Implementing BD Pyxis™ IV Prep

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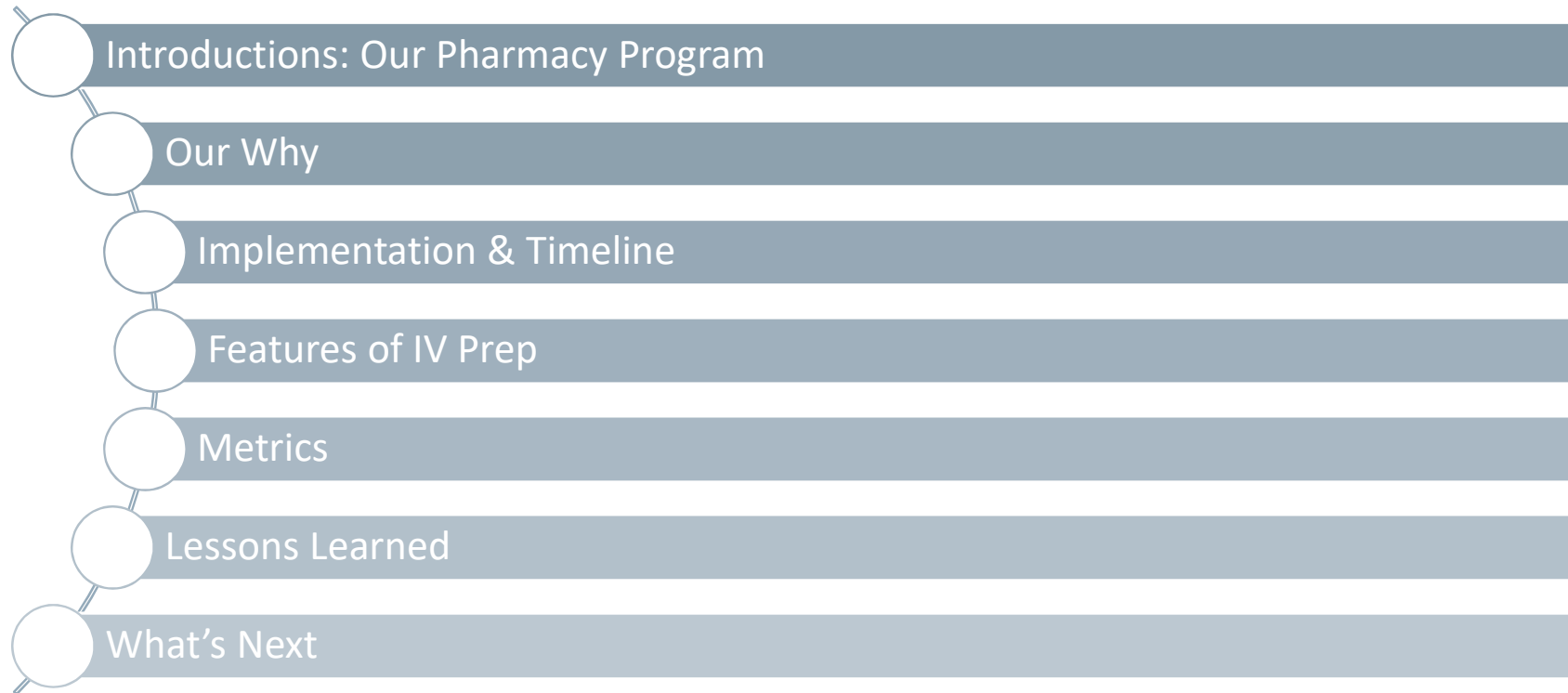
June 18, 2020

Speaker

Katie Cimmino, PharmD, BCSCP
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Agenda

Introductions: Our Pharmacy Program

Our Why

Implementation & Timeline

Features of IV Prep

Metrics

Lessons Learned

What's Next
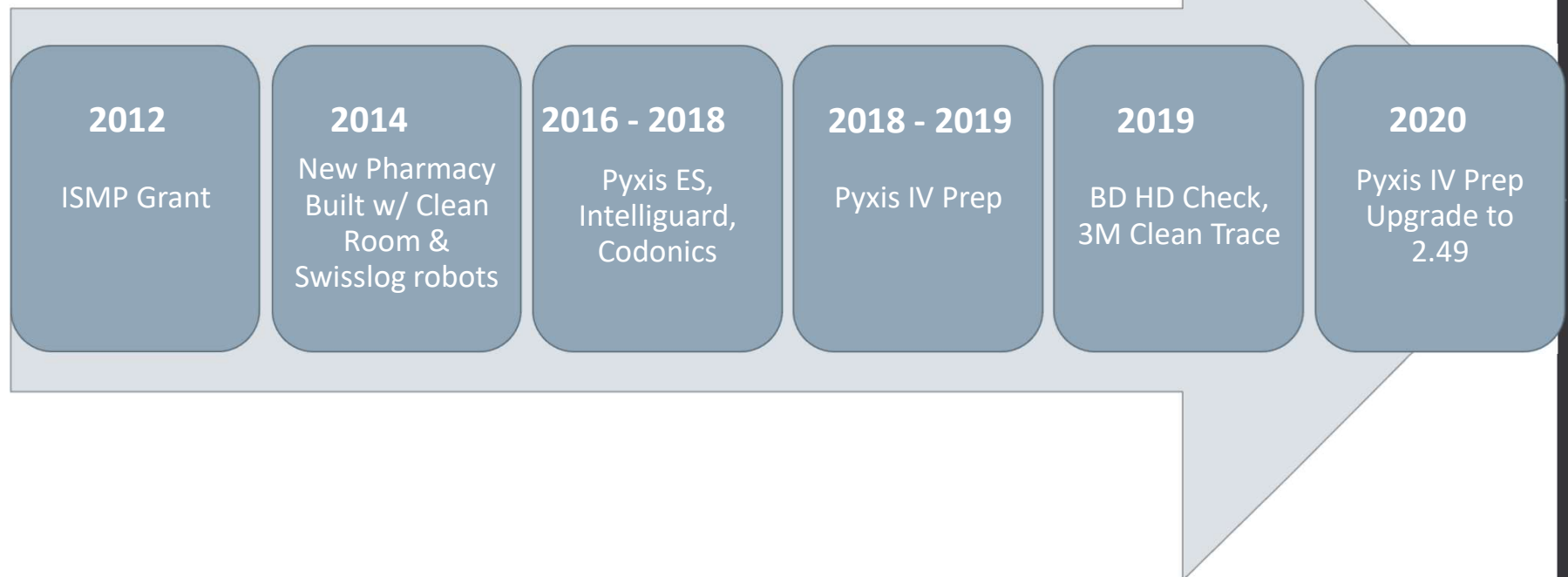
NewYork-Presbyterian Queens

➢535-Bed Acute Care Facility

➢Community hospital

➢Affiliated with Weill Cornell medicine

NYPQ Pharmacy

➢ Pharmacy provides services 24/7

➢ Pharmacy staff includes 69.8 FTE (with per diems have 90 staff members)

