



# Inventory Management Automating Central Pharmacy

August 2020

# Inventory Management

## Industry Insights

- Health system inventory management case studies
- Common challenges of a manual inventory management ecosystem
- Impact of COVID-19

## Automating Central Pharmacy

- Software options
- Hardware considerations
- Customer workflow scenarios
- ROI

## Deployment and Customer Success Cases

- BD deployment and implementation model
- Support tools
- Customer success stories

# Industry Insights



## Automated Benefits

89%

Automated reorders based on PAR levels and reduce total inventory management time by **89%**<sup>1</sup>

47%

Decrease stockout rates by **47%** on average<sup>2</sup>

58%

Reduce medication expiration waste by **58%**<sup>3</sup>

## Enhanced Care

38%

### Time wasted

Up to 38% of a nurses time is spent on non-value-added activities: searching for medications that are unavailable, delayed documentation and unnecessary or redundant communications<sup>4</sup>

49%

### Risk of error

Physicians are involved with 49% of error in the medication management process, which can happen during the ordering stage<sup>5</sup>

93%

### Connectivity

93% of nurses surveyed agree that medical devices should be connected to share data with each other automatically<sup>6</sup>

<sup>1</sup>Case Study: A new approach to eliminating waste in the hospital pharmacy. CareFusion study conducted with PIH Health. 2015.

<sup>2</sup>Case study. Evaluation of stockouts after utilization of inventory optimization predictive analytics: a multisite retrospective data analysis. Ahmed Naguib, MS; Aryana Sepassi, PharmD

<sup>3</sup>Case Study. A new approach to eliminating waste in the hospital pharmacy. CareFusion study conducted with PIH Health. 2015

<sup>4</sup>C-0679. Allen, Stephanie PhD, RN. (2015.) The Connection Between Nurses Working at Top of Licensure and Patient Care. Infor Healthcare

<sup>5</sup>C-0743. Vogenberg R and Benjamin D. The Medication-USE Process and the Importance of Mastering Fundamentals. Health Care and Law. Pharmacy and Therapeutics. 2011;36(10):651-632

<sup>6</sup>C-0966. Nurses Survey on Interoperability and Improved Patient Care. Harris Poll and West Care. March 2015.

# Common Challenges



On-Hand Inventory: Number of Days and Quantity by drug

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Managing Drug Shortages

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Inventory Visibility:  
Patient Care Areas, Pharmacy, and Enterprise-wide

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Managing Labor: Procurement to Replenishment

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Drug Utilization & Managing PAR levels

# Quantifying the value of Inventory Optimization

## Evaluation of a Clinical Pharmacist-Led Automated Dispensing Cabinet Stewardship Program at a Tertiary Academic Medical Center

1-4  
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Kenneth  
James F.  
and Jere

### Purpose of Study<sup>7</sup>:

Determine if ADC Optimization by Clinical Pharmacists would affect the # of Dispenses, Stock-outs, & Inventory Costs

### Abstract

#### Background

Clinical pharmacists optimize their specific inventory costs between. The cost on all additions, 20 were decreased day also decreased but increased meaningful i

- 1,132 Med Adds
- 262 Med Removals
- 167 PAR Adjustments
- Inventory with new PAR **decreased by 15%**
- Stockouts per cabinet **decreased from 0.75 to 0.61**
- **12% reduction** in meds dispensed from pharmacy

### Keywords

administrati

### Introduc

Automated increased over ADCs stor unit, allow administrati to health-c

clinical care.<sup>7</sup> Additionally, ADCs assist with inventory management, patient billing, help monitor for drug diversion, improve patient and medication safety, and improve overall patient satisfaction.<sup>1,2,4-6</sup> A recent pilot analysis demonstrated benefits of implementing a pharmacist-driven ADC stewardship program designed to optimize ADC inventory across 2

cedural areas were not included. These areas were excluded because their ADCs are more specialized for their respective patient populations and are not served by hourly deliveries.

