



Atrium Health

Achieving Standardized, High Performance Lab
Testing Services at Multiple Hospitals Using Lean
Methods and Effective Engagement with Lab
Staff and Nurses

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Atrium Health Laboratory Services

Today's Journey

- Who we are
- Lab's Theory – Insight to the Lean Management System at Atrium
- Mercy's Journey
- Carolinas Medical Center's Journey
- Right Specimen From Me Initiative
- Wrap up/Questions

Atrium Health

- Atrium Health is one of the most comprehensive public, not-for-profit healthcare systems in the nation. Our diverse network of more than 950 care locations in North Carolina, South Carolina and Georgia includes hospitals, freestanding emergency departments, physician practices, behavioral health centers, academic medical centers, surgical and rehabilitation centers, home health providers, hospice and palliative care services and nursing homes.
- Atrium Health's Mission is ***improve health, elevate hope and advance healing for all*** through high-quality patient care, education and research programs, and numerous collaborative partnerships and initiatives. With more than 65,000 teammates and over 31,000 patient encounters each day, Atrium Health continues to nurture its roots while evolving as an organization.
- Atrium Health's Value: **To be the first and best choice for care.**

Laboratory Organization

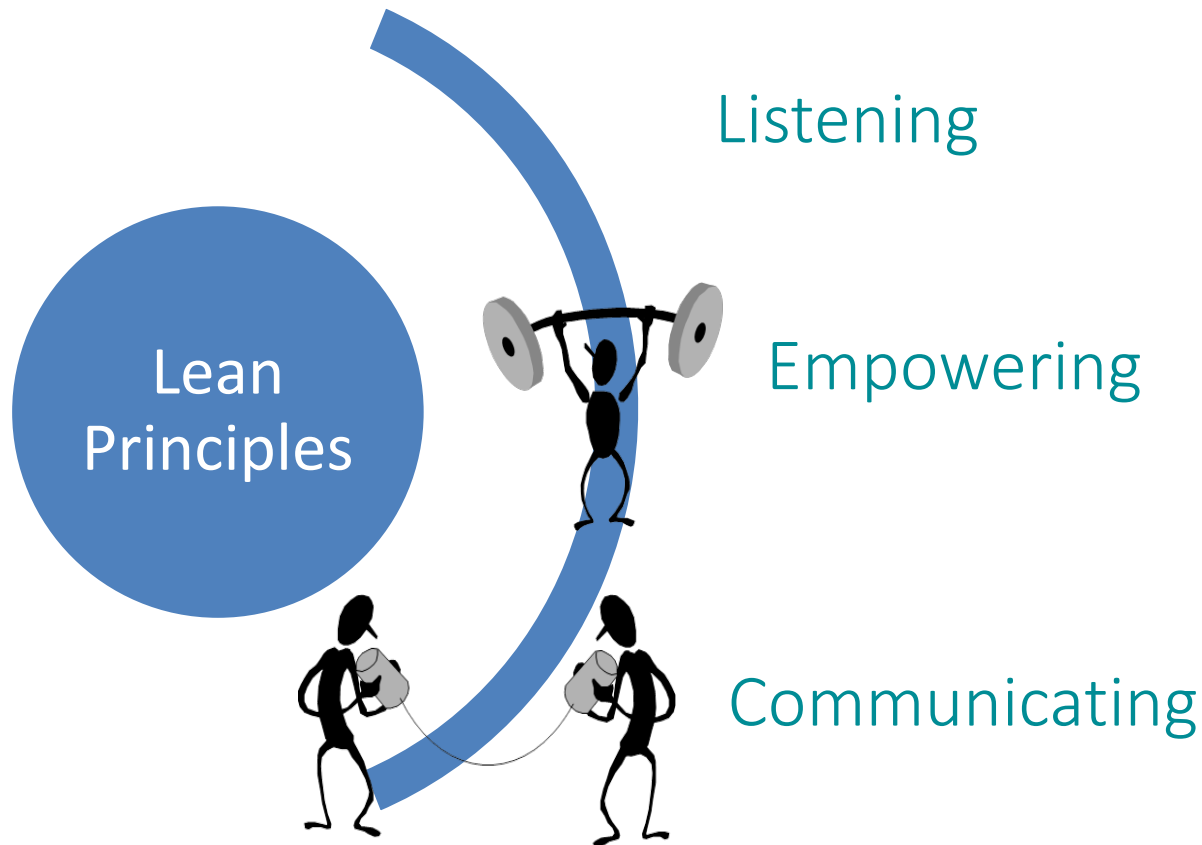
- 17 Acute Care Lab Locations
- 1 Core Laboratory
- 632 Budgeted FTE's
- Monthly Revenues ~ \$42M
- Monthly Operating Expenses ~ \$12M
- Monthly Volume ~ 1M procedures
- Productivity (Worked Hours/Billable Test) ~ 0.1066
- Premier Benchmarking – Operating Well Below the 35th % (Peer Comparison)

Lab's Theory



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Design Process



Elements of the Operating System

- Huddle
- Standard work
- Andon
- Visual controls
- Problem solving
- Team structure
- Schedule
- Staffing
- Audits
- Leader standard work
- Point-of-use materials
- Cross training
- Teammate development

What Approach are We Taking?

- A Lean management structure forms the foundation of our focus on improvements – process, quality, outcomes
- Our structure relies on team leadership to drive change
- The Team Leader in our structure plays a key role in our system of continuous improvement
- The Group Leader and Director play a supporting, reinforcing role to the Team Leader and teammate

Our Leadership Principles

- **Patients first, always**
- **Value is defined by the patient**
- Maintain **continuous flow** – level out the workload to the extent practical
- **Use visual controls** so that problems are easily seen
- Ensure **quality is right the first time** by stopping to fix problems
- **Go and see** yourself to thoroughly understand the situation
- Implement technology judiciously; automating a poor process is unlikely to result in improvement
- **Develop exceptional people** and teams through a relentless **focus on daily improvement**

Leadership Quote

*“Leadership is not being better than everyone else,
Leadership is making everyone better”*



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CMC Mercy Laboratory

A Lean Transformation

CMC Mercy at a Glance



CMC Mercy Est. 1906 by the Sisters of Mercy

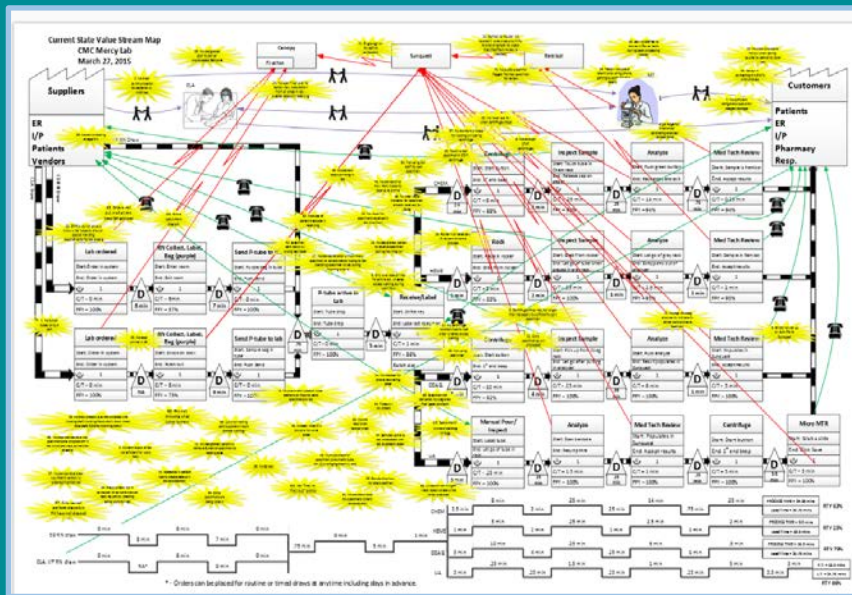
- CMC Mercy is a 206 bed facility with an average daily census of 140 patients
 - Specializing in foot/ankle, hip/knee, bariatric, and women's pelvic health surgery
- Mercy lab produces 360,000 billable tests per year in hematology, coagulation, chemistry, urinalysis, and blood bank

Mercy Laboratory Department Transformation

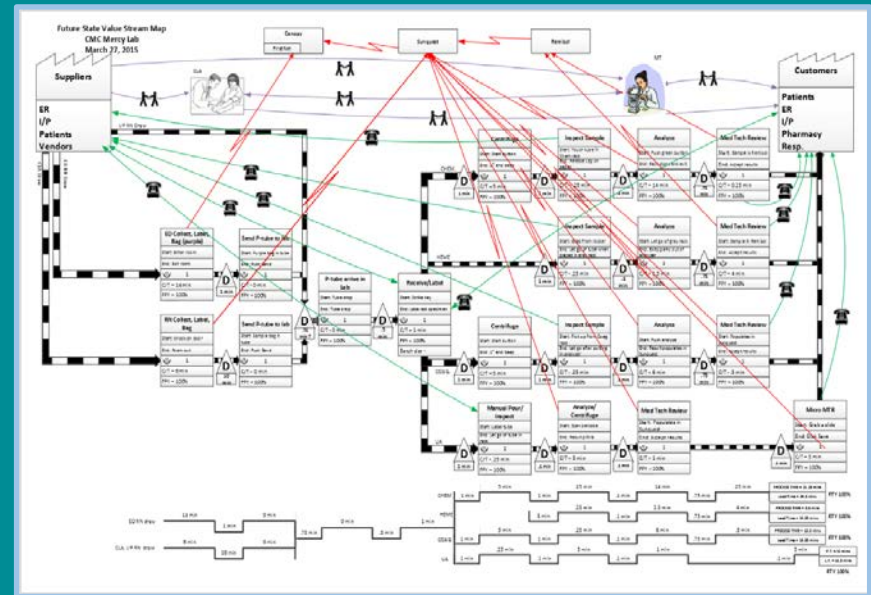
- Strategy and Objectives
 - Meet or exceed our customers' TAT expectations
 - 30-35% compliant with our TAT metrics
 - Create a leading model of quality, safety, inventory control and efficiency
 - Create an environment that empowers teammates and fosters a problem solving culture

Value Stream Map - The Tool

Current State



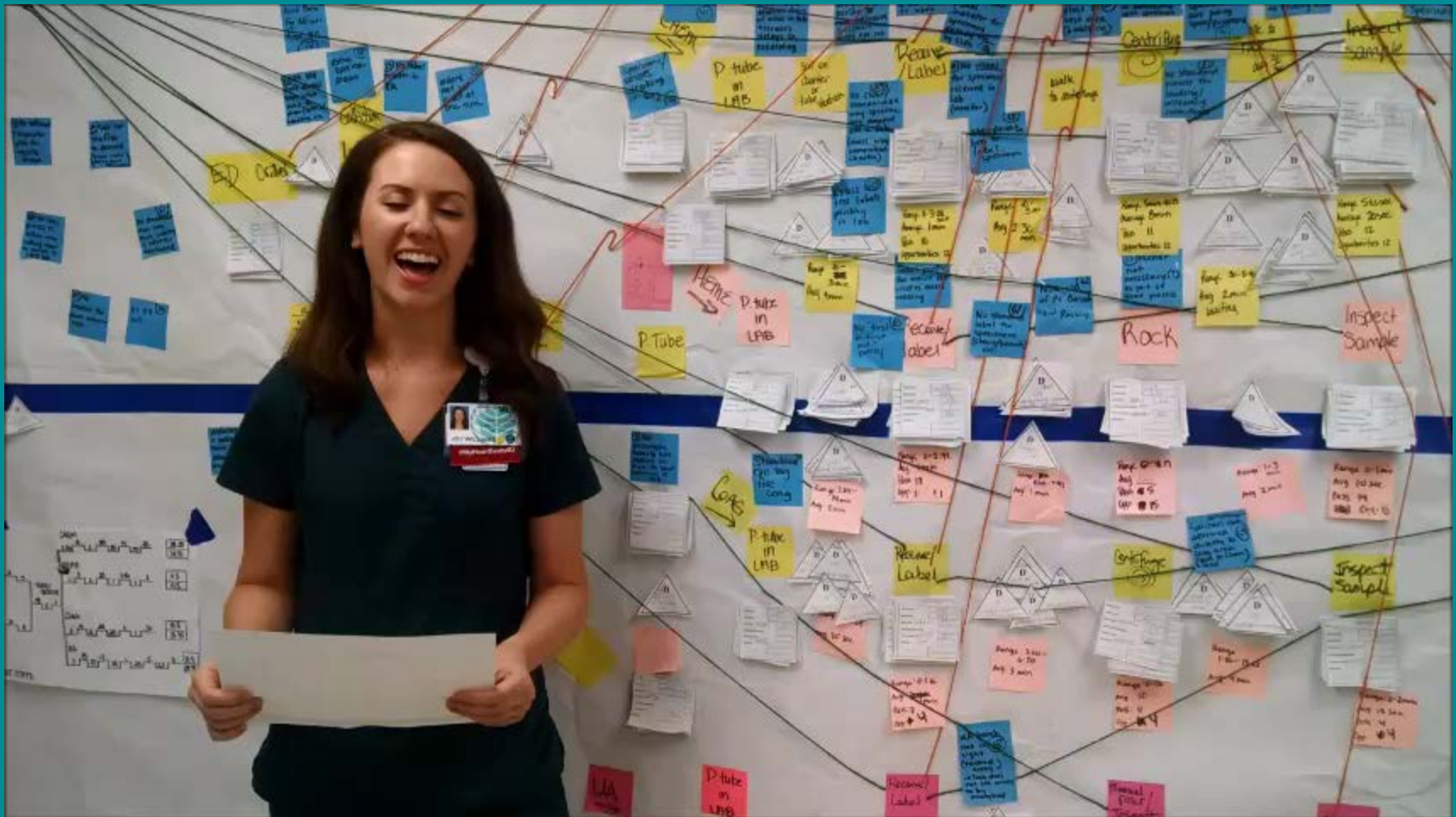
Future State



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VSM- Beyond the Tool

- This was our first step in starting to see the issues with our current state:
 - Layout
 - Processes
 - The mess
 - Equipment optimization
- Introduction to ‘flow’ would set us on a path towards efficiency
 - Layout redesign
 - Standard work
 - Process/people optimization
 - Inventory management
 - Visual management