- All staff members: understanding of USP <797> and training in USP <800>
- 60 staff members: understanding/ training clean room practices
- 40 staff members: compounding competency
- 25 staff members: hazardous drug compounding competency

➢ Highly automated

- 90% of doses are dispensed utilizing technology
- Robots/ automatic dispensing cabinets, IV workflow system

➢ Over 320,000 IV doses prepared yearly

- 10% of total doses dispensed
- Includes pre-mixed, point of care, and compounded items
- Compounded items account for 1/3 of IV doses prepared

NYPQ Pharmacy Operations & Strategy

2012

ISMP Grant

2014

New Pharmacy Built w/ Clean Room & Swisslog robots

2016 - 2018

Pyxis ES, Intelliguard, Codonics

2018 - 2019

Pyxis IV Prep

2019

BD HD Check, 3M Clean Trace

2020

Pyxis IV Prep Upgrade to 2.49

Journey to Zero Harm: For patients <u>and</u> employees

Implementation of technology for patient safety & employee confidence

BD Pyxis IV Prep helps us close the gap in barcode scanning compliance & uses gravimetrics

Why Implement an IV Workflow Management System?

➤Best practice recommended by ISMP[1]
- Studies show manual compounding can have error rates of up to 9%[2]

➤Standardizes process and documentation
- Integrates barcode scanning, image capture, gravimetric analysis

➤Pyxis IV Prep provides metrics and performance insights for IV workflow efficiencies

Why implement BD IV Prep?

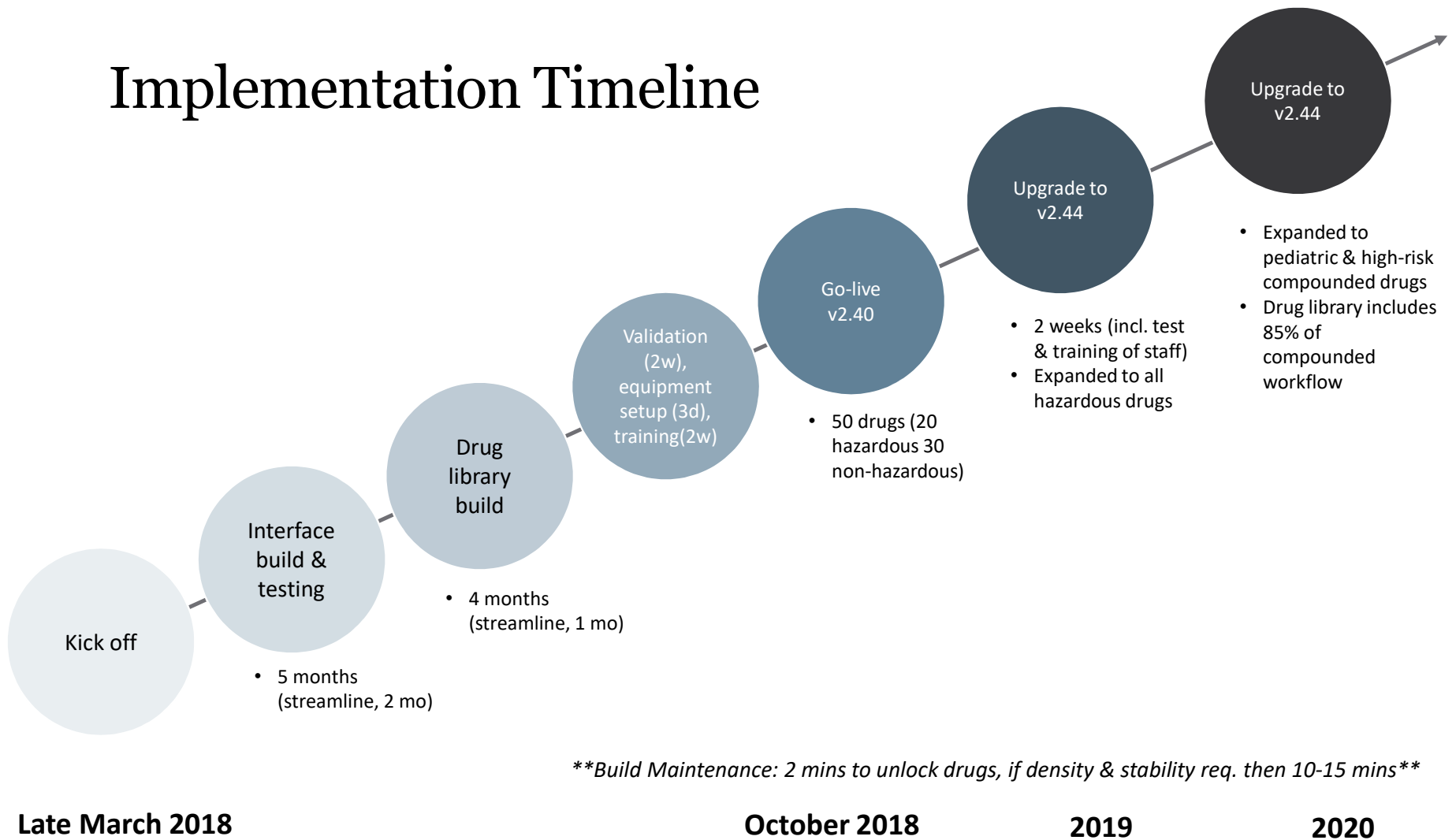Safety: hard stops during compounding to correct potential errors

