

INVENTORY MANAGEMENT STRATEGIES

WITH A COMPARISON OF PERIODIC & PERPETUAL INVENTORY SYSTEMS

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IN A NATIONAL SURVEY PERFORMED BY THE INSTITUTE FOR SAFE MEDICATION PRACTICES, 20% OF PRACTITIONERS SURVEYED REPORTED THAT ADVERSE PATIENT OUTCOMES OCCURRED DUE TO A LACK OF INVENTORY MANAGEMENT AND MONITORING OF SUPPLY LEVELS.*

THE PRESENTATION WILL DISCUSS:

DIFFERENT INVENTORY MANAGEMENT TOOLS & MANAGEMENT PROGRAMS

MANAGE ADEQUATE PAR LEVELS, DECREASE OVER SPENDING, STOCK OUTS, INCREASE STAFF SATISFACTION, AND ULTIMATELY IMPROVE PATIENT SAFETY

INSTITUTE OF SAFE MEDICATION PRACTICES (2010) NATIONAL SURVEY ON DRUG SHORTAGES REVEALS SERIOUS IMPACT OF PATIENT SAFETY.
[HTTP://WWW.ISMP.ORG/PRESROOM/PR20100923.PDF](http://www.ismp.org/presroom/PR20100923.pdf)
[HTTPS://WWW.SAFETYNETCENTER.ORG/GLOBALASSETS/_SNC/PROGRAMS/INVENTORYMGMT/VECNA-CARES-OVERVIEW-3-15.PDF](https://www.safetynetcenter.org/globalassets/_snc/programs/inventorymgmt/vecna-cares-overview-3-15.pdf)

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LEARNING OBJECTIVES:

- ❖ IDENTIFY THE END GOALS OF ACHIEVING INVENTORY MANAGEMENT
- ❖ OUTLINE DIFFERENT OPTIMIZATION STRATEGIES TO MANAGE INVENTORY
- ❖ EXPLAIN THE DIFFERENCE BETWEEN COMPUTERIZED PERPETUAL INVENTORY, WITH STATIC SHELVING, AND THE CAROUSEL INVENTORY SYSTEMS
- ❖ LIST THE ADVANTAGES AND DISADVANTAGES OF MANUAL AND COMPUTERIZED INVENTORY SYSTEMS

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INVENTORY PURPOSE/REPLENISHMENT ROUTINES

- ❖ WHAT IS THE END GOAL ?
- ❖ WHICH METHOD TO USE ?
- ❖ WHO DECIDES ?
- ❖ WHICH IS SUITABLE FOR YOUR FACILITY ?

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INVENTORY PURPOSE:

THE ULTIMATE GOAL IN ACHIEVING INVENTORY MANAGEMENT IS TO MAINTAIN INVENTORY LEVELS THAT ESTABLISH DOLLAR BOUNDARIES...

WITHOUT INCREASING THE RISK OF HARM TO THE PATIENT.

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QUESTION

1: *WHAT IS THE BEST WAY TO EVALUATE YOUR INVENTORY MANAGEMENT ?*

- A: DECREASE INVENTORY VALUE OVER LAST YEAR'S VALUE
- B: YEARLY SPEND IS WITHIN FISCAL BUDGET
- C: RATIO OF INVENTORY TURNS
- D: DECREASE IN AMOUNT OF STOCK OUTS VS. LAST YEAR

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ANSWER

1: *WHAT IS THE BEST WAY TO EVALUATE YOUR INVENTORY MANAGEMENT ?*

- C: THE INVENTORY TURNOVER RATE IS THE MOST IMPORTANT METRIC FOR MEASURING PHARMACY INVENTORY. *

* [HTTPS://WWW.PBAHEALTH.COM/MEASURING-PHARMACY-INVENTORY/](https://www.pbahealth.com/measuring-pharmacy-inventory/)

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URNS ?

DIVIDE PHARMACY ANNUAL SPEND BY THE INVENTORY VALUE

❖ YEARLY SPEND: \$4 MILLION

❖ INVENTORY VALUE: \$375,000

❖ TURN EQUALS ?

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URNS ?

