

Continuous Improvement Events at Children's

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Lean Coordinator

Continuous Improvement Events

- C.I. Events help drive change and rapid process improvements
 - Cross functional team of 4-8 people
 - Focuses on one improvement area
 - Sets action plan for future improvements and needs



ETCH PICU Storage 5S

- Before



- After



ETCH PICU Storage 5S

- Before



- After



2nd, 3rd & 4th Storage Visual Control



Before



After

Visual Control

Suction

IV

G Tube / NG

Cath

Dressing

LP



Metric Board Management

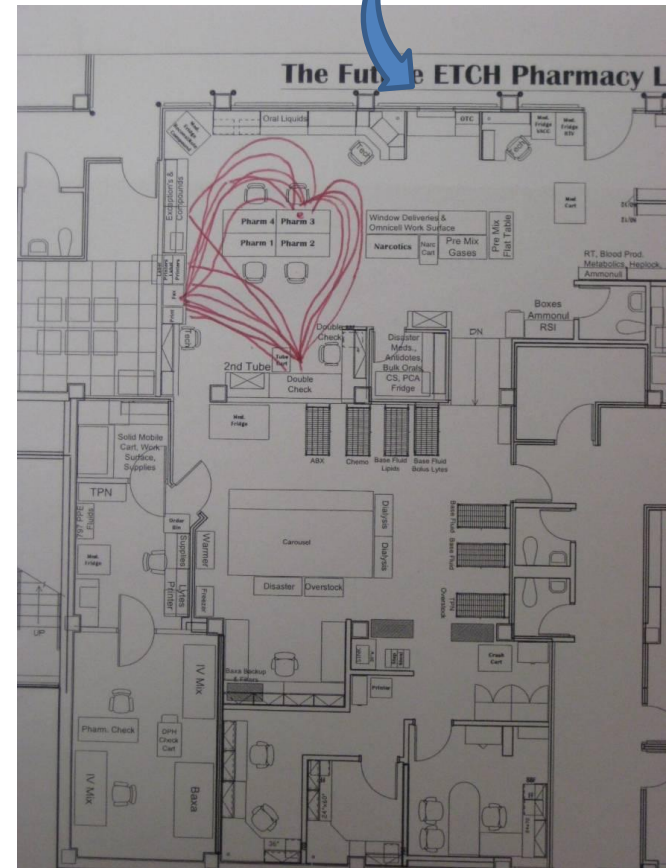
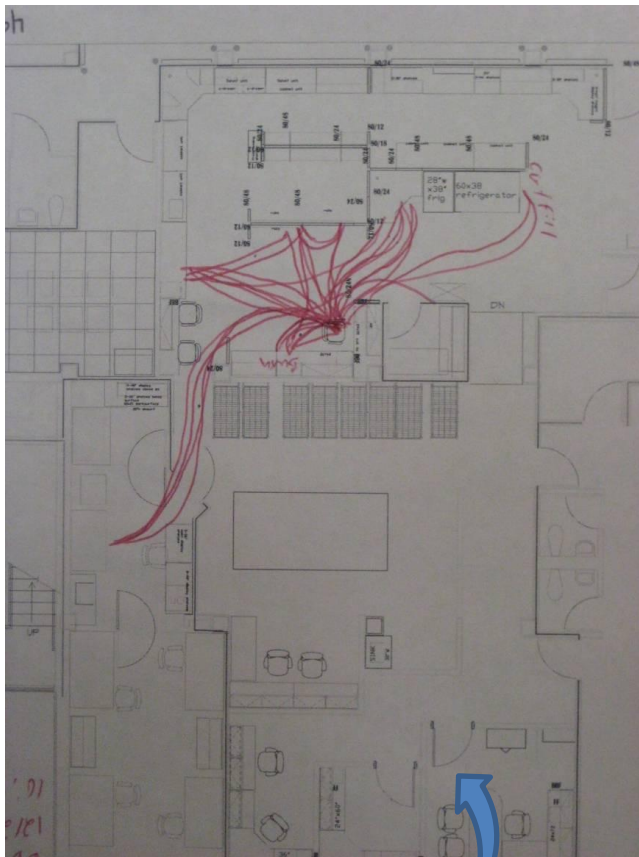
- Display used to communicate performance metrics and measurements on operation performance.