Technology: gravimetric verification, barcode scanning, image capture

Documentation: audit trail of compounding process

Inventory Management: remainders, stock batch, returns
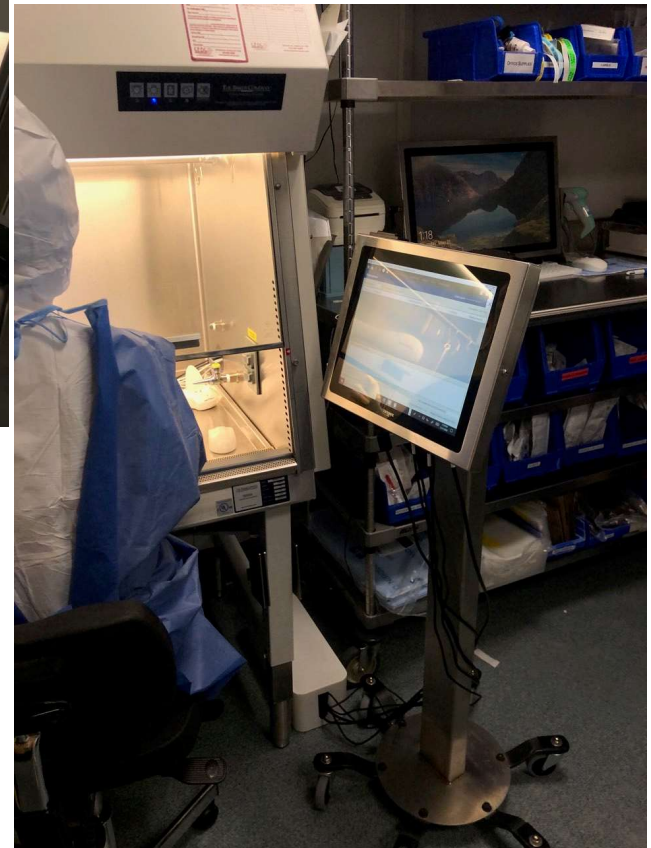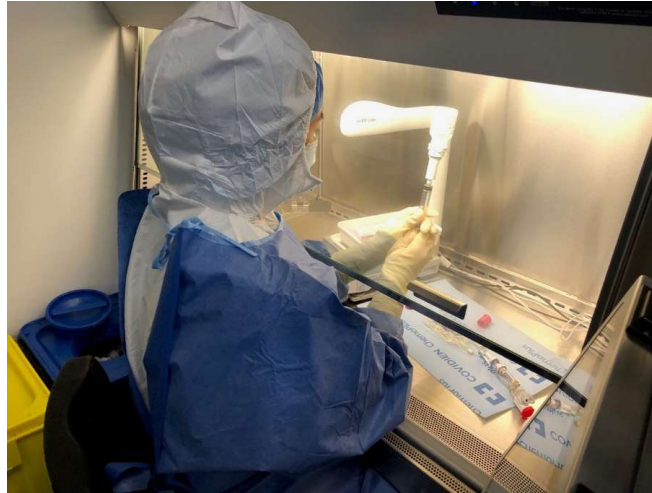
Compliance: USP 797 and USP 800

Implementation Timeline

Kick off

Interface build & testing
- 5 months (streamline, 2 mo)

Drug library build
- 4 months (streamline, 1 mo)

Validation (2w), equipment setup (3d), training(2w)

Go-live v2.40
- 50 drugs (20 hazardous 30 non-hazardous)

Upgrade to v2.44
- 2 weeks (incl. test & training of staff)
- Expanded to all hazardous drugs

Upgrade to v2.44
- Expanded to pediatric & high-risk compounded drugs
- Drug library includes 85% of compounded workflow

Build Maintenance: 2 mins to unlock drugs, if density & stability req. then 10-15 mins

Late March 2018   **October 2018**   **2019**   **2020**

Compounding

Hazardous Compounding

IV Prep Example

1 - Transfer of thiamine injection 100mg

Check of container after injection
Action within tolerance
Container: dextrose 5% 50mL bag VIAFLEX Baxter
Active ingredient quantity to transfer: 95.05mg
Nominal: 0.95mL; Actual: 0.96mL; Deviation: +1%

Label Set Up

One Step

NewYork-Presbyterian Queens Pharmacy

MCKESSON, PATIENT15 ED - Trauma T01B-
DOB: 6/30/1971 47 y MRN: 3368615

LATEX ALLERGY
valproate sodium **1750 mg**
dextrose 5% **50 mL**

Freq: Daily Route: IV PiggyBack
Infuse over: 60 min Rate: 67.5 mL/hr

Pharmacy Use ONLY: 3348

Hang By: 10/21/18 09:00

Storage: Room Temp.

Prep By: 10/20/18 0900
Checked By: _____
Order ID: M001BBN963

Rx Deliver By: 10/20/18 14:00

This barcode is for pharmacy use only

"Hang By" refers to the point at which drug administration must **begin**

This corresponds to the administration time in EMR

Patient specific barcode used for EMR documentation

Two Step Label

NewYork-Presbyterian Queens Pharmacy

Chemo Clinic -

CARBOplatin **358 mg**
sodium chloride 0.9% **250 mL**

Freq: Once Total Volume: 285.80 mL
Infuse over: 30 min Route: IV PiggyBack

HAZARDOUS – ANTINEOPLASTIC

Rate: 571.6 mL/hr
Hang By: 06/02/20 10:15

RX USE ONLY: 154500

Storage: Room Temp.

