

Integration of a Mixed Central Fill, Mail Order, and Specialty Pharmacy: Automation at its Finest!


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Conflicts of Interest


- The speakers do not have any conflicts of interest to disclose



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Learning Objectives

- Explain the integration of interdisciplinary teams in planning for a central fill/mail order facility
- Describe automation in a technology-forward pharmacy integrated in a mixed pharmacy practice model
- Discuss implementation and optimization of workflow between a remote pharmacy team and a central fill/mail order facility



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Planning and Opening a Central Fill/Mail Order Pharmacy

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Central Fill Pharmacy vs. Mail Order Pharmacy

Central fill prescription processing

- Central fill pharmacy prepares medication order from originating pharmacy
- Medication packaged by central fill pharmacy is dispensed by originating pharmacy

Mail order pharmacy

- Mails medication directly to patient




Ontario College of Pharmacists, Centralized Prescription Processing (Central Fill). Available at: <https://www.ocpho.com/regulations-standards/practice-activities-guidelines/central-fill/>. Accessed August 16, 2023.
Kuczkowski, What is the Role of Mail-Order Pharmacy? Available at: <https://www.pharmacytimes.com/view/41-3-16-the-role-of-the-mail-order-pharmacy>. Accessed August 16, 2023.

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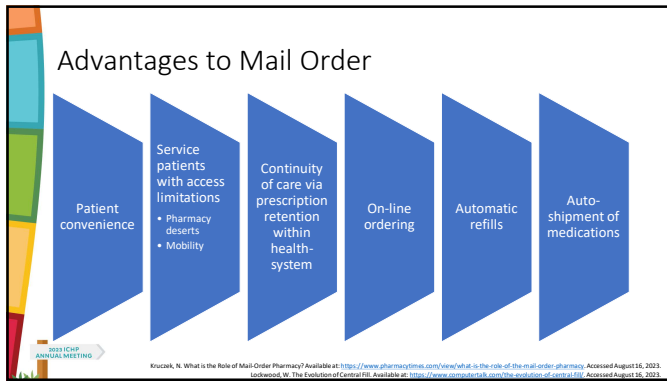
Advantages of Central Fill

Support growth	Efficiently deploy labor and capital	Improve efficiency
Reduce risk of errors	Expand patient services	Shift pharmacist focus to patient care and professional services

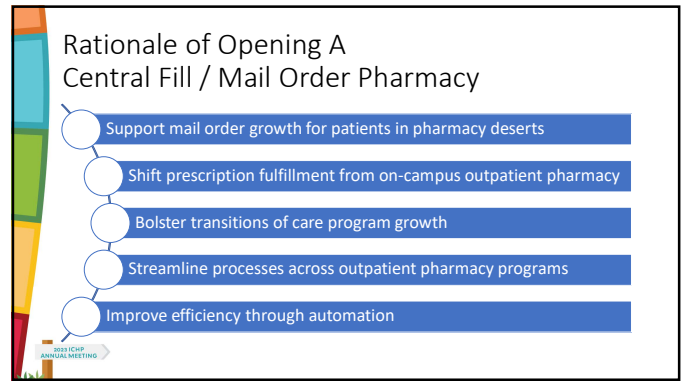


Landwood, W. The Evolution of Central Fill. Available at: <https://www.computerpharm.com/the-evolution-of-central-fill/>. Accessed August 16, 2023.