DIVIDE PHARMACY ANNUAL SPEND BY THE INVENTORY VALUE

❖ YEARLY SPEND: \$4 MILLION

❖ INVENTORY VALUE: \$375,000

❖ **TURN EQUALS 10**

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QUESTION

2: WHAT IS THE NATIONAL AVERAGE HOSPITAL
TURN RATE ?

- A: 6
- B: 8
- C: 10
- D: 12

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ANSWER

2: WHAT IS THE NATIONAL AVERAGE HOSPITAL
TURN RATE ?

- C: 10
- ✓ THE NATIONAL AVERAGE INVENTORY TURN RATE
IS 10.2*

* [HTTPS://WWW.MCKESSON.COM/PHARMACY-MANAGEMENT/DRUG-INVENTORY](https://www.mckesson.com/pharmacy-management/drug-inventory)

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IN GENERAL, AN INVENTORY TURNOVER RATIO OF APPROXIMATELY 12 TURNS PER YEAR IS CONSIDERED OPTIMAL FOR MOST PHARMACY OPERATIONS.

THIS MEANS, ON AVERAGE, THE PHARMACY WILL OPERATE WITH ABOUT 30 DAYS, OR ONE MONTH, OF INVENTORY ON HAND.*

* FINANCIAL ANALYSIS IN PHARMACY PRACTICE –AUTHORS, KEITH N.HERIST, BRENT L. ROLLINS, MATTHEW PERRI- RESEARCHGATE

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QUESTION

3: WHICH IS THE BEST REPLENISHMENT STRATEGY ?

- A: JUST IN TIME INVENTORY
- B: SET PAR LEVEL BASED ON HISTORICAL PURCHASES
- C: ROUTINE REVIEW OF INVENTORY NEEDS, STAFF ASSIST
- D: USE OF 80/20 RULE OR ABC ANALYSIS / PAR LEVELS

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ANSWER

3: WHICH IS THE BEST REPLENISHMENT STRATEGY ?

- ✓ D: USE OF 80/20 RULE OR ABC ANALYSIS

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80/20

ALSO KNOWN AS THE PARETO PRINCIPLE

- ❖ 20% OF INVENTORY/MEDICATIONS ARE
- ❖ 80% OF SPEND (MONTHLY/YEARLY)
- ❖ HIGH IMPACT SPEND DUE TO VOLUME
- ❖ HIGH COST MEDICATION

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80/20

- ❖ **80% OF SPEND WILL BE FROM 20% OF INVENTORY**
- ❖ ANNUAL SPEND \$ 4 MILLION
- ❖ INVENTORY VALUE \$ 375,000
- 2,000 MEDICATIONS IN INVENTORY
- 400 ITEMS SPEND \$ 3,200,00
- 1,600 ITEMS SPEND \$ 800,000

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ABC ANALYSIS -

*MANY CREDIT H.F. DICKIE AS FIRST TO ESTABLISH **

- ❖ "A" REPRESENTS 70% OF ANNUAL SPEND, 10% OF INVENTORY
- ❖ "B" REPRESENTS 20% OF ANNUAL SPEND, 20% OF INVENTORY
- ❖ "C" REPRESENTS 10% OF ANNUAL SPEND, 70% OF INVENTORY

*Factory Management and Maintenance; Vol. 109,
Dec. 1951, pp. 68-73.

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ABC ANALYSIS

- ❖ ANNUAL SPEND \$4 MILLION
- ❖ INVENTORY VALUE \$375,000
- ❖ 2,000 MEDICATIONS IN INVENTORY
 - A ITEMS - 200: SPEND \$2,800,000
 - B ITEMS - 400: SPEND \$800,000
 - C ITEMS - 1,400: SPEND \$400,000

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ESTABLISH PAR LEVELS

- ❖ DETERMINE DAILY USAGE
- ❖ DETERMINE DAYS ON HAND
- ❖ DETERMINE SAFETY STOCK & REORDER POINTS

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ESTABLISH PAR LEVELS

- ❖ DETERMINE DAILY USAGE
 - 378 DOSES/WEEK, 54/DAY
- ❖ DETERMINE DAYS ON HAND
 - 4 DAYS ON HAND = 216 (3 DAYS = 162)
- ❖ DETERMINE SAFETY STOCK & REORDER POINTS
 - STOCK OF 1 DAY = 54
 - REORDER POINT 270 DOSES

