

## oreSteam.com® MBB Webcast Series

# Better Process Design Using Fast Prototyping: The 3P Process for Healthcare

Anne Musitano and Michael Antochow Akron Children's Hospital March 22, 2012





#### **Agenda**



- Welcome
- Introduction of MBB Webcast Series
  - Larry Goldman, MoreSteam.com
- Managing Better Process Design Using Fast Prototyping – The 3P Process for Healthcare
  - Anne Musitano and Michael Antochow, Akron Children's Hospital
- Open Discussion and Questions







#### MoreSteam.com - Background

- Founded 2000
- Over 340,000 Lean Six Sigma professionals trained
- Serving over 50% of the Fortune 500
- First firm to offer the complete Black Belt curriculum online
- Courses reviewed and approved by ASQ
- Registered education provider of Project Management Institute (PMI)







#### **Today's Presenters**



Anne Musitano
Lean Six Sigma Deployment Director
Akron Children's Hospital

- Doctor of Pharmacy (PharmD) and Masters in Business Operational Excellence (MBOE) from The Ohio State University
- Lean Six Sigma Black Belt

#### **Michael Antochow**

Process Improvement Analyst Akron Children's Hospital

- B.S. in Industrial Engineering from Purdue University and an MBA from University of Akron
- Lean Six Sigma Black Belt



#### **Akron Children's Hospital**



Largest pediatric healthcare provider in Northeast Ohio.

2 Freestanding pediatric hospitals & services in 80+ locations

across the region

- 309 licensed beds
- ½ million patients each year
- 4,000 + employees
- 8,756 inpatient admissions
- 604,357 outpatient visits
- Gold Seal of Approval from the Joint Commission
- Magnet Recognition Status from American Nurses
   Credentialing Center



#### **Akron Children's Hospital** Center for Operations Excellence



#### **Center for Operations Excellence:**

- The mission of the Center for Operations Excellence is to develop and use in-house talent to improve the healthcare experience of our patients and families, while improving the working experience of our staff.
- Currently staffed by 8 individuals
  - 1 Senior Director
  - o 5 project leaders
  - 1 data analyst
  - 1 office coordinator



## History of Lean Six Sigma at Akron Children's and in the CCL

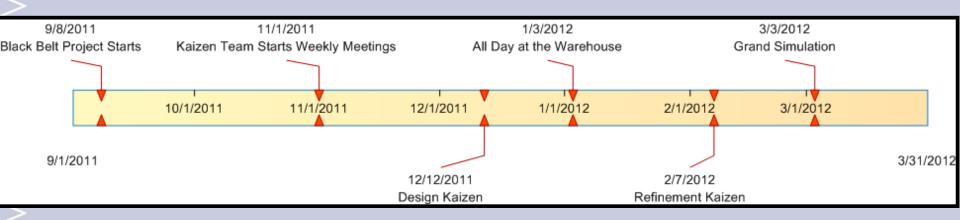


- Lean Six Sigma Started in 2008 at Akron Children's
  - A3 Program
  - Black & Green Belt projects
  - Kaizen events
  - Blue Belt Program
- The CCL has been involved in Lean Six Sigma since 2009
  - 18 A3 graduates
  - A Kaizen in their processing area in October 2009



#### Timeline of project thus far





## Guiding Principles of Champions & Process Owner Children's Hospital

Best for the Patient

Customer Service (Caregiver)

**Quality Resulting** 

Logical Flow

Flexibility

Scalability

Minimize Distractions

Open Lab Concept

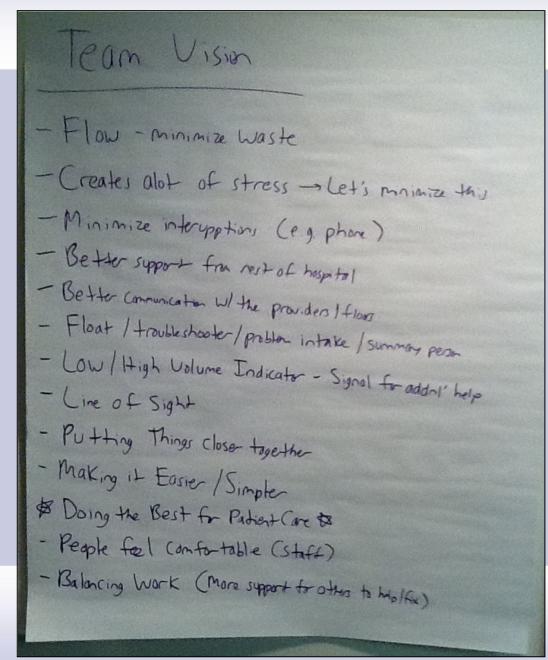
Optimization of technology with the process