One-Piece Flow Phlebotomy



The Tools

| Standard Work Instruction Sheet | | | | | | | | | |
|---------------------------------|--|-------------------|-----|--------------------------|-----|-----------------------|----|----------|----|
| Process Name: | | Process Breakdown | | Patient | | Lab | | Status | |
| Phlebotomy | | 1 of 1 | | Great Patient | | Patient | | Date | |
| Created/Revised: | | 1/1/2018 | | 1/1/2018 | | 1/1/2018 | | 1/1/2018 | |
| Task Time: | | 00:00:00 | | 00:00:00 | | 00:00:00 | | 00:00:00 | |
| Safety Requirements: | | None | | None | | None | | None | |
| Tools Required: | | None | | None | | None | | None | |
| Process Breakdown | | Time | | Operation Time (seconds) | | Critical Check Points | | | |
| No. | Element Description | Min | Max | Min | Max | | | | |
| 1 | Room In/Room Out, Reach for gloves | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 1 |
| 2 | Room Patient: Speak to pt (ask) | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 |
| 3 | Don PPE: Cross threshold | 1 | 1 | 1 | 1 | 3 | 3 | 3 | 3 |
| 4 | Patient Identification: Verify name & DOB | 1 | 1 | 1 | 1 | 4 | 4 | 4 | 4 |
| 5 | Gather Supplies: walk away from cart | 1 | 1 | 1 | 1 | 5 | 5 | 5 | 5 |
| 6 | Access and Clean Venipuncture site | 1 | 1 | 1 | 1 | 6 | 6 | 6 | 6 |
| 7 | Collect Specimen: Bandage Site | 1 | 1 | 1 | 1 | 7 | 7 | 7 | 7 |
| 8 | Label Tubes: press "Done" | 1 | 1 | 1 | 1 | 8 | 8 | 8 | 8 |
| 9 | Disinfect Room: Dispose PPE | 1 | 1 | 1 | 1 | 9 | 9 | 9 | 9 |
| 10 | Room Out: Send Specimen to lab, press send/Walk to next room | 1 | 1 | 1 | 1 | 10 | 10 | 10 | 10 |

The Standard Work

| Mercy Laboratory Schedule | | | | | | | |
|---------------------------|----|------|--------|------|--------|-------|-----|
| Sept 17-Sept 30 | | | | | | | |
| | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
| | S | M | T | W | Th | F | Sa |
| Bryant, Stephanie | 4 | | 4L* | 4 | 4L* | 4L* | |
| Mohammad, Hoda | | 3L* | 3 | 3L* | 3 | | 3L* |
| Carlisle, Virginia | 12 | | 3--7 | 3--7 | 3--7 | 3--7 | |
| Carpenter, Greg | | 3 | 3 | 3 | 3 | 3 | |
| Knight, Martin | | 1330 | 1330L* | 1330 | 1330L* | 1330 | |
| Hill, Judy | | | | | 11 | 11L* | 12 |
| Scott, Shavell | 4 | 11L* | 11 | 11L* | | 4--10 | |
| Frederick, Carol | | 21 | 21 | 21 | 21 | | |
| Campbell, Yolanda | 20 | | | | | 20 | 20 |
| Hill, Lindsey | | | | | | | |
| Callan, Jennifer | | | | | | | |
| Wiggins, DeShawn | | | | | | | 4 |

The Schedule

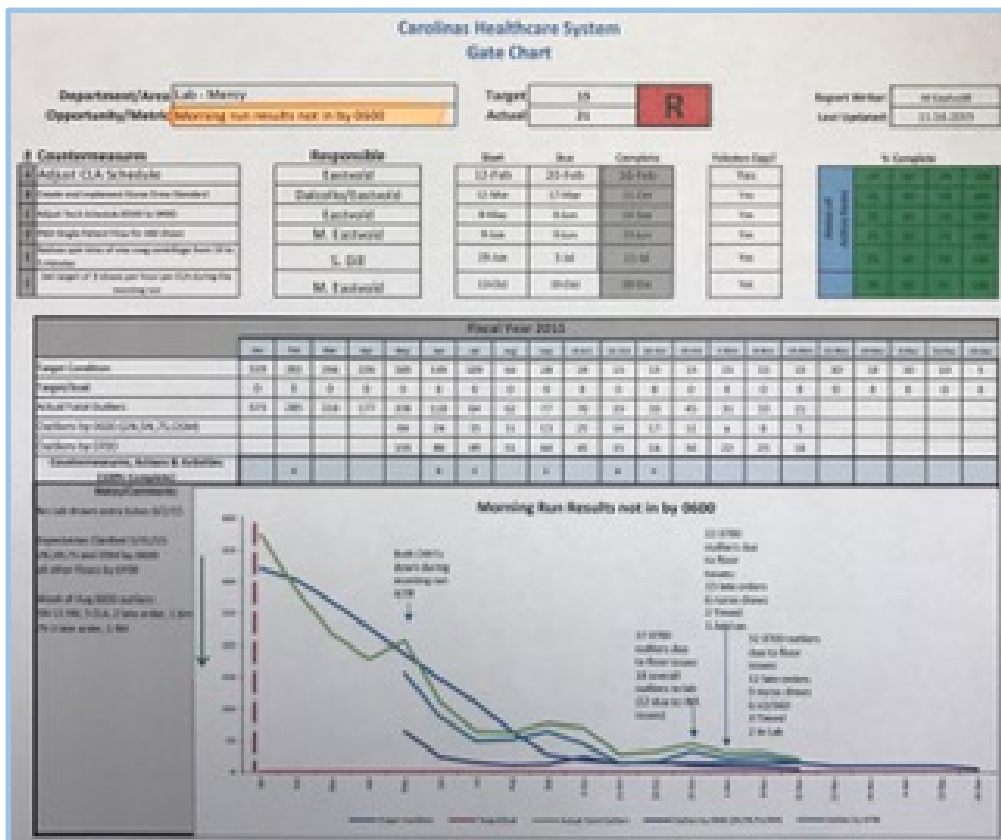


The Materials



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Metrics Related To One-Piece Flow



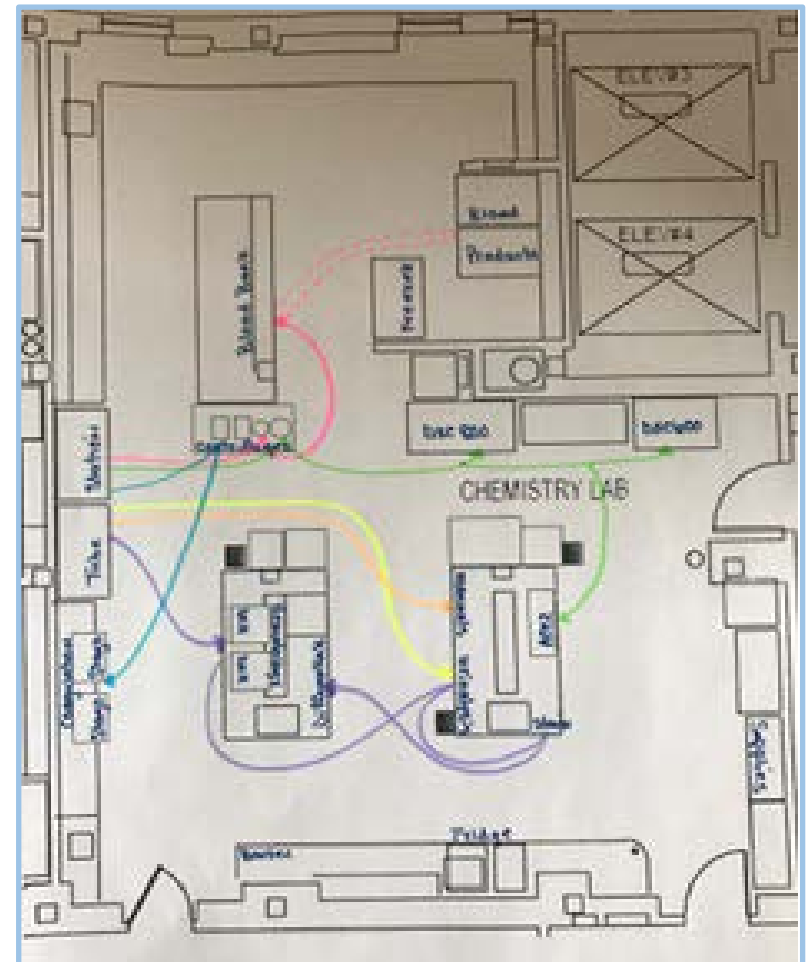
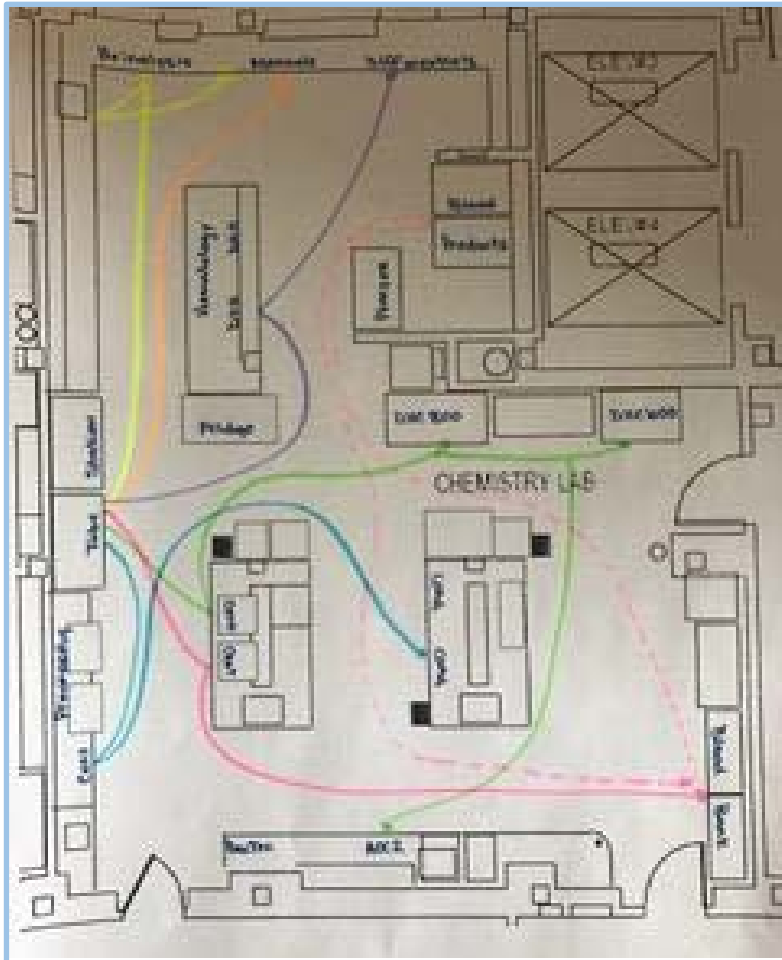
- June 2015 started one-piece flow blood draws
 - First month saw a 50% reduction in outliers
- Problem solving continues
 - Collaboration with nursing
 - Predictive staffing tool
- Started 2015 with 373 patient outliers per week
 - July 2017 we had 12 outliers

Pre Redesign



- Space dictated our equipment placement and thus created our highly wasteful specimen/operator flow
- Casework also inhibited instrument and supply placement

Specimen Flow Pre and Post



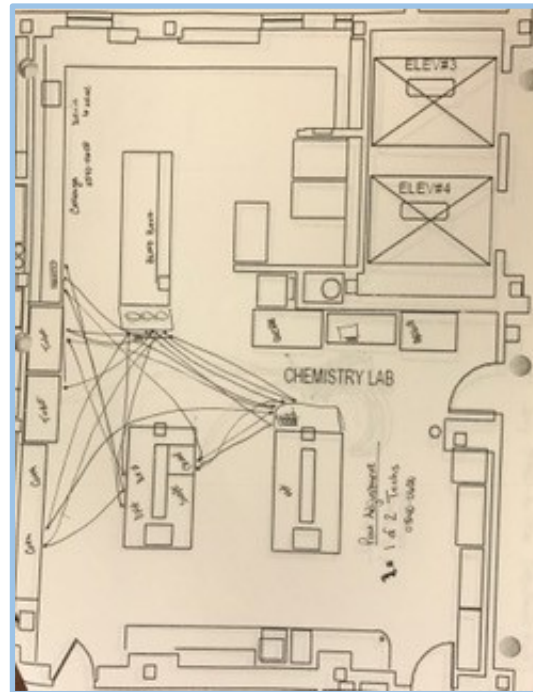
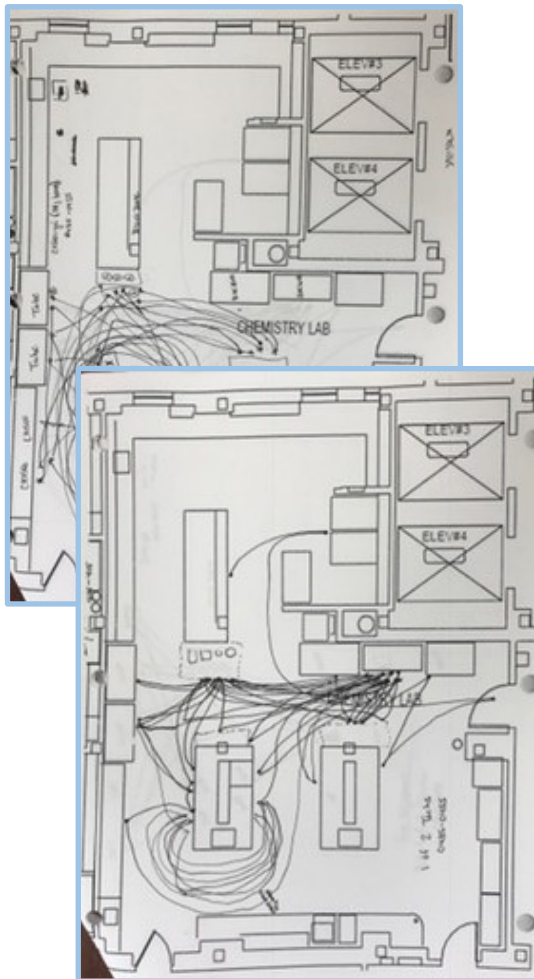
Post Redesign