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ESTABLISH PAR LEVELS

DETERMINE REPLACEMENT VALUE (4-DAY MIN & 7-DAY MAX)

- ❖ "A" REPLACE WEEKLY, "B" 2 X MONTH, "C" MONTHLY (1 OR X 2)
- ❖ REPLACEMENT VOLUME, PACKAGE SIZE, SPEND (100 CT.)

	Min	Reorder Point	Max	Order Qty	Cost	Cost/ Order	Monthly Spend
	<i>daily x 4</i>	<i>Plus 1 day</i>	<i>Most On hand</i>				
A	216	270	378	1	\$ 793	\$ 793	\$ 3,172
B	216	270	756	5	\$ 75	\$ 375	\$ 750
C	216	270	1620	14	\$ 4	\$ 62	\$ 62

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INVENTORY REPLENISHMENT TACTICS:

- ❖ KNOW WHEN TO ORDER
- ❖ KNOW EXACTLY HOW MUCH TO ORDER
 - *PREDETERMINED MIN MAX REORDER LEVELS & ORDER QTY*
- ❖ MONITOR AND MEASURE PERFORMANCE
 - *REDUCE STOCK OUTS, OVER-STOCK, WASTE*
 - *INCREASE TURNS, STAFF SATISFACTION, MEET EXPECTATION*
- ❖ CHANGE ORDERING HABITS AS NECESSARY
 - *BASED ON USAGE, RECALCULATE PAR LEVELS ROUTINE INTERVALS*

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COMPARISON OF PERIODIC & PERPETUAL INVENTORY SYSTEMS

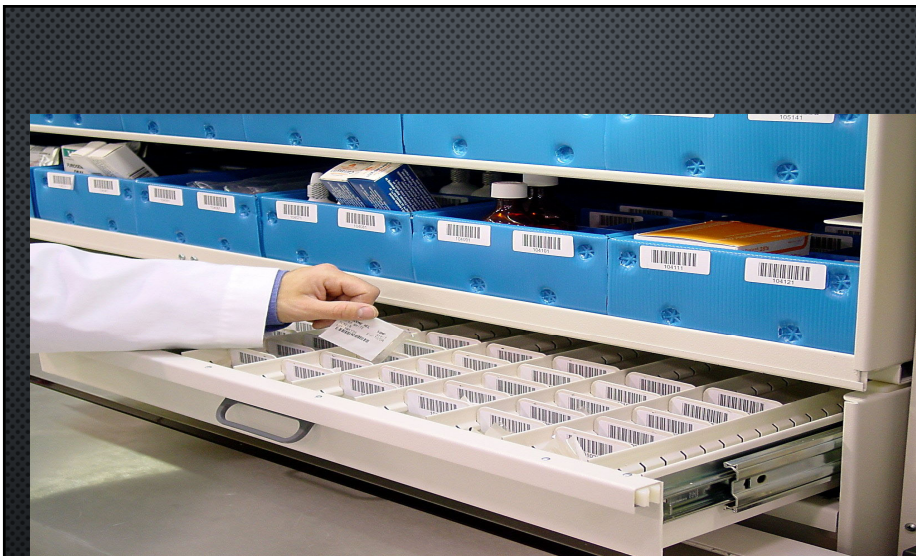
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Convention Static Shelving