**Ergonomically Sound** 

Cost Effectiveness (Remodel, Maintenance, and Long term financial benefits)



#### **Team Vision**

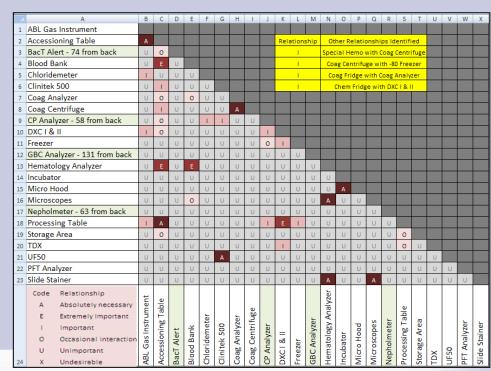




### **Preparation**



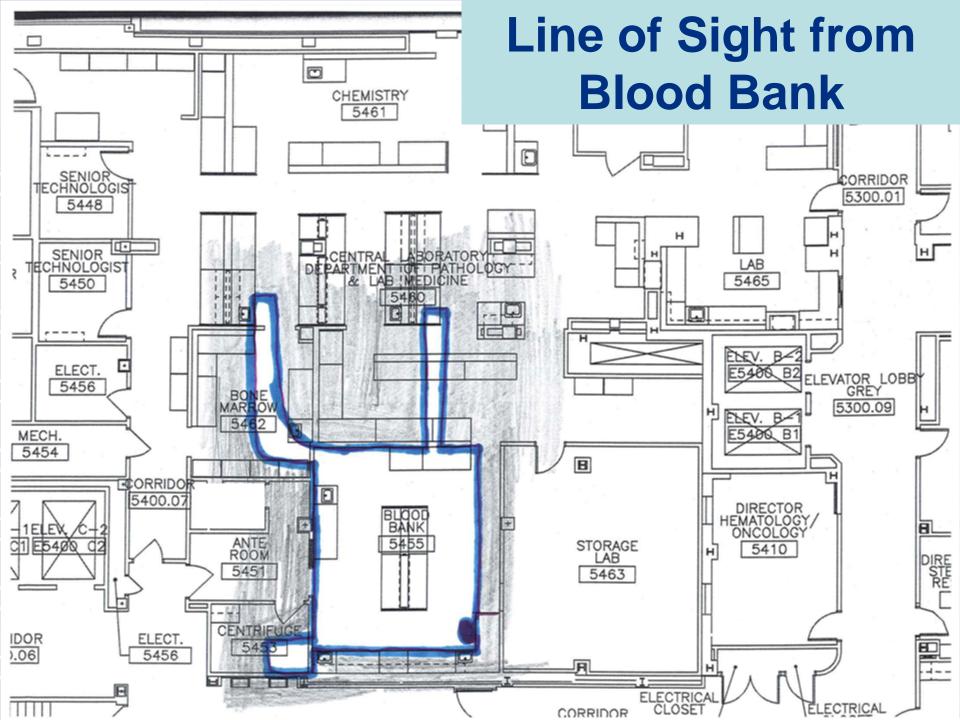
- Relationship Diagram
- Timing of Process Steps (hands-on, touch time)
- Cycle Times for Instruments Measured
- Voice of the Customer
  - PICU, ED, Hospitalist
- Spaghetti Diagrams and distances in CCL
- Waste Walks
- Ideas Generated from lab staff

