



From Taxis to Bus Routes

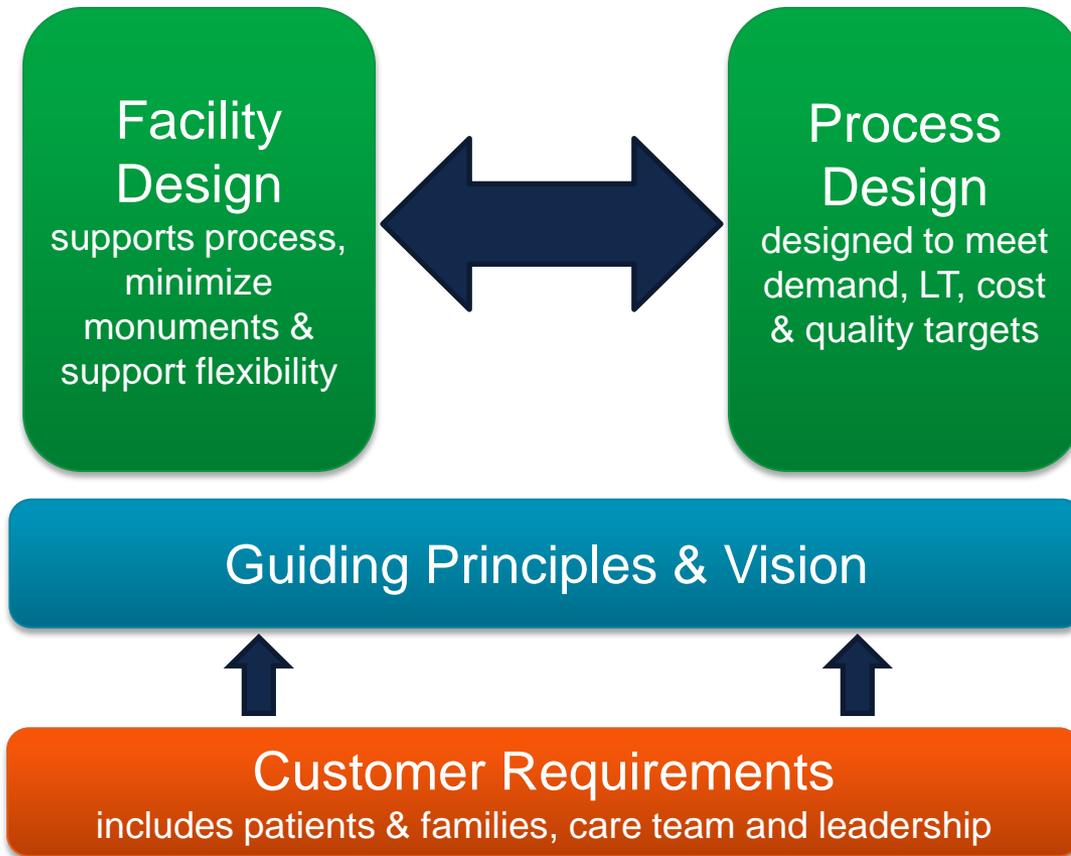
Creating an Integrated Delivery & Removal System

Greg Beach & Jennifer Christison
October 15, 2013

Background

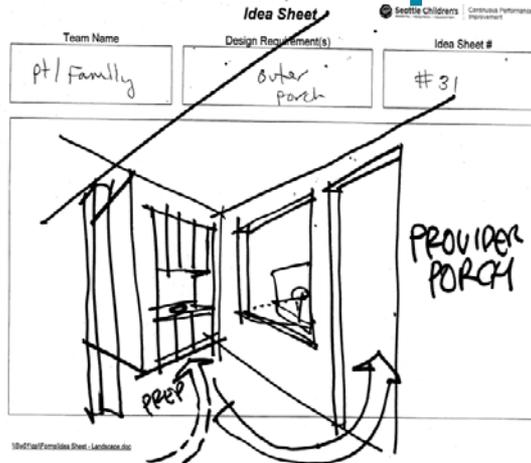
- Building Hope opened April 2013
- Added 330,000 square feet to the campus
- 8 new floors, plus basement
- 4 floors operational upon opening in April 2013
- 80 new beds available upon opening
 - Cancer Care: 48 (increased from 33)
 - Intensive Care Units: 56 (increased from 24)
 - Emergency Department rooms: 38 (increased from 25)

Integrated Facility Design



- ★ Collaborative approach between builders, architects, contractors and end users
- ★ Space design and improvement ideas are driven by data
- ★ Use of full-scale mock-ups to test process and ensure space supports staff
- ★ Front-line staff and families involved early on in the process

From Concept to Reality



Concept Idea Sheet
IDE 3, April 2010



Schematic Design Mock-up
IDE 3E, March 2010



Detailed Design Mock-up
DD #2, July 2010



Building Hope
October 2012

Safe Continuous Advancement of Care 24 x 7x 365

Point of Use/Just-in-Time Supplies, Meds & Equipment

Kits

Water Strider

Bedside carts

Standard care paths

Model of Care

Easy Access to
Information

Management System

Culture Change

What is the Work?

To design new, or refine existing, delivery and removal systems to support the current hospital campus as well as the Building Hope expansion