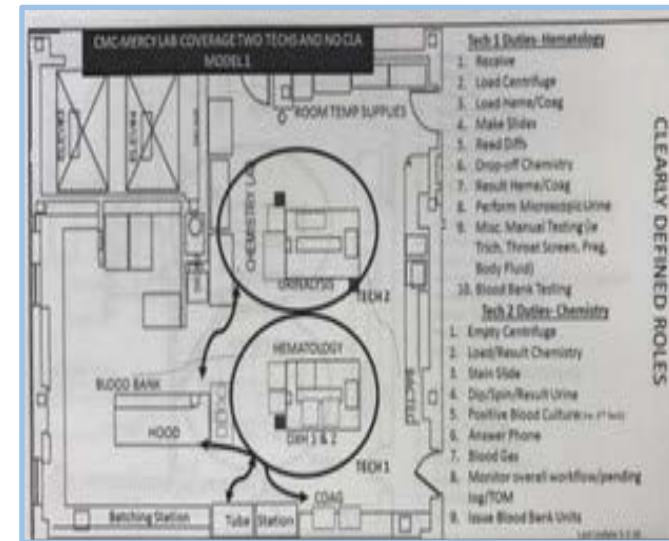
- Created a small cell with hematology and coagulation
 - Have the ability to be loaded by our CLA staff
- Centralized centrifuges close to the tube station
- Moved blood bank to the back of the lab for more privacy and closer proximity to the blood products

Flow

Spaghetti Diagram



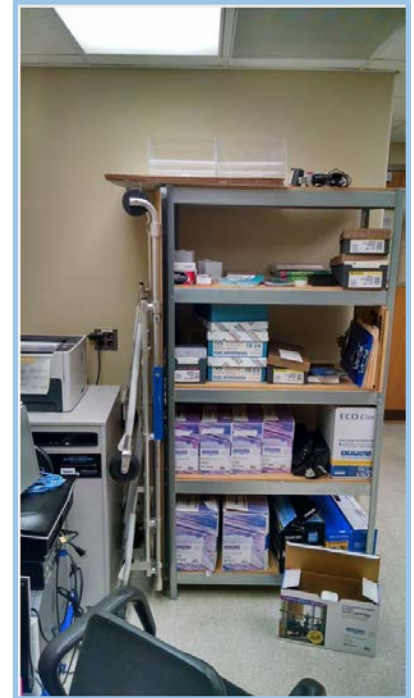
Roles/Responsibilities



Atrium Health

5S and Equipment

- We had an abundance of supplies and products stored in every available space
- We spun most specimens for 10 minutes...in these large centrifuges



Inventory Management Using Kanban



- No stock-outs for supplies on Kanban
- Moving towards eliminating our Coagulation standing order
- Partnered with materials and significantly reduced the amount of time my staff spend on inventory



Equipment Analysis



- We now have centralized centrifuges
 - Minimum spin time 3 minutes
 - Maximum spin time 5 minutes
 - Timers on all centrifuges to eliminate waste of waiting
 - Visuals to indicate what can be spun in each centrifuge

Beyond The Huddle Board – Creating A Problem-Solving Culture

- Continuous improvement work
 - 134 ideas completed by staff in 2016
 - Need a structure to support the efforts

| LAB TEAMMATS | ENTRY DATE | S.Q.C.M | KAUZEN TITLE | Meas Submitted | Meas Completed | Progress (%) | | | | |
|--------------------|------------|--------------|--|----------------|----------------|--------------|----|-----|-----|--|
| Stephanie Bryant | 8/6/2026 | L/D | 1. Revolving Unit to Corner Department | | 25 | 50 | 75 | 100 | | |
| | 9/5/2026 | 2/Q | 2. Storage of blood culture bottles in Kardian bin | | 25 | 50 | 75 | 100 | | |
| | 7/8/2026 | 3/S, C, C, M | 3. SS Phlebotomy Supply area | 6 | 6 | 25 | 50 | 75 | 100 | |
| | 7/8/2026 | 4/W | 4. Setup new Phlebotomy Cart | | 25 | 50 | 75 | 100 | | |
| | 8/1/26 | 5/Q,C,M | 5. OLA access to Sunquest via Webpage | | 25 | 50 | 75 | 100 | | |
| | 8/1/26 | 6/L,D | 6. Kardiage institute virtual management | | 25 | 50 | 75 | 100 | | |
| Carol Frederick | 4/13/26 | 1/L,D | 1. Review and Responsibilities | | 25 | 50 | 75 | 100 | | |
| | 7/8/2026 | 2/Q | 2. SS Blood Bank Bench | | 25 | 50 | 75 | 100 | | |
| | 7/8/2026 | 3/M | 3. Setup new Phlebotomy Cart | | 25 | 50 | 75 | 100 | | |
| | 8/1/26 | 4/L,M | 4. Update SS Monitor and SS bench | | 25 | 50 | 75 | 100 | | |
| | 8/1/26 | 5/L,D,Q,M | 5. Non Lab Draw Specimen Labeling | | 25 | 50 | 75 | 100 | | |
| | 8/7/26 | 2/S | 2. Moving Lab Coats | | 25 | 50 | 75 | 100 | | |
| Noda Noohammal | 8/7/26 | 3/S | 3. LAMP setup area in isolation rooms | 5 | 4 | 25 | 50 | 75 | 100 | |
| | 7/8/2026 | 4/Q,D | 4. SS Receiving Area | | 25 | 50 | 75 | 100 | | |
| | 7/8/2026 | 5/M | 5. Setup new Phlebotomy Cart | | 25 | 50 | 75 | 100 | | |
| | 2/7/26 | 1/L,B | 1. Visualize our SS Shared Top working | | 25 | 50 | 75 | 100 | | |
| | 2/7/26 | 2/M,D | 2. M-D-S-V-C-LA reagents bottles (find of shift) | | 25 | 50 | 75 | 100 | | |
| | 4/7/26 | 3/D | 3. Green Bag Storage | | 25 | 50 | 75 | 100 | | |
| Martin Knight | 7/8/2026 | 4/Q,D | 4. SS Hematology Room | 7 | 6 | 25 | 50 | 75 | 100 | |
| | 8/1/26 | 5/M | 5. Setup new Phlebotomy Cart | | 25 | 50 | 75 | 100 | | |
| | 8/1/26 | 7/Q,C | 7. Patient Test | | 25 | 50 | 75 | 100 | | |
| | 9/3/2026 | 13/L,D | 13. Update TC | | 25 | 50 | 75 | 100 | | |
| | 9/3/2026 | 2/Q,M | 2. Drawing | | 25 | 50 | 75 | 100 | | |
| | 4/8/26 | 5/L,D,Q,M | 5. Print ID | | 25 | 50 | 75 | 100 | | |
| Lindsey Hill | 4/8/26 | M | 4. Market LA | | 25 | 50 | 75 | 100 | | |
| | 9/3/2026 | 5/L,D,Q,M | 5. Synchrony | | 25 | 50 | 75 | 100 | | |
| | 10/2/26 | 6/O,S | 6. GDS | | 25 | 50 | 75 | 100 | | |
| | 7/8/2026 | 7/Q,S | 7. Patient ID | | 25 | 50 | 75 | 100 | | |
| | 7/8/2026 | 8/M | 8. Setup new Phlebotomy Cart | | 25 | 50 | 75 | 100 | | |
| | 7/8/2026 | 9/M | 9. Bld Room | | 25 | 50 | 75 | 100 | | |
| Patricia Henderson | 7/8/2026 | 16/S,L,D | 16. Patient ID | | 25 | 50 | 75 | 100 | | |
| | 13/9/26 | 11/D | 11. Pharmacy | | 25 | 50 | 75 | 100 | | |
| | 13/9/26 | 15/M | 15. Pharmacy | | 25 | 50 | 75 | 100 | | |
| | 2/7/26 | 13/L,D | 13. DeneTC | | 25 | 50 | 75 | 100 | | |
| | 2/7/26 | 23/M | 23. Clearing | | 25 | 50 | 75 | 100 | | |
| | 2/7/26 | 3/M,C | 3. Admin Queue | | 25 | 50 | 75 | 100 | | |
| Beanie Robinson | 7/8/2026 | 4/Q,D | 4. SS Room | | 25 | 50 | 75 | 100 | | |
| | 7/8/2026 | 5/M | 5. Setup new Phlebotomy Cart | | 25 | 50 | 75 | 100 | | |
| | 7/8/2026 | 6/S | 6. SS | | 25 | 50 | 75 | 100 | | |
| | 2/7/26 | 13/L,D | 13. Drawing | | 25 | 50 | 75 | 100 | | |
| | 2/7/26 | 23/M | 23. Merging | | 25 | 50 | 75 | 100 | | |
| | 2/7/26 | 3/C | 3. Lab Coat | | 25 | 50 | 75 | 100 | | |
| Amber Galuska | 1/7/26 | 1/L,D | 1. Lab Coat | | 25 | 50 | 75 | 100 | | |
| | 1/7/26 | 2/C,M | 2. Merging | | 25 | 50 | 75 | 100 | | |
| | 1/7/26 | 3/C | 3. Lab Coat | | 25 | 50 | 75 | 100 | | |
| | 1/7/26 | 4/S | 4. Blood Bank | | 25 | 50 | 75 | 100 | | |
| | 1/7/26 | 5/M | 5. Market LA | | 25 | 50 | 75 | 100 | | |
| | 1/7/26 | 6/S | 6. SS | | 25 | 50 | 75 | 100 | | |
| Ted Symczyk | 2/2/2026 | 10 | 10. Drawing | | 25 | 50 | 75 | 100 | | |
| | 4/1/26 | 20 | 20. Merging | | 25 | 50 | 75 | 100 | | |
| | 4/1/26 | 30 | 30. Lab Coat | | 25 | 50 | 75 | 100 | | |
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| | 9/1/26 | 60 | 60. Lab Coat | | 25 | 50 | 75 | 100 | | |
| David Runnet | 2/2/2026 | 10 | 10. Drawing | | 25 | 50 | 75 | 100 | | |
| | 4/1/26 | 20 | 20. Merging | | 25 | 50 | 75 | 100 | | |
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| | 9/1/26 | 50 | 50. Merging | | 25 | 50 | 75 | 100 | | |
| | 9/1/26 | 60 | 60. Lab Coat | | 25 | 50 | 75 | 100 | | |
| Carolyn Niese | 2/2/2026 | 10 | 10. Drawing | | 25 | 50 | 75 | 100 | | |
| | 4/1/26 | 20 | 20. Merging | | 25 | 50 | 75 | 100 | | |
| | 4/1/26 | 30 | 30. Lab Coat | | 25 | 50 | 75 | 100 | | |
| | 7/2/26 | 16 | 16. Drawing | | 25 | 50 | 75 | 100 | | |
| | 9/1/26 | 50 | 50. Merging | | 25 | 50 | 75 | 100 | | |
| | 9/1/26 | 60 | 60. Lab Coat | | 25 | 50 | 75 | 100 | | |
| Aiden Vu | 2/2/2026 | 10 | | | | | | | | |



Atrium Health

Visual Management-The Beginning



| ACC# | PATIENT NAME | COLL DATE | COLL TIME | RCV TIME | ORDER CODE | CID | MRN | PT LOC | SP CO |
|----------|---------------------|-----------|-----------|----------|------------|------------|---------|--------|-------|
| 04052259 | CULLEYER JAMES RAND | 9/23 | 10:39 | 10:40 | THP | 0297554122 | 3118488 | 3NM | MR |
| 04052259 | JAMES SEYMORE | 9/23 | 10:57 | 10:58 | CPK | 0297553273 | 2787734 | 4NM | MR |
| 04052259 | JAMES SEYMORE | 9/23 | 10:57 | 10:58 | TROP | 0297553274 | 2787734 | 4NM | MR |



| | 5-16 | 5-17 | 5-18 | 5-19 | 5-20 |
|-------|-------|-------|--------|--------|-------|
| 1st | 2 | 3 | 1 | 4 | 1 |
| 2nd | 1 | 1 | 5 | 3 | 1 |
| 3rd | 12 | 11 | 5 | 11 | 3 |
| TOTAL | 27/73 | 49/79 | 45/100 | 39/114 | 45/93 |

- The first visual management we put into use was our TOM
 - Created a 'beat the board' mentality
- Followed by a daily tracking by shift of outliers
 - To anticipate and understand outliers



Visual Management After Problem Solving

| Survey | Assigned to: | Subst by: | Date when done |
|--------|-------------------|-----------|----------------|
| CGL-11 | Run on Lakshia | 9-29-17 | |
| CGL-12 | McMAY Shreya | 9-29-17 | |
| CGL-13 | Steve | 9-29-17 | |
| CGL-14 | Ligaya | 9-29-17 | |
| CGL-15 | David ✓ | 9-29-17 ✓ | 9/29/17 zone |
| CGL-DD | Yolanda | 9-29-17 | |
| RT-04 | Lakshia | 9-29-17 | |
| RT-05 | Shreya | 9-29-17 | |
| RT-06 | Steven | 9-29-17 | |
| J-15 # | Includes David | 9-29-17 | |
| J-16 # | Electronic Lakhia | 9-29-17 | |
| J-17 | xxm Christine | 9-29-17 | |
| J-18 | Steven | 9-29-17 | |
| J-19 x | My | 9-29-17 | |
| one 18 | Tina | 9-29-17 | |

| DELIVERY DATE | |
|---------------|--|
| 9-7 | |
| 9-22 | |
| 9-26 | |
| 9-29 | |
| 9-14 | |
| 9-14 | |

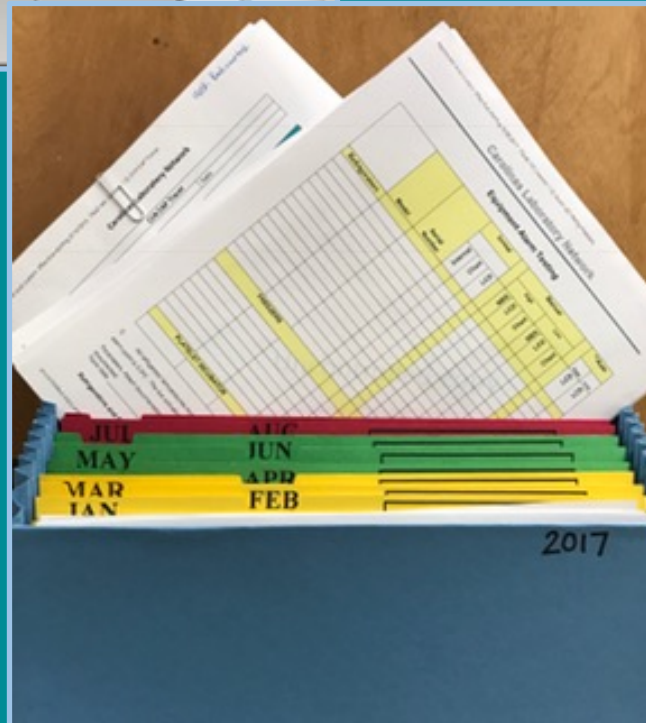
[illegible]

- This tool is commonly used as a countermeasure
 - Visual management around proficiency testing
 - Visual management around new lots of reagents and quality control

Visual Management Continued...