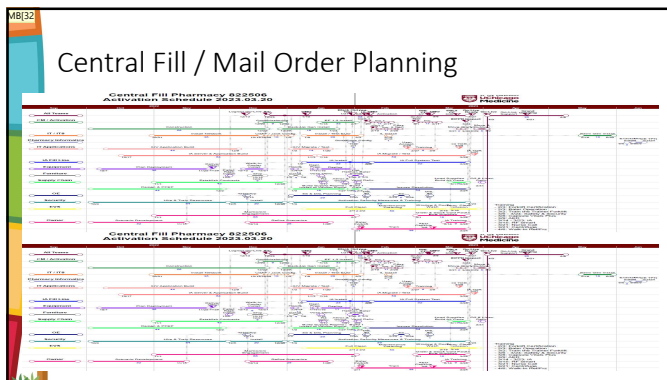
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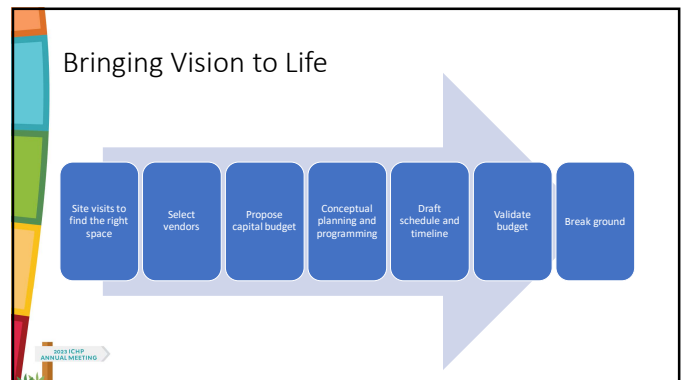
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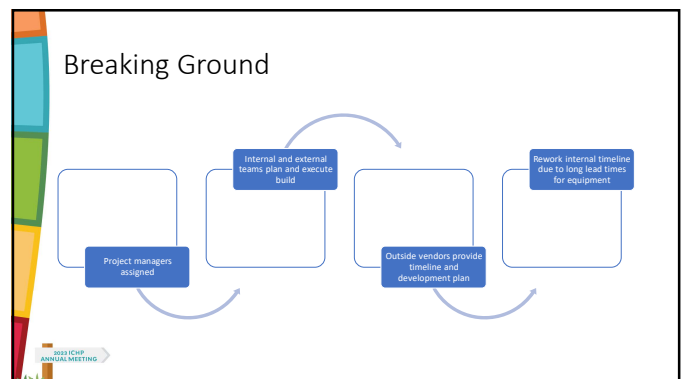
Polling Question 1

How many teams are involved in planning and opening of a central fill / mail order fulfillment center?

- 5
- 7
- 10
- >10

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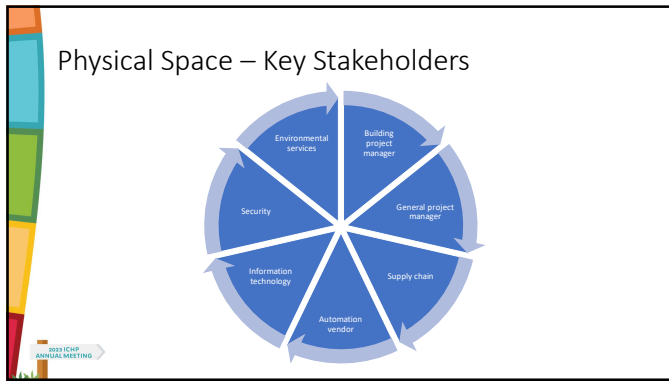


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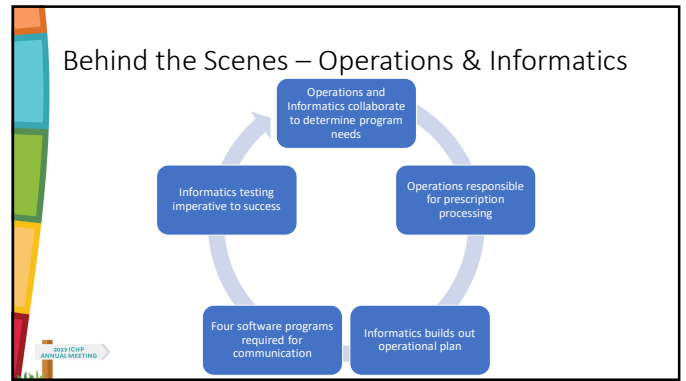
Slide 9