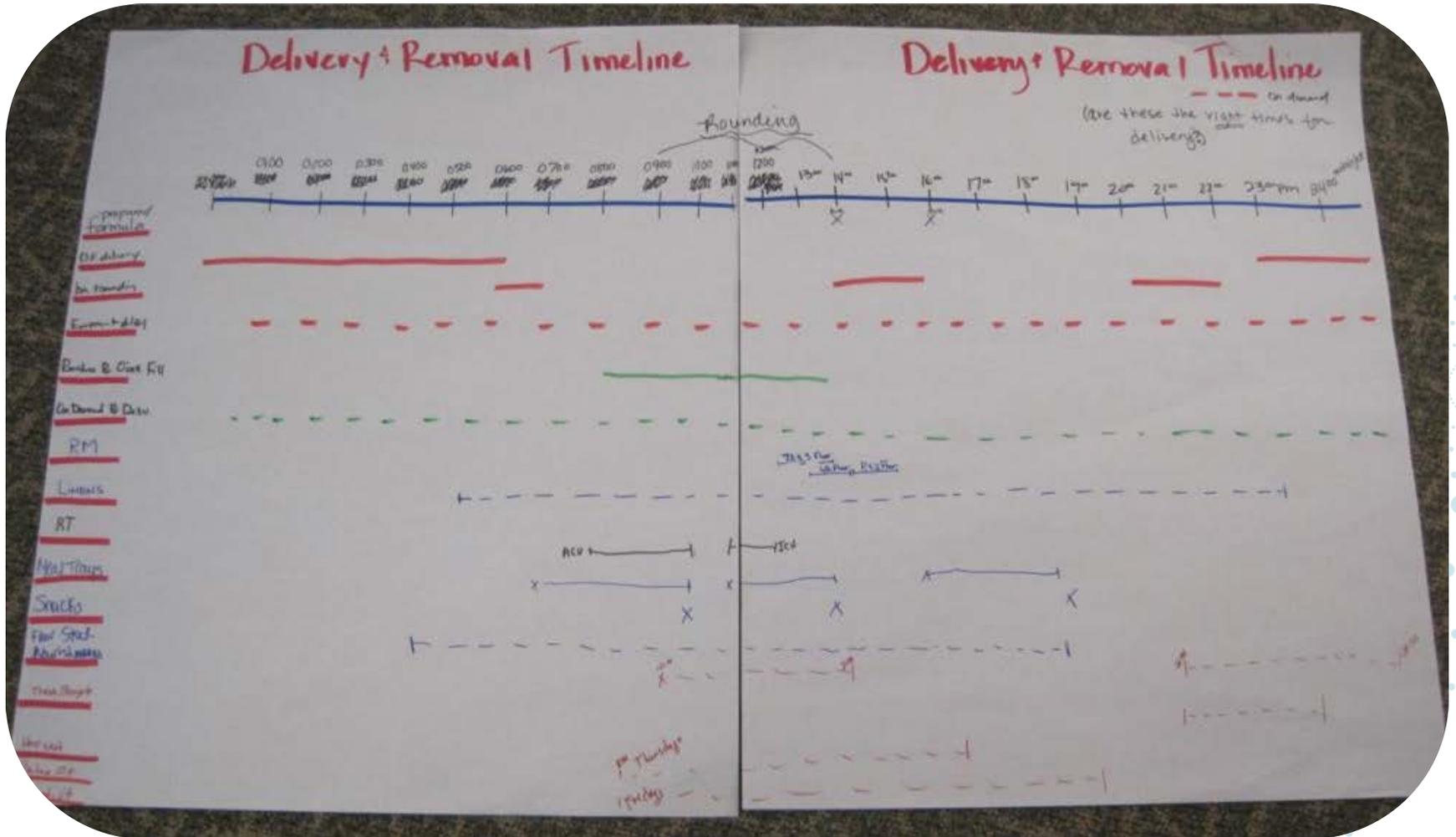


Current State Assessment

- Q: Who delivers, uses, or removes items throughout the hospital?
- A: Everyone
 - Central Services
 - Linen
 - Nutrition
 - Environmental Services
 - Respiratory Therapy
 - Pharmacy
 - Nurses



24 Hours of Trips



Clinical Equipment Flow



Simply Put

- Nurse calls 1 of 10+ departments
- To deliver an item retrieved from 20+ possible locations
- Usually dropped off at the RN cluster where it sits until the nurse hears about it, or finds it, and brings it to Point of Care.
- After use, the item either sits until an ES Sweep or the nurse takes the item to the Soiled Utility room.

The Bottom Line

- Variation and waste everywhere!
- Frustrated staff
- Current inefficiencies will be exacerbated

How do we partner together to provide the best experience for our patients and families?

An Aligned Vision

Our integrated delivery system predictability and reliability provides supplies and equipment in the right quantity, at the right time, minimizing waste and supporting the care at the bedside, thus enhancing patient, family and staff experience.

Goals

- Decrease travel distance for clinical staff by 50%
- Decrease search time of supplies by 50%
- Decrease unplanned requests by 50%
- Remain budget neutral



Our Approach

- Monthly multidisciplinary design events
- Collaboration with other initiatives
- Design...test...design...test
- Go Live