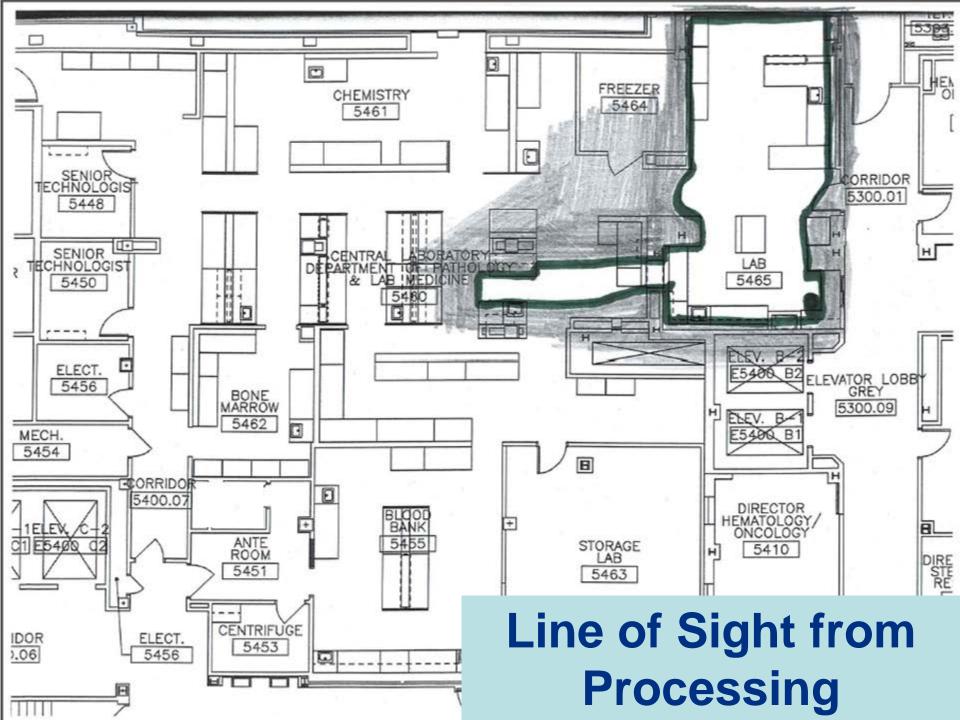






# Line of Sight Diagrams: Before State

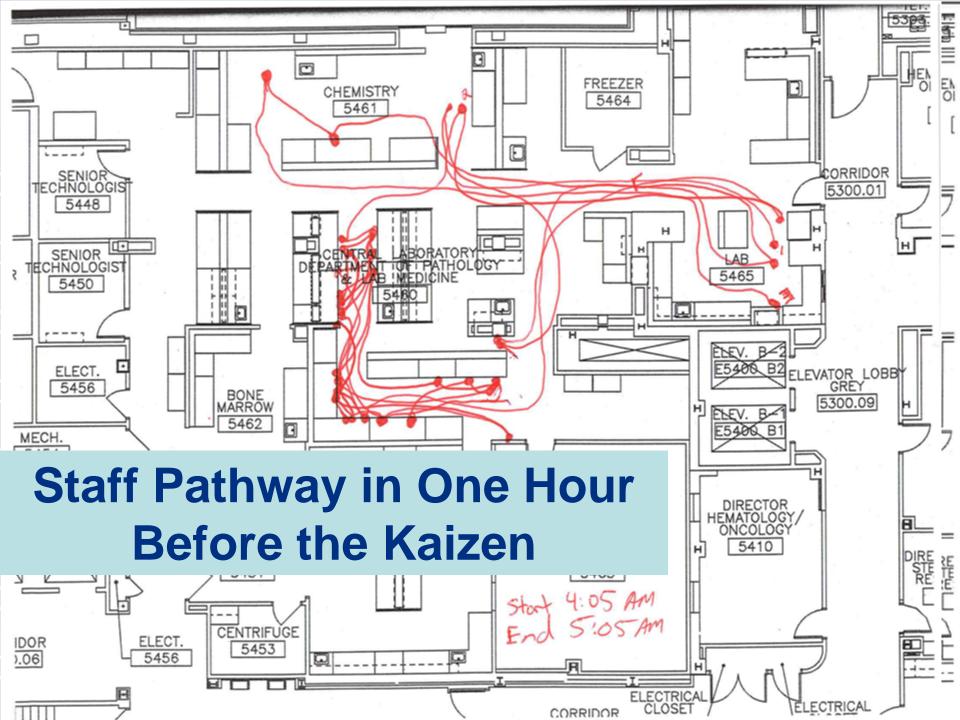








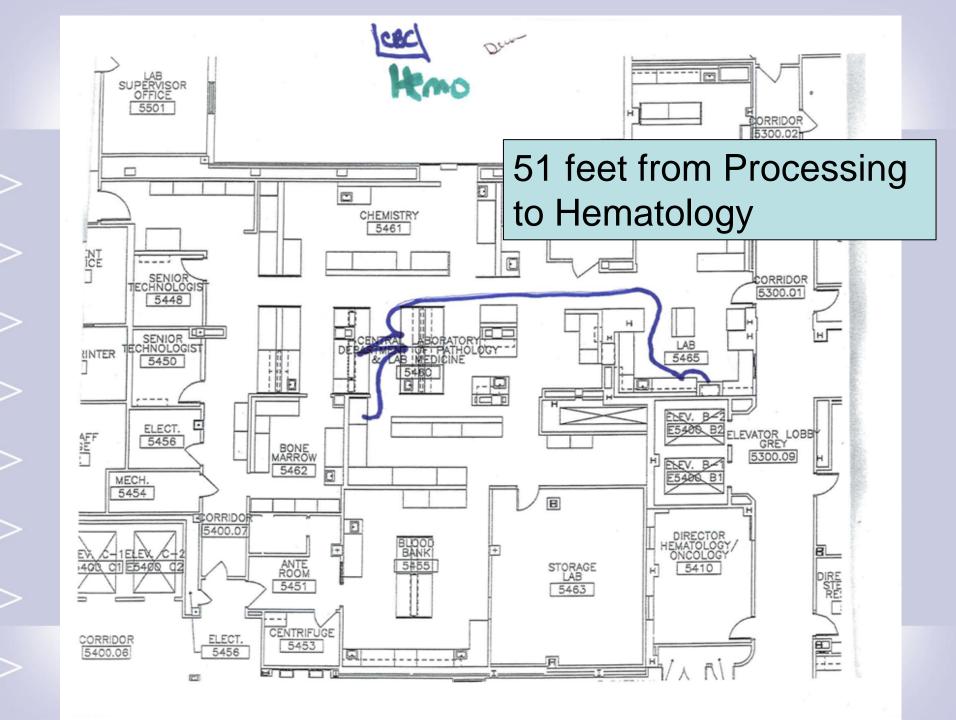
## Spaghetti Diagrams: Before State

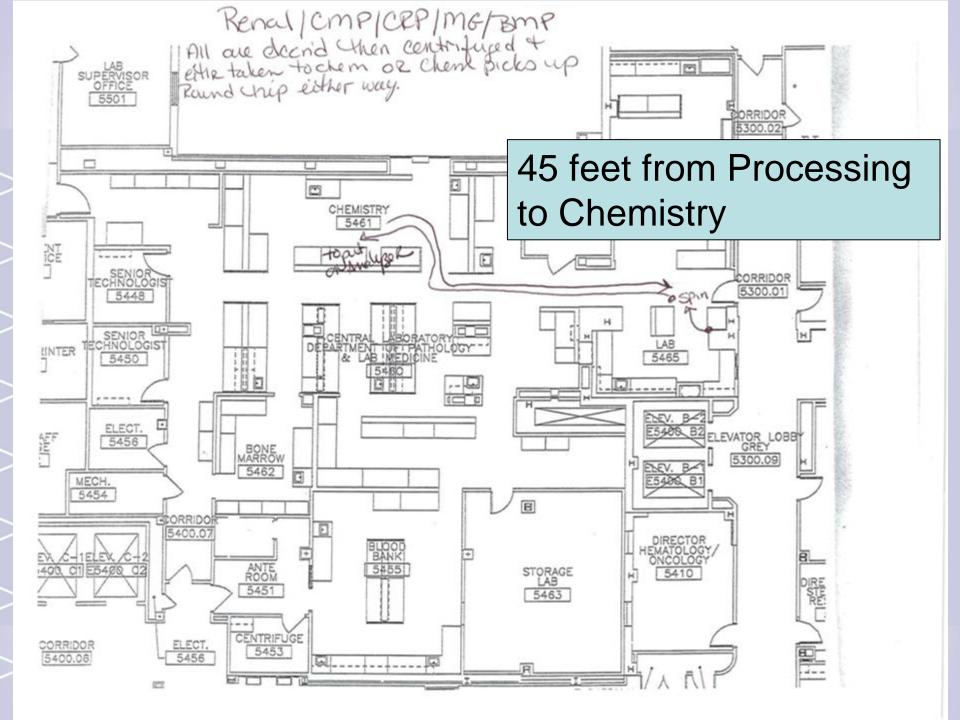




## **Current State: Test Pathways**









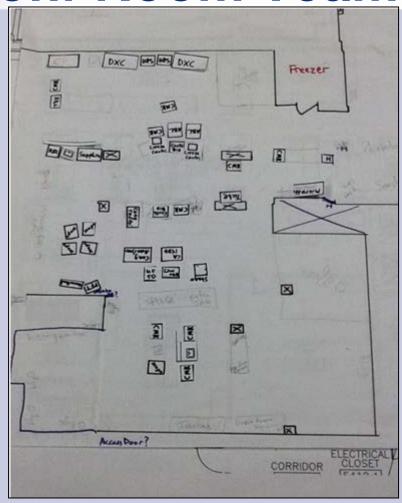
### **Kaizen Time!**



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## Created Design #1-Conf Room Team Effort

