

Hematology Selection, Implementation, and Performance Tracking; ***“Leaning Away Waste Using Hematology Automation”***

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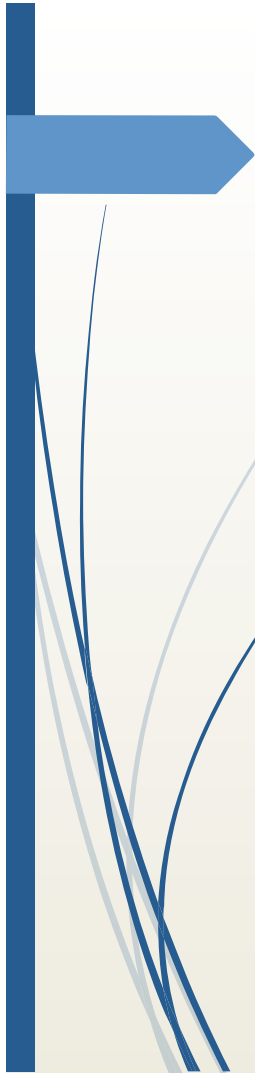
Objectives

Recognize recent advances in hematology laboratory automation.

Discuss how advancements in hematology automation can improve workflow efficiency.

List the pros and cons of implementing automated hematology instrumentation.

Operational Challenges



Decrease in number of accredited schools	
Bye Bye Baby Boomers	
Decrease in number of students entering field	<ul style="list-style-type: none">• Under-recognition of Laboratory Medicine field• Salaries do not correlate with education
Healthcare Changes	<ul style="list-style-type: none">• Affordable Care Act• Reimbursement changes – quality vs. quantity
Laboratory testing volume is on the rise	



Operational Solutions



Doing more with less...

- LEAN-LEAN-LEAN

**Lab Automation and
Middleware**

LIS Auto-Verification

Advanced Parameters

- Thorough information interpretation?

Cross Training



Memorial Sloan Kettering Department of Laboratory Medicine



Past

- Relative recent division consolidation
- Same thing 10 different ways



Present

- New Chair and Vice Chair
- New Lab Administration
- New LIS



Future

- New Lab Building
- New LIS
- New Sites

MSK Growth

Manhattan

- Current Labs = 6
 - 2 Multi-Disciplinary
 - 4 Heme Only
- Future Labs (2019) = 8
 - 4 Multi-Disciplinary
 - 3 Heme Only
 - 1 POCT Only

Regional Network (Long Island, New Jersey, Westchester)

- Current Labs = 5
 - 1 Multi-Disciplinary
 - 4 Heme Only
- Future Labs (2018) = 6
 - 2 Current Closing, 3 New, 2 Expansions
 - 6 Multi-Disciplinary