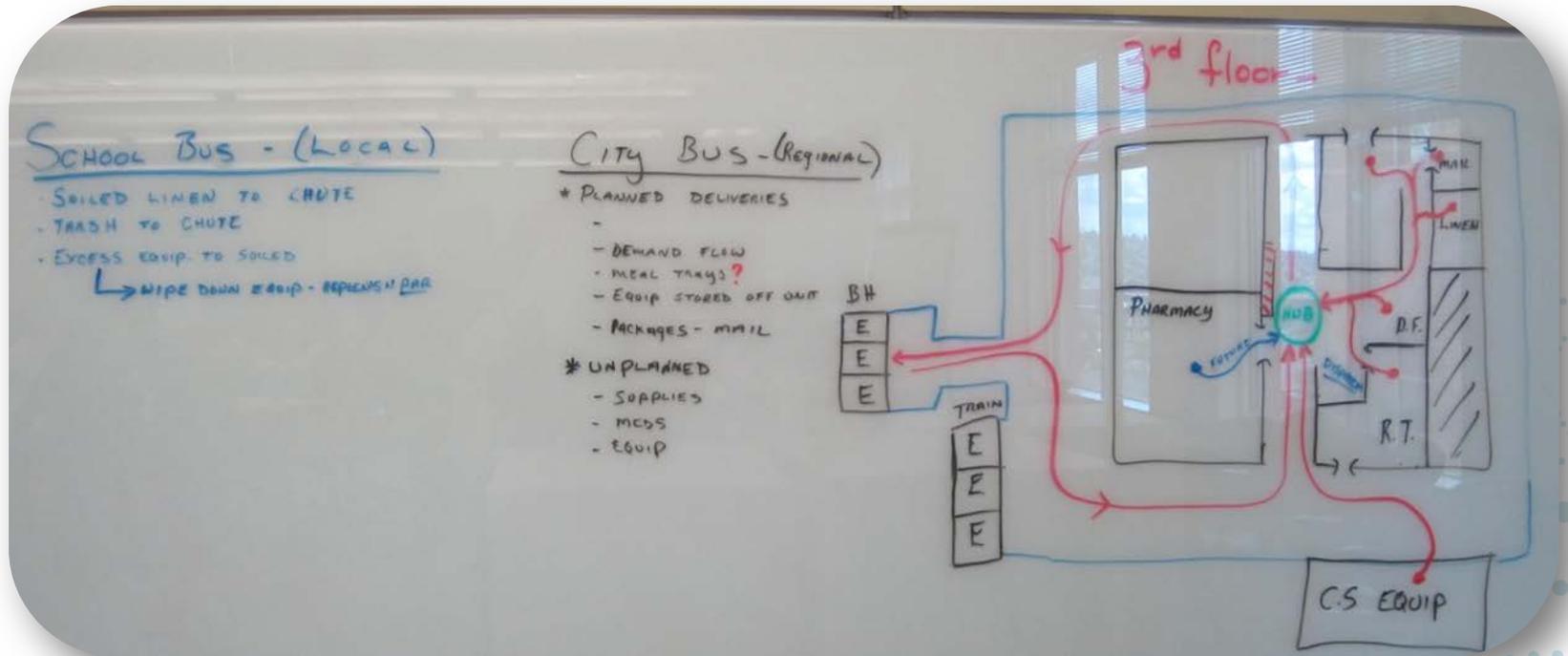
Design Assumptions



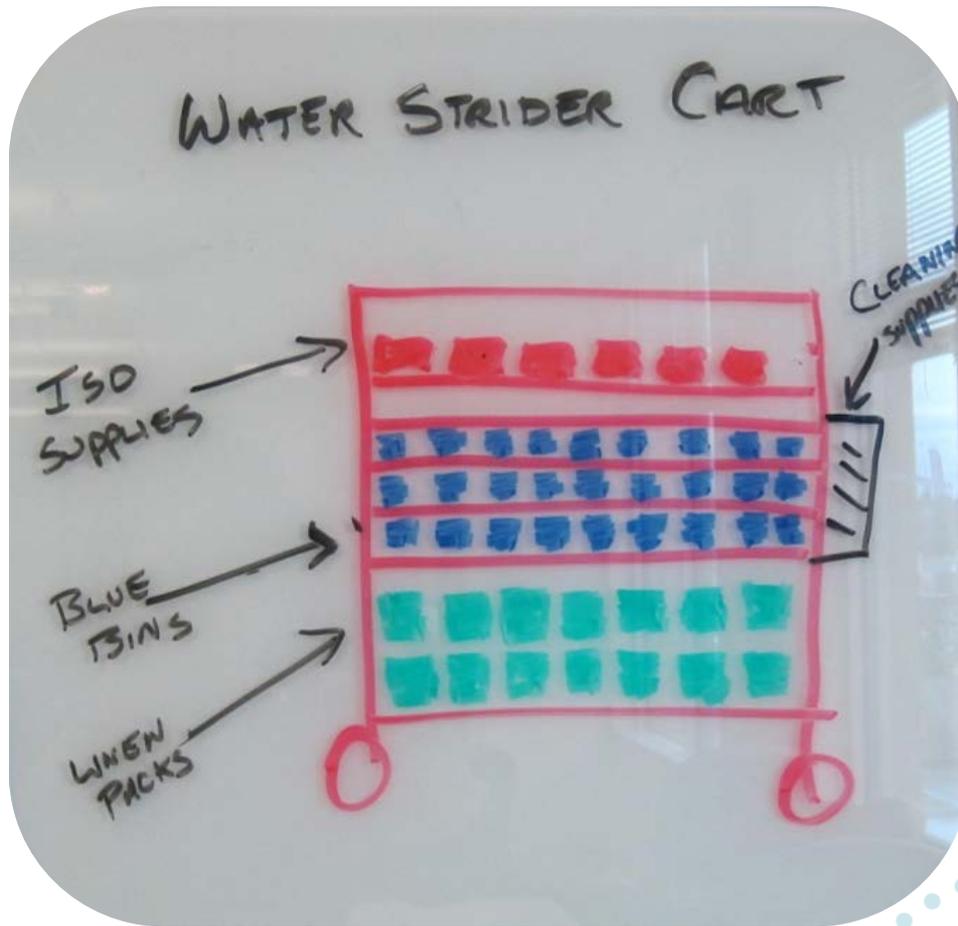
Identifying Roles and Routes



From Taxis to Buses



One Role, One Trip, One Cart



New Standard Work

STANDARD WORK FORM - FINAL DOCUMENTATION

DONE ✓

Item/Category: LINEN DELIVERY - INPATIENT / BEDDING - TOWELS - ISO GOWNS Team Lead: NICK ANDREI

Unit: INPATIENT : SCCA / ICU Date: 4.16.12

Step	Who	Operation	Location	Travel Distance
1	Linen BUS	DELIVER BED KITS TO PASS-THRU	TOP SHELF PASS-THRU	
2	Linen BUS	DELIVER ISO GOWNS TO ISO TOWER	ISO TOWER	
3	LINEN BUS	DELIVER STOCK TO BLANKET WARMER - PAR LEVEL	??	
4	LINEN BUS	DELIVER STOCK TO 2X2 FLUID STOCK CART	NOURISHMENT RM	
5	SUPPORT TECH	AT ADMISSION, PLACE BED KIT ON PATIENT BED	PT. ROOM	
6	SUPPORT TECH	AT ADMISSION, PLACE BED OR CRIB KIT ON PATIENT BED	PT. ROOM	
7	SUPPORT TECH	AT ADMISSION, CHECK IN ROOM SUBSTITUTED & LOOSE LINENS GET STOCK FROM 2X2 CART	PT. ROOM	
8	RN	NOTIFY WATER SUPPLIER IF IN ROOM STOCK NEEDS REFILL	COMM. DELICE	
9	WATER SUPPLIER	GET ADHOC LINEN FROM 2X2 CART, DELIVER TO PASS-THRU (ALSO GET FROM BLANKET WARMER) ALSO COVER & LINEN RM FOR ↑ NEEDS	PASS-THRU	
10	DIRTY BUS	ROUND ON UNIT + PICK-UP FROM SOILED PASS-THRU	(SOILED) PASS-THRU	
11	DIRTY BUS	ROUND ON UNIT + PICK-UP FROM SOILED UTILITY	SOILED UTILITY	
12	SUPPORT TECH	@ DIC, STRIP BEDS + TAKE ALL SOILED LINENS TO SU-RM	SOILED UTILITY	
SEE BACK FOR KITS / PAR-LEVELS				
Total				

Work Flow Diagram:

Assumptions

- BEDDING KITS**
 - CREATED BY VENDOR: CLEAR PLASTIC BAG
 - STORED IN PASS-THRU (HARBOR): SEE RACK FOR KIT CONTENTS
 - 2-TYPES: CRIB KIT, PATIENT/PARENT KIT
 - REPLENISHED BY LINEN BUS
- LINEN BUS**
 - DELIVERS: KITS, EXTRA LINENS, ISO GOWNS TO ALL DESIGNATED LOCATIONS (SEE BACK)
 - 4 Pillows in each room
 - GOWNS - IN DEMAND FLOW

Concerns

- RELIABLE VISUAL CUE FOR REPLENISHMENT OF BEDDING KITS**
- PLASTIC PACKAGE: WASTE, PUNCTURE?**
- 2X2 CART IN ICU !!**
- IF GOWNS IN DEMAND FLOW, STORE GOWNS IN 2X2 CART IN NOURISHMENT ROOM