Spaghetti Diagram: Pharmacist

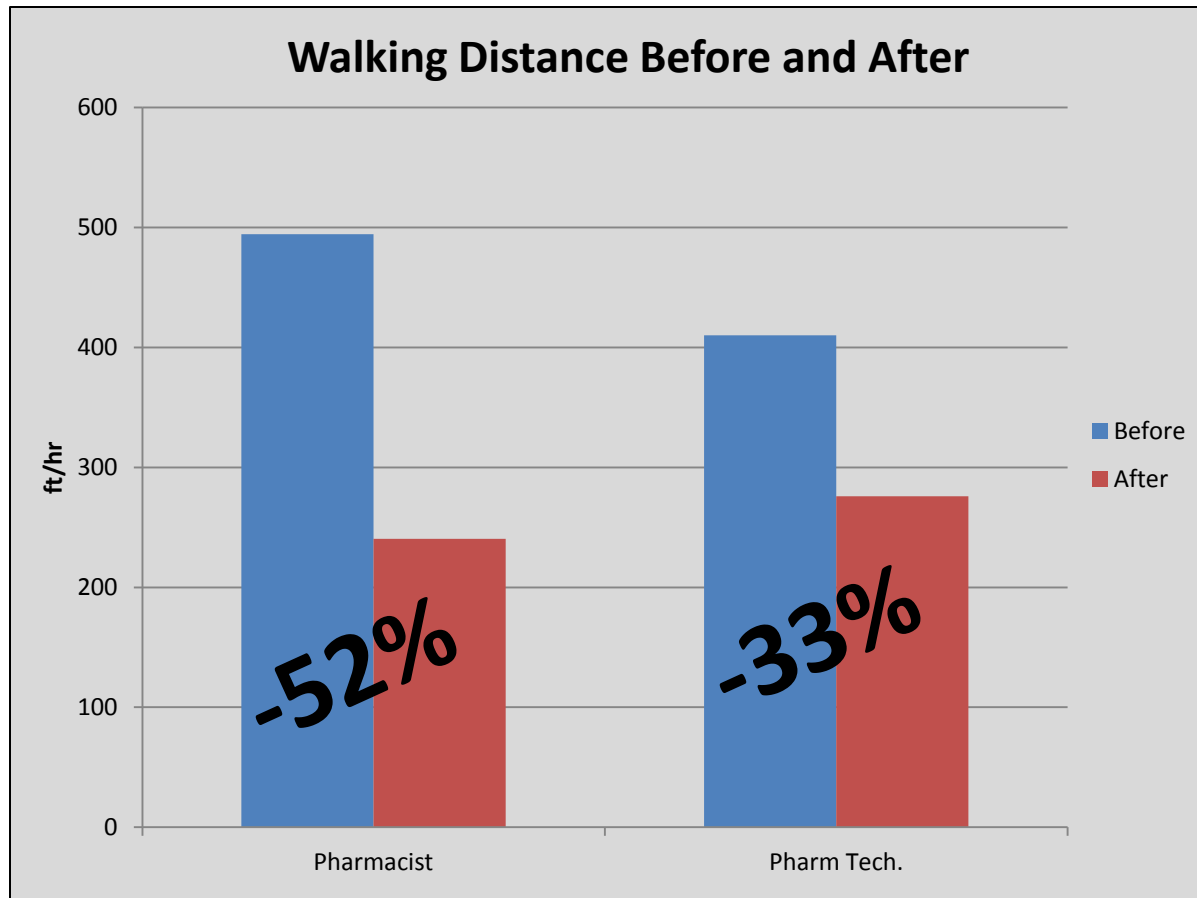
- Visual representation of an employee or product movement through an area