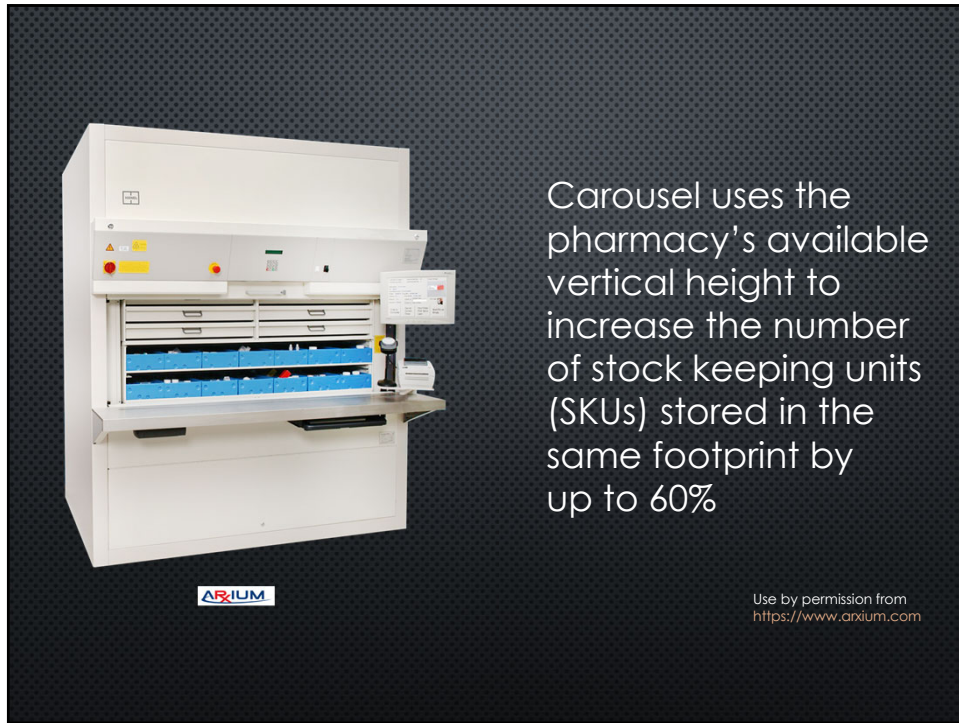
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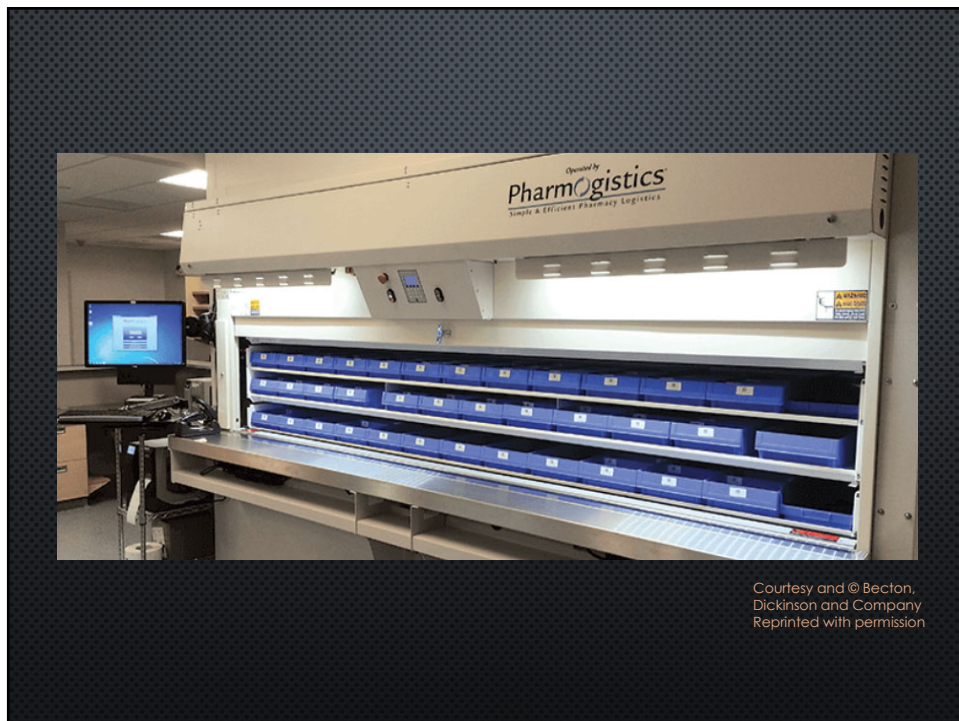


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Carousel streamlines the pick & stock, and features a light bar that guides the technician to the drug's location