ADMIT NOTIFICATION ALERT TO ST WHEN ROOM REQUIRED FOR ADMIT

Cans and Strings

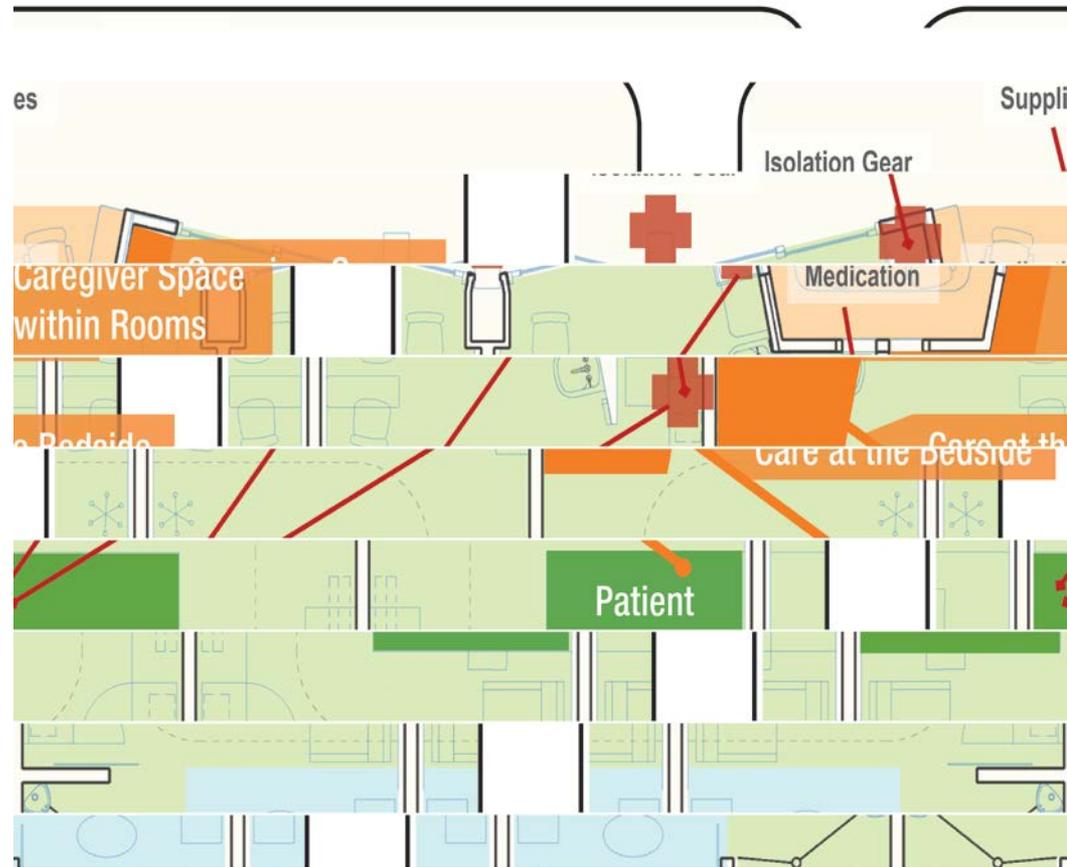


Our Design

- “Planning for the Unplanned”
 - Par Levels (supplies, equipment and linen)
 - Point of Use Cart (aka In-room Supply Cart)
 - Linen kits
- Waterstrider Role
- Local Distribution Center
- Integration
- Daily Management



In-Room Supply Cart Mock Up



Equipment Par Levels

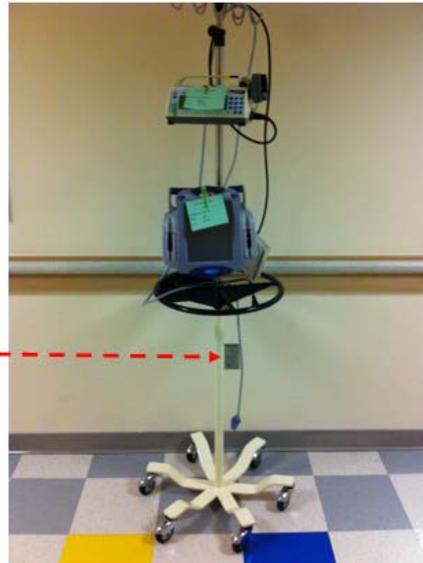
Delivery Systems: Equipment Pilot

June 6-15, 2012

Clean Utility Par

I

- Par = 2 poles with this set up (1 Hospira IV pump and 1 3500 syringe pump / pole)
- Rounding every 4 hours
0300, 0700, 1100,
1500, 1900, 2300
- Ensure equipment is plugged in
- Call CS for additional needs at ext. 72036



Waterstrider Role

Purpose:
improve flow of
supplies to the
bedside

Desired Outcomes:
Reliable visual method
for restocking room
supplies that is not
dependant on the
bedside nurse

Supply Team Members:

- Elise
- Courtney
- Devin
- Sonja
- Kendra
- Jarod

Roles and Responsibilities:

Water strider

1. Round unit for empty room supply bins (every 6 hours)
2. Clean bins
3. Restock bins using product from water strider cart
4. Return full bin to exchange point
5. Provide feedback
6. ***Iso discharge only*** Toss product in the first bin
7. ***Iso discharge only*** Clean empty bins; restock product

RN

1. Use bedside cart for commonly used supplies
2. Remove empty bins and place in exchange point
3. Pull full bins from exchange point
4. Stock full bins in the bedside cart
5. Emergent stocking
6. Maintain first in, first out
7. Provide feedback

Observer

1. Observe the restock process
2. Monitor water strider/RN interactions
3. Monitor what RN needs outside the room
4. Collect RN/water strider feedback

Pilot Plan

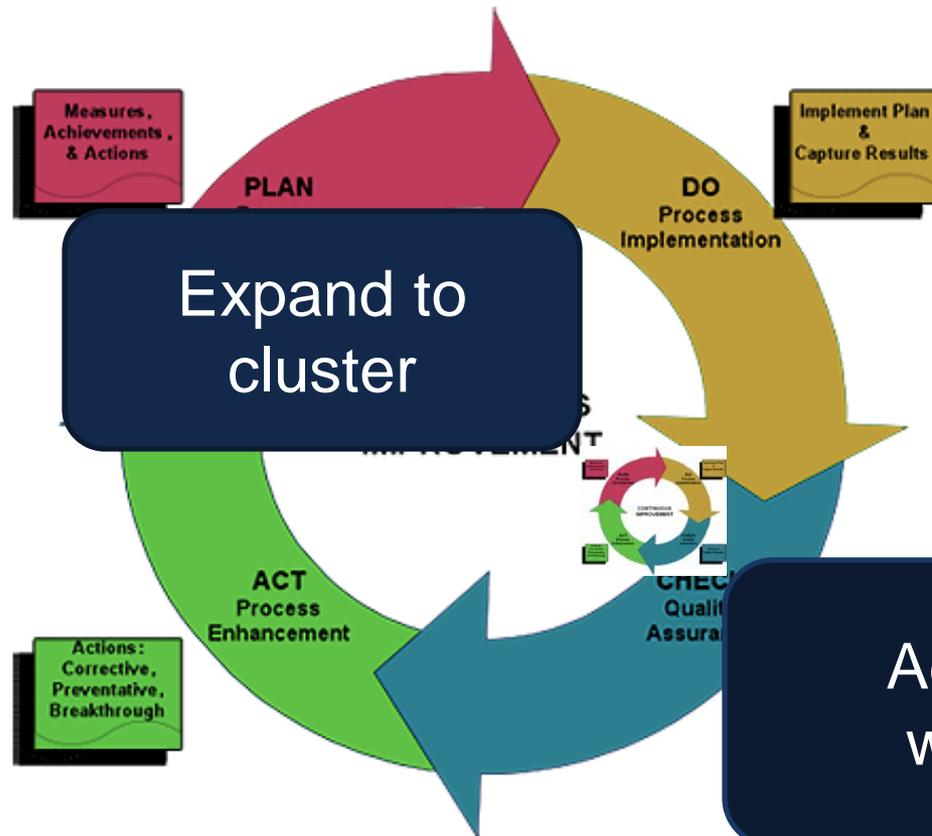
- Keep commonly used supplies in the bedside carts
- Restock the empty bins twice per shift
- Track supply usage and restocking frequency
- PDCA as needed |

No More Horizontal Trips!