<sup>7</sup>Department of Pharmacy, Brigham and Women's Hospital, Boston, MA, USA

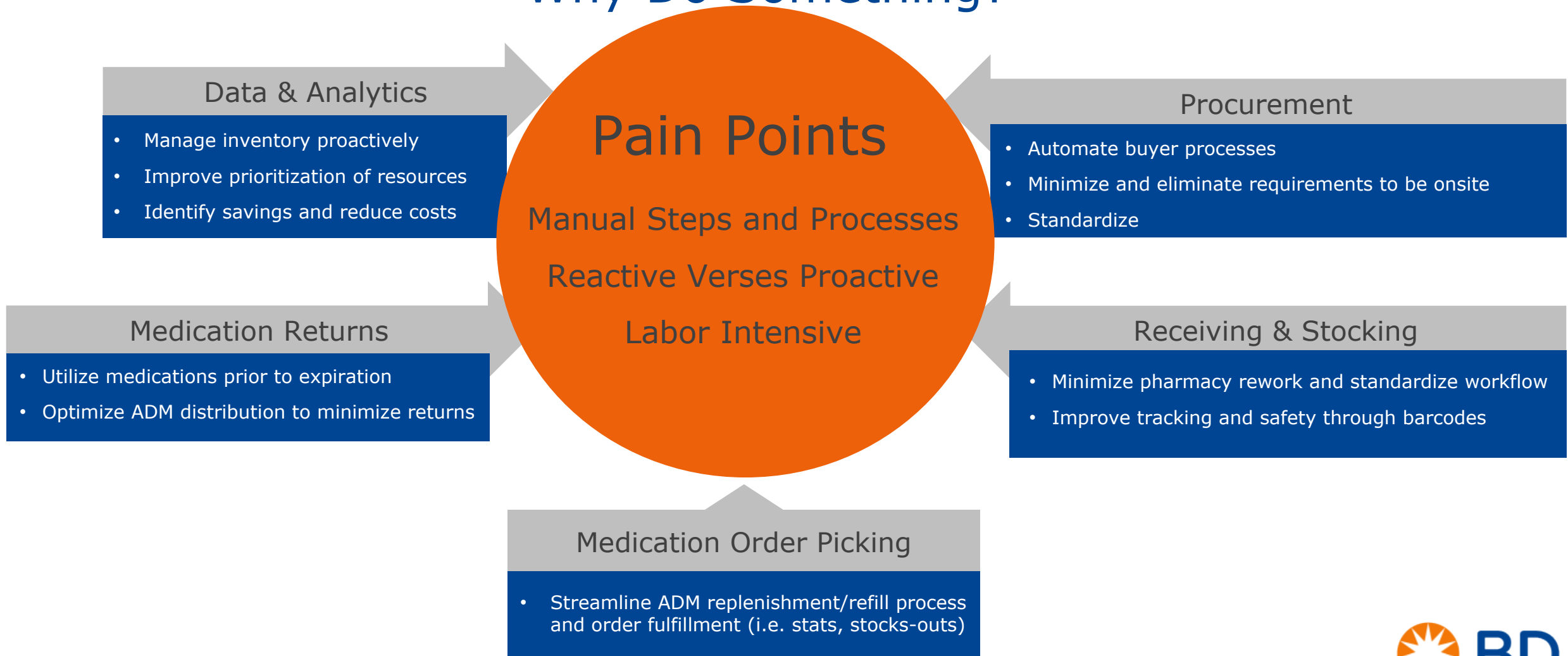
## Takeaway

1. Inventory is dynamic
2. Optimization is not a one and done
3. Manual optimization is not sustainable



# Pharmacy Supply Chain Ecosystem

## Why Do Something?



# Impact of COVID-19: Environment for Customers



- Decrease traffic in and out of pharmacy- includes both internal and external (i.e. vendors)
- Accessing opportunities to provide eligible employees with ways to work remotely
- Stricter requirements to justify onsite engagements
- Looking for creative alternatives from vendor partners to partner remotely
- New ways to automate