- Visual management on our instruments to show usability and assist with reagents and qc
- Visual management to control the multitude of regulatory tasks to be completed monthly, quarterly, etc.



Atrium Health

January 2015 Dashboard

| Strategic Plan | Indicator | Definition | CHS Target | Jan-15 | | | | | | | | |
|----------------|--|--|-------------------|--------|-------|-------------|-----------|--------|---------------|-----------|-----------|-------|
| | | | | Anson | CMC | CMC-Lincoln | CMC-Mercy | CMC-NE | CMC-Pineville | CMC-Union | CMC-Univ. | Metro |
| Quality | ED TAT (includes CBC, CH7, CH12, PT, PTT) | Time in minutes from order to result available in Cerner (ex-Micro) | 90% within 45 min | 50.6% | 25.9% | 57.3% | 40.3% | 29.5% | 73.7% | 59.9% | 44.0% | 47.2% |
| | ED TAT (includes CBC, CH7, CH12, PT, PTT) | Time in minutes from specimen receipt to result available in Cerner (ex-Micro) | 90% within 30 min | 87.1% | 67.1% | 87.6% | 76.3% | 80.2% | 97.1% | 83.0% | 85.6% | 83.7% |
| | Inpatient STAT TAT (includes CBC, CH7, CH12, PT, PTT) | Time in minutes from receipt in lab to results available in Cerner | 90% within 30 min | 100.0% | 45.4% | 77.2% | 49.5% | 79.1% | 83.0% | 62.7% | 83.9% | 57.4% |
| | Inpatient Routine TAT (CH7) | Time in minutes from receipt in lab to results available in Cerner | 90% within 60 min | 100.0% | 70.9% | 86.0% | 53.6% | 93.9% | 98.3% | 95.7% | 90.0% | 79.6% |
| | Morning Draw (includes routine hem & chem tests) | Results available to physician by 7 am in Cerner | 95% by 7am | | 91.2% | 95.0% | 92.7% | 91.6% | 99.7% | 95.1% | 95.5% | 94.4% |

December 2015 Dashboard

| | | | | Dec-15 | | | | | | | | | | | | |
|----------------|--|--|-------------------|--------|-------|---------|-------|-------|-----------|-------|------------|------|----------|-----------|--------|-------|
| Strategic Plan | Indicator | Definition | CHS Target | Anson | CMC | Lincoln | Merc | NEast | Pineville | Union | University | Core | KingsMtn | Cleveland | Stanly | CLN |
| Quality | ED TAT (includes CBC, CH7, CH12, PT, PTT) | Time in minutes from order to result available in Cerner (ex-Micro) | 90% within 45 min | 56.3% | 31.4% | 61.6% | 71.4% | 31.1% | 74.1% | 60.4% | 52.1% | | 51.5% | 64.4% | | 53.6% |
| | ED TAT (includes CBC, CH7, CH12, PT, PTT) | Time in minutes from specimen receipt to result available in Cerner (ex-Micro) | 90% within 30 min | 89.7% | 71.8% | 93.9% | 94.9% | 81.4% | 98.1% | 85.4% | 93.9% | | 83.6% | 88.5% | | 88.2% |
| | Inpatient STAT TAT (includes CBC, CH7, CH12, PT, PTT) | Time in minutes from receipt in lab to results available in Cerner | 90% within 30 min | 100.0% | 46.7% | 84.6% | 87.3% | 83.1% | 89.7% | 69.2% | 86.6% | | 49.6% | 62.4% | | 61.5% |
| | Inpatient Routine TAT (CH7) | Time in minutes from receipt in lab to results available in Cerner | 90% within 60 min | 100.0% | 61.5% | 90.2% | 99.3% | 95.8% | 98.7% | 94.3% | 97.6% | | 57.6% | 69.7% | | 78.6% |
| | Morning Draw (includes routine hem & chem tests) | Results available to physician by 7 am in Cerner | 95% by 7am | | 91.7% | 95.9% | 96.2% | 91.4% | 97.4% | 90.9% | 94.9% | | 93.5% | 80.1% | | 92.4% |



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Where are we Today?

| Strategic Plan | Indicator | Definition | CHS Target | Aug-18 | | | | | | | | | | | | |
|----------------|--|--|-------------------|--------|-------|---------|-------|-------|-----------|-------|------------|------|----------|-----------|--------|-------|
| | | | | Anson | CMC | Lincoln | Mercy | NEast | Pineville | Union | University | Core | KingsMtn | Cleveland | Stanly | CLN |
| Quality | ED TAT (includes CBC, CH7, CH12, PT, PTT) | Time in minutes from order to result available in Cerner (ex-Micro) | 90% within 45 min | 57.8% | 38.9% | 68.6% | 43.0% | 38.7% | 61.3% | 68.3% | 55.5% | | 63.2% | 59.5% | 63.3% | 53.6% |
| | ED TAT (includes CBC, CH7, CH12, PT, PTT) | Time in minutes from specimen receipt to result available in Cerner (ex-Micro) | 90% within 30 min | 92.5% | 87.6% | 92.7% | 92.7% | 89.0% | 96.0% | 90.9% | 93.6% | | 89.3% | 84.8% | 96.5% | 91.4% |
| | Inpatient STAT TAT (includes CBC, CH7, CH12, PT, PTT) | Time in minutes from receipt in lab to results available in Cerner | 90% within 30 min | 100.0% | 75.3% | 81.4% | 87.6% | 91.0% | 87.1% | 73.1% | 85.4% | | 57.9% | 49.0% | 89.4% | 78.4% |
| | Inpatient Routine TAT (includes CBC, CH7, CH12, PT, PTT) | Time in minutes from receipt in lab to results available in Cerner | % within 60 min | 98.1% | 94.3% | 94.0% | 98.5% | 96.6% | 96.6% | 96.7% | 87.4% | | 84.3% | 77.3% | 97.4% | 93.6% |
| | Morning Draw (includes CBC, CH7, CH12, PT, PTT) (Includes uncollected) | Results available to physician by 7 am in Cerner | 95% by 7am | | 87.2% | 97.8% | 90.9% | 88.7% | 95.6% | 77.4% | 94.1% | | 93.5% | 75.9% | 96.5% | 88.8% |

Key Learnings

- The value of huddles and 5S in the beginning
- Clearly define targets that are aggressive but realistic
- Leadership must understand and drive the engagement
- Get your team involved and help them understand why
- Understand the tools so they can be used effectively
 - Anyone can implement a tool
 - True change and sustainment happen when you understand why you are using the tool



Atrium Health

CMC Main Laboratory

A Lean Transformation

CMC At A Glance



Carolinas Medical Center is the only Level 1 Trauma Center in the region.

This is a 874 bed facility

Specializing in Cancer Care, Children's Care, Orthopedics, Heart Care, Surgery, Trauma and Surgical Critical Care and Transplant

CMC lab produces 2.26M billable tests per year in hematology, coagulation, chemistry, urinalysis and blood bank

Lab Lean Continuous Improvement Journey

- 2015
 - Out patient testing moved to Core Laboratory
 - Focus on operational improvements in central processing
 - Focus on operational improvements in phlebotomy
- 2016
 - Implemented MDI Huddle boards for Central Processing and Phlebotomy
 - Redesigned central processing to optimize workflow
- 2017
 - Moved laboratory operations to swing space
 - Redesigned laboratory
 - End of year moved to new space

2017 Background

Background

Throughout 2016 the CMC lab transformation continued and achieved the following milestones:

- Completion of the CMC phase 1 redesign project which included Cytology, Blood Bank, administrative spaces, 3P design for central processing and swing space planning which will transition for use starting the 1st quarter 2017
- Created better work environment for teammates and improved timeliness and quality of patient care with the following initiatives: 1. Transition of send out department back to CMC 1st quarter 2016; 2. Addition of client services day shift coverage 1st quarter 2016
- Planning and preparation of space for Kanban initiative set to commence 1st quarter 2017
- Planning and preparation of laboratory to assume responsibility for Blood Gas Testing set to commence 1st quarter 2017
- Service Improvements (Efficiency, Responsiveness, Teamwork) to our customers was accomplished by: Implementation of Phlebotomy and Central processing MDI huddle board; phlebotomy standard work and 5S of work space and collection carts; Central Processing added centrifuges at work stations; standardized on boarding process for hematology and all areas developed a training program (Chem & Heme) which will be implemented in 2017 prior to the CAP inspection
- Focus on reduction of defects with the implementation of the "Right Specimen for Me" initiative which focused on identification of high volume, high risk defects. Focus was to reduce the number of down time requisitions and preparation of nursing units for implementation of collection manager set to roll out in selected pilot units in 1st quarter 2017
- The phase 2 plan will include a renovation to the Central Processing area, the integration of Point of Care testing into the laboratory and a redesign of Chemistry and Hematology using Lean concepts. Phase 2 has an anticipated 4th Q 2017 completion finalizing the CMC redesign.

Focus: In 2017 the acute care laboratory (Chemistry, Hematology) is committed in providing optimal service to the hospital, LOH and LOI which includes engaging PEC to assist in the continuation of the Lean transformation.

Transformation activities to date have resulted in some improvements to our customers as noted above. Key areas of focus for 2017 will be "Right Specimen for Me" initiative, final implementation of blood gas testing, training program implementation, relocation of lab to swing space and then into new space, launching MDI in Chemistry & Hematology

Current State Opportunities Related to our Focus:

- Transition CMC laboratory to swing space in preparation for phase 1 renovation project of main testing area.
- There is a need to create a better work environment for teammates by optimizing flow and reducing interruptions to improve the timeliness and quality of patient care.
- As evidenced by the Teammate Engagement scores in 2016 (Tier 3 - Central Processing, Phlebotomy, Hematology and Chemistry), opportunities to improve teammate engagement in the areas of teamwork, involvement, recognition, and communication.
- Opportunities exist to reduce the number of specimen defects coming to the lab from the inpatient floors and ED. Defects include: tubes not coming into the lab correctly, duplicate orders, mislabeled, unlabeled, or improperly labeled tubes.
- As evidenced by the Premier department performance report opportunity exists to create systems to support the team in fixing teammates according to volume.
- As evidenced by the Metro Dashboard report CMC Lab under performs when compared to other CLN acute care laboratories.
- CMC Lab team does not recognize "PSC" problems

High Level Strategy

- Focus the CMC Clinical laboratory on patient testing for inpatients, ED patients, LOI, LOH and on-campus clinic patients.
- Renovate selected functions at CMC, Hematology, Chemistry, and Central Processing using the 3P designs.
- Apply some of the transformational learnings from Pinewill, Mercy and Core Lab.
- Create an environment that empowers teammates and fosters open communication, identifies and solves problems, does not pass on specimen defects, and ALWAYS places the patient first.
- Implement single patient flow of specimens and results.
- Create a leading model of quality, safety, inventory control and efficiency in the lab.
- Implement tools and tactics designed to improve teammate engagement related to the themes identified.
- Implement tools and tactics that allow us to meet or exceed our customer's TAT expectations.
- Implement Collection Manager to reduce the number of incoming specimen defects.
- Utilize the flex staffing model utilized in Pharmacy.