NOT CHECKED- DO NOT ADMINISTER

Storage: Room Temp.
Prep By: JaKoc RPh 06/01/20 1015 Rx Deliver By: 06/01/20 09:42
Checked By: nlt9032 RPh Order ID: M001FFJPZR

CAUTION CHEMOTHERAPY DRUG | Hazardous Antineoplastic Drug | Group A: Hazardous-Antineoplastic

Emergency Management with IV Prep
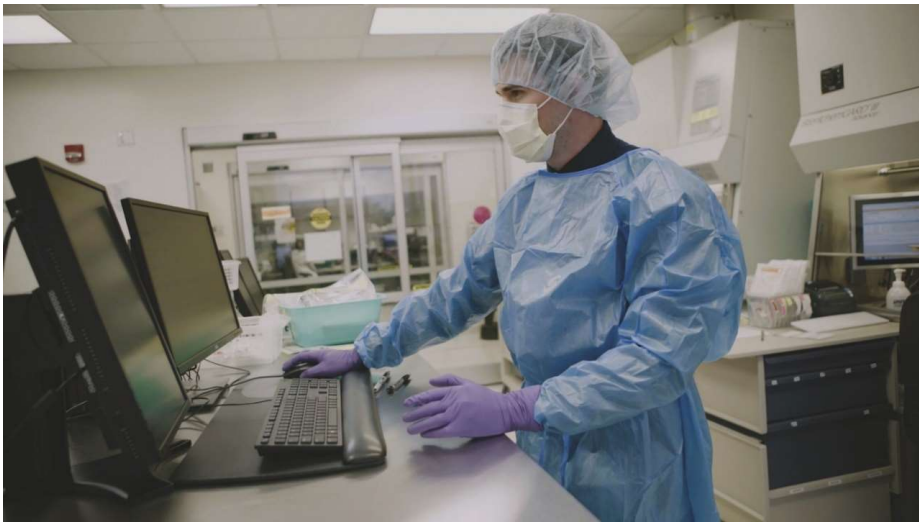
➢Out of range room certifications
  • IV Prep quickly allows you to set global settings if beyond use date must quickly change

➢Clinical Trial
  • NYPQ remdesivir site under emergency use authorization supply

➢Management of important medication usage

Implementing now: Pyxis IV Prep & USP 797 task tracking

New task management function with *workflow hard stops* enforce compliance & documentation of tasks