14 Labs with Hematology



Hematology Instrumentation Manhattan vs Regional Network

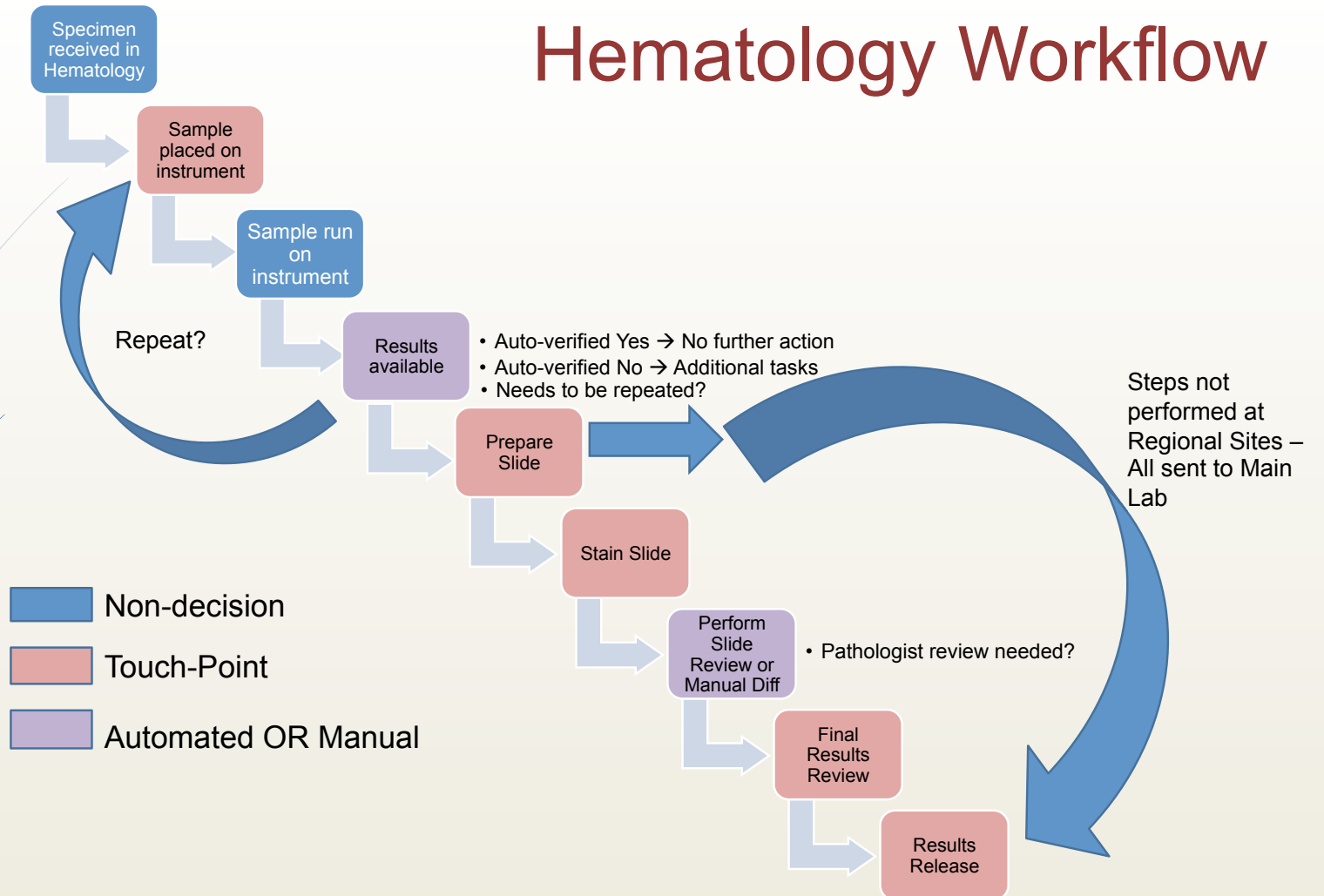
Manhattan Sites

- Different technology from Regional Sites
- Larger Footprint
- No Automation
- 6 Part Auto Diff
- LIS auto-verification used
- Digital Imaging Used

Regional Network Sites

- Different technology from Manhattan sites
- Smaller footprint – Lab space constraints
- No Automation
- 5 Part Auto Diff
- LIS auto-verification used
- No Manual Diffs or Slide Review – All sent to Main Lab

Hematology Workflow





Need Identified – Integrate and STANDARDIZE
Hematology



RFP

Selection

Implementation

Goals of RFP

Standardize Equipment

- Small Footprint – Scale to volume
- Same reagents

Automation

- Auto Repeats
- Slide-Maker-Stainer
- Scalable
- What else?

Middleware

- Integrate all instruments
- Integrate Digital Imagers
- Facilitated remote review
- What can it offer??

Decreased TAT's

New Hematology Automation

Digital Imager
(CellaVision)