After



Before

Walking Distance Reduction

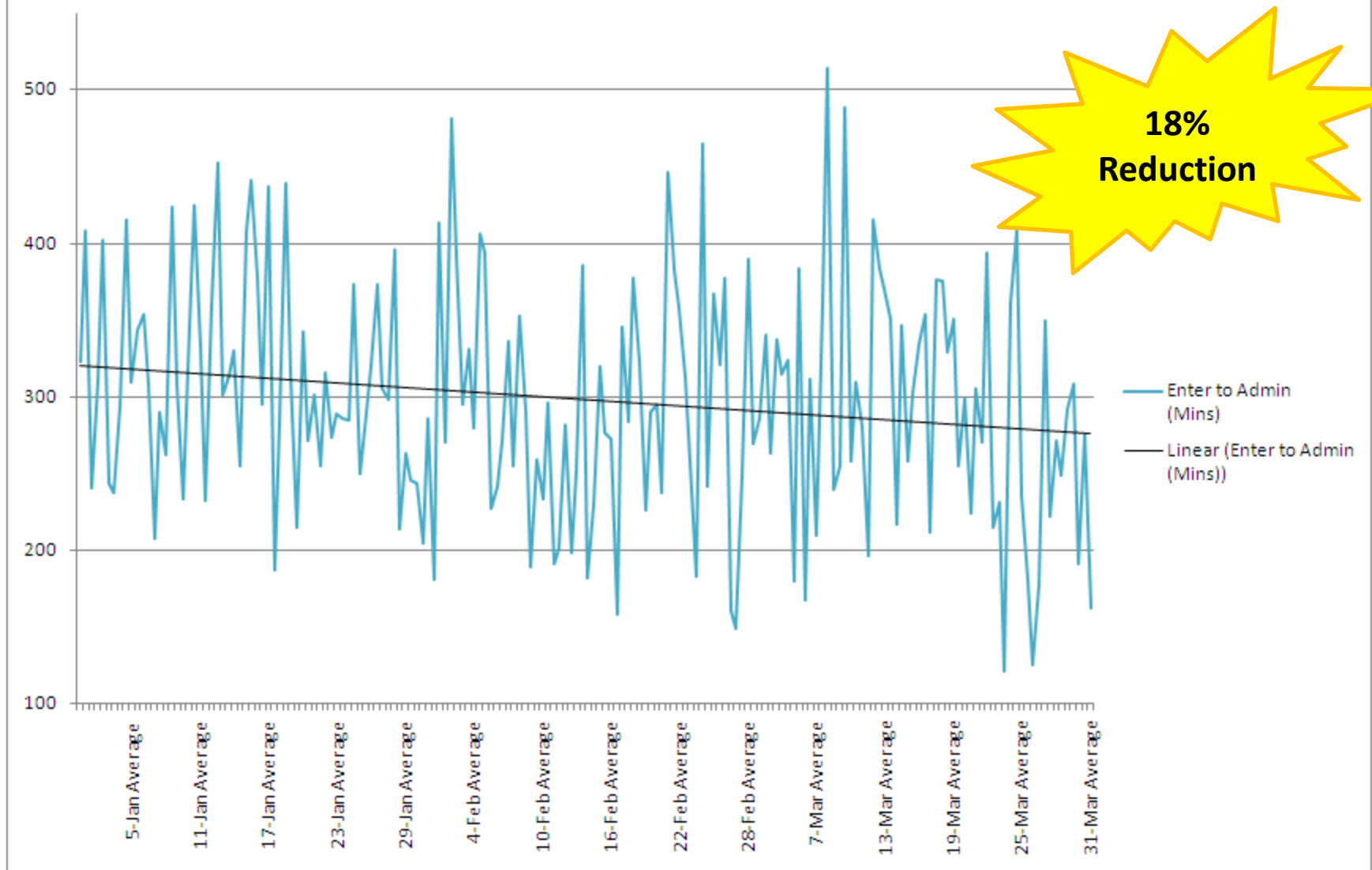


Pharmacist average reduction 3047 ft per 12 hr. shift

Pharm. Tech average reduction 1609 ft per 12 hr. shift

18% Reduction Pharmacy Turnaround Time

Enter to Admin
(Mins)



New Kanban Inventory Control

A physical symbol that indicates when it is time to order more, from who, and in what quantity



Old Inventory Sheet

OUT of House Stock 15 JUN

3.5 Coffees etc CO180

Adaptor 15MM Hudson form 1422
Adaptor 22MM Hudson form 1421
Adaptor 3.5mm ET Tube Blue 725235
Adaptor Bodai Neo-Safe 2 B110
Adaptor Bodai Swivel Y - SM 100-25
Adaptor CO2 Cosmo Neo - 215 - 4.0 (6220)
Adaptor CO2 Cosmo Ped - 105.5 (6219)
Adaptor CO2 Cosmo Ped/Adult - (6716)
Adaptor CO2 Nellcor Neonatal - 0080243-0071
Adaptor CO2 Nellcor Ped/Adult - 0080367-004C
Adaptor Elbow 1641
Adaptor Manometer - 301-5558
Adaptor MDI In-Line Instrumentation Industries
Adaptor Multi-Access 4078
Adaptor Nebulizer Neonate In-Line 1792
Adaptor Nebulizer Pari Cap Valve 4160510
Adaptor Nipple Green O2 - 2555
Adaptor Nipple Yellow Air - 26-33-2800
Adaptor O2 Tubing Connector - 7006
Adaptor Omni-Flex - 3222 (18) Omni-Flex 3155
Adaptor One Way Valve - 1671
Adaptor Servo Bacteria Filter-Green - 6079979
Adaptor T-Piece Black - 5589
Adaptor T-Piece Green - 5 stock item
Aero Chamber Adult Blue - 58-80710
Aero Chamber EZ-Spacer - W8393-10
Aero Chamber Infant Orange - 58-88710
Aero Chamber Mouthpiece - 58-79750
Aero Chamber Ped Yellow - 58-78710
Aero Chamber Tracheostomy - 52510
Aero Mask Dragon - HFC 001266 10783
Aero Mask Hudson Adult - 76-395826 1083
Aero Mask Hudson Infant
Aero Mask Pari Adult - 14F20-PVC 50
Aero Mask Pari Baby #1 - 44F2401
Aero Mask Pari Baby #2 - 44F2402
Aero Mask Pari Bubbles - 44F7242
Aero Nebulizer Continuous 12cc (Green Cup)
Aero Nebulizer Continuous Heart Large - 96310609
Aero Nebulizer Continuous Heart Lo-Volume
Aero Nebulizer Nasal PEDI Pacifier 0383
Aero Nebulizer Pari 6 month 22F81
Aero Nebulizer Respigard II (Pent. Filtered) - mangusbam
Aero Nebulizer Sidestream (Not in use Jun 05) - 002174
Aero Nebulizer Vortran Percussive - 4030
Aero PEP Pari 18F61P12
Aero PEP Resistix Valve - 10-37000
Aero Ultrasonic Membrane Injct. T-piece - 63-42336
Air Life Neb CB2038
Adapt Airway Exame neopameter 10210 Adult Respencer 60634
Adapt Airway Exame " 10211 Neo/pea 6312