High Level Objectives

- ED receipt to result <30 min
- IP stat receipt to result (on collection manager) <37 min
- IP stat receipt to result (non collection manager) <30 min
- IP routine receipt to result (on collection manager), <37 min - ordered between 6:01 - 12:59
- IP routine receipt to result (non collection manager), <37 min - ordered between 6:01 - 12:59
- Morning run resulted by 7:00 a.m. 95% - Ordered between 1am-6am (each site will need to confirm what locations to be included)
- Teammate engagement - Press Ganey score/pulse survey
- Teammate engagement - Action plan completion (% of action items completed)

Methodology

- Implement 3P designs (RSfMe, Water Spider, Kanban, Add On Process)
- Continue RSfMe initiative
- Engage teammates in process improvement activities
- Utilize MDI to involve teammates to surface issues, identify and implement improvements, and to align accountability.
- Meet weekly with steering team to oversee activities.
- Implement learnings from the Pharmacy Float Pool.
- Train teammates on MDI (Chem, Heme) to surface issues, identify and implement improvements to align accountability.
- Train all teammates on Lean Basics

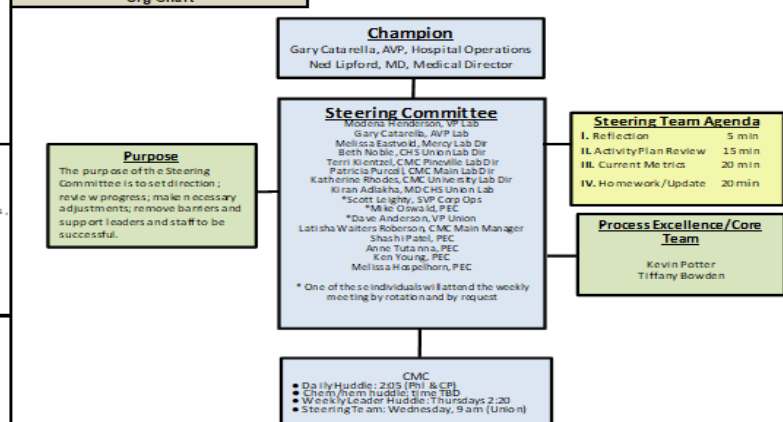
Communication Plan

| Audience / Functional Group | Frequency | Method | Point of Contact |
|-----------------------------|-----------|-----------|---------------------------------|
| Steering Committee | Weekly | In person | Modena Henderson/Gary Catarella |
| Local Administration | Monthly | In person | Pat Purcell/Designee |
| CMC Lab leadership | Quarterly | In person | Pat Purcell/Designee |
| Lab Staff | Monthly | In person | Pat Purcell/Designee |

Metrics

| Strategic Plan | Metric | Target | | |
|------------------------------------|--|----------------|------------|--------|
| | | Baseline | Transition | Post |
| Quality of Patient Care/Efficiency | ED Receipt to result <30 min | 177 outliers | 177 | 142 |
| Quality of Patient Care/Efficiency | IP Stat receipt to result (on collection manager) <37 min | 187 outliers | 187 | 150 |
| Quality of Patient Care/Efficiency | IP Stat receipt to result (non collection manager) <30 min | 128 outliers | 128 | 102 |
| Quality of Patient Care/Efficiency | IP routine receipt to result (on collection manager), <37 min - ordered time 6:01 to 12:59 | 476 outliers | 476 | 381 |
| Quality of Patient Care/Efficiency | IP routine receipt to result (non collection manager), <30 min - ordered time 6:01 - 12:59 | 1,546 outliers | 1,546 | 1,237 |
| Quality of Patient Care/Efficiency | Morning run resulted by 7:00 a.m. 95% Phlebotomy draw s - Ordered between 1am-6am | 68 outliers | 68 | 54 |
| Teammate Engagement | Press Ganey Score/Pulse Survey | | | |
| Teammate Engagement | Action Plan Completion (% of action items completed) | Tier 2&3 | | Tier 1 |
| Teammate Engagement | | 0 | | |

Org Chart



Updated 01/20/2017

Timeline

| | 2017 | | | | 2018 | | | |
|--|---------|---------|---------|---------|---------|---------|---------|---------|
| | Q1 2017 | Q2 2017 | Q3 2017 | Q4 2017 | Q1 2018 | Q2 2018 | Q3 2018 | Q4 2018 |
| Lean basic training (all teammates) | | | | | | | | |
| Staffing to demand (Chem and Heme) | | | | | | | | |
| Kanban | | | | | | | | |
| Collection Manager | | | | | | | | |
| Transition lab to swing space (3P) | | | | | | | | |
| Move lab to new space | | | | | | | | |
| Leader Development (Goedeker, Purcell) | | | | | | | | |
| Float Pool | | | | | | | | |
| Kanban | | | | | | | | |
| Staffing to demand | | | | | | | | |



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3P Process Utilized

What is 3P?

People, Preparation, Process

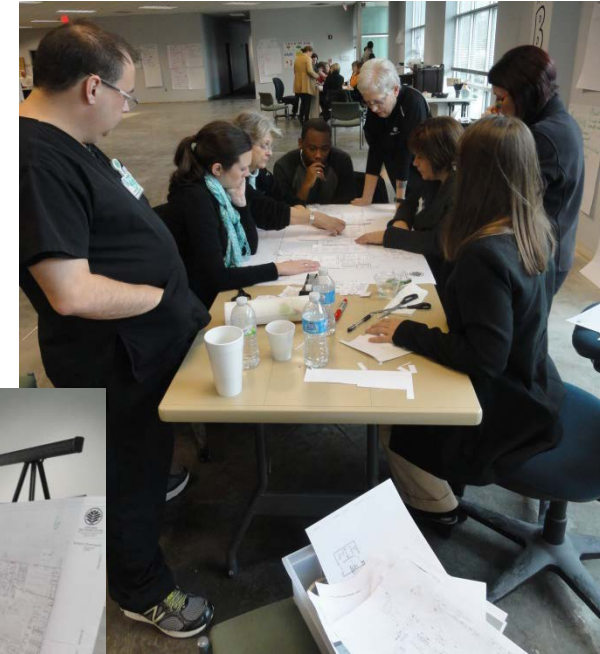
3P is an event to develop and define a Lean equipment and supply chain logistics system before the start of implementation

CMC Main Lab - 3P Design Givens

- The CLN Design Givens and Guiding Principles will apply to this event.
- The new design will fit within the space identified on the floor plan.
- Scope: Includes Chemistry, Hematology, Coagulation, Microbiology, Urinalysis, Blood Gas, Special Chem (Toxicology), Special Heme, Send-outs, Client services, and POC.
- Out of Scope: Central Processing
- The technical area will be designed so that these areas operate as a single unified department whereby all teammates are cross trained (to the highest extent possible on all shifts). Technical areas must function efficiently for all shifts.
- CMC will serve as a back-up for the Core Lab (for respective capabilities).
- There will be no walk-in refrigerators included in the design.
- There will be no automation lines included in the design.
- One Automate will be available for use in the new workflow for archiving specimens.
- Since the Automate is used in the workflow process, there must be a manual back up process designed into the workflow.
- Water spider routes will be designed to maximize the efficiency of specimen delivery.
- Initial incubation of blood culture bottles will occur locally with positive blood culture bottles being sent to the Core Lab.
- Gases, if any, will be located outside of the technical area.
- Space for clean & dirty lab coats must be identified.



Ideas in Motion!



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The image displays three examples of 'Core Lab Layout' forms, which are used to track student participation in various lab stations. Each form includes a header for the team name, a date, and a table with columns for different lab stations and a final column for the total number of students.

Example 1: Team 1

| Station | Station 1 | Station 2 | Station 3 | Station 4 | Station 5 | Station 6 | Station 7 | Station 8 | Station 9 | Total |
|---------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-------|
| 5 | 5 | 5 | 4 | 4 | 4 | 3 | 4 | 5 | | 34 |
| 6 | 5 | 5 | 5 | 4 | 4 | 5 | 4 | 5 | | 37 |
| 7 | 5 | 5 | 5 | 5 | 5 | 5 | 4 | 5 | | 39 |

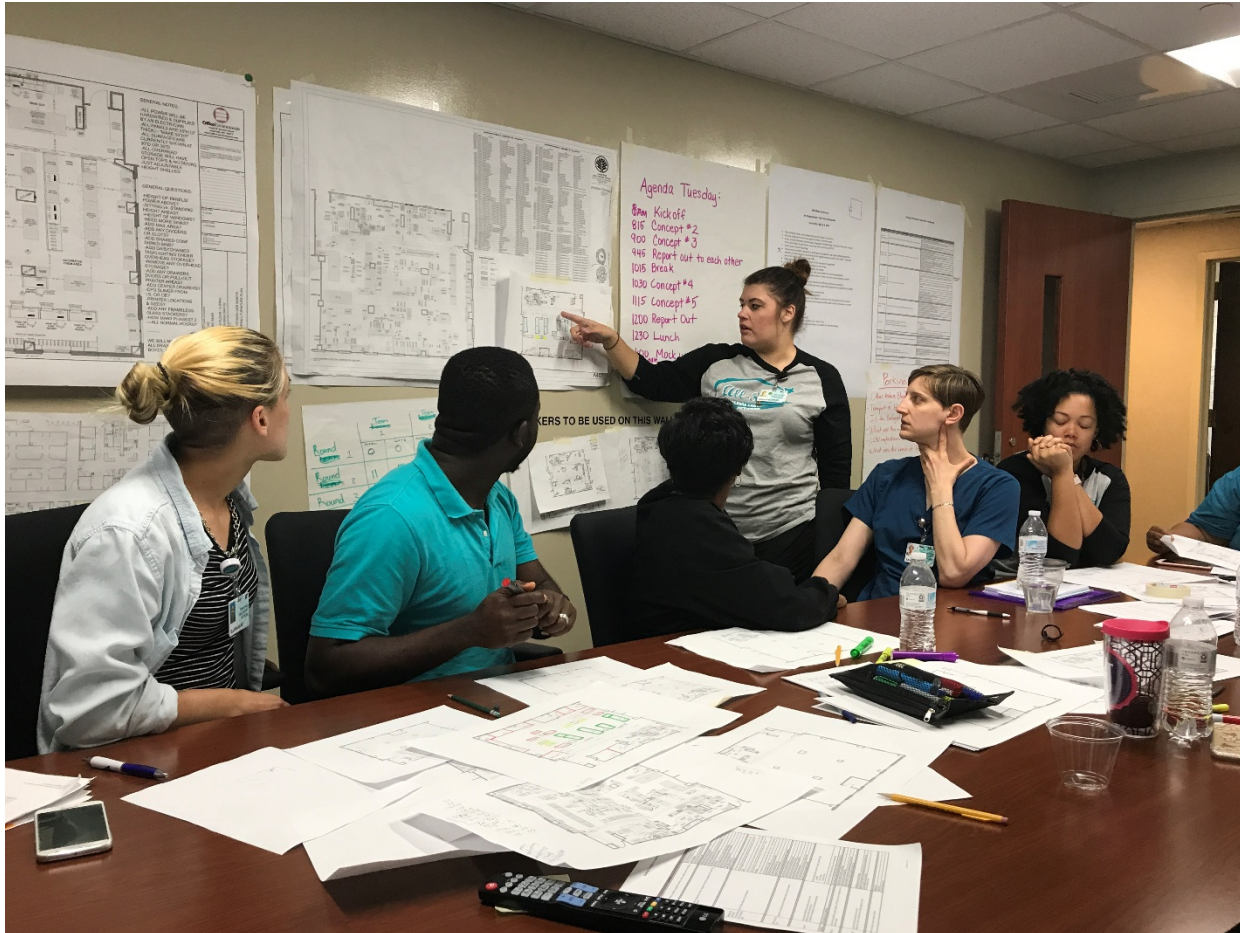
Example 2: Team 2

| Station | Station 1 | Station 2 | Station 3 | Station 4 | Station 5 | Station 6 | Station 7 | Station 8 | Station 9 | Total |
|---------|------------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-------|
| 5 | Water & pH | 3 | 3 | 3 | 5 | 2 | 2 | 5 | 4 | 31 |
| 6 | | 4 | 5 | 4 | 5 | 3 | 3 | 5 | 4 | 39 |
| 7 | | 5 | 5 | 4 | 5 | 5 | 4 | 5 | 5 | 41 |

Example 3: Team 3

| Station | Station 1 | Station 2 | Station 3 | Station 4 | Station 5 | Station 6 | Station 7 | Station 8 | Station 9 | Total |
|---------|--|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-----------|-------|
| 5 | Boiler room Molecular models | 5 | 3 | 3 | 3 | 4 | 3 | 2 | 4 | 29 |
| 6 | didn't count this time | 5 | 3 | 4 | 3 | 4 | 4 | 2 | 4 | 29 |
| 7 | Acetaminophen, aspirin Molecular models | 5 | 4 | 4 | 4 | 5 | 4 | 4 | 5 | 35 |

One Concept Created



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Construction Begins



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And Continues...



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Finally Making Sure the Space is Right!