MB[32 If you plan on walking through the diagram, you'll want to slice it into pieces because no one will be able to follow this - if you only plan on reviewing 1 part, then you could show this initially but then put the cropped part on the next slide that you talk through

Man, Bernice [UCH], 8/29/2023



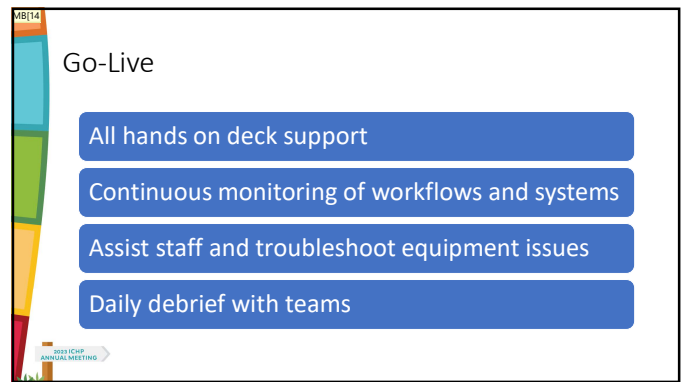
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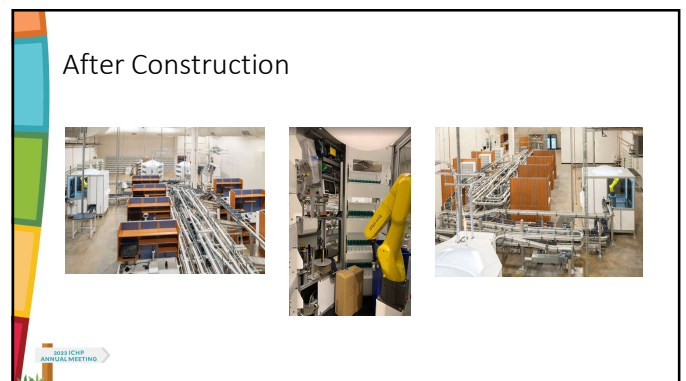
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Slide 16

MB[14 Considering changing title to It's Go Time! - might be fun to have each title be a little lighthearted? Would reduce # of words here also

Man, Bernice [UCH], 8/25/2023

Opportunities and Lessons Learned

Roles, responsibilities and expectations are clear	Collaboration of all teams is needed for success	Important to run through all the details
Take time to involve various stakeholders	Build trust in the project team	Ending where you started does not define project success

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Pharmacy Automation

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What is Pharmacy Automation?

- **Automation:** “Automatically controlled operation of an apparatus, process, or system by mechanical or electronic devices that take the place of human labor”¹
- **Robot:** “A robot is an autonomous machine capable of sensing its environment, carrying out computations to make decisions, and performing actions in the real world”²

Definition of AUTOMATION. Merriam-Webster website. Published 2018. Available at: <https://www.merriam-webster.com/dictionary/automation>. Accessed August 16, 2023.
 Guzzo E. What is a Robot? ROBOTS: Your Guide to the World of Robotics. Published August 2, 2018. Available at: <https://www.robotsonline.com/robots/what-is-a-robot/>. Accessed August 16, 2023.

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Polling Question 2

- Have you worked with automation in the pharmacy setting? (yes or no response)

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Types of Pharmacy Automation

- Automated dispensing cabinets
- Automated carousels
- Automated dispensing robots
 - Pill packs
 - Robot pod
 - Robot cabinet
- Automated pick up robots
- Automated phone prompts
- Automated storage shelves
- Online ordering/Web ordering
- Delivery robots
- Automated inventory
- Automated compounding
- Automated medication counters

Quintup Pharmacy Automation: The Ultimate Guide to Automating Your Pharmacy. www.pharmacymentor.com. Published December 17, 2021. Available at: <https://www.pharmacymentor.com/pharmacy-automation-ultimate-guide/>. Accessed August 16, 2023.
 Robert M. Council Post: The Growing Friend Of Pharmacy Automation. Forbes. Published November 7, 2018. Available at: <https://www.forbes.com/sites/robertmccouncil/2018/11/07/the-growing-friend-of-pharmacy-automation/?sh=6e9010101010>. Accessed August 17, 2023.