Cap Peri 06013 - Mini-5111
East Cap 06153 - Ped-Adult
#04216 - PK 50 - \$16.44
#04217 - PK 50 - \$16.44
#02849 - PK 10 \$13.68 Sims
#06110 - CS 2 500ea 84 346 a Bthomedical
#05063 - CS 10 \$468.00 Cardinal
#10611 - 84/10 \$310.00 Acrometry
#10612 - 84/10 \$310.00 "
#10613 - 84/10 \$310.00 "
#05568 - CS 10 \$174.50 Welch/Allen
#06563 - AN24 \$245.35 "
#02846 - CS 10 \$23.20 Hudson Otm
#08081 - CS 10 \$92.50 Tri-axim
#08263 - PK 760 - \$950 RTC 22-0
#04666 - CS 50 \$53.00 Cardinal
#07707 - CS 50 \$69.14 O+M
#08070 - CS 12 \$30.00 "
#02725 - CS 50 \$1152 O+M
#07126 - CS 50 \$34.50 Tri-axim
#05990 - CS 50 \$12.37 Cardinal
#05770 - CS 50 \$67.93 Cardinal Heart
#04594 - CS 50 \$108.37 Sims Otm
#03710 - CS 50 \$193.00 Maquet
#05024 - 20 - \$9.83 O+M
#02800
#09532 - CS 10 \$123.10 Tri-axim
#05042 - 84/12 \$162.00 WE Pharmaceutical
#09494 - CS 10 \$120.00 Tri-axim
#06991 - CS 10 71.30 "
#09495 - CS 10 151.05 Cardinal
#08140 - CS 50 \$75.00 Cardinal
#06421 - CS 50 \$44.34 Hudson Otm
#0108 - 84-50 \$78.67 Tri-axim
#08208 - CS 50 \$49.50 "
#09752 - CS 12 \$31.40 "
#10259 - CS 12 \$31.40 "
#08207 - CS 50 \$54.50 Hudson Otm
#06275 - CS 50 \$24.77 Hudson Otm
#04660 - CS 18 \$275.40 Tri-axim
#09165 - CS 12 \$460.00 Cardinal
#07394 - ea. \$ 920
#03766 - CS 20 \$160.24 "
#09585 - CS 50 \$87.50 Cardinal
#10692 - CS 10 \$670.00 Bivider Express
#04327 - PK 12 \$125.40 "
#04858 - CS 20 \$199.00 Mangusbam
#11106 - CS 5 \$12.00 Maquet
01464 CS 50 \$146.07

76% Reduction in Staff Ordering/Inventory Time

Kanban Instructions

- 1) When supplies in a bin hit the reorder point, pull the Kanban card.

A.



Full Bin: Pull from the side that is not covered with foam board

B.



Reorder Point: When one side is empty and you reach the side covered with foam board lower the cover, remove the Kanban card and use the remaining supplies.

Kanban Instructions

- 2) Place removed Kanban card in the mailbox Kanban Card Mailbox. There is one on the wall in the Med room.
- 3) Cards will be collected from the mailboxes on ordering day.
- 4) The cards tell the person ordering exactly what to order.



Kanban Instructions

5) Once supplies are received, bins will be refilled to the correct level and the Velcro Kanban card will be reattached to the bin or foam board.



