DATARITHM
INVENTORY CONTROLLED

What They Didn't Teach in Pharmacy School

A COMPREHENSIVE GUIDE TO PHARMACY AUTOMATION & INVENTORY MANAGEMENT

Terms, Trends, & Tech to Know in 2022

INTRODUCTION

This eBook was developed to help pharmacists, pharmacy techs, and others involved in independent and chain pharmacy understand the ins and outs of pharmacy inventory management and the myriad of benefits automation technology can provide.

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SECTION 1:

What is Pharmacy Inventory Management?

Inventory is the single largest investment and ongoing expense every pharmacy has. Best practices for inventory management include maintaining accurate on-hand stock positions as well as establishing when and how much to replenish the stock to meet anticipated demand while avoiding overstock or out-of-stock situations. Both of which can negatively impact a pharmacy's bottom line.

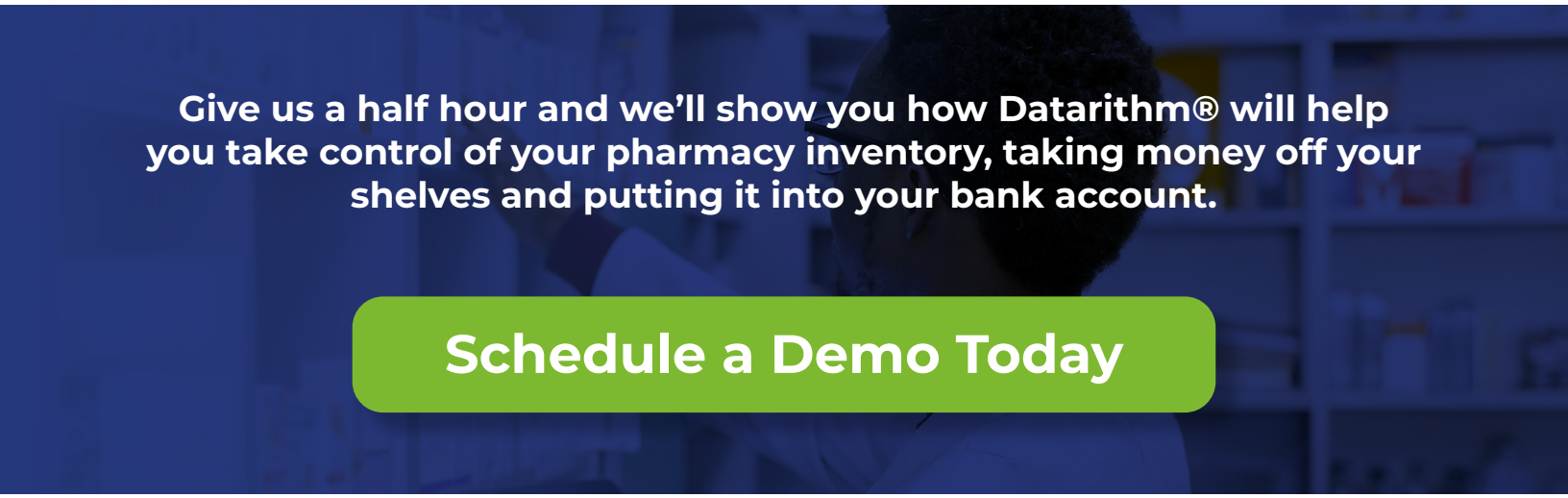
An inventory management system is implemented to provide better stock control, replenishment, and drug dispensing. In return, your operating costs will decline, while profits, cash flow, and customer service improve through the operational efficiencies gained.

There are three (3) recognized methods of pharmacy inventory management:

1. The Visual Method

The Visual Method of pharmacy inventory management requires staff members to manually inspect, or, eyeball the inventory. If the inventory level of any item appears insufficient to cover upcoming fills, replenishment is triggered. Unfortunately, the pharmacist or technician is typically too busy to place the order and will often write a note or commit the needed reorder to memory. Far too often stock issues are not realized until it is too late—like when the last of the drug's inventory has been dispensed.

This method is not effective, because it's nearly an impossible task to keep up with a pharmacy's constantly changing inventory stock and demand. Additionally, surplus inventory identification that may suggest potential wholesaler returns, or store-to-store transfers for chains which can elevate a pharmacy's cash flow, are not recognized with this method.