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Benefits of Using Automation in Pharmacy

- Barcode technology
 - 36% reduction in dispensing errors
 - 63% reduction in potential adverse effects
- Reduced labor time
 - Robotics can run 24 hours
 - Reduced manpower by 0.3-1.4 FTEs
 - Productivity increased by 4 items per hour
 - Patient wait time and filling time decreased by 17-20 seconds

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Benefits of Using Automation in Pharmacy

More time for other activities	Inventory management	Decreased work stress	Cost savings	Medication security
<ul style="list-style-type: none"> Pharmacist clinical review 	<ul style="list-style-type: none"> Maintain and automatically reorder medications 	<ul style="list-style-type: none"> Does not affect job satisfaction though 	<ul style="list-style-type: none"> Less staff needed to operate Less errors 	<ul style="list-style-type: none"> Medications are placed into robot and sealed, prevents tampering HIPAA errors

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How does a prescription get filled in an automated pharmacy?

```

    graph LR
    A[Prescription sent to pharmacy] --> B[Technician calls patient to set up delivery]
    B --> C[Delivery method/address confirmed and note added]
    C --> D[Blocking flag removed]
    D --> E[Medications fall into automated dispensing software (ADS)]
    E --> F[ADS determines if medication is filled manually or robotically and assigns it to a workstation]
    
```

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How does a prescription get filled in an automated pharmacy?

```

    graph LR
    A[Medication is filled] --> B[Medication is placed onto conveyor belt in numbered tote]
    B --> C[Pharmacist virtually verifies medication]
    C --> D[ADS guides prescription to manual pack station]
    
```

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How does a prescription get filled in an automated pharmacy?

```

    graph LR
    A[Medications are stored or packed into bags and paperwork scanned] --> B[Medications are rung out]
    B --> C[Medications are sorted by delivery timeframe]
    C --> D[Medications are packed and shipped out]
    
```

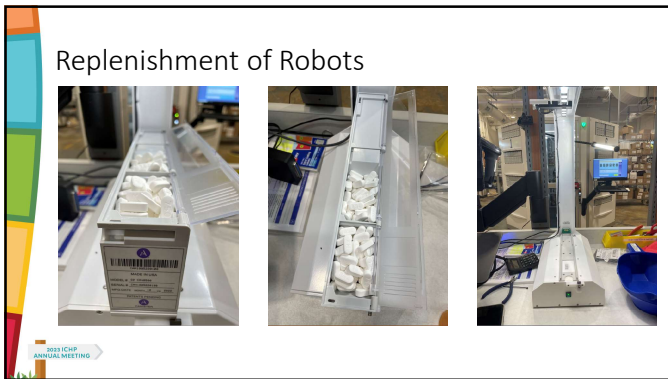
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Robotic Filling of Prescriptions