Ergonomic Evaluations

ETCH Workplace Ergonomics Self-Assessment



Location: Lab

Date: 5/23/13

Completed By: Isaac Mitchell, Lean Coordinator

Tom Jackson, Director of Employee Health and Wellness

Location: Hematology

COMPUTER WORKSTATIONS

	Yes	No
1 Is a seat provided?	X	*
2 Is the seat height adjustable within the recommendations?	X	*
3 Is lumbar back support provided?	X	*
4 Is a footrest provided?	X	*
5 Is there ample leg room?	X	*
6 Are all adjustability features easy to use?	X	*
7 Is there ample room to accommodate a keyboard and a computer mouse so the employee can rest their arms at their side and forearms parallel to the floor?	X	*
8 Is there ample room to place the monitor at arm length's distance?	X	*
9 Is the monitor at the recommended height?	X	*
10 If documents are frequently used, is there a document holder?	X	*

LABORATORY BENCHES

	Yes	No
1 If the worker stands, is anti-fatigue matting supplied?	X	*
2 Is the height of the bench appropriate for the work that is performed?	X	*
3 Is there adequate leg room?	X	*
4 Do contact stressors exist such as bench tops with sharp edges?	X	*

LABORATORY CHAIRS

	Yes	No
1 Can all laboratory chairs be adjusted to accommodate all the employees who need to use chairs?	X	*

MICROSCOPES

1 Do the shoulders appear rounded and/or is the worker hunched over?
2 Is there excessive neck flexion (>25 degrees)?
3 Are there contact stresses between sharp edges and the forearms?
4 Is the microscope pulled out to the edge of the workbench?
5 Are armrests or padding provided?
6 Is the sufficient leg room?
7 Does the worker rest their feet on the lab stool?
8 Is there a foot rest provided?
9 Has the individual been trained how to properly sit at a microscope workstation?
10 Are microscope work breaks provided?

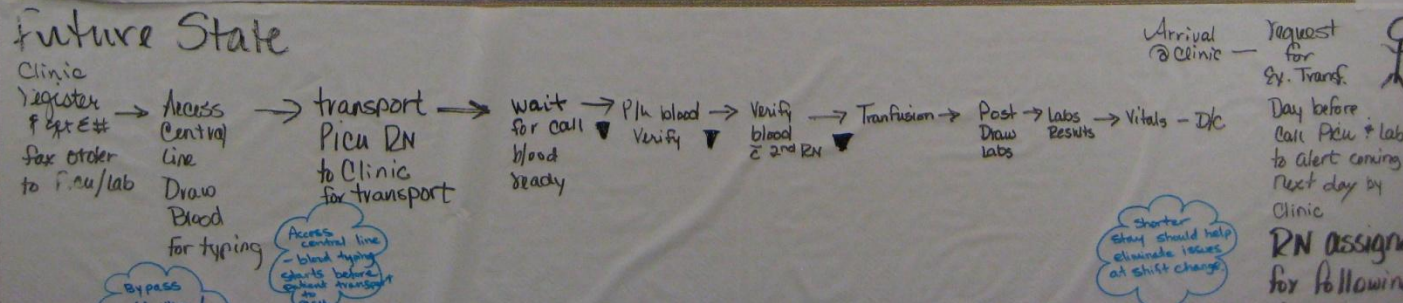
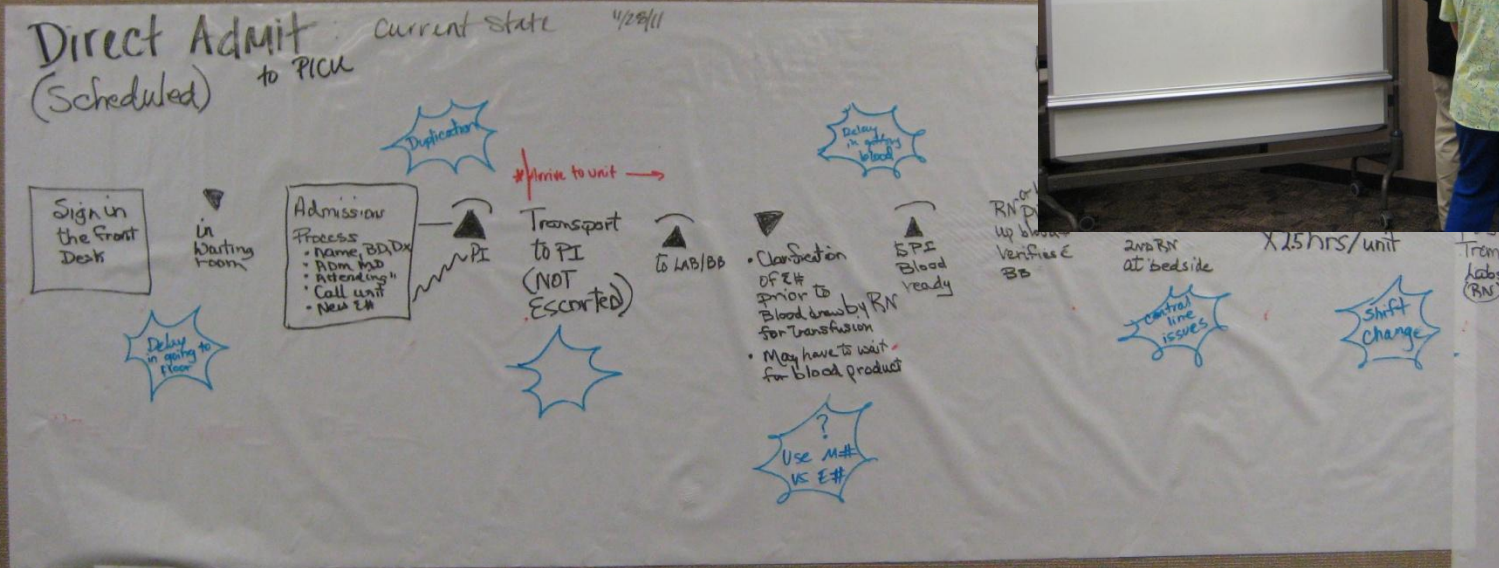
LOCATION NOTES AND RECOMMENDATIONS: *Follow up on all responses