Slide Maker/Stainer



Analyzer



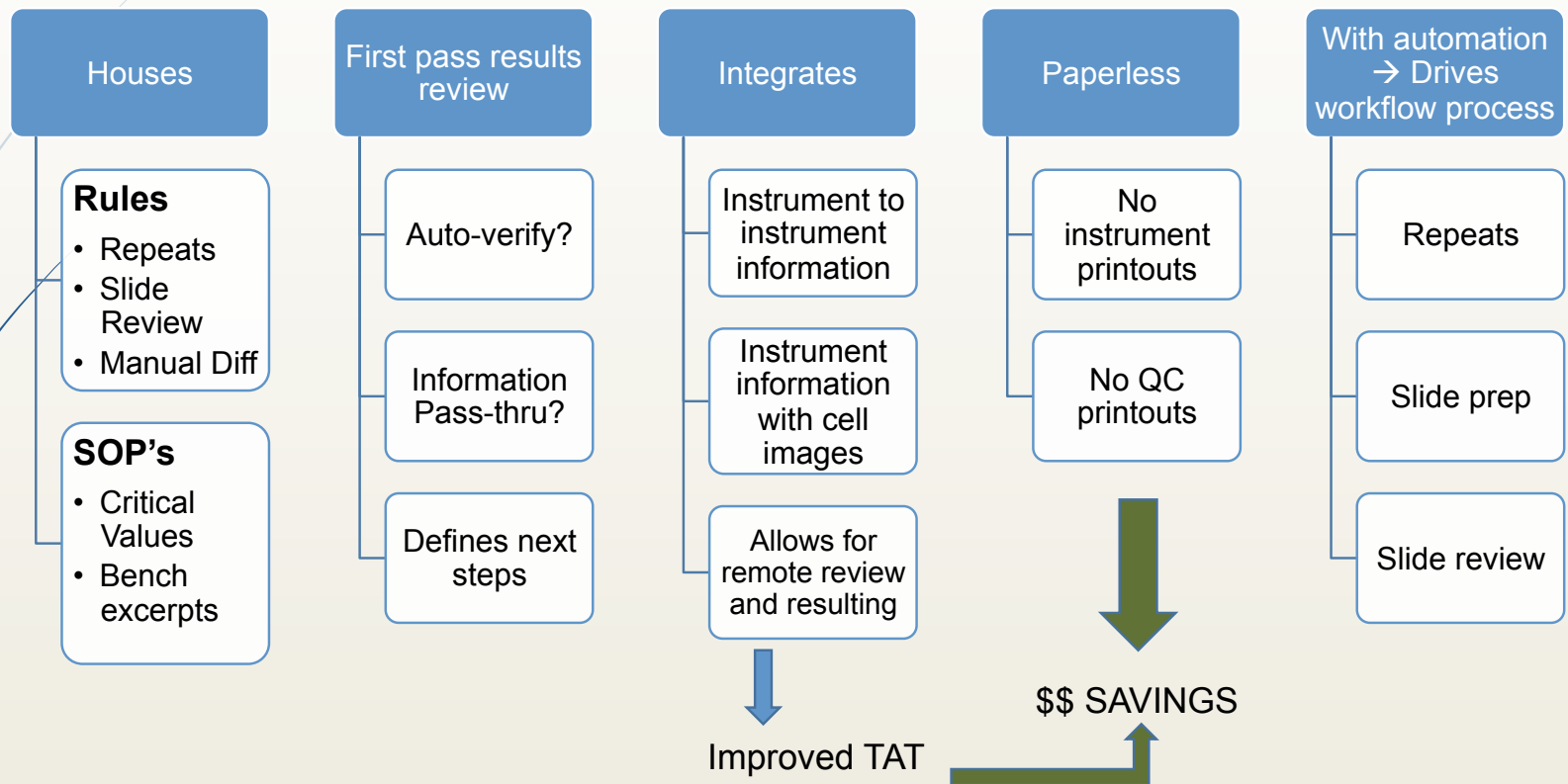
Analyzer



Other Configurations



Middle-ware





Hematology Automation

Automated Slide Maker-Stainers

- Connected to Hematology Instrument
- Not connected to Hematology Instrument

Digital Imager

- Automated Differential or Slide Review
- WBC and RBC Morphology

Automation Connectivity

- Between Hematology instruments
- Attached to larger automated line

MSK Implementation

Validation

- New Instrument to Incumbent
- New Digital Imager to Existing Imager AND new instrument
- Middleware build, testing, interfacing