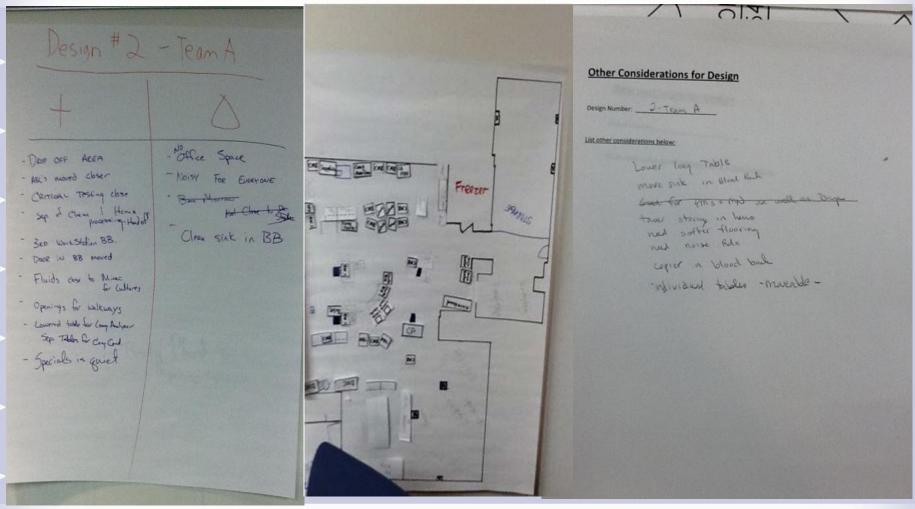






## Analyzed Design #2 & 3 Team A & B





## **Scoring the Designs**



#### Open Lab Concept

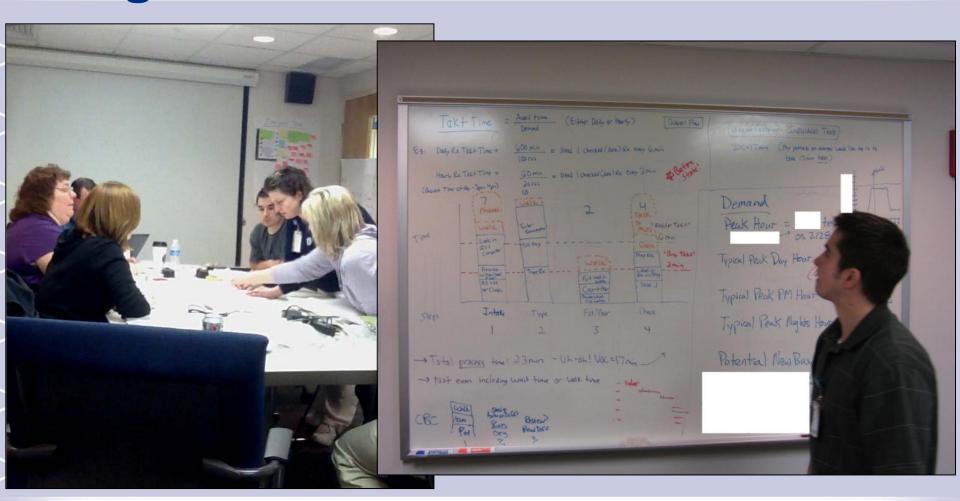
- Using the CCL Grid, place your design on top of it, making sure to line up the outlines of the CCL for each drawing with each other
- Using an educated guess at what the three dimensional look of the design could be, from the spot that Accessioning Table is, add up the % listed for each box that can be seen from the Accessioning Table.
- Repeat the above step from the point where one of the DXC Analyzers is located, as well as where the Sapphire analyzer is, and from Blood Bank
- 4. Add up the values derived and divide by four
- 5. Scoring
  - a. If the value above equals less than 50%, then give the design 1 point
  - b. If the value above equals at least 50%, then give the
  - c. If the value above equals at least 60%, then give the
  - d. If the value above equals at least 70%, then give the
  - e. If the value above equals at least 80%, then give the
- 6. List the value from the score above into the Open Lab Conc