2. The Periodic Method

The Periodic Method focuses on performing basic inventory management tasks at scheduled and routine intervals. This method may incorporate basic technology that removes the need for manually updating inventory status and incorporates the use of barcode scanning. This means pharmacy technicians inspect the inventory at specific periods—either weekly, monthly, or annually.

While this method is more systematic than the Visual Method, status inaccuracies can surface after status updates, and it still relies on pharmacy personnel to make decisions based upon their observations, experience, and analytical knowledge. Unfortunately, inventory management can be left to inexperienced staffers or time-pressed pharmacists who don't understand the potential value of that wholesaler return and possible inventory transfers, the true cost of dead inventory, or how to properly identify and calculate exact reorder points across all of the drugs in a pharmacy's formulary.

3. The Perpetual Method

The Perpetual Method measures inventory continuously in real-time through a computer system that automatically updates on-hand quantities upon delivery and dispensing.

It incorporates an automatic replenishment system that ensures drugs are identified for reorder once the stock level reaches or falls below a calculated replenishment point. Items identified are then reviewed and accepted or adjusted as needed by the pharmacy staff. Items are then ordered manually or electronically via EDI through the pharmacy management system.

Of these three methods, Perpetual offers the most precise and accurate way for pharmacies to manage their inventory. Five immediate benefits include:

- On-hand inventory is always accurate
- Financial conditions (inventory investment & profitability) are readily available
- Shrink is easy to spot when PMS and shelf disagree
- Working capital is freed up
- Choice of manual or automatic EDI ordering is available

While the benefits of the Perpetual Method are clear and substantial, without automation, it does present inherent problems.

Maintaining reorder points for thousands of drugs, while recognizing fluctuating demand, is nearly impossible if the proper pharmacy inventory management technology is not in place.

SECTION 2:

The Benefits of Pharmacy Automation

As we discussed in the last section, the Perpetual method offers the most precise way for pharmacies to maintain accurate inventory. This is because it tracks your pharmacy's inventory continuously and in real-time. Otherwise, pharmacies rely on potentially inaccurate information which can lead to stock-outs, over-stocking, and elevated expired returns. Pharmacies considering a transition to Perpetual Inventory should consider the following:

- Monthly re-order point optimization is always in lockstep with changing demand and the preferences of management/owners.
- Optimized re-order points coupled with automatic return and transfer recommendations reduce overstock and dead inventory, lowering overall drug spend.
- Reduced ordering time gives you more time to care for patients.
- Improved fill-rates and inventory turns.
- Intelligent cycle counting to maintain on-hand accuracy.

Replenishment

Now with on-hands accurate and re-order points/quantities established, a style of replenishment must be determined. There are two options that both utilize the purchase order (PO) available in the PMS which will include all items in need of restocking. They are:

- Manual order placement with wholesalers
- Automated ordering through the PMS via Electronic Data Interchange (EDI) with wholesalers

Cycle Counting

Inventory levels can become inaccurate over time due to shrink, staff and wholesaler errors, etc., so periodic counting (also known as cycle counting) will assist in maintaining on-hand accuracy throughout the calendar year through real-time corrections when errors are discovered.

This precision will help to avoid both overstocking and stock-outs. Additionally, inventory accuracy provides a stronger basis for inventory reports and decision-making.

SECTION 3:

A Pharmacy's Financial Impact

A pharmacy's business depends on its inventory and the profits it brings in. However, the way inventory is managed may negatively affect that profit. The better you manage the flow of goods, the more money you make and the more cash you have on hand to grow the business. With that in mind, it is important to understand the key elements of your pharmacy's financials.

Inventory Turns

Your pharmacy's turn rate is a measurement of inventory efficiency. This ratio indicates how often inventory is "turned over" to meet dispensing demand.

On average, US pharmacies turn their inventories 12x per year.

The formula to calculate your pharmacy's turn rate is as follows:

Total cost of goods sold (COGS) over a set period of time, divided by the average dollar value of inventory maintained over the same time period.

For example:

$3,600,000 ÷ $300,000 = 12 turns per year

The best way to improve your pharmacy's turn rate is to reduce its overstock and dead inventory. With the right inventory stock levels, the average dollar value of inventory will go down, leading to improved turn rates.