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Design Givens – Visual Lab (CMC)

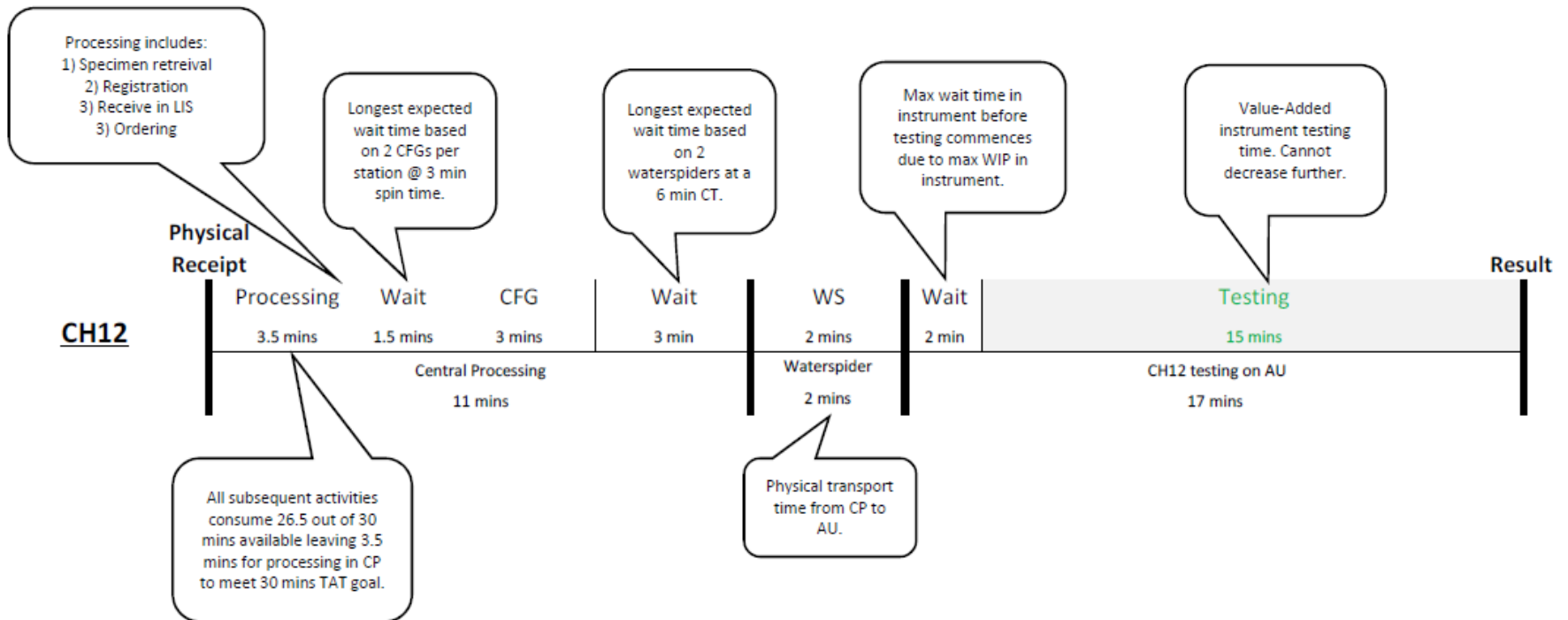
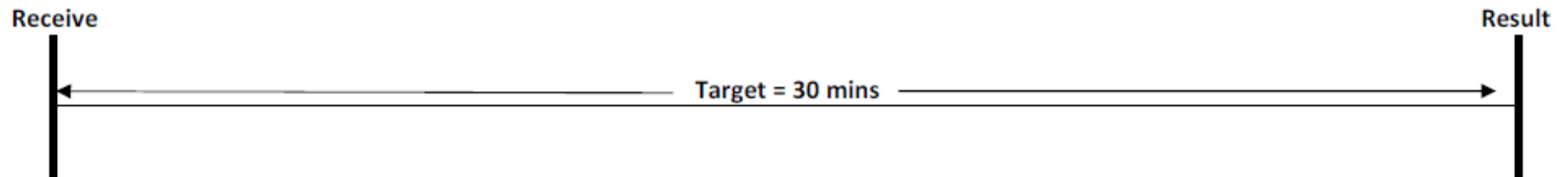
Central Processing:

- Tube Station Water Spider should be able to determine at a glance which processors is ready for more work and who is not
 - Pull system should be utilized
- Each processor should be able to quickly gauge whether their teammate(s) require help (when they have no further demand at their own workstation)
- Specimens will be sorted in Central Processing relative to which drop-off location they ultimately need to be delivered to

Technical Areas:

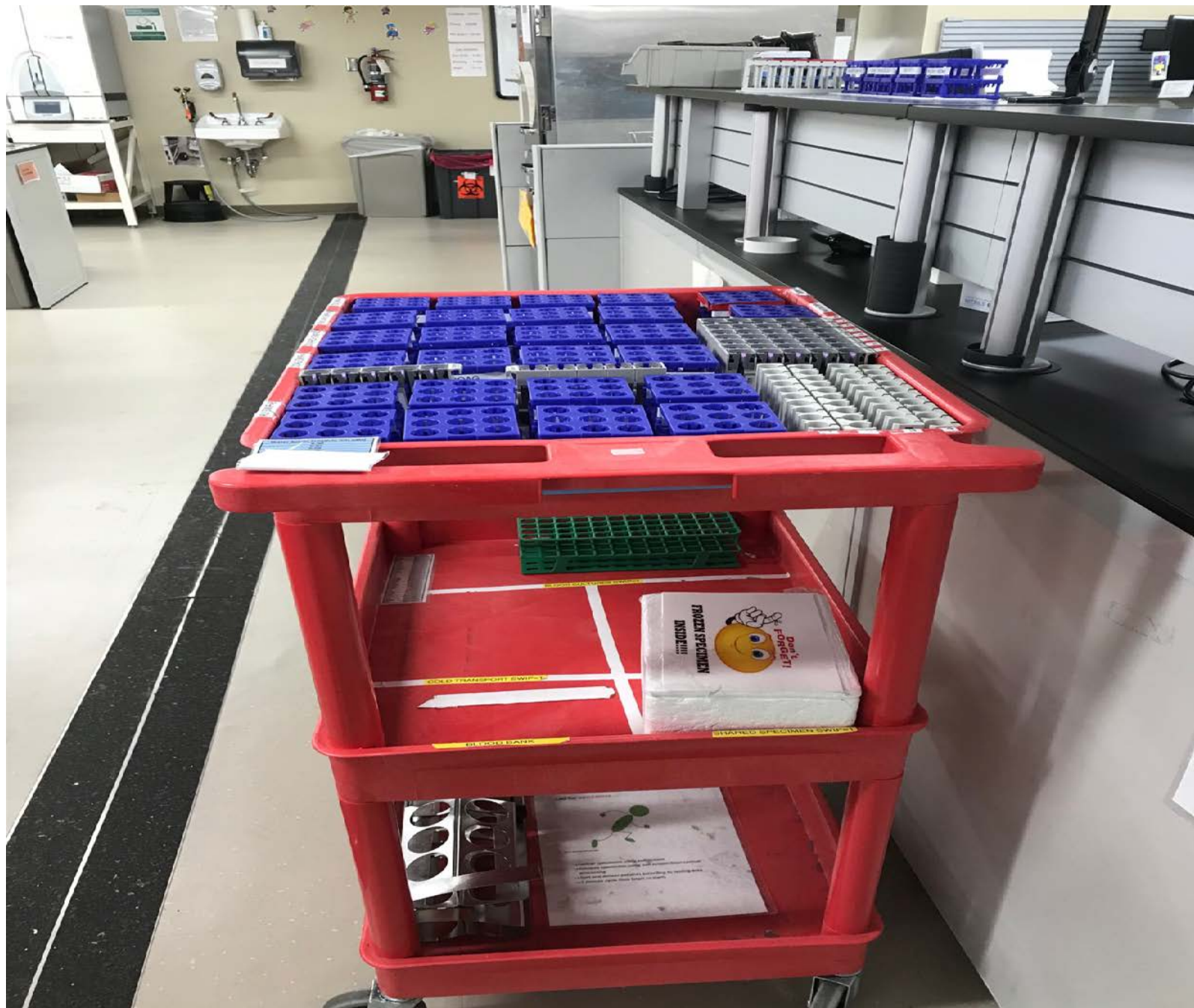
- Shared specimens should be identified by the Med Techs and sorted as such. The Automate is primarily used for archiving and only as redundancy for identify shared specimens
- High volume Chem and Heme cell will operate on alternating days if possible???
 - Further capacity analysis will be required to validate feasibility

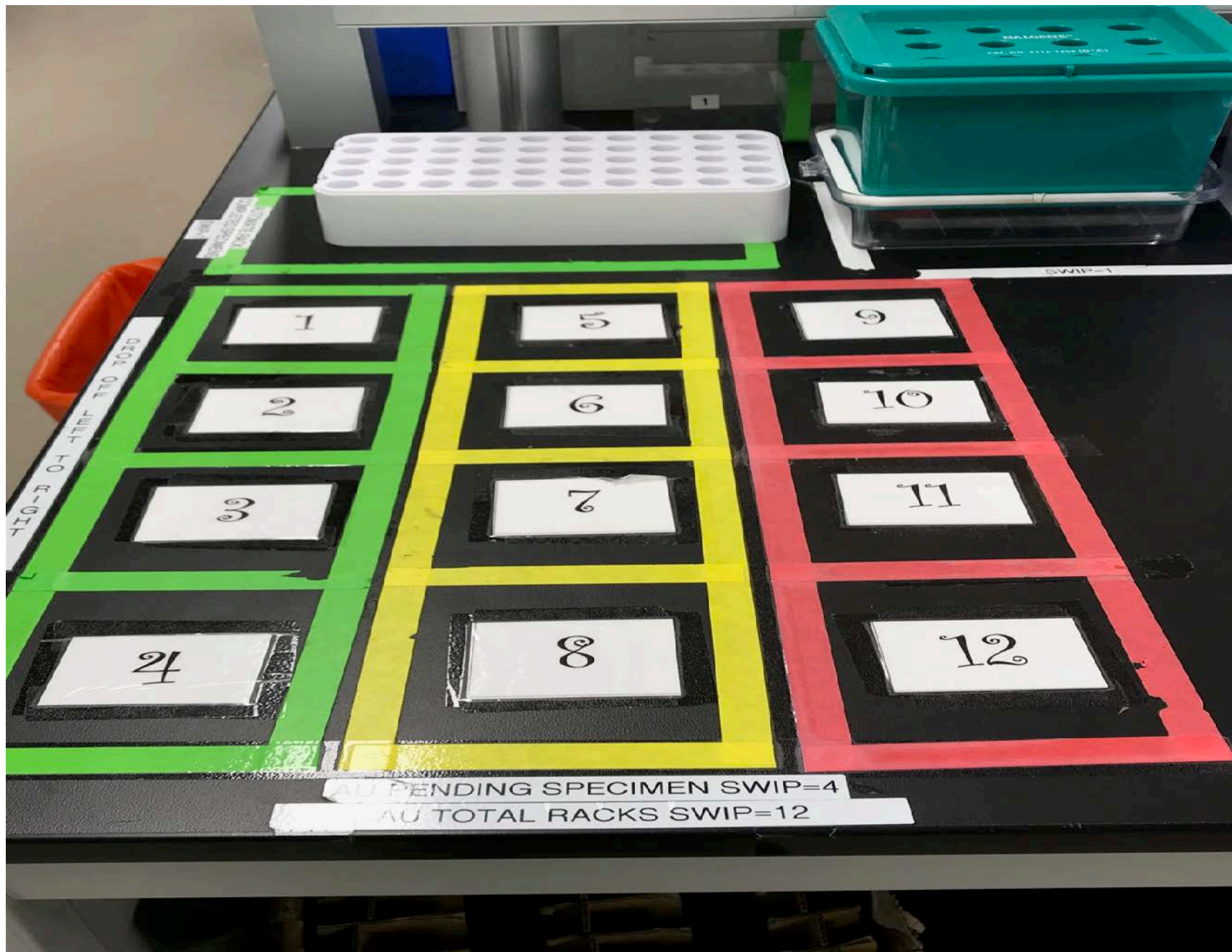
TAT TARGET BREAKDOWN: RECEIVE TO RESULT

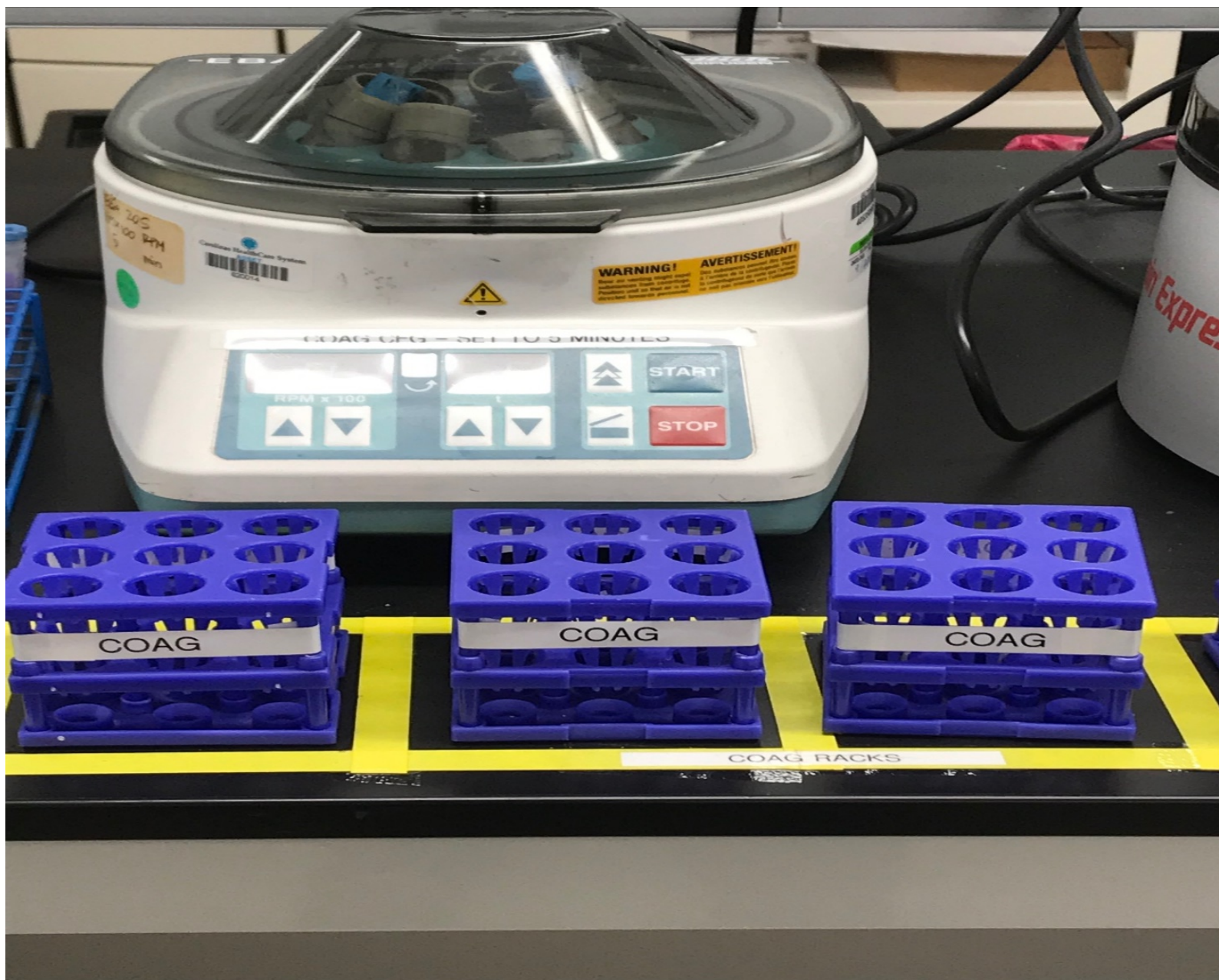


It has to be Visual









Daily Huddle - MDI

WHAT PROBLEM ARE WE TRYING TO SOLVE

1st Shift Huddle

| Issue / Problem | Owner | Assignee | Due Date |
|--|---------|----------|----------|
| Lupus & mixing studies are being missed | 9/13/19 | Ben | 9/10 |
| Add or process not clear for all | 9/10/19 | Leila | 9/10/19 |
| Wheelchair missing from phleb | 9/10 | Spencer | 9/10 |
| No standard for receipt process between Nurse & Phleb samples | 9/13 | Shirley | 9/10 |
| Process for calling criticals contributing to delayed TACT | 9/8 | Jonathan | 9/13 |
| Skype phone not working - phone | 9/13 | Pat | 9/10 |
| Deep process for when EUS does not follow cleaning schedule - waiting for feedback | 9/10 | Ben | 9/10 |

Stability Check
Data Terminates Inquiry Free

Must Report All Aids

PROCESS CHANGE ALERT!!!