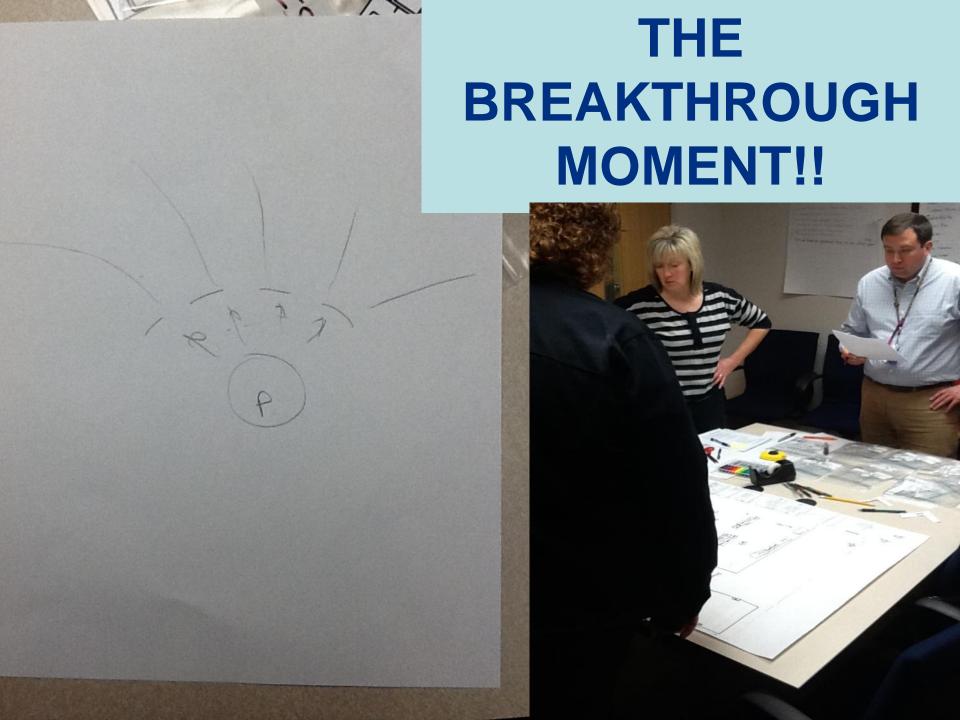
| Category           | Title: Centralize Core Lab Black Belt Project                               |          |                     |   |   |
|--------------------|---|----------|---------------------|---|---|
| Weight of Category | Category to Evaluate  | Baseline | Design 1:<br>Sleepy | Design 4:<br>End of<br>December<br>Kaizen | Design 5:<br>End of<br>February<br>Kaizen |
| 10                 | Best for the Patient  | 1        | 5                   | 5   | 5   |
| 9                  | Customer Service (Caregiver)  | 1        | 1                   | 5   | 5   |
| 10                 | Quality Resulting   | 1        | 1                   | 4   | 5   |
| 9                  | Logical Flow  | 1        | 5                   | 5   | 5   |
| 8                  | Flexibility   | 2        | 4                   | 4   | 4   |
| 5                  | Scalability   | 1        | 2                   | 3   | 3   |
| 5                  | Minimize Distractions   | 1        | 2                   | 4   | 5   |
| 6                  | Open Lab Concept  | 1        | 5                   | 3   | 5   |
| 8                  | Optimization of technology with the process                                 | 1        | 4                   | 5   | 5   |
| 7                  | Ergonomically Sound   | 1        | 2                   | 5   | 5   |
| 7                  | Cost Effectiveness (Remodel, Maintenance, and Long term financial benefits) | 5        | 1                   | 2   | 2   |
|                    |   | 120      | 249                 | 354                                       | 381                                       |

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## Continued to Work..... Design 4- Collective Effort Children's Hospital











## Kaizen Team Hard at Work Children's Hospital



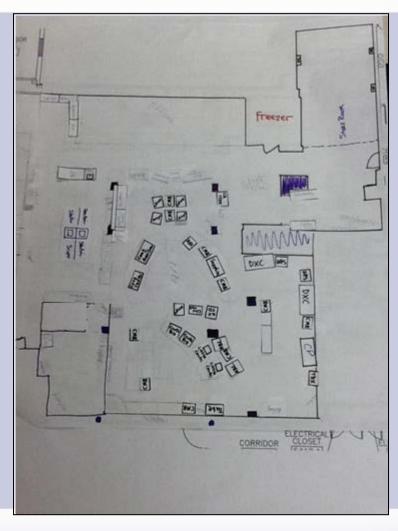


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## Tour Groups: Lab Leadership







#### Refinement Kaizen



- Realized that three days at the warehouse was not sufficient for design effort
- Went out for four more days in February
- Team built their own Chemistry and Scope tables
- Designed the office area for Senior Techs and Supervisors
- Put detail in such as what cabinets/drawers are needed under tables



#### Refinement Kaizen



- Team was challenged to design their space with Visual Management so that one would know what work needed to be done without asking.
- Visual Management Challenge, "Can you answer 'Yes' to the following questions?"
  - Do the work without talking to one another?
  - Tell what should be done next?
  - Tell what is problematic?
  - Signal for help/can you tell when your neighbor needs help?
  - Would a PRN know what to do without asking?