Phased Testing

Par levels for
a single pod



Phased Testing

EQUIPMENT PILOT

June 6-15, 2012

Questions? Email
Michael.urbaitis@seattlechildrens.org
Or call ext. 72945

Purpose:

Improve the availability of IV/syringe pumps at the point of care

- Validate the par replenishment process
- Decrease lead-time and transportation
- Keep clinicians at the bedside

Key Concepts to be Introduced and Tested

- Establish/maintain an in-room par level (1 LVP, 1 Syringe pump, pole)
- Establish/maintain a unit par level in the clean utility room
- Scheduled rounding to maintain pars in clean utility

SUPPLY PILOT

June 11-15, 2012

Questions? Email
Jarod.otto@seattlechildrens.org
Or call ext. 76546

Purpose:

Develop a reliable method to manage in-room supplies

- Keep clinical staff by the bedside
- Restocking with minimal disruption
- No wasted supplies

Key Concepts to be Introduced and Tested:

- May – ED supply “kitting”/ Resuc room design
- June – SCCA pilot & integrated design phase
- July – ICU pilot; demand flow at the bedside

LINEN PILOT

June 13-15, 2012

Questions? Email
Nicolae.andrei@seattlechildrens.org
Or call ext. 75740

Purpose:

Develop a reliable method to manage linen

- Linen delivered to the pass-thru
- Linen kits for patient and family
- Linen kits to drive clinical practice and remove waste

Key Concepts to be Introduced and Tested:

- 'Kitting' for bed changes and bath kit
- Visual system for replenishment at the room level
- Water Strider

Shared Accountability

SELF-STICK EASEL PAD

ICU Delivery Systems Pilot 7/16-19

Pump Pars

	Rounding Time	05	08	12	16	20	24
P	Monday						
A	Tuesday						
R	Wednesday						
S	Thursday						
E							
E							

Red = 5+ pumps missing
Orange = 1-2 pumps missing
Green = 0 pumps missing

Water Strider Rounding - Were we on time?

Bedside Cart Restock

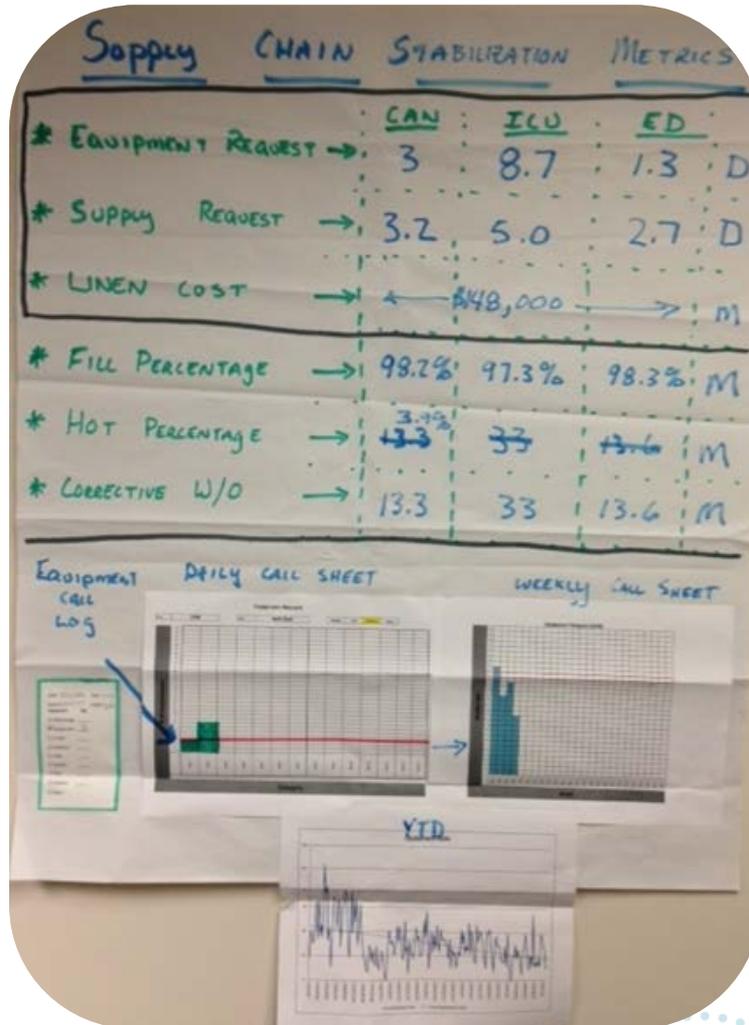
	Rounding Time	06	12	16	20	24
Date	Monday					
	Tuesday					
	Wednesday					
	Thursday					

Red: 30+ minutes late
Orange: 5-30 minutes late
Green: 0-5 minutes late

Daily Management...