Huddle Feedback/Action Reference



Atrium Health

Lab Lean Continuous Improvement Journey

- 2018
 - Improve turnaround times
 - ED
 - IP Phlebotomy draws
 - IP Nurse Collect
 - Focus on training on new equipment and workflow in new space
 - Expanded MDI Huddles to all shifts/sections
 - Implementation of Standard Work
 - Phlebotomy
 - Central Processing
 - Leader Huddle
 - Implementation of leadership structure
 - Continued focus on teammate engagement

Phlebotomy Standard Work Reflection



Carolinas Healthcare System
CMC-Emergency Department Receipt to Result >30min Gate Chart

Weekly A3

| | |
|---------------------------|---|
| Department/Area | CMC Laboratory |
| Opportunity/Metric | Weekly ED Receipt to Result >30mins *CBCB,APTT,PTNINR,CH12 & CH7 |

| | | | |
|-------------------------|-----|-----|----------|
| Target Condition | 29% | 319 | G |
| Actual | 17% | 184 | |

| | |
|-----------------------|--------------|
| Report Writer: | Kevin Potter |
| Last Updated: | 17-Sep-18 |

Countermeasures

| | |
|----------|---|
| A | Resolve delta issues in chem Remisol |
| B | Resolve morphology transfer from heme Remisol |
| C | Capture time gap from CP to AU Loading |
| D | Redefining Ext. Water Spider Drop Off Schedule |
| E | Real time problem solving ED specimens on TOM monitor |
| F | Document 1st shift TOM monitor process(yokoten to 2nd and 3rd shifts) |

Responsible

| |
|--------------|
| Karen G. |
| Karen/Kirti |
| Tiffany |
| Shikha/Kevin |
| Tiffany |
| Tiffany |

Start

| | | |
|--------|--------|--------|
| 3-Jun | 15-Jul | |
| 20-May | 20-Jun | |
| 3-Jul | 16-Jul | |
| 16-Jul | 27-Jul | 27-Jul |
| 23-Jul | 29-Jul | 27-Jul |
| 6-Aug | 20-Aug | |

Due

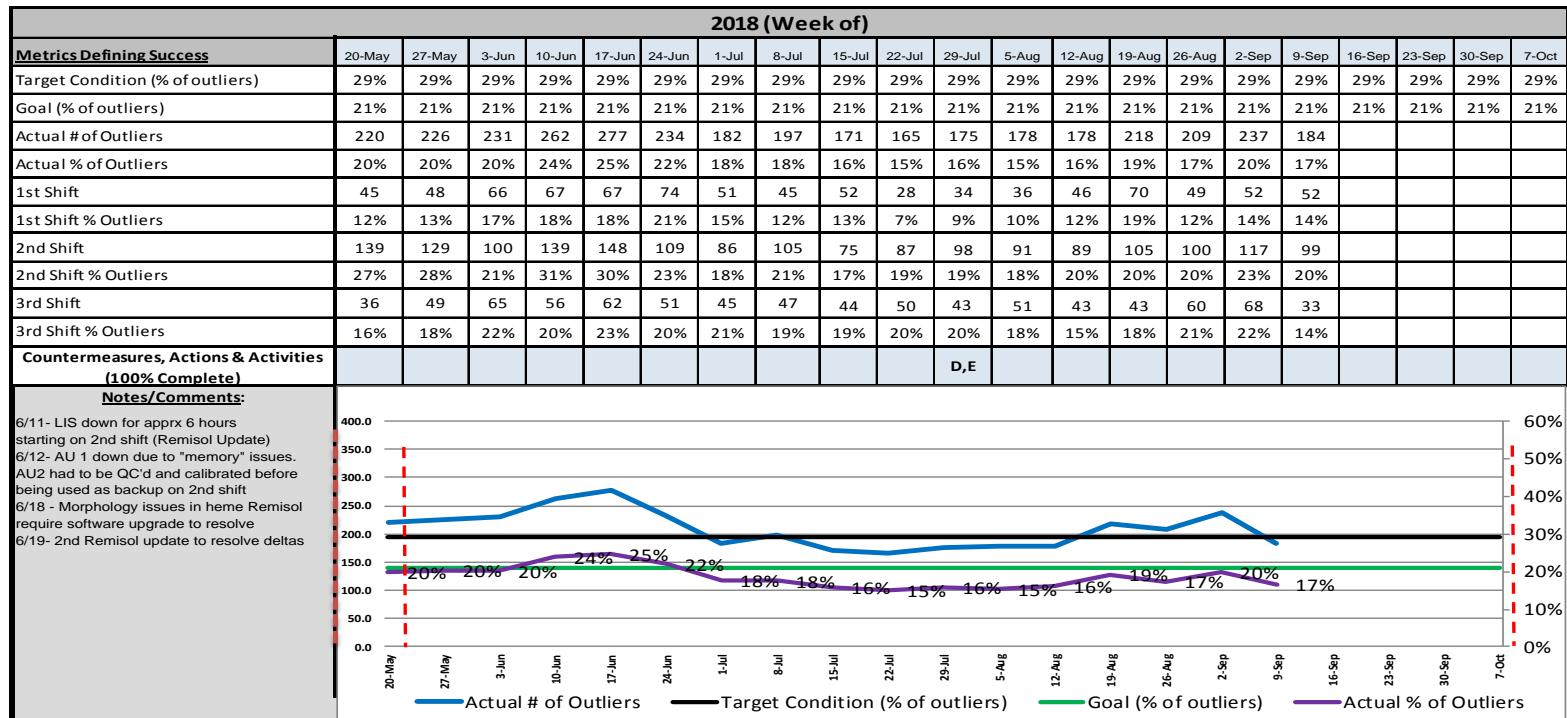
Complete

Yokoten Opp?

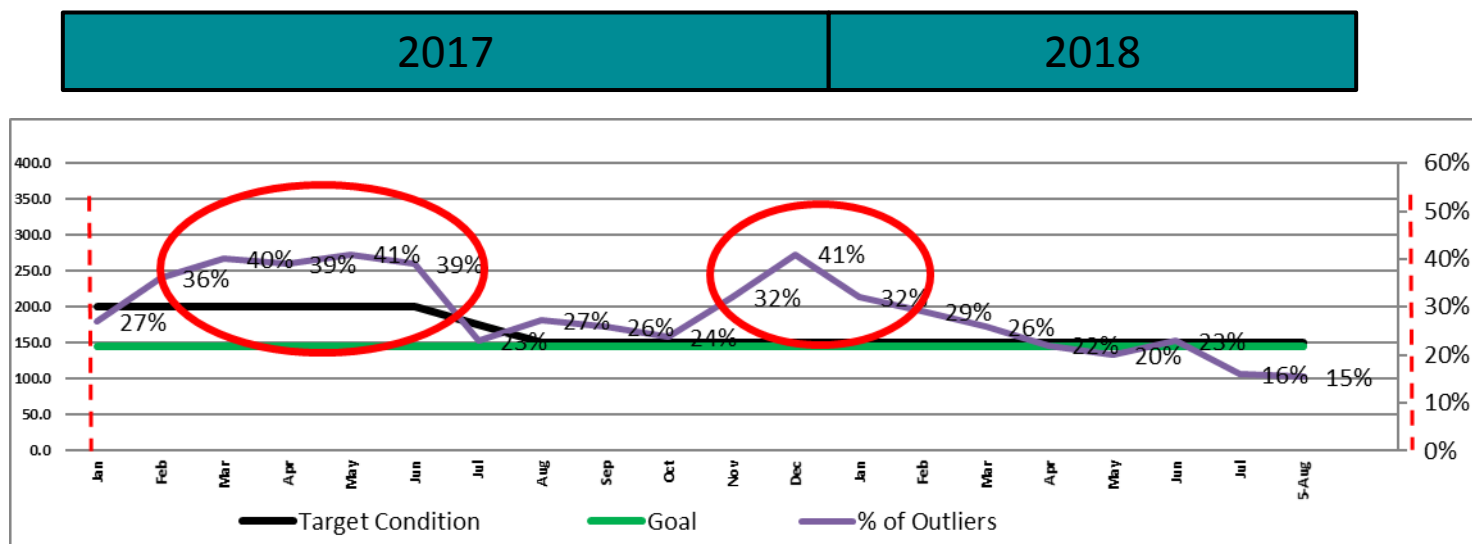
| |
|---|
| Y |
| Y |
| Y |
| N |
| Y |
| Y |

% Complete

| | | | | |
|-------------------------------|----|----|----|-----|
| Status of Action Items | 25 | 50 | 75 | 100 |
| | 25 | 50 | 75 | 100 |
| | 25 | 50 | 75 | 100 |
| | 25 | 50 | 75 | 100 |
| | 25 | 50 | 75 | 100 |
| | 25 | 50 | 75 | 100 |
| | 25 | 50 | 75 | 100 |



CMC ED – Receipt to Result >30 minutes



CMC-Inpatient Receipt to Result >30min-(Nurse Collect) Gate Chart

Department/Area
Opportunity/Metric

| |
|---|
| CMC Laboratory |
| Weekly IP receipt to result >30mins (nurse collect) |
| *APTT,PTNINR,CH12,CH7,CBCB *1st and 2nd Shifts |

Target Condition
Actual

| | |
|-------|-----|
| 33.0% | 555 |
| 20.9% | 352 |

G

Report Writer:
Last Updated:

| |
|--------------|
| Weekly A3 |
| Kevin Potter |
| 17-Sep-18 |

Countermeasures

| | |
|---|---|
| A | Review of specific outliers to determine next steps |
| B | Resolve delta issues in chem Remisol |
| C | Resolve morphology transfer from heme Remisol |
| D | Redefining Ext. Water Spider Drop Off Schedule |
| E | Develop/Implement visual mgmt system for IP STATS |
| F | |

Responsible

| |
|--------------|
| Tiffany |
| Karen G. |
| Karen/Kirti |
| Shikha/Kevin |
| |
| |

Start Due Complete

| | | |
|--------|--------|--------|
| 30-Apr | 7-May | 7-May |
| 3-Jun | 15-Jul | |
| 20-May | 20-Jun | |
| 16-Jul | 27-Jul | 27-Jul |
| | | |
| | | |

Yokoten Opp?

| |
|---|
| Y |
| Y |
| Y |
| N |
| Y |
| |

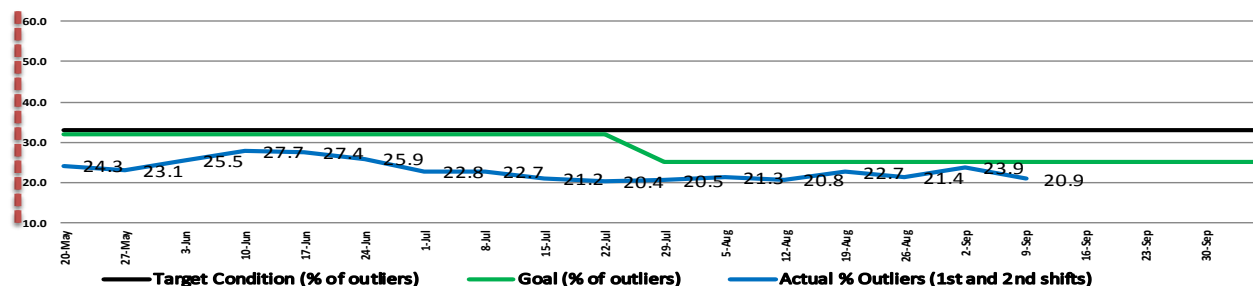
% Complete

| | | | | |
|------------------------|----|----|----|-----|
| Status of Action Items | 25 | 50 | 75 | 100 |
| | 25 | 50 | 75 | 100 |
| | 25 | 50 | 75 | 100 |
| | 25 | 50 | 75 | 100 |
| | 25 | 50 | 75 | 100 |
| | 25 | 50 | 75 | 100 |
| | 25 | 50 | 75 | 100 |