## **Grand Simulation**





Standard Work Instructions for Accessioning in Grand Simulation

| Process Step / Visual | g from Tube Station upon arrival   | • Tir |
|-----------------------|--|-------|
| 1                     |  | spec  |
|                       | e specimens from pod and sort the timer, spend 90 seconds at the accessioning table sioning the order  |       |
| 1 1 3. acces          | simen Calu, W  | ie l  |
| 4. While onto         | e accessioning, on each Speciments the card sthe specimen to the appropriate Kanban (i.e. the racks of the specimen to the appropriate Kanban (i.e. the racks of the specimen to the appropriate Kanban (i.e. the racks of the specimen to the appropriate Kanban (i.e. the racks of the specimen to the appropriate Kanban (i.e. the racks of the specimen to the appropriate Kanban (i.e. the racks of the specimen to the appropriate Kanban (i.e. the racks of the specimen to the appropriate Kanban (i.e. the racks of the specimen to the appropriate Kanban (i.e. the racks of the specimen to the appropriate Kanban (i.e. the racks of the specimen to the appropriate Kanban (i.e. the racks of the specimen to the appropriate Kanban (i.e. the racks of the specimen to the appropriate Kanban (i.e. the racks of the specimen to the appropriate Kanban (i.e. the racks of the specimen to the appropriate Kanban (i.e. the racks of the specimen to the appropriate Kanban (i.e. the racks of the specimen to the appropriate Kanban (i.e. the racks of the specimen to the appropriate Kanban (i.e. the racks of the specimen to the specimen to the appropriate Kanban (i.e. the racks of the specimen to the specimen to the appropriate Kanban (i.e. the racks of the specimen to the speci | racks |
| 5. Pas<br>Pro<br>on!  | cessing table, the facks from the Hemo table, etc)   |       |

#### Instructions for Grand Simulation members

- All Cards and Accession Papers have to be put into done bins and come back to the CCL for disposal
- Cannot move anything
- Draw missing items and tell the observer about them
- Ask to have someone fix a problem specimen --- Don't stop flow
- Follow the signs to the bathrooms as they are hidden
- Get an explain visual management of the push/pull system
- iming Explanation --- DON'T STOP working on the ecimens in the simulation

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### **New Layout Benefits**



- Quality:
  - Less distractions (couriers, phones, etc.)
  - Consistent SWI for work areas
- Time
  - Best for patients- TAT reduction
  - Best for caregivers (MD's, NP's, etc)- TAT reduction
  - Certain crucial instruments placed closer to the work area
  - Less walking:
    - Estimated that we have eliminated 4 to 5 seconds per chemistry accession from processing area

#### **Distance Removed**

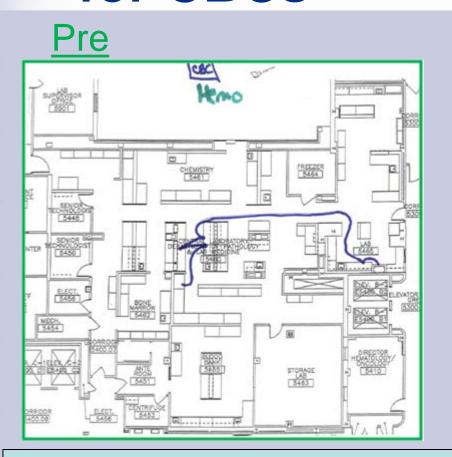


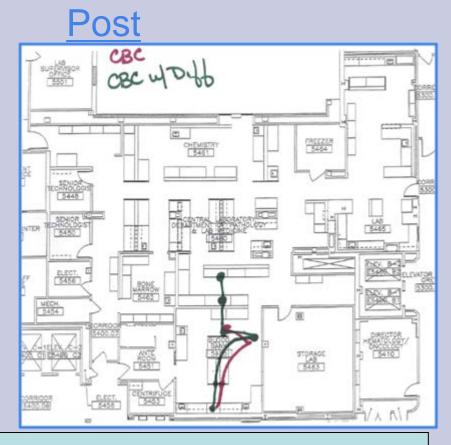
## Top tests saw dramatic reduction in total amount need to be walked through the lab

| Total Daily Distance for Top Tests |        |  |  |  |
|------------------------------------|--------|--|--|--|
| Before                             | After  |  |  |  |
| 28,097                             | 15,841 |  |  |  |
|                                    |        |  |  |  |
| Distance                           |        |  |  |  |
| Removed (one-                      |        |  |  |  |
| way for specimen                   |        |  |  |  |
| transport)                         | 12,256 |  |  |  |
|                                    |        |  |  |  |
| Total % Improved                   | 44%    |  |  |  |
|                                    |        |  |  |  |