None

- 1) Anti fatigue mat not supplied. However, workstation requires short durations of time standing.
- 2) Biohazard trash currently emptied when weight reaches 45lbs. Recommend reducing this weight to prevent possible injury.

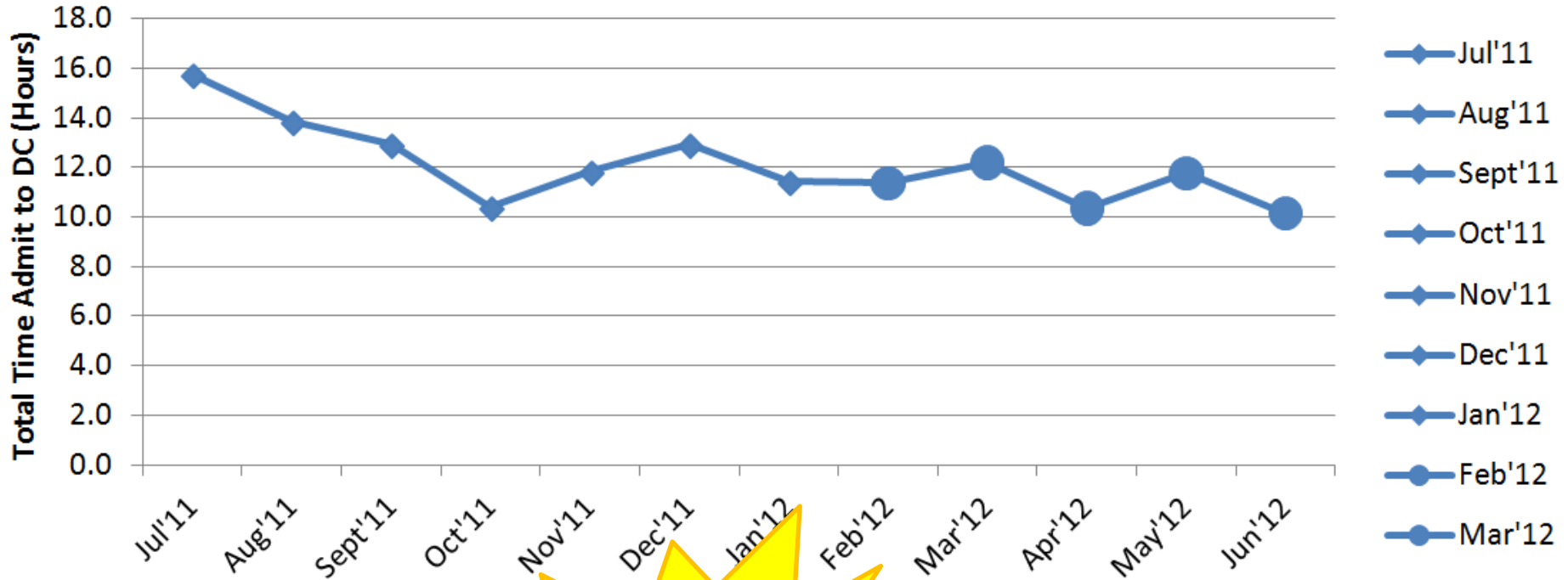


Value Stream Mapping



PICU Direct Admit Project

Planned PICU Admit

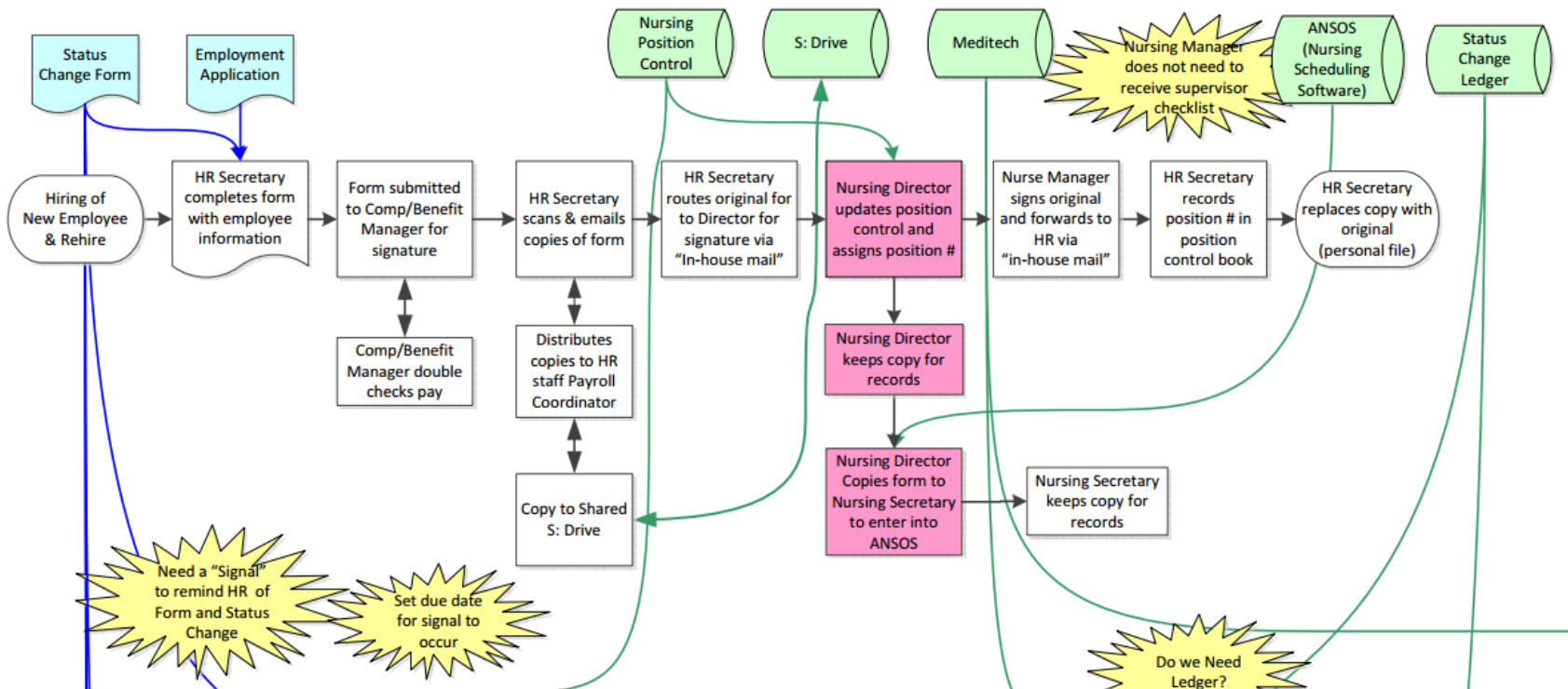


**6 Hour
Reduction
from CS to
FS**

Lead Time Reduction


- HR Status Change Form

HR Status Change Form Process Map



Lead Time Reduction

- Pre Data Current State Lead Time
 - 9 Days 11 House
- Post Improvement Lead Time
 - 3 Days 14 House
- 6 Day Reductions!
- Benefits Employees, Human Resources, and Finance.

HR Status Change Form Time Tracker Sheet 

Process: Hiring of New Employee & Rehire

Purpose: The Lean Department at East Tennessee Children's Hospital would like to measure the time from start to finish of the HR status change form process.

Instructions: Please fill out this form with the date and time that you **received** the HR status change form. If needed, please add any additional comments in the notes section. Write down the process line associated with the comment. Please contact Isaac Mitchell at extension 8304 for questions.