- Recording USP compliant related tasks such as:
  - Environmental activities (pressure, temperature, humidity)
  - Cleaning activities
  - Room Certifications
  - Media fill/ fingertip sampling (competency checklists)
- Can notify manger/ supervisor of overdue tasks
- Reporting elements

Expected Outcomes:
- Actual documentation of completed tasks
- Dashboard of USP compliance across system
- Standardizes tasks
- Competency checklist
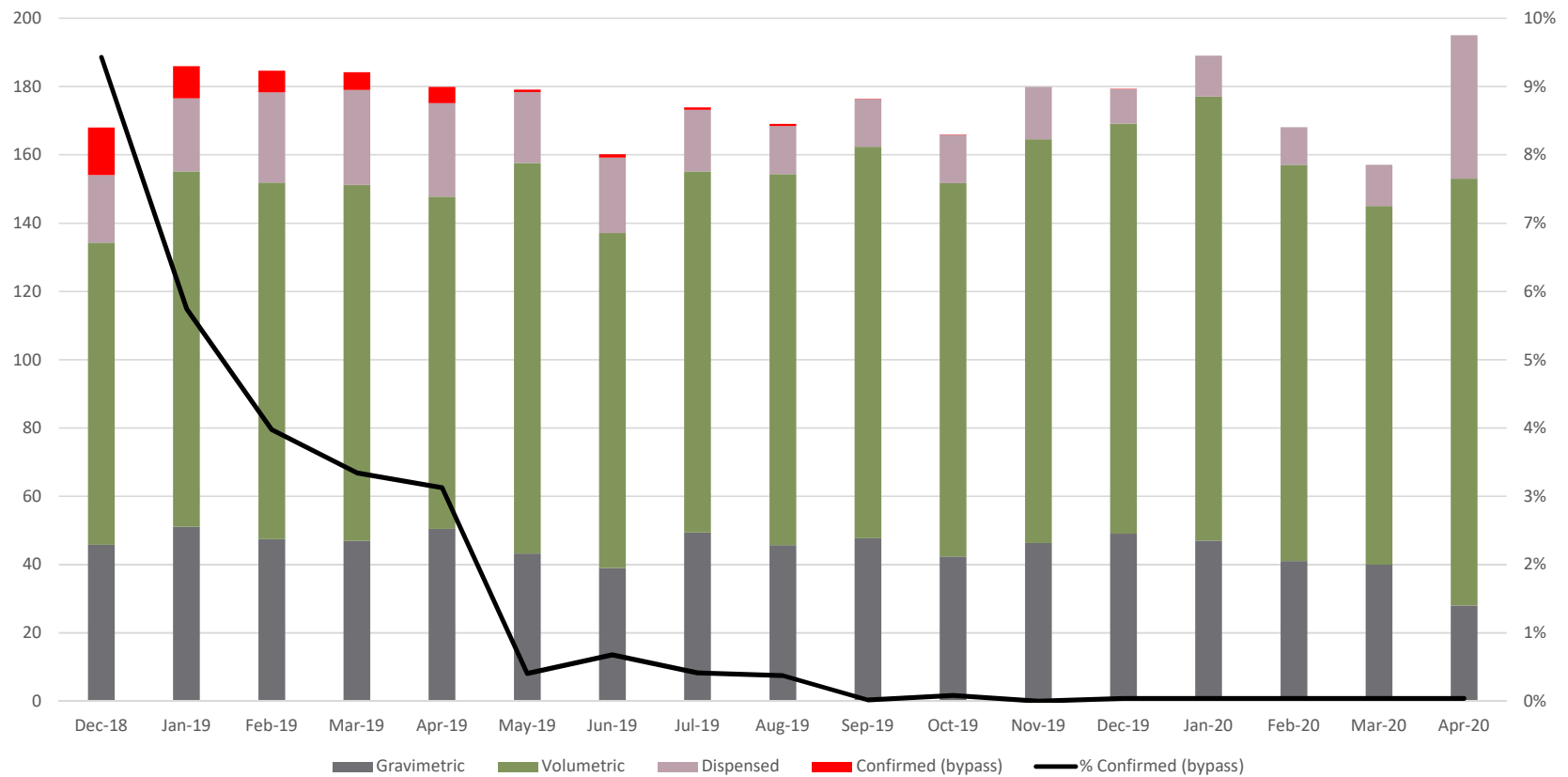- Increase USP Compliance
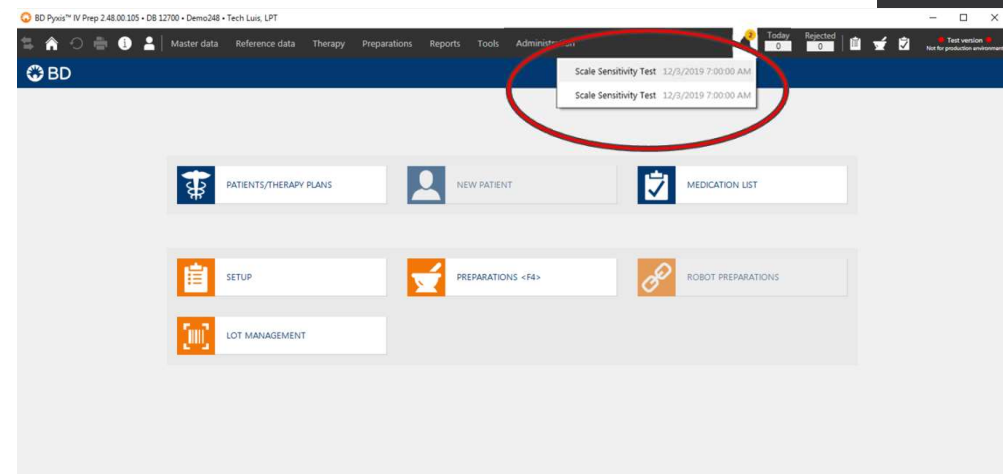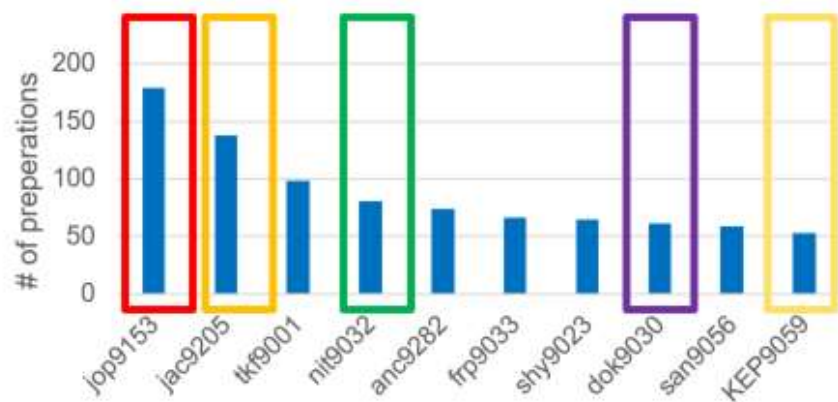
Benefits of Pyxis IV Prep - Data
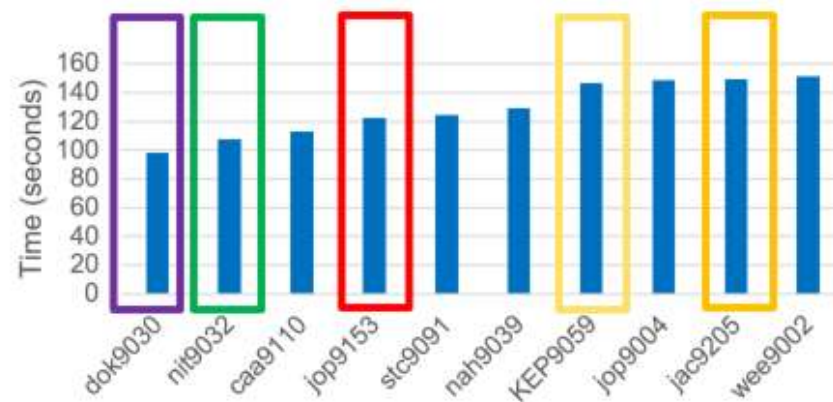
Big Picture Metrics