Staff Training

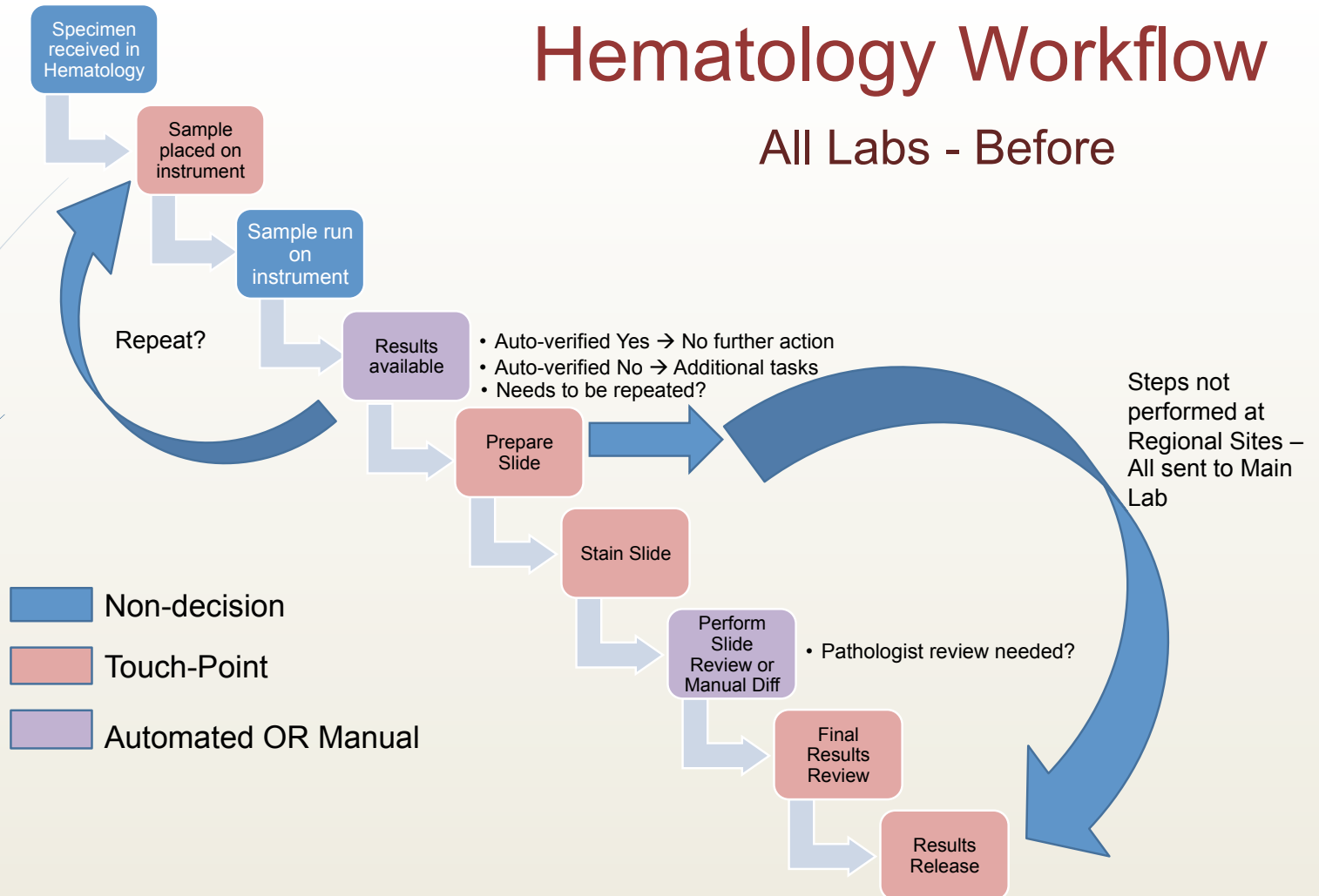
- New Instrument and technology
- New Workflows
- New Middleware
 - Customized