Profit and Loss

Implementing a good inventory management system can reduce many inventory-related expenses such as carry costs, replenishment costs, and expired drug return costs.

Your pharmacy's carry costs are the cost of maintaining a pharmacy's inventory for the entire year. It accounts for all expenses incurred while maintaining stocked inventory in a pharmacy. Carrying costs include the interest expense on money to purchase inventory (opportunity costs), shrink, the state insurance and taxes on inventory (if applicable by state), and general inventory handling and cycle counting activities.

Your pharmacy's replenishment costs are comprised of the value/cost relating to the time pharmacy staff spends finalizing and placing orders, confirming receipt of orders, verifying receipt matches the invoice, stock put-away, and processing payments.

Reducing these expenses will lead to stronger profitability and a healthier bottom line.

Expired Drug Returns

Your pharmacy's expired drug returns include all costs associated with purchasing, carrying, and returning unused short-dated and expired inventories.

- **Write-off loss** is the difference between the acquisition cost and the return credit value received from the manufacturer (via the Returns company).
- **Carry costs** can range from 20% to 30% annually. It is expressed as a percentage and can be calculated with the following formula: Average Inventory Value x Carry Cost %
- **Return Processing Fees** can vary, but a widely accepted midpoint is 8% of the returned value.

Recognized industry standards indicate 10% of a pharmacy's average inventory value expires every year and only 80% of returnable inventory is ever recouped.

80% of the expired value is deemed returnable.

Let's use these standards to calculate an estimated cost on drug returns:

Example:

Pharmacy Average RX Inventory Value	$300,000
Estimated Annual Expired (10%)	$30,000
Expired Deemed Returnable (80% of Expired)	$24,000
Recoupment (80% of Returnable)	$19,200
Write-off Loss (Expired - Recouped)	$10,800 (3.6% of Average RX Inv. Value)
PLUS: Carry Cost (On Expired)*	$7,500
PLUS: Return Processing Fe (8% on Returned)	$1,920
Total Annual Expired Drug Return Cost	**$20,220 (6.7% of Average Rx Inv. Value)**

***Assume 1 yr. carry period and 25% Carry Cost (range midpoint)**

As you can see, the cost of expired returns is substantial. Therefore, efforts to reduce this heavy financial burden can improve profitability and cash flow.

What is Cash Flow?

Explaining Cash Flow (or CF) can be complicated because it is a compilation of three different components: cash flows from operations, cash flows from investing, and cash flows from financing. The combination of these components is provided in financial statements as the "Statement of Cash Flows" or "Cash Flow Statement".

Cash Flow is the generation of cash (inflows) offset by use or consumption of cash (outflows).

Cash flow is key to business survival. Generating net income does not always indicate positive cash flow because if sales are collected with a credit (insurance claim receivables) and collections are slow, while a profit may be realized in financial statements for prescriptions filled, cash inflow does not occur until those claims are received.

Cash Inflows:

- Net Income (before non-cash expenses)
- Collection/receipt of Accounts Receivable (insurance claims receivable)
- Reduction of inventory levels
- Increase in Accounts Payable
- Sale of property & equipment
- Increased borrowing

Cash Outflows:

- Net losses
- Expired Drug Return Costs
- Increased Accounts Receivable
- Increased inventory levels
- Reduction of Accounts Payable
- Purchases of property and equipment
- Debt reduction
- Dividends

Proper Inventory Management Improves Cash Flow

Carrying the right inventories at the right levels means that a pharmacy can cover demand without overstocking. Reduction of overstocked inventories reduces cash investment levels (cash inflow) and, ultimately, reduces future dead stock levels and expired return volumes. A strong inventory management solution can reduce cash outflow and improve overall cash flows.

