pharmacists to better apply their valuable clinical knowledge to the care team and facilitate improved patient outcomes.

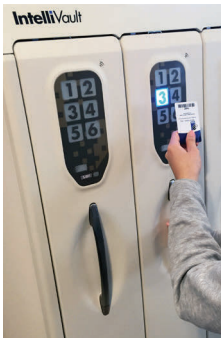
GSL SOLUTIONS, INC.
"....the Leader in RFID Pharmacy Technology."

Safety, Accountability, Efficiency and Compliance
See what others have already discovered

IntelliVault™ WITH AUTOLOG™
BY GSL SOLUTIONS



BEFORE




AFTER

CONTROLLED DRUG STORAGE, PRESCRIPTION FILLING, AND RETRIEVAL SYSTEM

- 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

STANDS ALONE OR INTERGRATES WITH INTELLICAB

- 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

GSL SOLUTIONS, INC.

See our full suite of products online

Contact us: www.gslcorp.com | 360.896.5354