Average number of preparations made per day

Legend: Gravimetric — Volumetric — Dispensed — Confirmed (bypass) — % Confirmed (bypass)

Who is becoming a natural super user?

Who is utilizing the system?

Who is compounding quickly?

Metrics by Drug Level
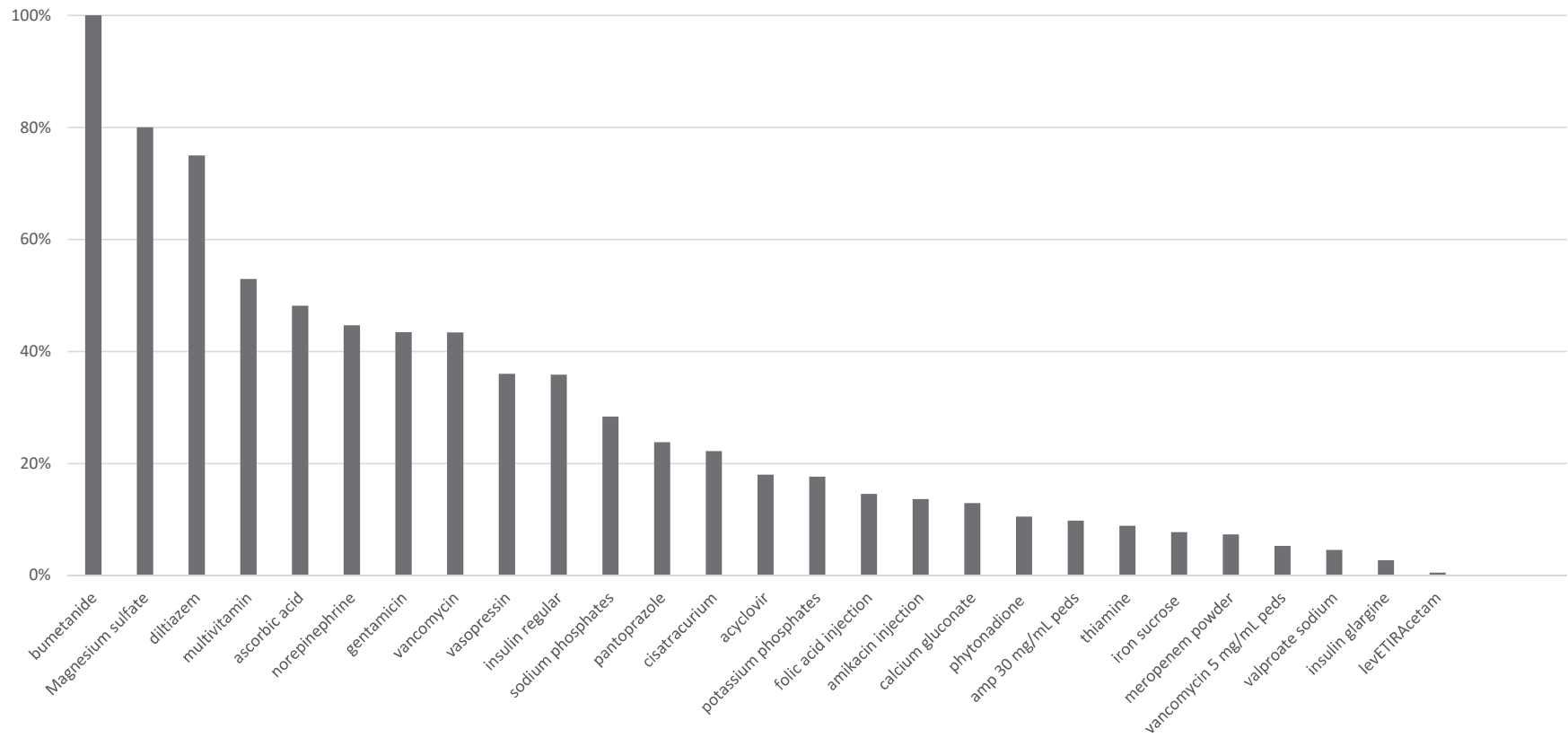

Time to Compound by Drug
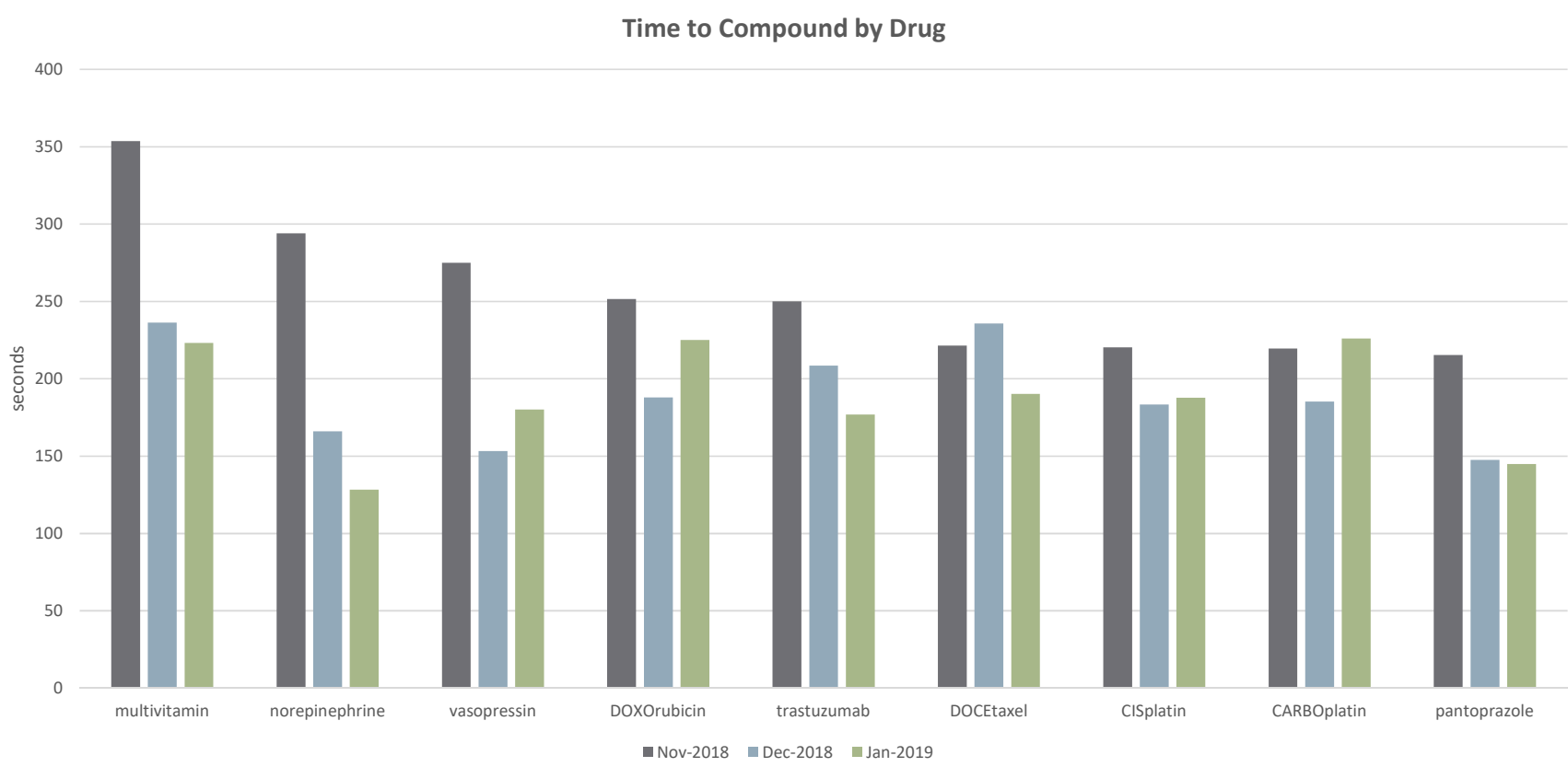
Can workflow be adjusted to optimize system?