Go Live

- Scheduled for 11/15/15
- Few setbacks
- Phased approach

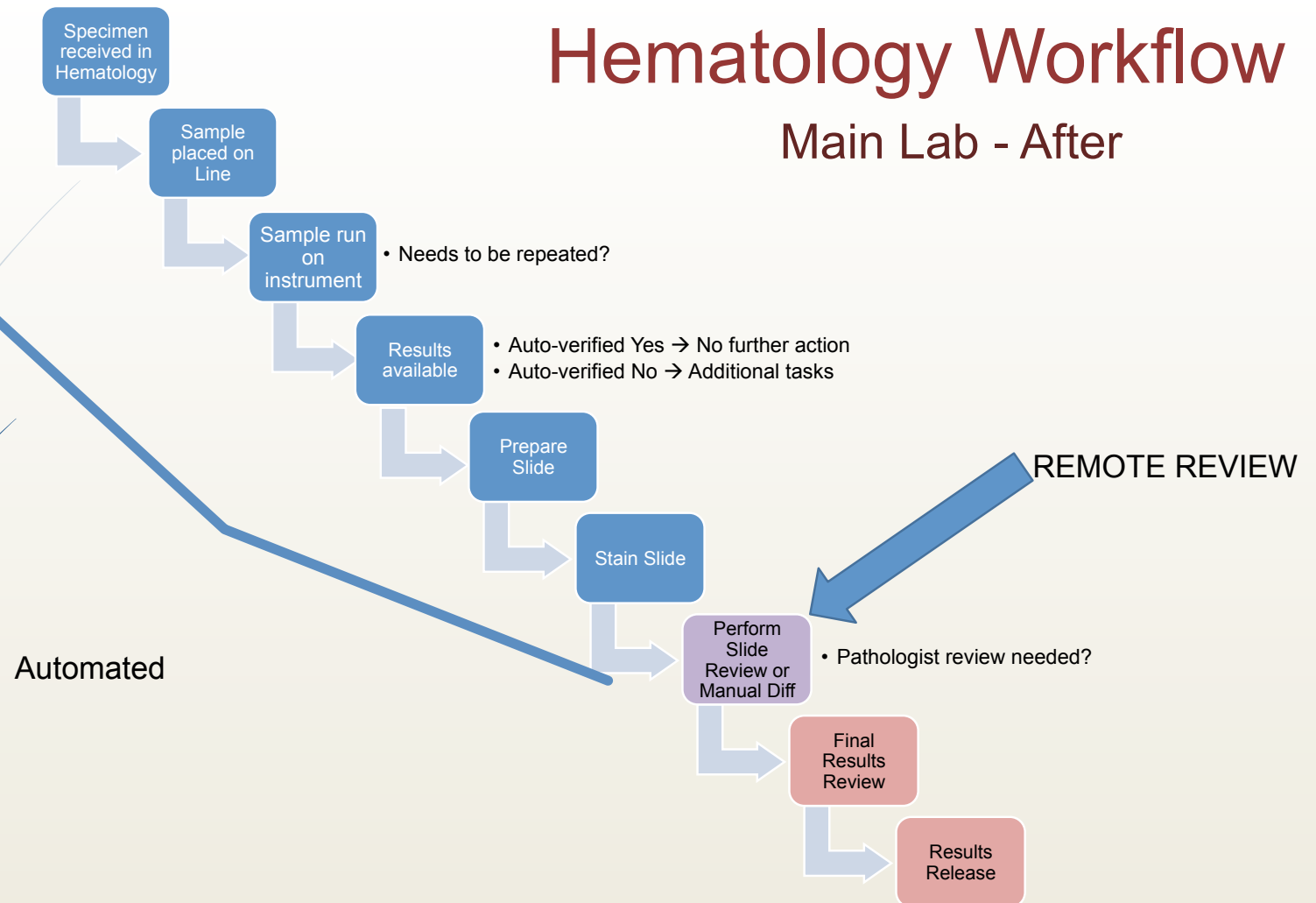
Hematology Workflow

All Labs - Before



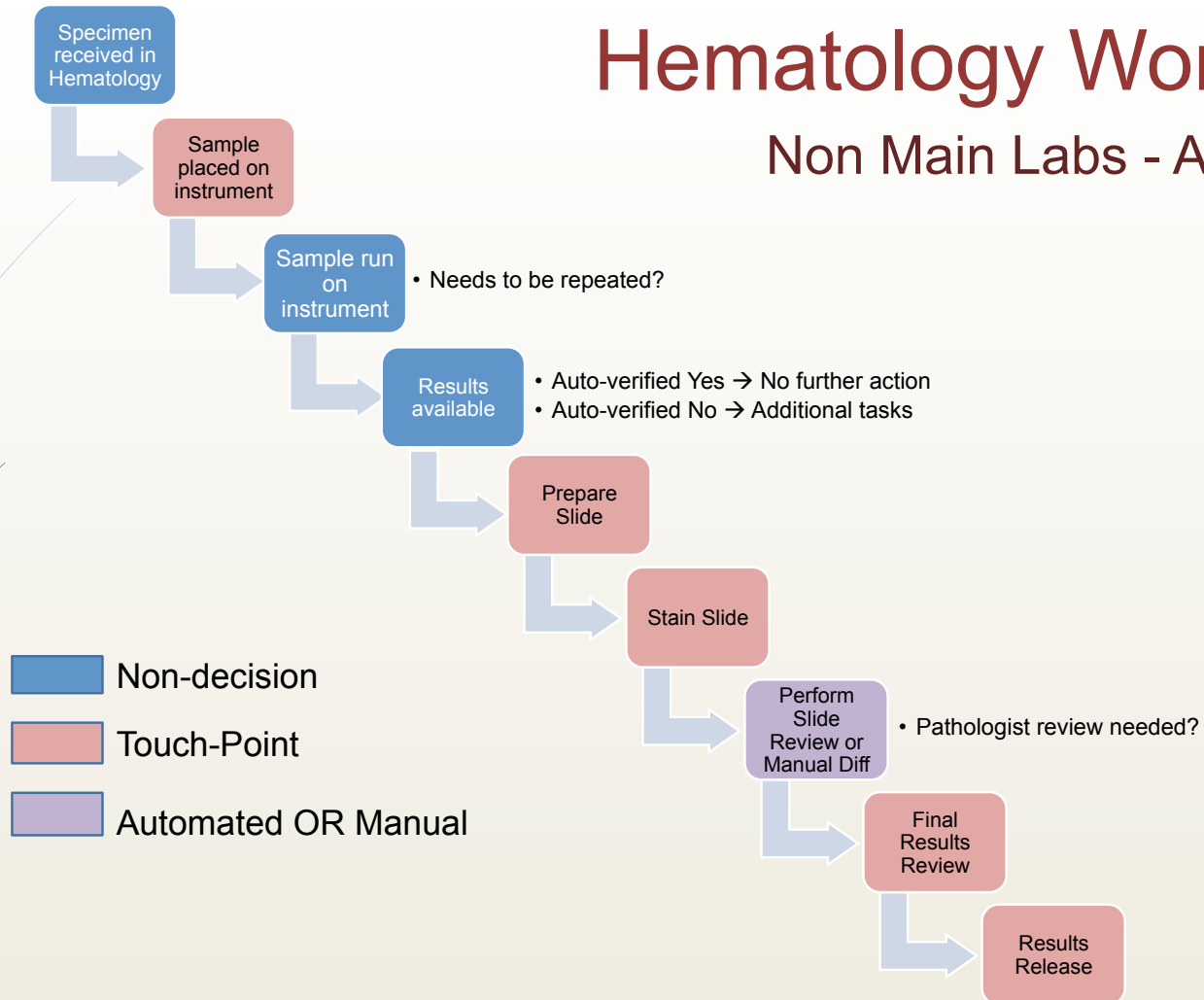
Hematology Workflow

Main Lab - After



Hematology Workflow

Non Main Labs - After



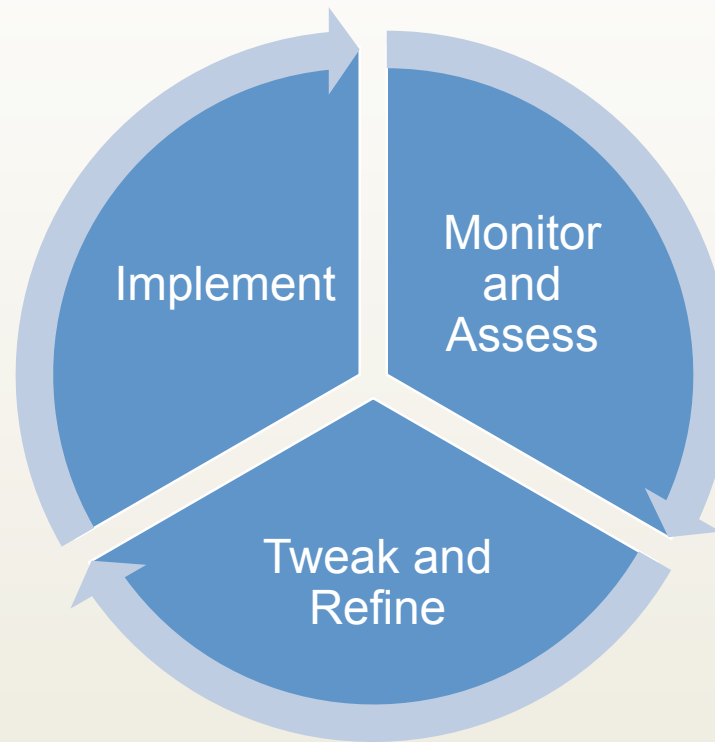
Expected Outcomes

Quality
Eliminate waste
Reduce touchpoints
Reduce opportunity for Error
Improved training and competency assessment

Efficiency
Cross training
• More Information
• More SOP's
• Multitasking
Reduced TAT's
• Faster clinical decision making
• Better patient outcomes
FOCUS SKILLS!!