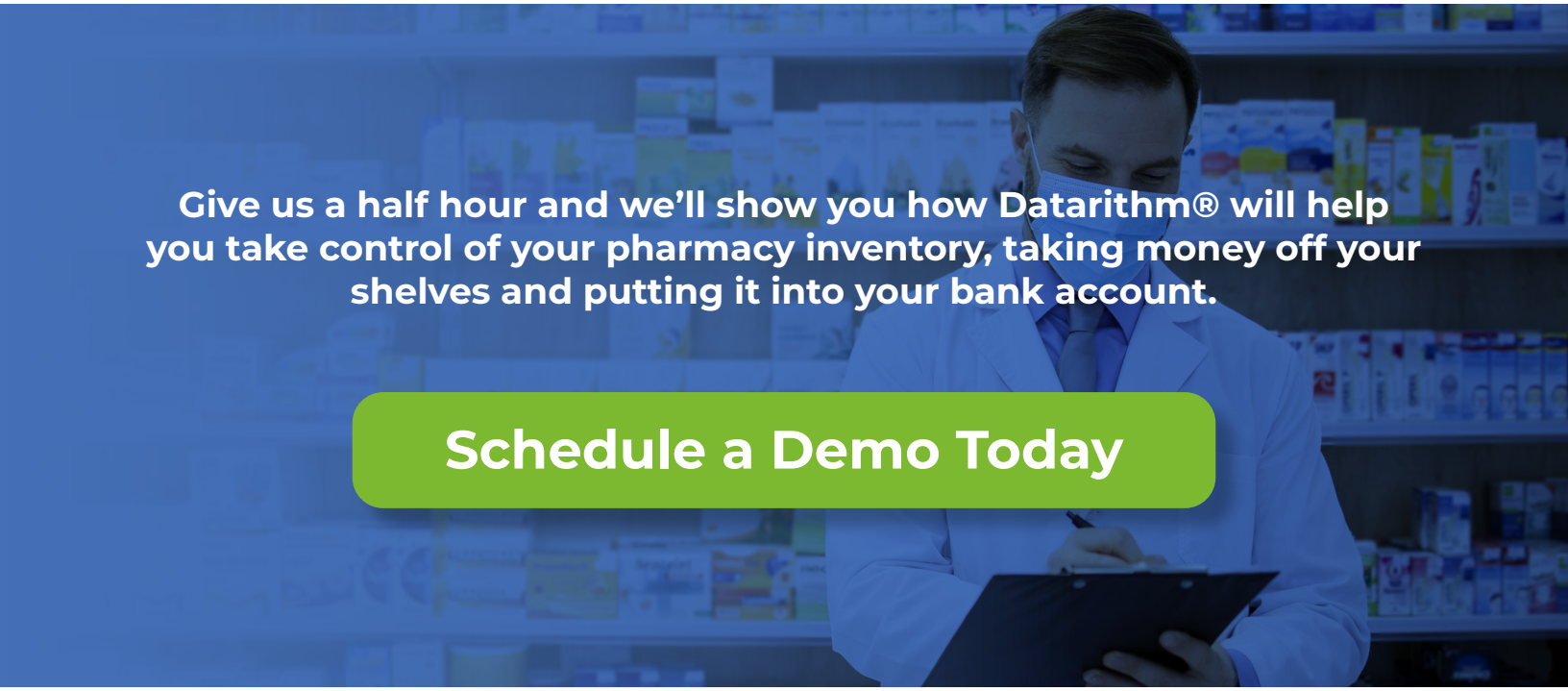
Poor inventory management can quickly lead to bloated, slow-moving, and dead stock as well as excessive levels of expired drug returns. This means pharmacies carrying too much inventory (Cash Outflow) can cripple their Cash Flows.

Conversely, poor inventory management can result in carrying insufficient inventory to meet demand which can result in the loss of business and, potentially, the loss of future business when customers buy elsewhere.

It is imperative that you know which items are in surplus and identify wholesaler returns to get what's not needed off your shelves.

Rx inventories represent the largest investment and biggest expense for pharmacies. Pharmacy automation and proper inventory management will convert surplus on the shelf to cash in the bank.

SECTION 4:



How to Transition to a Perpetual Method

For your pharmacy to thrive, implementing an inventory management system is the best solution to optimize stock control, replenishment, and drug dispensing.

The best method to manage your pharmacy's inventory is Perpetual. Under this method, stock quantities are constantly updated in conjunction with replenishment and dispensing. As such, pharmacy staff will always know what stock levels are to allow for better inventory management decisions.