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# What's Included in a Software Offering



Holistic offering for inventory management with software and mobile solution options, along with inventory optimization



Options for customers to utilize capability for remote employees



Added value and flexibility by deploying software

# What does Software Only mean?

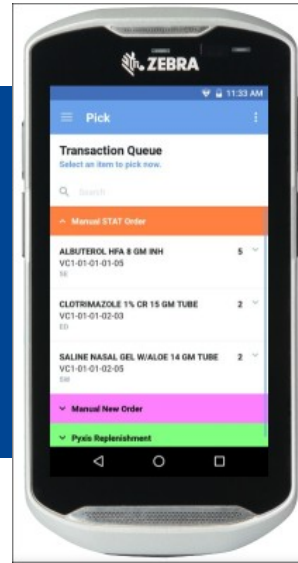
Does not mean  
**NO** Hardware

Automating central pharmacy without  
a carousel

Could include combination of desktop  
and mobile solutions



# Leveraging Hardware- Mobile Solution vs Desktop



## Mobile Solution

- Automate & streamline picking and stocking
- Automate streamline replenishment process
- Utilized with static shelving verses fixed carousel



## Desktop

- Decreased efficiencies- ex; going back and forth to the computer
- Lose mobility
- Desktop still required even in adding mobile solution- ex; administrative functions

Mobile and desktop to be utilized with existing shelving or fixed carousel



# Software Setup Implemented to be Carousel Ready



## Carousel Ready Process



Begin the dialogue early in discovery



Part of implementation, static shelving will be configured to accommodate future carousel