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DEFINITIONS

❖ PERIODIC / STATIC METHOD:

- MAINLY RELIES ON STAFF TO RECOGNIZE NEED
- BUYER SURVEYS THE INVENTORY DAILY AND/OR WEEKLY
- REPLACEMENT AMOUNTS MAY NOT BE PRE-DEFINED
- MIGHT BE DRIVEN BY COST AND HIGH DOLLAR PRODUCT
- TRACKING IS USUALLY BASED ON PAST PURCHASE HISTORY

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DEFINITIONS

❖ PERPETUAL METHOD:

- BASED ON BARCODE TECHNOLOGY
- REAL TIME WIRELESS TECHNOLOGY TRANSMITS INFORMATION TO A CENTRAL COMPUTER AS TRANSACTIONS OCCUR
- REPLENISHMENT BASED ON PRE-DETERMINED LEVELS
- TRACKING IS BASED ON USAGE
- OPEN SHELVES OR CLOSET CABINETS

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ADVANTAGE OF MANUAL INVENTORY

- ✓ DAILY / WEEKLY CYCLE COUNTS OF MEDICATIONS
- ✓ VISUALLY INSPECTION OF MEDICATION STOCK
- ✓ HIGH COST MEDICATION EASILY IDENTIFIED
- ✓ MULTIPLY USERS
- ✓ SHELVES / BINS ARRANGED BY PERSONAL PREFERENCE
- ✓ BUYER MONITOR DRUG PURCHASING PATTERNS

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ADVANTAGE OF PERPETUAL COMPUTERIZED INVENTORY

- ✓ MULTIPLE USERS
- ✓ BARCODE VERIFICATION
- ✓ BEYOND USE NOTIFICATION
- ✓ REDUCES CRITICALLY LOW OR STOCK OUTS
- ✓ INTEGRATED WITH DISTRIBUTORS, ADC
- ✓ SHELVES / BINS ARE CONFIGURABLE
- ✓ TRACK AND PROACTIVELY MONITOR DRUG USAGE PATTERNS

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ADVANTAGE OF MEDICATION CAROUSEL

- ✓ MEDICATION SECURITY
- ✓ BARCODE VERIFICATION
- ✓ BEYOND USE NOTIFICATION
- ✓ REDUCES CRITICALLY LOW OR STOCK OUTS
- ✓ INTEGRATED WITH PATIENT PROFILE SYSTEM, ADC
- ✓ SHELVES / BINS ARE CONFIGURABLE
- ✓ TRACK AND PROACTIVELY MONITOR DRUG USAGE PATTERNS

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DISADVANTAGES OF MANUAL INVENTORY

- MEDICATION SAFETY
- BUYER WALKS SHELF DAILY
- ORDER – REPLENISHMENT BASED ON PERSONAL OPTION
- TIME RESTRAINTS, PHARMACIST & TECHNICIANS
- STOCK OUTS OR CRITICALLY LOW OVER WEEKEND
- LACK OF PROPERLY TRAINED STAFF

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DISADVANTAGES OF PERPETUAL SYSTEMS

- NUMBER OF SCANNERS, NEED CHARGING
- BARCODE LABELING
- DISTANCE OF PHARMACY SHELVES
- SOFTWARE & SCANNER MAINTENANCE COST
- DOWNTIME PROCEDURES
- COMPLIANCE OF STAFF SCANNING

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DISADVANTAGES OF MEDICATION CAROUSEL

- LIMIT USERS
- SPACE
- MECHANICAL
- MACHINE & SOFTWARE MAINTENANCE COST
- DOWNTIME PROCEDURES
- NOT ALL AREAS / MEDICATIONS IN CAROUSEL

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QUESTION

4: WHAT IS **NOT** AN ADVANTAGE TO HAVING A PERPETUAL INVENTORY vs. PERIODIC ?

- A: CONTINUAL RECORDING OF STOCK MOVEMENT
- B: ELIMINATES YEARLY PHYSICALLY INVENTORY COUNTS
- C: INTEGRATED WITH SOME DISTRIBUTORS, ADC
- D: UPDATES PAR LEVELS BASED ON USAGE

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