November 2018 to April 2019

Bypass by Hour
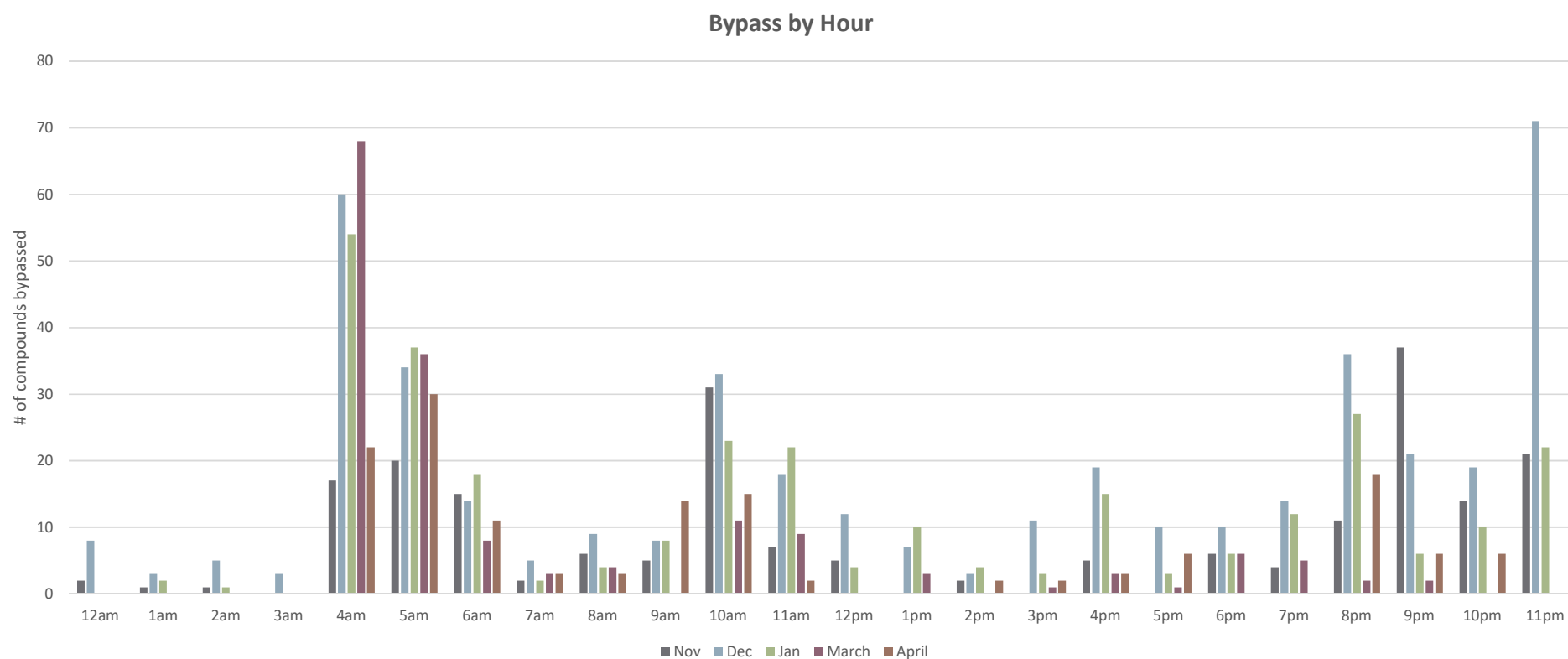
Percent Bypass by Drug (Dec 2018)

Productivity

➢ From initial go-live
  - Time spent compounding has decreased **(average 132 seconds per gravimetric compound for 2019)**
  - Accuracy of gravimetric compounds has increased
    - **Review of all gravimetric preparations for time period showed an average dose deviation of 0.50% per compound**.

Productivity- Time Compounding

18.5% decrease from Go-Live
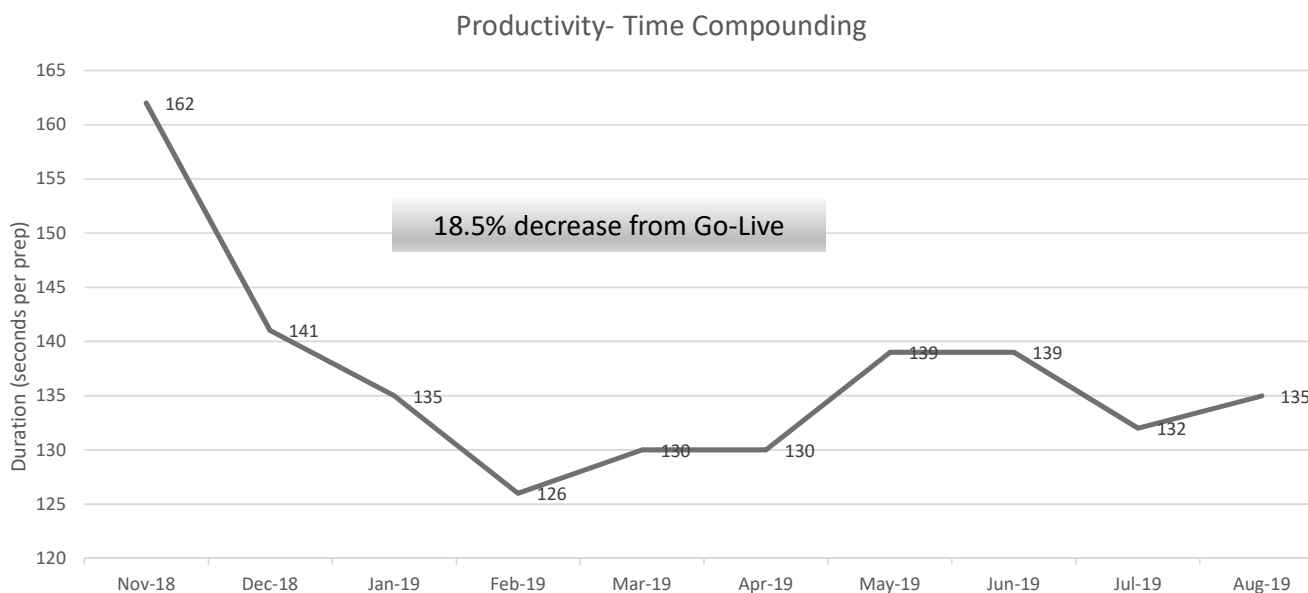
Streamlining workflow

➢Streamlined pharmacy workflow and thus reduced pharmacy compounding waste
- 2019- Average $3,500 waste reduction per month
- Saved at-least 25 minutes compounding time per day
- Downward trend in cost-savings is due to the fact that metrics have allowed us to change workflow to reduce overall waste

Cost-Savings

$6,000.00
$5,000.00
$4,000.00
$3,000.00
$2,000.00
$1,000.00
$0.00

Jan-19 Feb-19 Mar-19 Apr-19 May-19 Jun-19 Jul-19 Aug-19 Sep-19 Oct-19 Nov-19 Dec-19