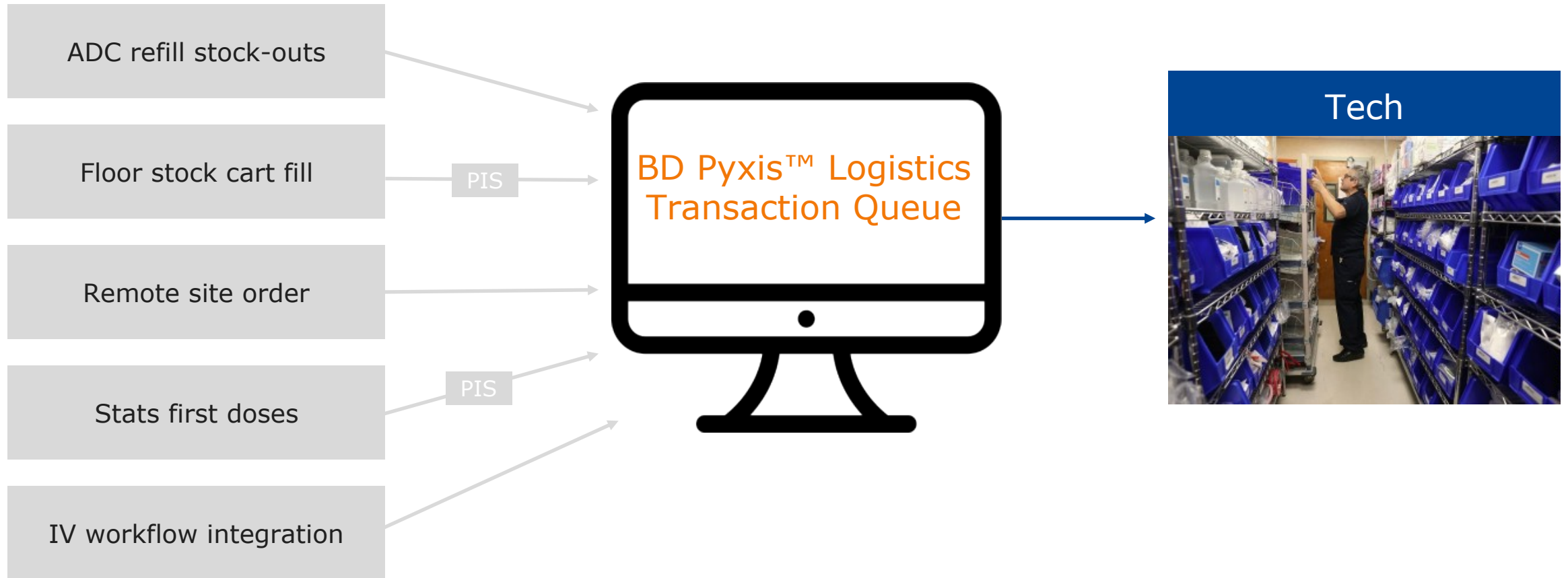


Approximately 85% of implementation complete with software only

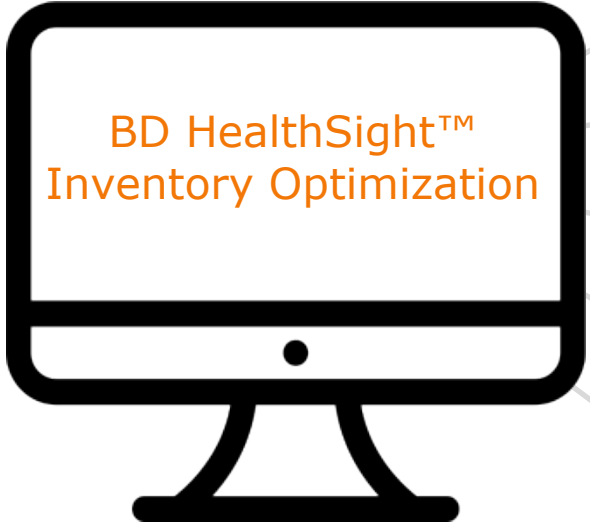
# Pharmacy Workflow Scenarios



# Automating Central Pharmacy with Mobile Applications

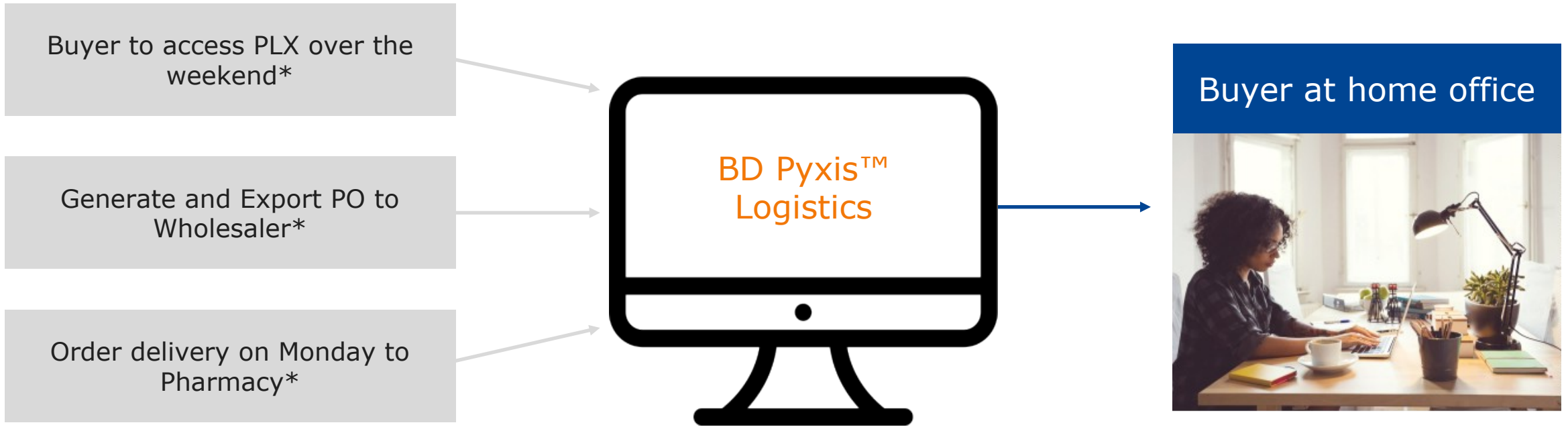


# Remote Pharmacy Administrator






# Remote Buyer



Opportunity to Centralize Procurement with Multi-facilities

\*Based on hospital policy to VPN or Remote Desktop application while not onsite

# ROI

 **Pyxis Logistics ROI Model**  
Outputs Page

**Inputs & Assumptions**


Site Name:

Annual Med Spend:	\$ 4,395,926.00	Projected Turn Rate % Increase:	25.0%
Baseline Inventory Turn Rate:	9	Projected Waste % Reduction:	20.0%
Baseline Waste Rate:	2.00%	Projected % Workflow Reduction:	40.0%
% Waste Returned as Credit:	57.0%		

Contract Option:   
Contract Length:  months

Year 1

**136%** return on investment

 **Pyxis Logistics ROI Model**  
Outputs Page

**Inputs & Assumptions**

Site Name:

Annual Med Spend:	\$ 8,721,800.00	Projected Turn Rate % Increase:	25.0%
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# BD Deployment Process

## BD Pyxis™ Logistics

- Kickoff
- Software load & interfaces
- Database buildout
- Solution design
- Training
- Test & Validation to end-of-project
- Hardware deployment

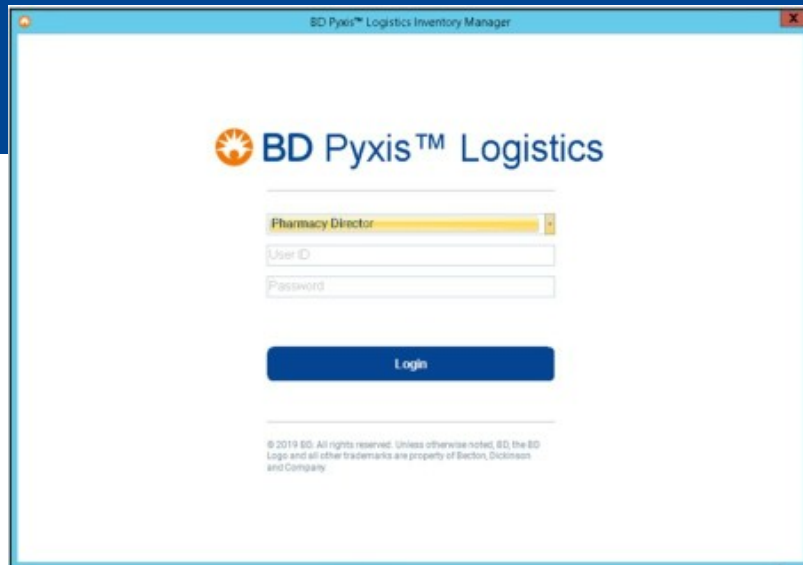
## BD HealthSight™ Inventory Optimization

- Cloud-based
- 100% remotely deployed by BD
- Bi-directional API also remotely installed on each server

Who to involve in this process?  
Sales, implementation team and clinical consultants

# Pharmacy Remote Access

## BD Pyxis™ Logistics



1. Initial Setup-Connecting to the hospital network via VPN
2. Install the BD Pyxis™ Logistics client software
3. Start the BD Pyxis™ Logistics client software remotely

## BD Pyxis™ HealthSight Inventory Optimization



1. Both BD and the customer play a role in setting up remote access to BD HealthSight™ Inventory Optimization
2. No Additional Role Assignment required

# BD University

The screenshot displays the BD University Learning Companion interface. At the top, there is a menu bar with 'File Edit View Favorites Tools Help' and a search bar. The main content area is divided into three steps:

- STEP 1: Choose a BD product** - A dropdown menu shows 'HealthSight Inventory Optimization'.
- STEP 2: Choose a version** - A dropdown menu shows 'One version only'.
- STEP 4: Choose your training** - A section titled 'HealthSight Inventory Optimization - One version' contains a 'RECOMMENDED CURRICULUM OPTIONS' table.