| Metrics Defining Success | 2018 (Week of) | | | | | | | | | | | | | | | | | | | | |
|---|----------------|--------|-------|--------|--------|--------|-------|-------|--------|--------|--------|-------|--------|--------|--------|-------|-------|--------|--------|--------|-------|
| | 20-May | 27-May | 3-Jun | 10-Jun | 17-Jun | 24-Jun | 1-Jul | 8-Jul | 15-Jul | 22-Jul | 29-Jul | 5-Aug | 12-Aug | 19-Aug | 26-Aug | 2-Sep | 9-Sep | 16-Sep | 23-Sep | 30-Sep | 7-Oct |
| Target Condition (% of outliers) | 33.0 | 33.0 | 33.0 | 33.0 | 33.0 | 33.0 | 33.0 | 33.0 | 33.0 | 33.0 | 33.0 | 33.0 | 33.0 | 33.0 | 33.0 | 33.0 | 33.0 | 33.0 | 33.0 | 33.0 | 33.0 |
| Goal (% of outliers) | 32.0 | 32.0 | 32.0 | 32.0 | 32.0 | 32.0 | 32.0 | 32.0 | 32.0 | 32.0 | 25.0 | 25.0 | 25.0 | 25.0 | 25.0 | 25.0 | 25.0 | 25.0 | 25.0 | 25.0 | 25.0 |
| Actual # Outliers (1st and 2nd shifts) | 390 | 368 | 455 | 457 | 497 | 414 | 354 | 341 | 332 | 307 | 323 | 296 | 332 | 379 | 336 | 409 | 352 | | | | |
| Actual % Outliers (1st and 2nd shifts) | 24.3 | 23.1 | 25.5 | 27.7 | 27.4 | 25.9 | 22.8 | 22.7 | 21.2 | 20.4 | 20.5 | 21.3 | 20.8 | 22.7 | 21.4 | 23.9 | 20.9 | | | | |
| Chem % Outliers (1st shift) | 29.6 | 33.9 | 23.9 | 29.3 | 33.8 | 35.3 | 24.7 | 16.7 | 20.1 | 19.1 | 18.8 | 20.3 | 25.0 | 33.8 | 30.7 | 30.5 | 29.6 | | | | |
| Chem % Outliers (2nd shift) | 30.8 | 33.3 | 36.2 | 43.8 | 37.9 | 33.1 | 29.5 | 34.2 | 29.0 | 27.1 | 27.2 | 26.2 | 30.9 | 28.1 | 23.2 | 36.1 | 23.9 | | | | |
| Chem % Outliers (3rd shift) | 20.2 | 21.9 | 19.5 | 23.4 | 25.1 | 22.1 | 24.2 | 24.8 | 30.1 | 24.5 | 20.0 | 22.6 | 21.3 | 21.2 | 23.3 | 26.0 | 16.3 | | | | |
| Heme % Outliers (1st and 2nd shifts) | 12.1 | 9.6 | 14.6 | 11.2 | 13.5 | 14.5 | 12.2 | 12.0 | 14.4 | 10.0 | 10.8 | 12.0 | 11.6 | 16.8 | 10.0 | 7.5 | 12.7 | | | | |
| Coag % Outliers (1st and 2nd shifts) | 24.4 | 20.0 | 26.5 | 27.0 | 26.5 | 24.0 | 22.8 | 24.3 | 20.7 | 24.0 | 22.9 | 24.2 | 18.2 | 17.3 | 22.9 | 21.7 | 19.7 | | | | |
| 1st Shift | 145 | 140 | 169 | 134 | 207 | 164 | 137 | 101 | 113 | 112 | 147 | 110 | 137 | 177 | 166 | 165 | 167 | | | | |
| 1st Shift - % of Outliers | 20.4 | 21.6 | 21.8 | 20.0 | 24.3 | 24.2 | 19.9 | 15.1 | 16.5 | 16.7 | 19.9 | 17.7 | 18.7 | 22.5 | 22.0 | 19.1 | 21.1 | | | | |
| 2nd Shift | 245 | 228 | 286 | 323 | 290 | 250 | 217 | 240 | 219 | 195 | 176 | 186 | 195 | 202 | 170 | 244 | 185 | | | | |
| 2nd Shift - % of Outliers | 27.4 | 24.1 | 28.3 | 33.0 | 30.2 | 27.2 | 25.2 | 28.9 | 24.8 | 23.3 | 21.1 | 24.1 | 22.6 | 22.7 | 20.9 | 28.7 | 20.7 | | | | |
| 3rd Shift | 326 | 315 | 300 | 382 | 449 | 336 | 315 | 322 | 476 | 337 | 285 | 294 | 294 | 344 | 401 | 428 | 267 | | | | |
| 3rd Shift - % of Outliers | 16.9 | 15.8 | 15.2 | 18.7 | 20.7 | 17.6 | 17.4 | 17.1 | 22.6 | 18.9 | 15.1 | 16.2 | 15.8 | 16.6 | 20.7 | 20.5 | 13.8 | | | | |
| Countermeasures, Actions & Activities (100% Complete) | A | | | | | | | | | | D | | | | | | | | | | |

Notes/Comments:

6/11- LIS down for apprx 6 hours starting on 2nd shift (Remisol update)
6/12- AU 1 down due to "memory" issues. AU2 had to be QC'd and calibrated before being used as backup on 2nd shift
6/18 - Morphology issues in heme Remisol require software upgrade to resolve
6/19- 2nd Remisol update to resolve deltas



Lessons Learned / Action Plan

- Defects (specimens that are received into the lab that are not ready to be processed)
 - Is improving
 - Working with emergency department and various nursing department to reduce defects
 - Collecting one day per month and provide feedback on performance
- Collection Manager
 - Utilization is improving
 - Will support emergency department with implementation
- Leadership structure
 - Implemented leaders on each shift (teammate engagement initiative)
 - Training on staffing structure; team leader and group leader standard work

Lessons Learned / Action Plan

- Turn around times
 - Have success Monday - Friday day shift
 - Need to study other shifts and weekend processes to determine barriers to success
 - Have learned to solve one problem at a time (A3 problem solving)
- Standard work
 - Excellent tool for reducing variation
 - Started audits on standard work
 - Audits are a great tool to assure continuous improvement
 - Will expand standard work to more processes and audit



Right Specimen From Me Initiative

- Goal: To improve the specimen collection, labelling and to eliminate paper requisitions so that all specimens are received in an instrument ready state.
- Launched in June 2016
- Multidisciplinary team – IAS, Nursing, Lab, and Physician & Administrative Champions
- Approach: To engage Suppliers & Customers to identify inputs, process, and outputs. To GEMBA.

SIPOC

Process/ Project Name: Scope: Lab Draw (Collection) to Result

Date: 04/24/2017-04/25/2017

Notes: Theme: Collections Using Collection Manager + Lab Testing

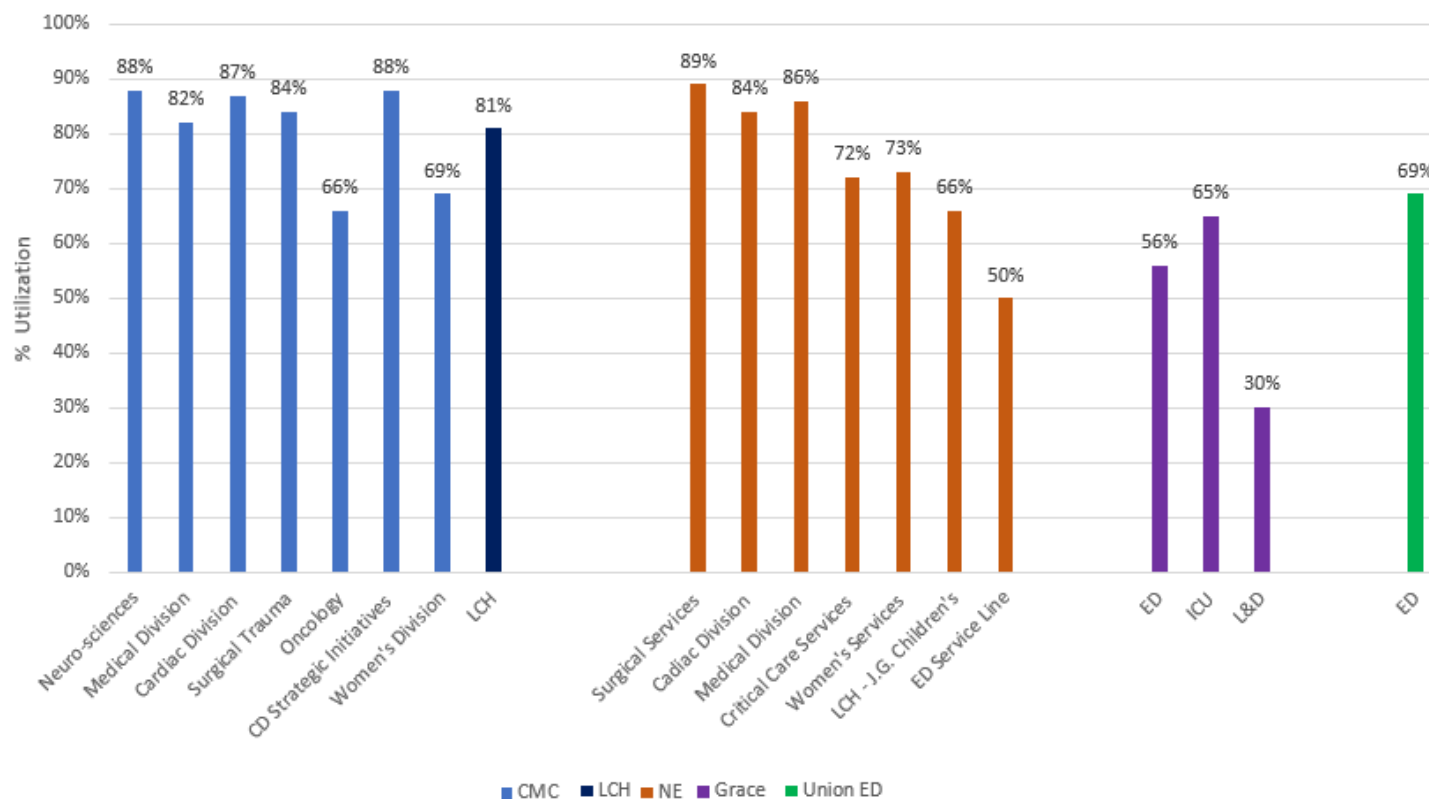
Completed by: Shashi Patel

Bhanu Patel

| Suppliers (4) | | Inputs (2) | | Process (1) | Outputs (3) | | Customers (5) |
|---|--------------------------------|--|---|-------------|--|---|--|
| Provider | Input Description | Input Requirements | | | Output Description | Output Requirements | Recipient of Output |
| Nursing unit | Physician | with new lab order access | Patient transfer to nursing unit | | Lab: previous lab orders cancelled | | Nursing unit |
| | PC | with Cerner (New Order Module) | | | | | |
| | Test Name | Current/valid test code Match source/site | | | | | |
| | Correct timing | Orders from previous location cancelled | | | | | |
| | Correct billing account number | Routine, STAT, or timed | Physician places lab order in Cerner | | Signed electronic order in Cerner | | Cerner (patient chart) Sunquest |
| | | Once versus repeat (ie: QAM) | | | No paper requisition needed for blood specimens, mrsa swabs, RSV swabs, urine dip | | |
| SunQuest Business Unit Paper printer in Phlebotomy Label printer in Phlebotomy Cerner on Nursing Unit Hospital | Order | Active billing account | | | Paper requisition needed for any micro orders (stool, csf, wound cultures, blood cultures, any other body fluid, glab, HSV culture, and urine send outs) | | RN, Phlebotomist Charge, Phlebotomist, Central processing, Med Techs |
| | PC (Phlebotomist Charge) | Matches order location code | | | | | |
| | PC (RN) | | | | | | |
| | Phlebotomist requisition | | | | | | |
| | Sunquest label | | | | | | |
| | New orders for review alert | | | | | | |
| SunQuest RN/Nursing Unite Paper Printer Business Unit Business Unit Phlebotomist Charge | Nurse | | Charge phlebotomist obtains order in SQ Collection Manager | | Phlebotomy charge: notified of new stat order in real time | In real time | |
| | Charge phlebotomist | | | | Phlebotomy charge: notified of new routine order in real time (as of 05/08/2017, routines printed in 15 minutes intervals) | In real time | Phlebotomist charge and RN |
| | | | | | Nurse notified of new orders in real time | In real time | |
| | | | | | | | |
| | | | RN obtains order in Cerner | | | | |
| | | | | | | | |
| Business Unit Business Unit Business Unit Business Unit Business Unit | Order | Requisition Order | | | | | |
| | Nurse draw list | Updated real time (accurate) | | | | | |
| | Phlebotomy requisition | Date, time, RN name documented | | | | | |
| | PC | with Sunquest | | | | | |
| | Phone | Ascom or Land line | | | | | |
| | Phone list | at Phlebotomist Charge station. | | | | | |
| Business Unit Phlebotomist Charge Business Unit Business Unit Business Unit | Ascom | | Phlebotomist charge only: Review order and verify collection is required by calling RN and/or determining if specimen is available in lab for an add-on | | New work order for phlebotomist, new order for RN or draw not required | Verbal via phone call Routines stapled on white paper STATs stapled on colored paper Draw not required | Phlebotomist or RN |
| | RN | Phone Number | | | New work order for CP add on person | Copy of phlebotomist requisition with RN name | Add on person in CP |
| | Charge Nurse | Phone Number | | | | | |
| | Requisition order | | | | | | |
| | | | Phlebotomist only: Phlebotomist dispatched to the floor; Phlebotomist verifies with RN/Charge RN if lab draw still necessary | | Permission from RN to collect sample | Verbal permission | Phlebotomist |
| | | | | | Stats: Order to collect < 15 minutes | TAT target | |
| Business Unit Business Unit Business Unit Business Unit Business Unit | PC | | | | Routine: Order to collect < 30 minutes | TAT target | |
| | Patient chart | Cerner with Care Compass | | | Order for lab draw | Correct lab for correct patient | RN |
| | | | RN only: Review to verify order in Cerner | | RN Ready to gather supplies | Alert is cleared | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |
| Business Unit Business Unit Business Unit Business Unit Business Unit | Sunquest Collection Manager | Valid log in and password | RN only: Sign in to collection manager (nursing) Select patient. Determine specimen container and handling required. | | Logged in to Collection Manager | Must be your credentials | |
| | | | | | Awareness of correct container type(s) | color, additive, protect from light, on ice, | Phlebotomist and RN |
| | | | | | correct patient | Cerner screen and Sunquest should identify the same patient | |
| | | | | | | | |
| | | | | | | | |
| | | | | | | | |

Utilization Overview

Collection Manager Utilization
(8/23/2018 - 9/5/2018)



*Success is no Accident, It is hard work,
perseverance, learning, studying, sacrifice,
and most of all LOVE of what you are doing.*

Pele