...makes trends visible



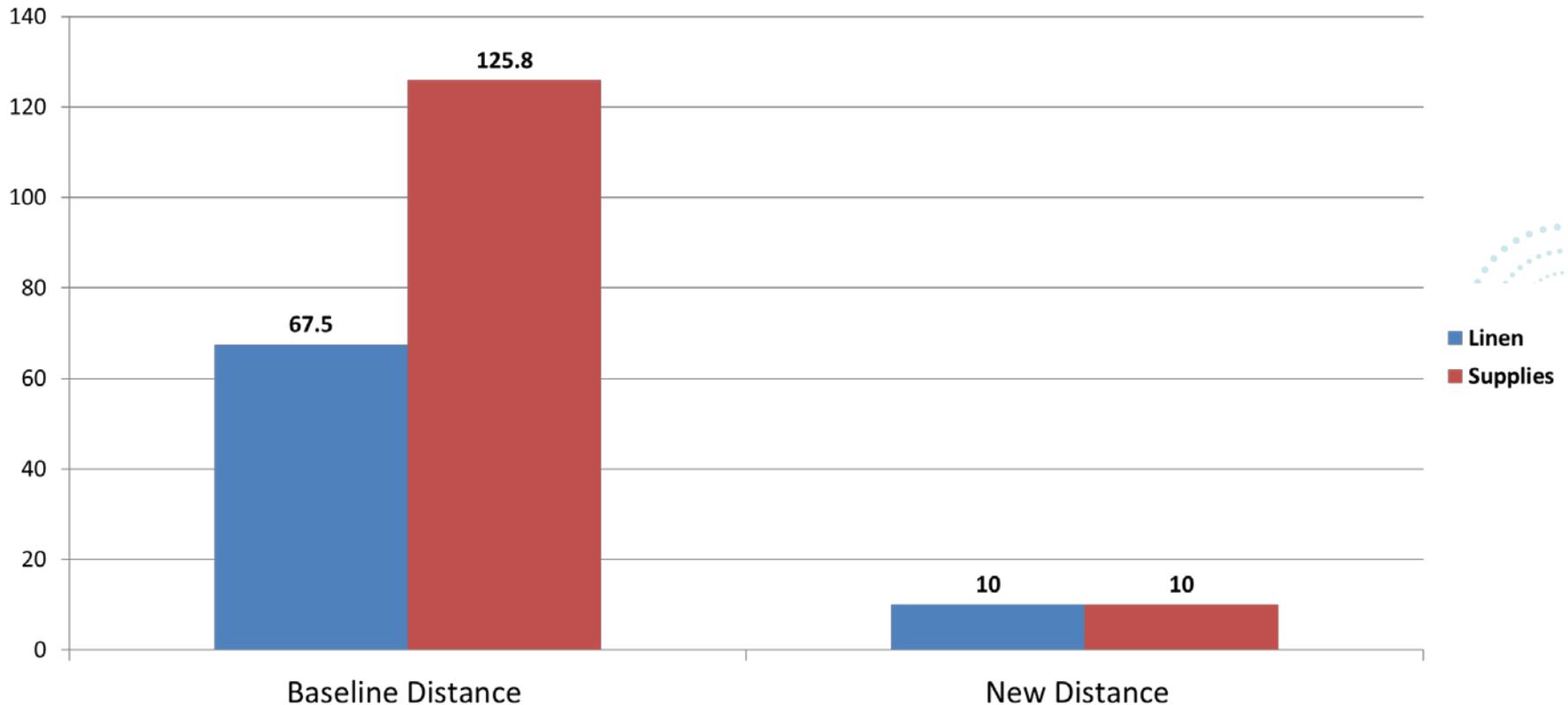
Our Results

- Decreased travel distance for clinical staff by over 50%
- Decreased search time of supplies by over 50%
- Decrease unplanned requests over by 50%
- Remained budget neutral