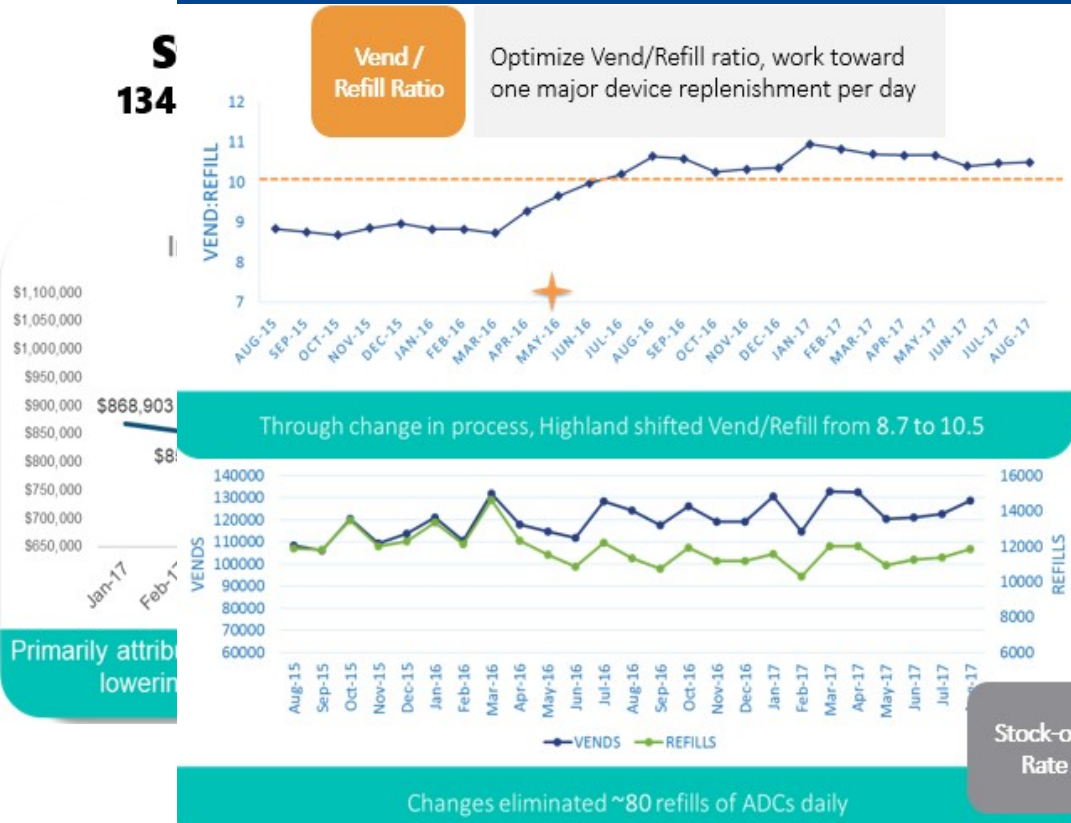
RECOMMENDED CURRICULUM OPTIONS	
HealthSight Inventory Optimization Essentials	<a href="#">Go</a>
LMS Admin - HealthSight Inventory Optimization - Downloadable	<a href="#">Go</a>

Below the table, there are two 'None' options and a dropdown menu with the text 'Select from the options below:'. On the right side of the interface, there are two vertical 'Feedback' buttons and a profile picture placeholder.