■ Re-used Returns   ☐ Avoided Doses

Safety Features

➢ In 2019, out of 62,265 preparations IVWMS detected and stopped 7.5% errors.
  - This is lower than the national average estimate of 9%[2]

➢ Of those errors, only 21.9% could have been detected prior to IVWMS.
  - Not all errors have significant clinical impact
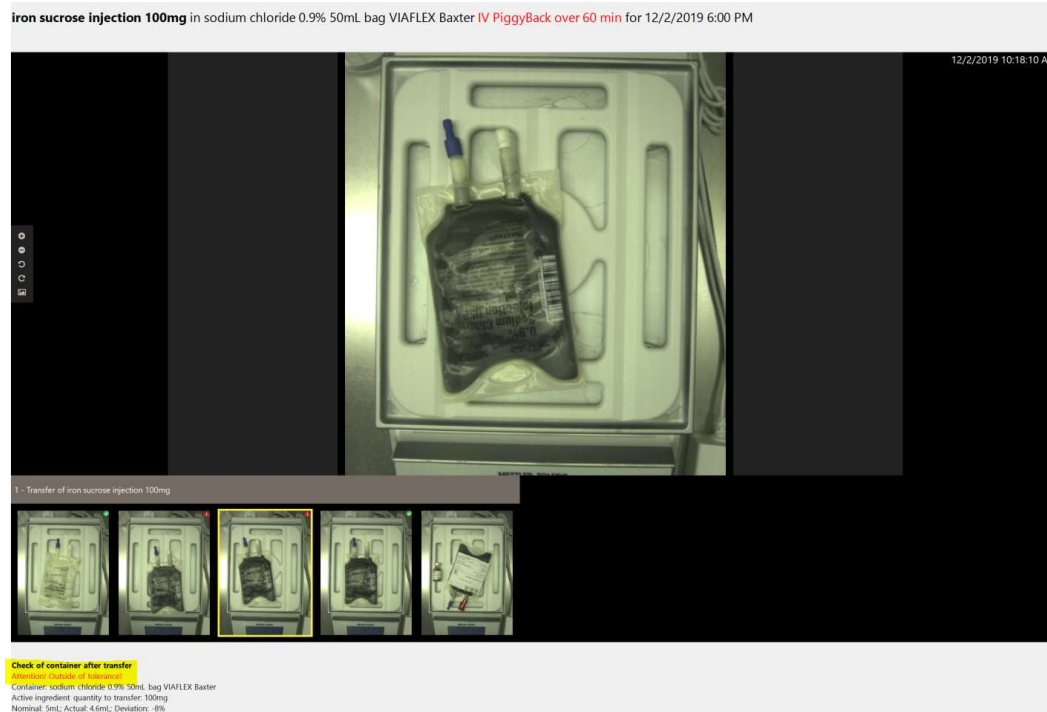
Key takeaways on how to develop metrics

➢Post Go-Live examine metrics:

- by user-compounding speed, compounding accuracy and bypass rate

- by product-speed, accuracy, and bypass rate
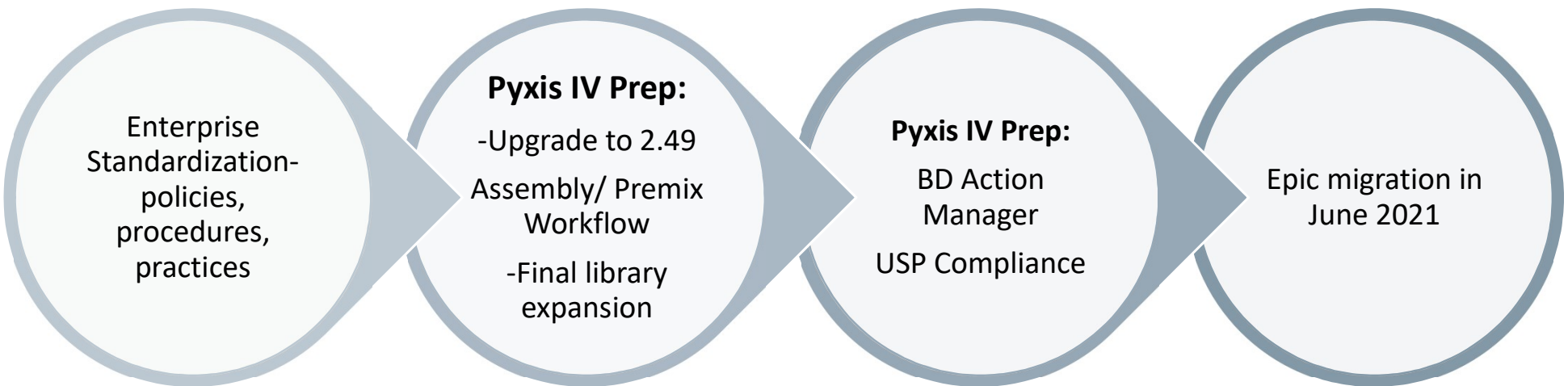
➢Continuous Metrics

- Begin to set department goals as a whole

- If you are not meeting those metrics see if it is due workflow or users

- Create goals/ metrics surrounding productivity, safety, and cost-savings

Share metrics data with staff to reinforce the positives of the error reduction!

Lessons Learned

- Rollout implementation vs. Big Bang
- Soft go-live with equipment
- Getting the right equipment
- Importance of Super Users
- Continuous education beyond Pharmacy & sharing our success internally

What's next for NYPQ Pharmacy

Enterprise Standardization- policies, procedures, practices

Pyxis IV Prep:

-Upgrade to 2.49

Assembly/ Premix Workflow

-Final library expansion

Pyxis IV Prep:

BD Action Manager

USP Compliance

Epic migration in June 2021

References

1. ISMP. Maximize benefits of IV workflow management systems by addressing workarounds and errors. 2017 Sept. https://www.ismp.org/resources/maximize-benefits-iv-workflow-management-systems-addressing-workarounds-and-errors

2. Flynn, EA, Pearson, RE, Barker, KN. Observational study of accuracy in compounding IV admixtures at five hospitals. Am J Health-Syst Pharm. 1997 Apr 15; 54: 904–912.

Thank you!

Replay: BD.com/BDInstitute

BD