To take the Perpetual Inventory approach, all that is needed is accurate on-hand positions and replenishment points for all inventory items. On-hand accuracy can be accomplished through a full physical count completed by pharmacy staff or an outside party. Establishment of replenishment points can be handled by pharmacy staff or through automation via inventory management software. With on-hands accurate and replenishment points established, restocking will occur when on-hand position reaches or falls below the re-order points.

While the benefits of the Perpetual Method are clear and substantial, without automation, it does present inherent problems. Maintaining reorder points for thousands of drugs, while recognizing fluctuating demand, is nearly impossible without the proper pharmacy inventory management technology in place.

On-Hand Accuracy

Maintaining on-hand accuracy can be accomplished through cycle counting functionality where pharmacy staff will count a manageable number of inventory items on a scheduled basis, making corrections directly into the Pharmacy Management System (PMS). With on-hand precision, your pharmacy will experience increased efficiency, improved staff productivity, and a better overall patient experience.

With on-hand accuracy established and maintained and re-order points in place within the PMS, daily ordering can be accomplished in two ways. Using the purchase order available through the PMS staff can place their orders on a manual basis or, for great efficiency and time savings pharmacy staff can use automatic Electronic Data Interchange Ordering (EDI).

Physical Count

Consider using an outside inventory vendor or organize pharmacy staff for the count. Deploy pill counting technology if available to speed the pace of the count. Then, upload on-hand results to the PMS.

With the above steps completed, your emphasis should be on maintaining accurate on-hand positions. This would include on-hand updates upon wholesaler deliveries (automatically through PMS or manually through PMS following confirmation that physical receipt matches wholesaler invoices). Importantly, inventories must be adjusted in associated with return to stocks. Lastly, your PMS will automatically decrement on-hands when prescriptions are filled.

Re-order Point Management

With on-hand positions now accurate, re-order points and quantities for all individual and generic equivalent groups must be established and constantly updated to recognize changes in demand, costs, and management goals. There are two methods for maintaining re-order points.

1. **Manual:** Established and maintained by pharmacy staff
2. **Automated:** Established and maintained through available software technology

Because typical pharmacies maintain formularies ranging from 2,000 to 5,000+ active inventory items, the manual approach is daunting and nearly impossible for pharmacy staff.

As such, leveraging technology provides an automated systematic approach that will ensure consistent precision and without human emotion, track usage patterns, and adjust re-order points accordingly. Automating inventory management will streamline tasks, create a seamless workflow, and make managing Rx inventory an important and core business function.

SECTION 5:

Glossary of Terms

Pharmacy Audit: An audit includes detailed information regarding each step and is divided into four sections; prescribing practices, controlled substances management, invoice management, and billing practices. These sections can be used separately or together as appropriate to meet the needs of the pharmacy practice.

Central Fill: Centralized prescription processing (central fill) refers to a service one pharmacy provides to another where the central fill pharmacy processes a request from an originating pharmacy to prepare a drug order. Medications packaged by a central fill pharmacy are dispensed by the originating pharmacy pursuant to a prescription.

Controlled Substance Act (CSA): This Act of the US Government places all substances that were regulated under existing federal law into one of five schedules. The placement is based on the substance's medical use, potential for abuse, and safety or dependence liability.

Cost of Goods: The carrying value of goods sold during a particular period. Costs are associated with particular goods using one of several formulas; including specific identification, first-in-first-out (FIFO), or average cost. Costs include all costs of purchase, costs of conversion, and other costs that are incurred in bringing the inventories to their present location and condition. Costs of goods made by the businesses include material, labor, and allocated overhead. The costs of those goods which are not yet sold are deferred as costs of inventory until the inventory is sold or written down in value.

Cycle Counting: The process of completing physical counts of inventory and adjusting through any discrepancies discovered. Cycle counts are typically completed at specific, regularly scheduled intervals (cycles).

Days On-Hand Inventory: Expected time period (days) to dispense inventory that you currently have on-hand. The value of Days On-Hand represents the inventory liquidity. Day's Supply at the Replenishment Point (Min or OP): Represents the inventory level (days), at or below, which triggers replenishment.

Dead Inventory: Items whereby dispensing activity has stopped due to defective product, no/low demand, or product that is short dated or no longer returnable to the wholesaler.

Demand: Market demand for a specific inventory item.