	Process Step	Name	Date	Time
1	HR Secretary completes form with employee information			
2	Form submitted to Comp/Benefit Manager for signature			
3	HR Secretary scans & emails copies of form and then routes original for to Director for signature via "In-house mail"			
4	Nursing Director updates position control and assigns position #			
5	Nurse Manager signs original and forwards to HR via "in-house mail"			
6	HR Secretary records position # in position control book and replaces copy with original			

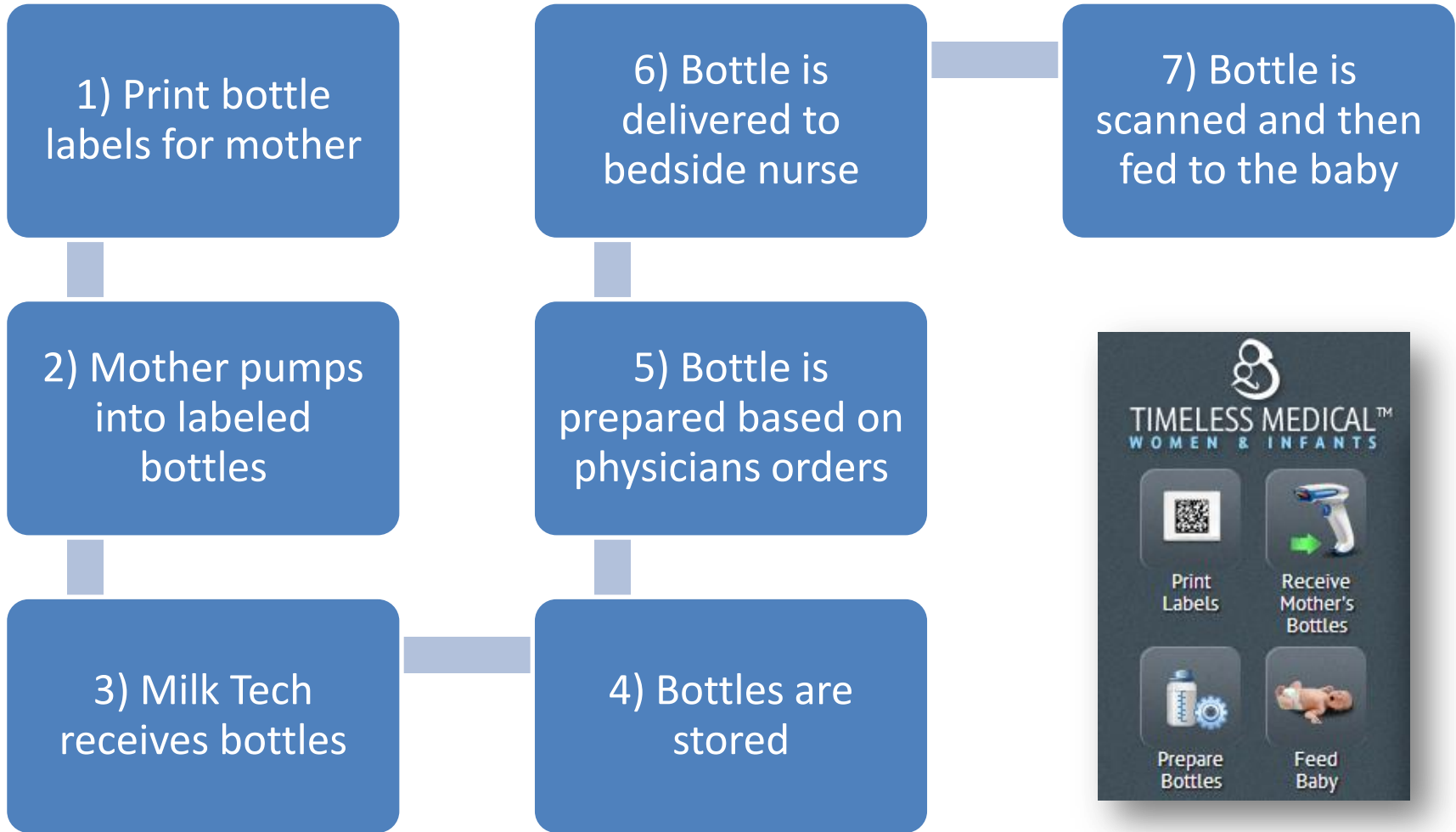
62% Lead Time Reduction

Error Proofing

- Timeless Medical breast milk tracking system uses unique barcode identifiers to ensure a correct match for every feeding and that the feeding unit has not expired.
- The system is able to track and trace expressed breast milk, donor human milk, and additives.



Feeding Process



Error Proof Feedings

- **Errors avoided** as a result of our Timeless software:
 - Wrong Mother's Milk: **101** occurrences
 - Expired Milk: **349** occurrences
 - Non Approved Donors Milk: **9** occurrences





EAST TENNESSEE

Children's
Hospital