## Distance Removed for CBCs





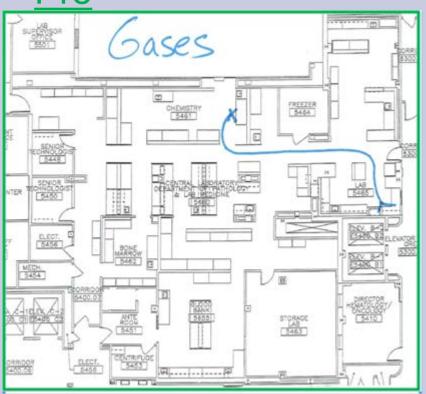


Distance and Time removed for the lab's highest volume test

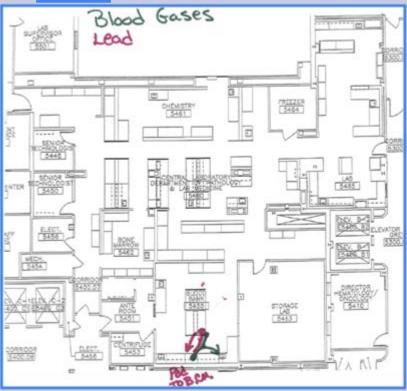
## **Distance Removed** for GASES



Pre



Post



Distance and Time removed for a highly Stat test

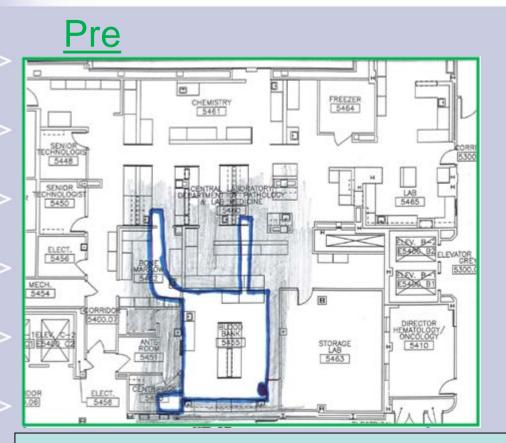
### **New Layout Benefits**



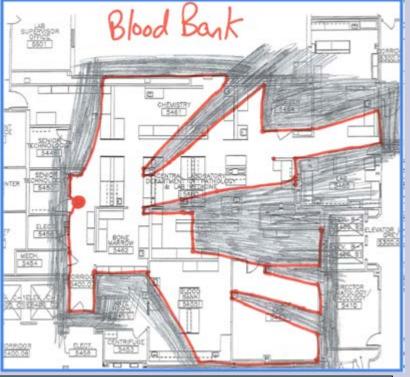
- Flexibility
  - Within the laboratory- workstations, carts, etc.
  - Room for growth
- Enhanced security for parts of the laboratory
- Optimization of technology
- Line of Sight:
  - Better communication
  - Know status of the work to be done

## Line of Sight Improved for Blood Bank









Blood Bank is no longer isolated and thus one can better help out other areas if needed

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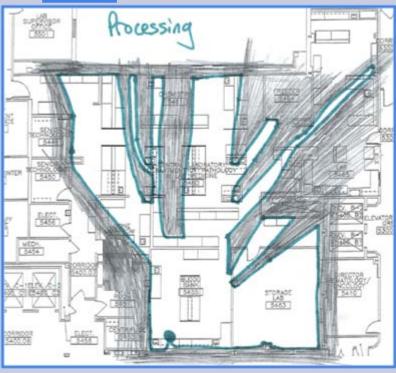
## Line of Sight Improved for Processing



Pre



Post



From the high volume area of Processing, much more the lab can seen and then managed

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## **Night Shift Perspective**



- Main stats, high volume are all closer to tube station (processing)
- One person can more easily do all of the testing
- Good line of sight:
  - Tube station
  - What specimens need to be run
  - When tests print on analyzers, ready for resulting

#### **Total Results**



- Service Level
  - Quicker Turnaround Times due to less waiting, less transportation, and visual management
- Staff Satisfaction
  - Employees are empowered and have excitement about redesigning their own space
- Costs
  - Reclaimed 396 square feet of space instead of expanding into other areas
- Expenses
  - At least \$24,000 in non-value added time eliminated for no longer walking specimens around
  - Non-value added time eliminated for no longer searching for work

### **Next Steps**



- Architect Assessment
- Construction slated to begin in September 2012
- Inventory Green Belt
- Working with Nursing since they are suppliers of the lab







## Thank you for joining us







#### **Master Black Belt Program**

- Offered in partnership with Fisher College of Business at The Ohio State University
- Employs a Blended Learning model with world-class instruction delivered in both the classroom and online
- Covers the MBB Body of Knowledge, topics ranging from advanced DOE to Leading Change to Finance for MBBs







#### Questions? Comments? We'd love to hear from you.

Anne Musitano, Lean Six Sigma Deployment Director - ACH <a href="mailto:amusitano@chmca.org">amusitano@chmca.org</a>

Michael Antochow, Process Improvement Analyst - ACH <u>mantochow@chmca.org</u>

Larry Goldman, Vice President Marketing - MoreSteam.com <u>Igoldman@moresteam.com</u>

#### **Additional Resources**

**Archived presentation, slides and other materials:** 

http://www.moresteam.com/presentations/

Master Black Belt Program: <a href="http://www.moresteam.com/master-black-belt.cfm">http://www.moresteam.com/master-black-belt.cfm</a>