Challenges faced □:

- Expiring medication in ADC's
- High inventory levels in ADC's
- Maintaining preferred stockout rate at or below 1%
- Medication availability from ADC
- Difficulty optimizing vend/refill ratio towards one replenishment per day

## Decentralized Model (89%)



### Highland Hospital 36 ADC Units + 20 Anesthesia Carts

Mar 2016

**0.8%**  
STOCK-OUT RATE

March 2016

**85%**  
DISPENSE FROM  
ADCs

Maintain a stock out rate at or below one percent

Dispense % from ADCs

Aug 2017

**0.9%**  
STOCK-OUT RATE

Aug 2017

**89%**  
DISPENSE FROM  
ADCs

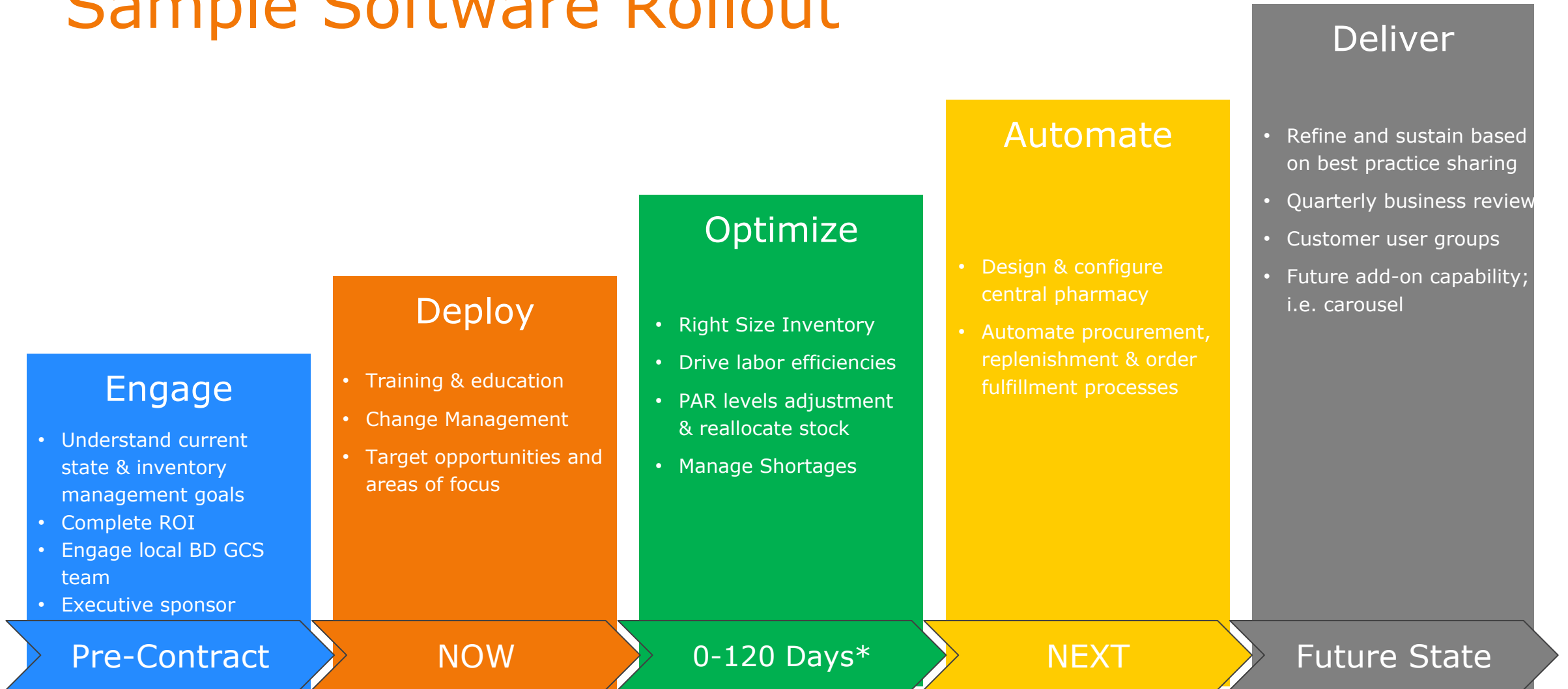
Target 90%+ dispenses from ADCs

System

ased



# Sample Software Rollout



\*KP turned on >120days



# Key Takeaways



Manual is not sustainable



Cost effective solution to address central pharmacy and optimize cabinets with software option



Flexibility with deploying inventory solution