Demand Forecasting: The process of forecasting expected inventory utilization over an upcoming period of time. Important factors included in forecasting calculations can be historical usage patterns, recent usage trending, smoothing peaks and valleys, seasonality, order cycle time, and supplier lead time.

Dispensing Volume: The dispensing quantity over a selected time period.

Drug Diversion: A medical and legal concept involving the transfer of any legally prescribed controlled substance from the individual for whom it was prescribed to another person for any illicit use. Diversion includes employee theft for personal use or profit.

Drug Shortages: A lack of drug supply. Shortages may be a result of natural disasters, manufacturing problems, regulatory issues, raw material shortages, and voluntary recalls.

Drug Supply Chain Security Act (DSCA): Outlines the steps to build an electronic system to identify and trace certain prescription drugs distributed in the United States. This in turn helps protect consumers from exposure to drugs that may be counterfeit, stolen, contaminated, or otherwise harmful.

EDI or Electronic Data Interchange (Ordering/Receiving): An automatic ordering convention whereby a pharmacy management system sends replenishment orders to drug wholesalers when the on-hand quantity of a drug is equal to or below the replenishment point (Min or OP). In pharmacy, electronic orders are known as 850 files while wholesaler confirmations back the pharmacy are 855's and the wholesaler invoice is an 810 file. The 810 files can optionally trigger an automatic on-hand update within the pharmacy management system.

Fast Movers: Popular, high-demand drugs that are dispensed often and in high volumes.

Formulary: A formulary is basically a listing of drugs (prescription and other) that are dispensed in a pharmacy.

Drug Equivalents: Prescription drugs that are chemically equivalent (branded and generics). Equivalency is identified by generic indicator codes like GPI or GNC. Generic Groups: Generally referred to as drug equivalents exclusive of branded versions.

Generic Inventory Aggregators: Typically web based Rx inventory aggregators offer pharmacies a multi-wholesaler marketplace used to replenish Rx inventories. These are typically generic drugs at highly competitive prices. i.e.: pharmsaver.net

Just-In-Time Inventory: A style of inventory replenishment designed to receive stock close to the time it will be dispensed. The process allows pharmacies to keep inventory low and better manage cash flow.

Lead Time: The average duration of time between order placement and receipt from wholesalers.

Med Sync: Coordination of prescription refill dates so patients can obtain all or most of their medications at the same time every month.

Out-of-Stock (IOUs): Items that are no longer in inventory and need replenishment. The pharmacy may owe patients some portion of or all of the prescribed quantity.

Overstocked: Carrying inventory levels in excess of what is expected to be dispensed in a reasonable period of time.

Over The Counter (OTC): Medications that can be purchased without a prescription.

Pharmacy Management System: Pharmacy management software is a unified system that manages retail products and medications, and automates operations such as stock control and replenishment, drug dispensing, compliance, insurance claim management, billing, and reporting.

Physical Inventory: Counting the entire pharmacy inventory to calculate what the pharmacy has on hand.

Replenishment Point: The stock level at which inventory should be replenished. Typically known as the minimum (Min) or the re-order point (OP). Replenishment is triggered when on-hand quantities reach or fall below the replenishment point.

Return Companies/Reverse Distributors: Companies that provide various services focused on the dispensation of short-dated and expired Rx inventories. Such services can include onsite inventory removal and software technology to assist in the outbound processing of returnable RX inventories. Dependent upon manufacturer contractual rules pharmacies can receive partial or full return credits. Return credits can come in the form of wholesaler account credit or cash credit directly to the pharmacy.

Return Policies: As described in a pharmacy's contract (PVA) with their wholesaler, such policies outline the basis for returning full and unopened stock containers to the wholesaler for full credit or credit net of a restocking fee. Every wholesaler has different policies in place and there are many variables including time since delivery, package condition, salability, type of product (refrigerated/controls).

Robotics: Hardware technology used to count, store and or repackage Rx inventory.

Safety Stock: Insurance inventory maintained in case of unusual demand during the lead time or delays in receiving the replenishment shipment.

Service Level/Fill Rate: A measurement of a pharmacy's ability to fill prescriptions presented for fulfillment. Typically measured as a percentage. (i.e.: a 98% Service or Fill Rate implies 2% of presented prescriptions were not filled per the prescription).