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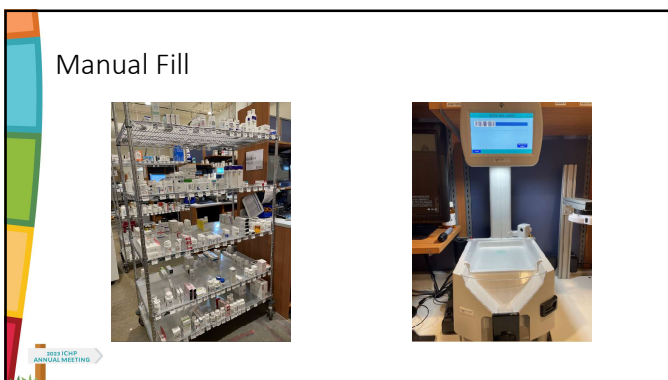
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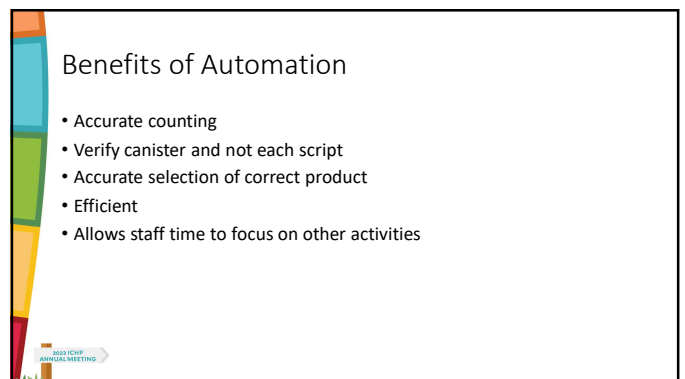
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Challenges with Automation

- Lack of experience
 - Planogram
- Not having mechanic onsite
 - Company fly someone in when broken
 - Downtime procedures
- Not able to individualize (i.e.: pt requesting non-safety caps)
- Hard to locate medications quickly
- First clinical review critical
- Integrating two systems (i.e.: inventory, return to stock, edits)




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Polling Question 3

Susie Smith's atorvastatin 20mg prescription is set up for delivery next Monday. After the prescription falls into the ADS, what is the next step?

- The medication is verified by the pharmacist
- The medication is clinically reviewed by the pharmacist
- The medication is sorted by the ADS to fill in robot or manual fill
- The patient receives a phone call to confirm shipping address
- The medication is filled by a technician



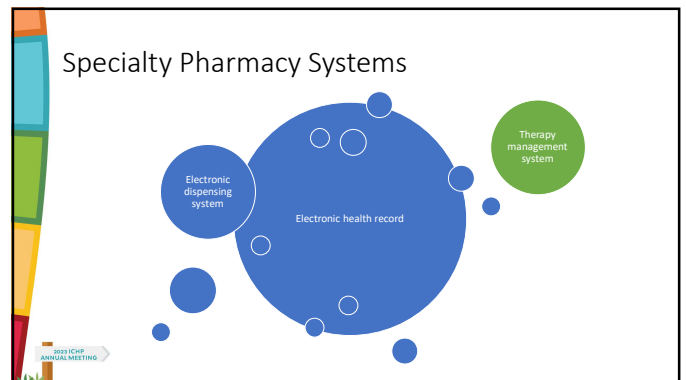
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Workflow Implementation and Optimization