Cost Savings
Instrument, reagent and service savings
Paperless
Increased staff utilization

MSK – Next Steps



Pros and Cons to Hematology Automation

Pros



- Streamlined and efficient workflow
- \$\$ Savings
- Decreased Turn-Around-Times
- Standardized processes
- Consistency in results
- FOCUS SKILLS!!!

Cons



- Space constraints
- Maintenance
- Implementation*
- Cost**



Considerations



Know objectives and goals



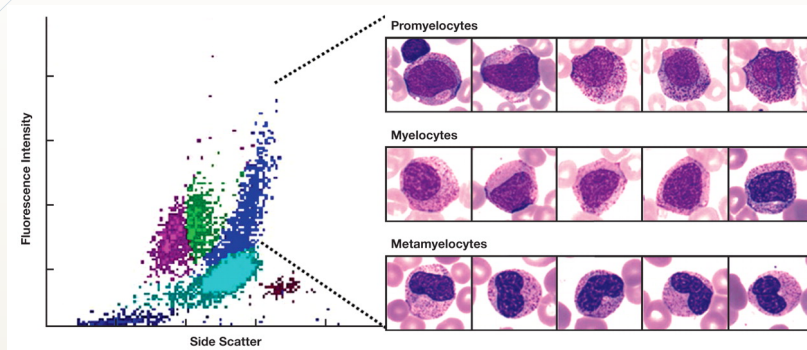
Plan, plan, plan



Time, time, time

Advanced Parameters

▶ Immature Granulocyte Enumeration

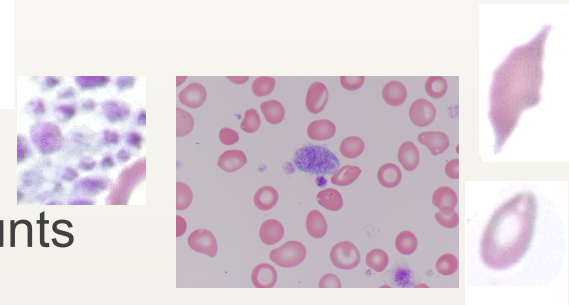


▶ Platelet Count

- ▶ Optical/Fluorescent Platelet Counts
- ▶ Automated CD61

▶ Nucleated Red Blood Cells

▶ Immature Platelet Fraction



Advanced Parameters/Methods

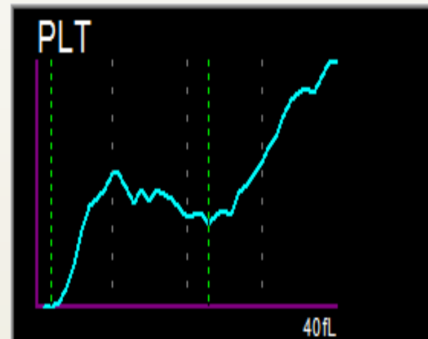
▶ Platelet Count

▶ Optical/Fluorescent Platelet Counts

▶ Automated CD61

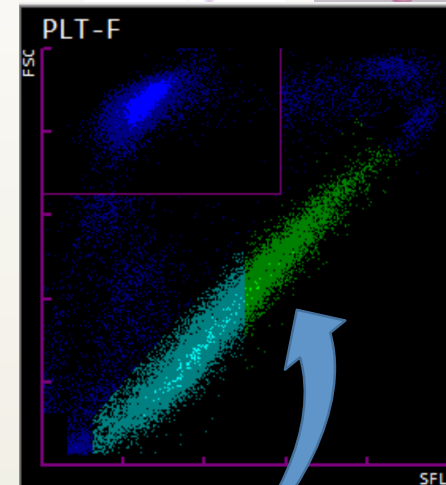
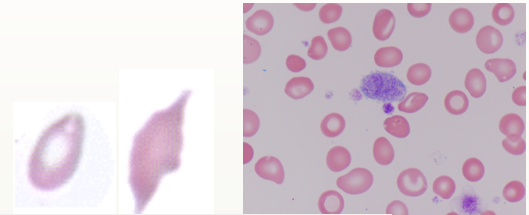
Accurate platelet counts with

- Giant Platelets
- Microcytic anemia
- Schistocytes



▶ Nucleated Red Blood Cells

▶ Immature Platelet Fraction





Questions??

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