Shrinkage: The loss of inventory that can be attributed to factors such as employee theft, shoplifting, administrative error, vendor fraud, damage, and cashier error. It is the difference between recorded inventory on a company's balance sheet and its actual inventory.

Supply: The amount of any drug immediately on hand for dispensing.

Surplus: The products that remain un-purchased and sit on store shelves.

Turnover Rates: A measurement of inventory efficiency (the higher the better). To calculate the inventory turnover ratio, the cost of goods sold (COGS) is divided by the average inventory for the same period. The pharmacy industry average is typically noted to approximate 12 turns annually.

Various Costs of Inventory

- **Acquisition Costs:** The amount paid to drug wholesalers to replenish inventory. This cost can be considered before or after wholesaler rebates.
- **Carry Costs:** The cost of maintaining inventory in your pharmacy for an entire year. This is expressed as a percentage and calculated with the formula: Annual costs incurred in carrying inventory + average inventory value. It is the accumulation of all expenses you incur maintaining stocked inventory in your pharmacy. A study provided by NCPA indicated that carry costs could range from 20% to 30%. (On average 2% per month).
- **Expiration Costs:** The difference between the acquisition costs and any return credit provided by drug manufacturers, post-expiration, via reverse distributors/ returns companies.
- **Replenishment Costs:** The cost of issuing, receiving, and paying for a line item on a vendor purchase order. This is generally the employee time cost associated with these tasks.
- **Shortage Costs:** The cost of not having inventory on hand when you need to fill a prescription. These costs include the following: time spent on secondary fills; cost of additional packaging and potential loss of patients.

Wholesalers Companies that supply and sell Rx inventories to pharmacies of any type; independent pharmacies, chain pharmacies, LTC, Specialty, Government institutions as well as inpatient and outpatient pharmacies associated with hospitals, and medical clinics.

Conclusion

An inventory management system is a must for every pharmacy. The Perpetual Method offers the most precise way for pharmacies to maintain accurate inventory. Automation technology takes this method to the highest level, optimizing cash flow while creating greater efficiencies and an overall better pharmacist and patient experience.

ABOUT DATARITHM

Datarithm®'s intuitive, cloud-based software is the perfect solution to implement perpetual inventory management for pharmacies of all sizes. It allows pharmacies to take complete control of their inventory with a simple-to-use dashboard and helps to free up pharmacy staff from time-consuming tasks.

How it Works

Datarithm®'s automated system meshes seamlessly with most leading pharmacy management systems. Datarithm® uses algorithms that forecast demand, recognizes trends, automatically resets reorder points, and surfaces potential wholesaler returns and store-to-store transfers (chains).

At-a-Glance

Pharmacies deploying Datarithm® typically experience stronger profit, cash flow, inventory turns, and customer service.

An average **20%** Inventory Reduction

98% Managed Service level

An average **4.6 point** Turn improvement and average turn rate of 19x

Extremely **cost effective** and easy to use

Improve your **cash flow** - and - **bottom line**

Datarithm® works with most popular Pharmacy Management Systems

But don't take our word for it... take theirs:

"Within ten minutes of going live, I pulled $10,000 worth of dead stock that I didn't know I had on my shelves. Over a 3 month period of time, I managed to reduce my inventory $100,000 and be able to keep it down since then."

Steve Spruill
Owner of Maddox Drugs in Toccoa, GA

"Reception to customer feedback and willingness to consistently and constantly improve their software will keep Datarithm® thriving and vibrant for years to come. The 20-25% reduction in inventory overhead and ease of inventory management simply become the icing on the cake."

Kyle Yoder
PharmD, Pharmacist Manager of Moose Salisbury Pharmacy of Salisbury, NC

"In the first 3 to 4 weeks with Datarithm®, we did about $100K worth of returns. Datarithm® has, from a pharmacy that we felt was well stocked with very few 'we owes', decreased our overall inventory by $320K and did not greatly increase our 'we owes.' The product works by decreasing your inventory levels while not inconveniencing your patients."

William Cooper
Pharmacy Manager at PRMC Home Scripts

Give us a half hour and we'll show you how Datarithm® will help you take control of your pharmacy inventory, taking money off your shelves and putting it into your bank account.

Schedule a Demo Today