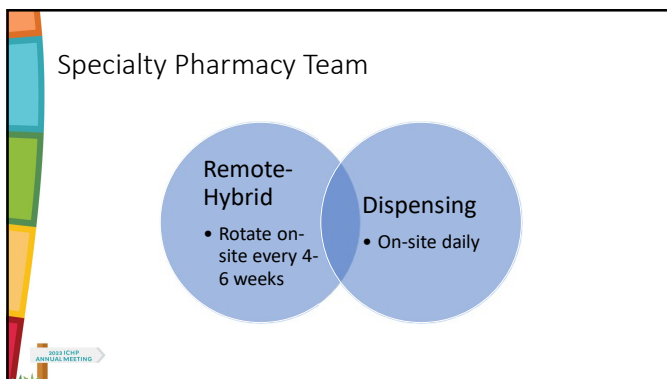
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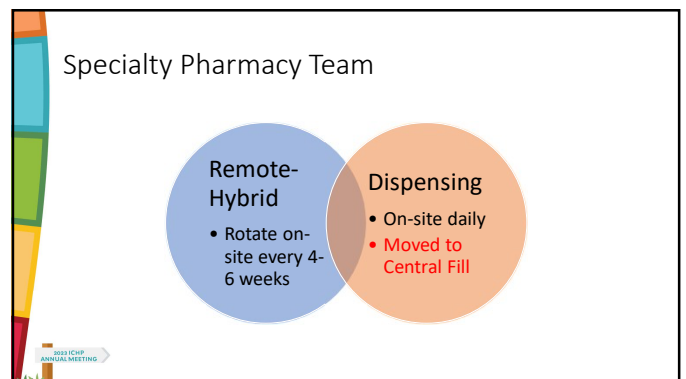
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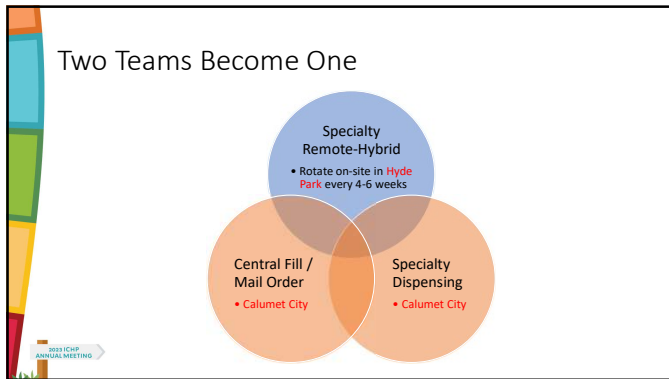
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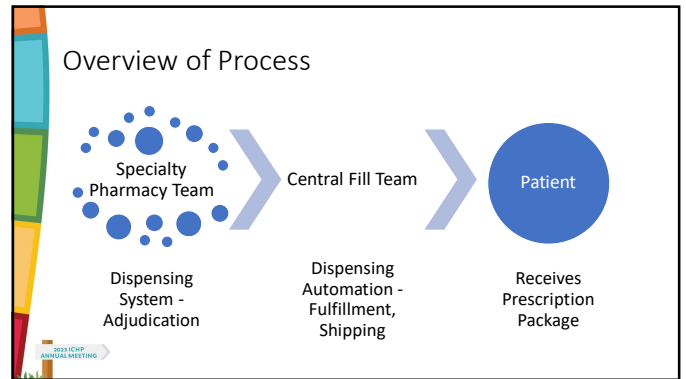
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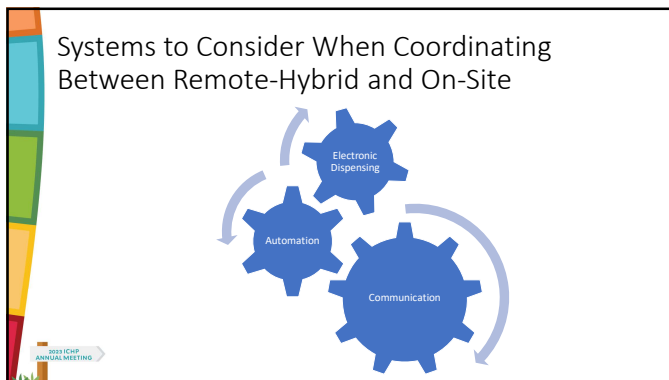
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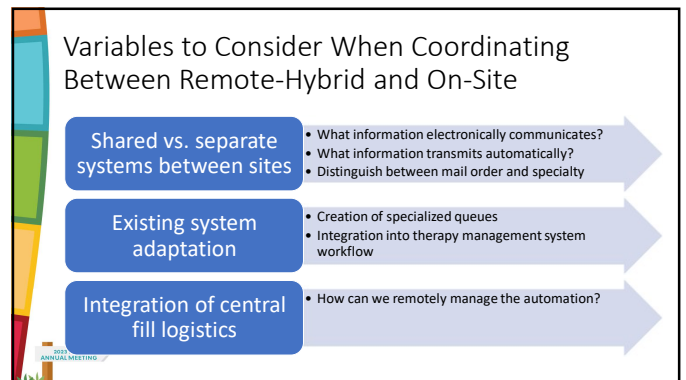
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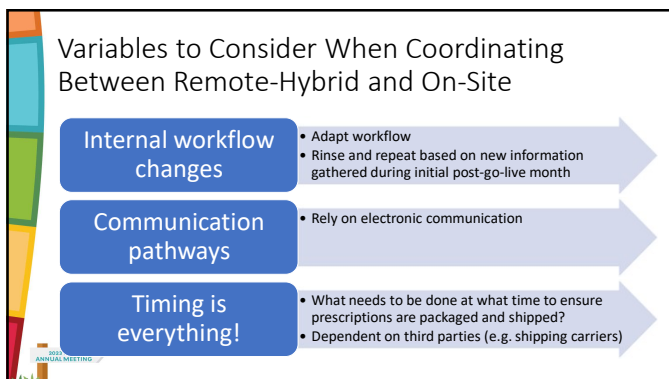
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Workflow Coordination: Begin With the End In Mind