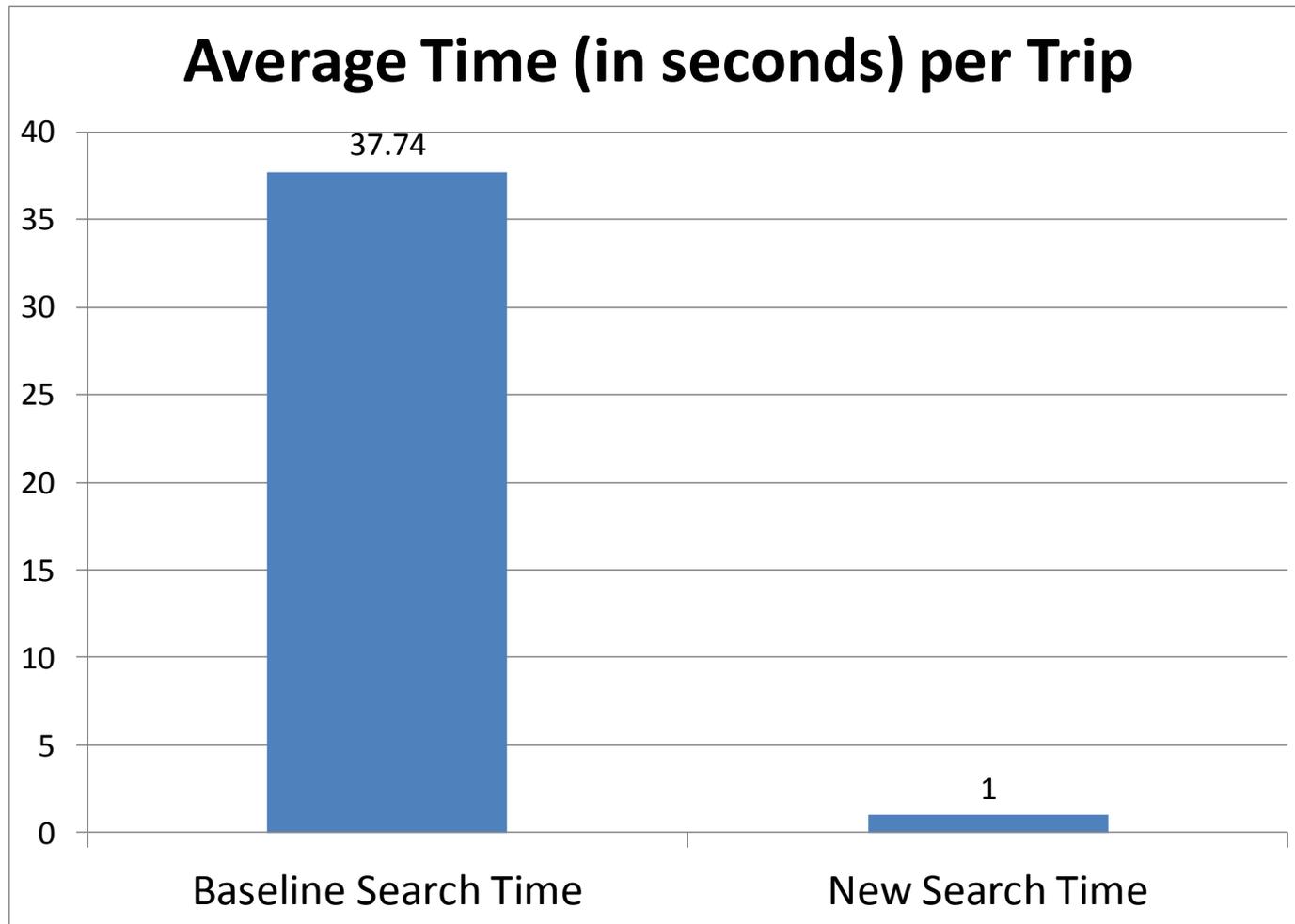


Decrease Nurse Travel by 50%

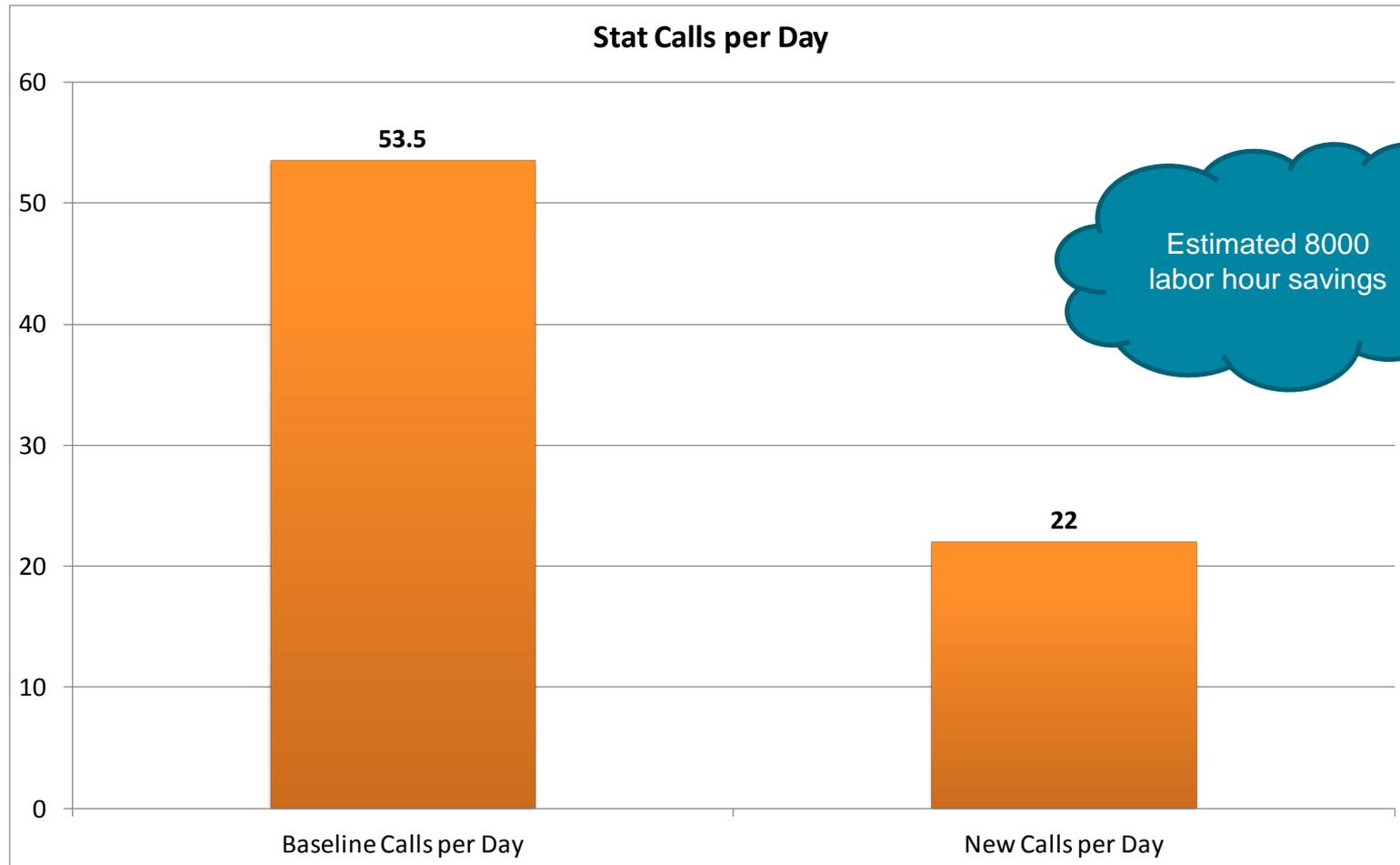
Average Travel Distance (in feet) per Trip



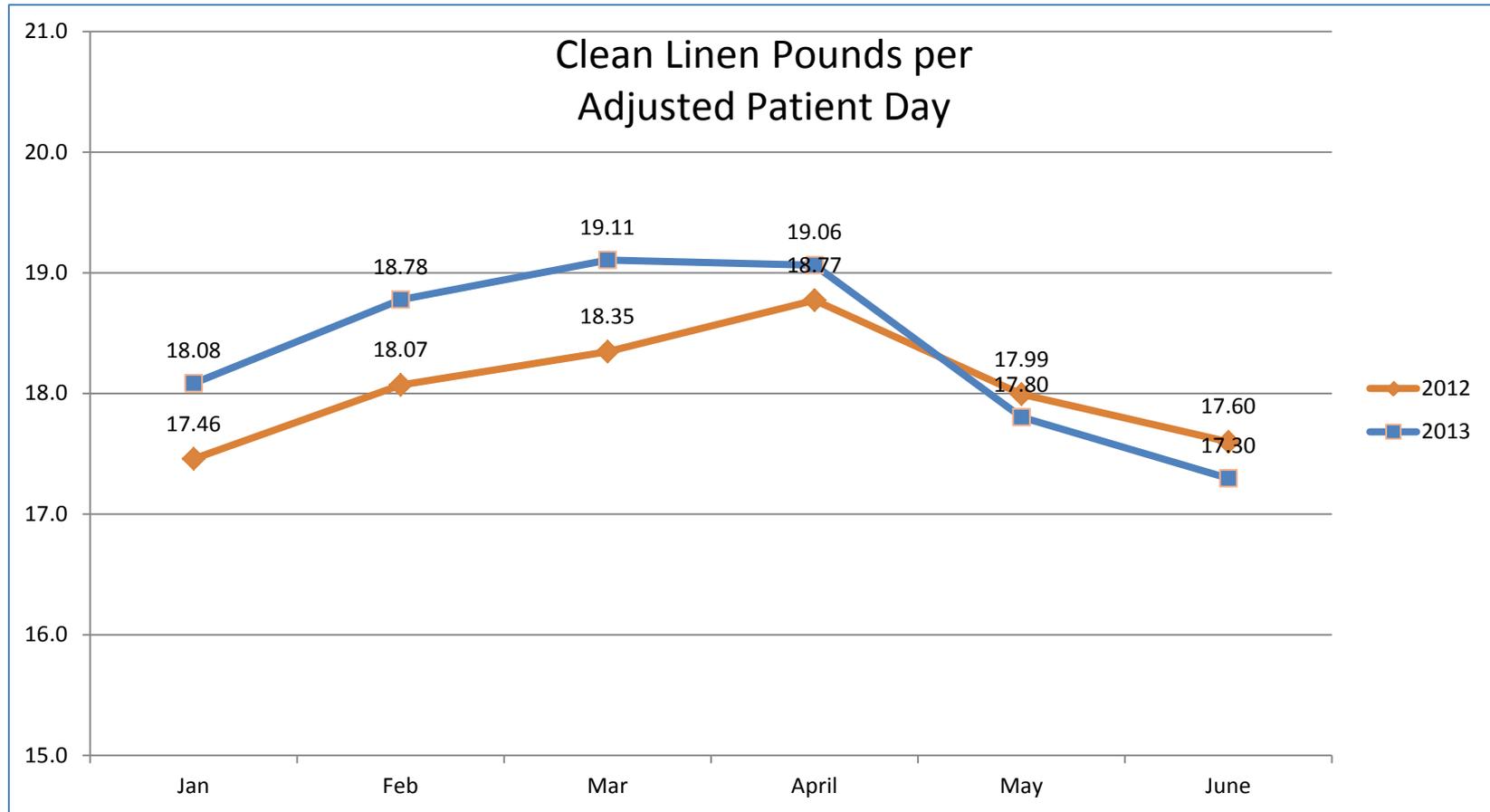
Decrease Searching by 50%



Unplanned Equipment Requests



Linen Costs



Cost Neutral

- FTE “followed the work” which drove FTE efficiencies.