Time	Event
3:30p	Shipping APTs
3:30p	FedEx Ground Driver departs
4:30p	FedEx Express Driver departs

Workflow endpoint for each prescription: Nexia: Registered at External Ship App

Ask for shipping help if behind

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Workflow Coordination

Workflow endpoint for each prescription: Nexia: Registered at External Ship App
 If endpoint not met, use Nexia: Status Trail to troubleshoot prescriptions to ensure they are shipped **SAME** Day

Time	Who	System/Queue	Task	Who	System/Queue	Task
7a-8a	AMACs	Willow: Holding Queue - Scheduled Shipment	Resolve Scheduled Shipment Specialty Flags	Ship1/Arrow APT	Arrow	Print and find all SAME Day Arrow prescriptions
8a				Pharmacist	Nexia: Pending & Nexia: Scheduled	Change all FedEx Priority Overnight as Urgent
8a-12p				Inventory APTs	Willow	Checking in Inventory
12p	AMACs	Willow: Holding Queue - Scheduled Shipment	Resolve Scheduled Shipment Specialty Flags for SAME Day Arrow			
1p				Inventory APT	Willow: Inventory - Central Fill	Resolve insufficient inventory flags for medications to go out SAME Day
1:30p						FedEx Express Driver departs
2p	AMACs	Willow: Holding Queue - Scheduled Shipment	Check for SAME Day shipments that have insufficient inventory flags and zoom chat Pharmacist group			

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Workflow Coordination

Workflow endpoint for each prescription: Nexia: Registered at External Ship App
 If endpoint not met, use Nexia: Status Trail to troubleshoot prescriptions to ensure they are shipped **SAME** Day

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1:30p						FedEx Express Driver departs
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Workflow Coordination – Begin With the End In Mind

3p			Pharmacist	Willow: CalCity - Nexia	Sort Comments to ensure there are no pending prescriptions for SAME Day
				Willow: Ready to Fill - CalCity	Sort Comments to ensure there are no pending prescriptions for SAME Day
				Willow: Ready to Dispense - Specialty	Sort Comments to ensure all prescriptions to be dispensed SAME Day have been dispensed
				Nexia: Scheduled	Review FedEx Priority Overnight to ensure all specialty prescriptions have been filled that need to be shipped SAME Day
				Nexia: Ready to Ship	Review FedEx Priority Overnight to ensure all specialty prescriptions have been filled that need to be shipped SAME Day
3:30p					FedEx Ground Driver departs
4p	AMACs	Willow: Holding Queue - Scheduled Shipment	Pharmacist	Nexia: Ship Pending	Review FedEx Priority Overnight to ensure all specialty prescriptions have been shipped that need to be shipped SAME Day
4:30p					FedEx Express Driver departs

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Polling Question 4

What is **not** a variable to consider when coordinating between remote-hybrid and on-site teams?

- How current systems need to adapt
- How teams will communicate
- What information automatically transmits between systems
- Timing
- Who is staffing on any given day

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