		Shared Services					
Delivery Systems FTE Transfers							
Project Category	Process	ES	ESS	RCA	DIET	MH	
Equipment/Supply Management	SCCA mgt of unit based equipment/supply restock						
Equipment Management	Pickup truck sweeps for unused equip					●	
Removal Process	Meal Tray removal by city bus				●		
Supplies	Snack Re-stock to Demand Flow				● →	●	
Supplies	Integrated route for mail and packages					●	
Supplies	Taxi system					●	
Supplies	ED Supply Restocking, from MH to ED WS					(0.25)	
Supplies	RT Supplies to Demand Flow			(0.25)	→	0.25	
Supplies	ES Supplies to Demand Flow	(0.40)	(0.40)	→	→	0.80	
UC Role Design	Capacity in current role						
UC Role Design	No longer distributes meds from tubes or deliveries						
Key:		FTE	(0.40)	(0.40)	(0.25)	-	0.80
# Green number: Credited FTE		COST	\$ (17,090)	\$ (29,726)	\$ (14,123)	\$ -	\$ 41,442
(# Red Number: Debited FTE							
● Green Circle: Efficiency / Capacity Created							
● Black Dot: Shift of Work/Improved Skill Mix							

Developing People

- Incorporating practices we developed and tried in this journey
 - “Kata” during pilots
 - Team leaders becoming new front line CPI champions
 - Team leaders reaching out to integrate during PDCA process without being instructed
- Can-do attitude and ownership

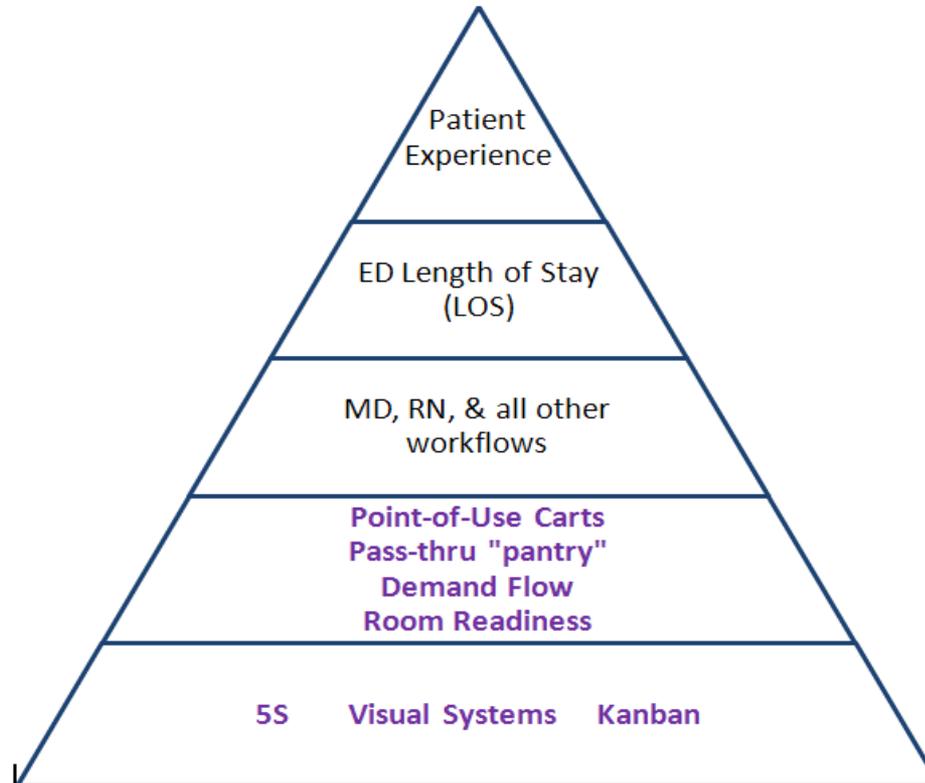
Key Enablers

- *Continuous* Improvement
- Project Management
- Change Management



Change Management: Found in Translation

Delivery Systems “Hierarchy of Needs”



Water Strider Work

Change Management: Making it Concrete

Practice	Current Process	Start	Stop	Continue
Supplies	<ul style="list-style-type: none"> Supplies are managed via Demand Flow nodes Nurses retrieve supplies as needed Commonly used supplies are stored in point of use carts Staff call Central Services for Supplies 	<ul style="list-style-type: none"> Commonly used supplies will be in room supply carts (inpatient) and pass-through (ED) CNA / tech will replenish supplies via planned route In-room cart supplies are replenished Just-in-Time 	<ul style="list-style-type: none"> Nurse making frequent trips to Demand Flow nodes for commonly used supplies 	<ul style="list-style-type: none"> Supplies are managed via Demand Flow nodes Nurses / CNA / tech retrieve supplies as needed Staff call Inventory & Distribution for Supplies
Linen	<ul style="list-style-type: none"> Nurses pull linen as needed from linen closet Families pull linen as needed from linen closet Linen department replenishes linen closet per schedule and by request 	<ul style="list-style-type: none"> Linen will be delivered to, and stored in, the pass-through and managed via par levels and kits by CNA / Tech Additional linen can be stored in the pt room as determined by the nurse Nurse will call CNA / Tech for additional or emergent linen requests Families will ask nurse for additional linen needs Linen department will replenish linen cart located on unit per schedule 	<ul style="list-style-type: none"> Nurses making frequent trips to the linen cart Families making frequent trips to the linen cart 	
Equipment	<ul style="list-style-type: none"> Most equipment needs are requested on an "as needed" basis 	<ul style="list-style-type: none"> Equipment will be managed via unit-based par levels, established via usage needs 	<ul style="list-style-type: none"> Nurses searching for equipment and making frequent phone calls to Central Services 	<ul style="list-style-type: none"> Managing some unit-owned equipment Nurses will still request

Supply Chain Journey

- Embraced Continuous Performance Improvement
- Demand Flow – Supply Replenishment
 - Decreased unplanned supply requests 165/day to 49/day
 - Reduced Stock outs from 1800/month to 20/month
 - Improved fill rate from 82% to 98.5%
 - No expired products!!
- Standard Work
- Daily Management

Challenges

- Getting comfortable with little tests
- Just-in-time requires trust
- Don't let perfect be the enemy of the good





Thanks!