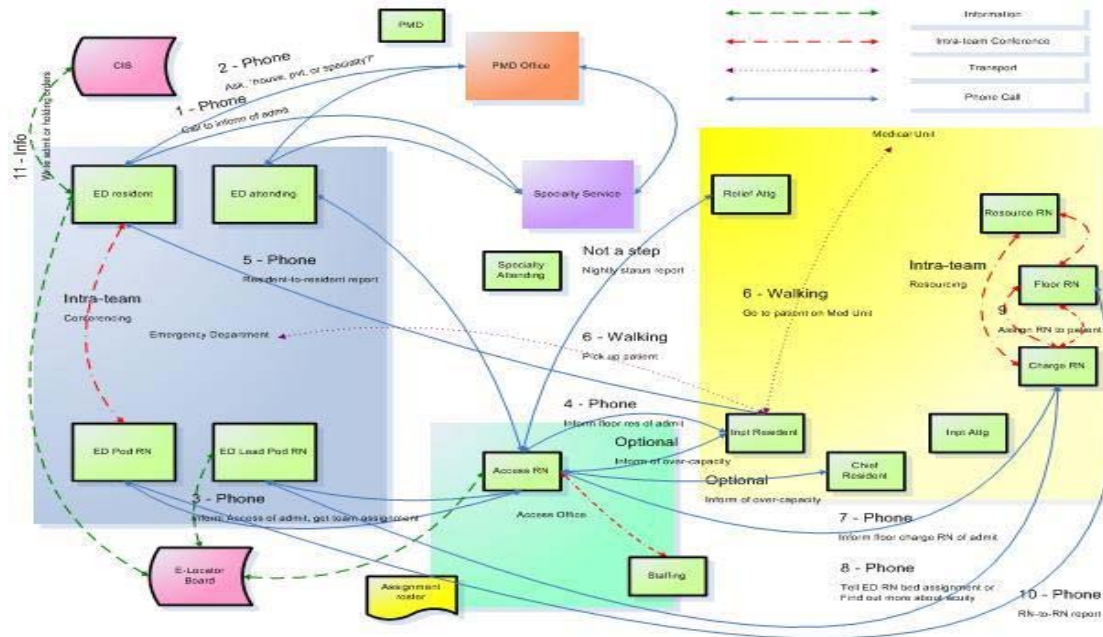


# Process First, Technology Second



A recovering CIO's perspective on Lean

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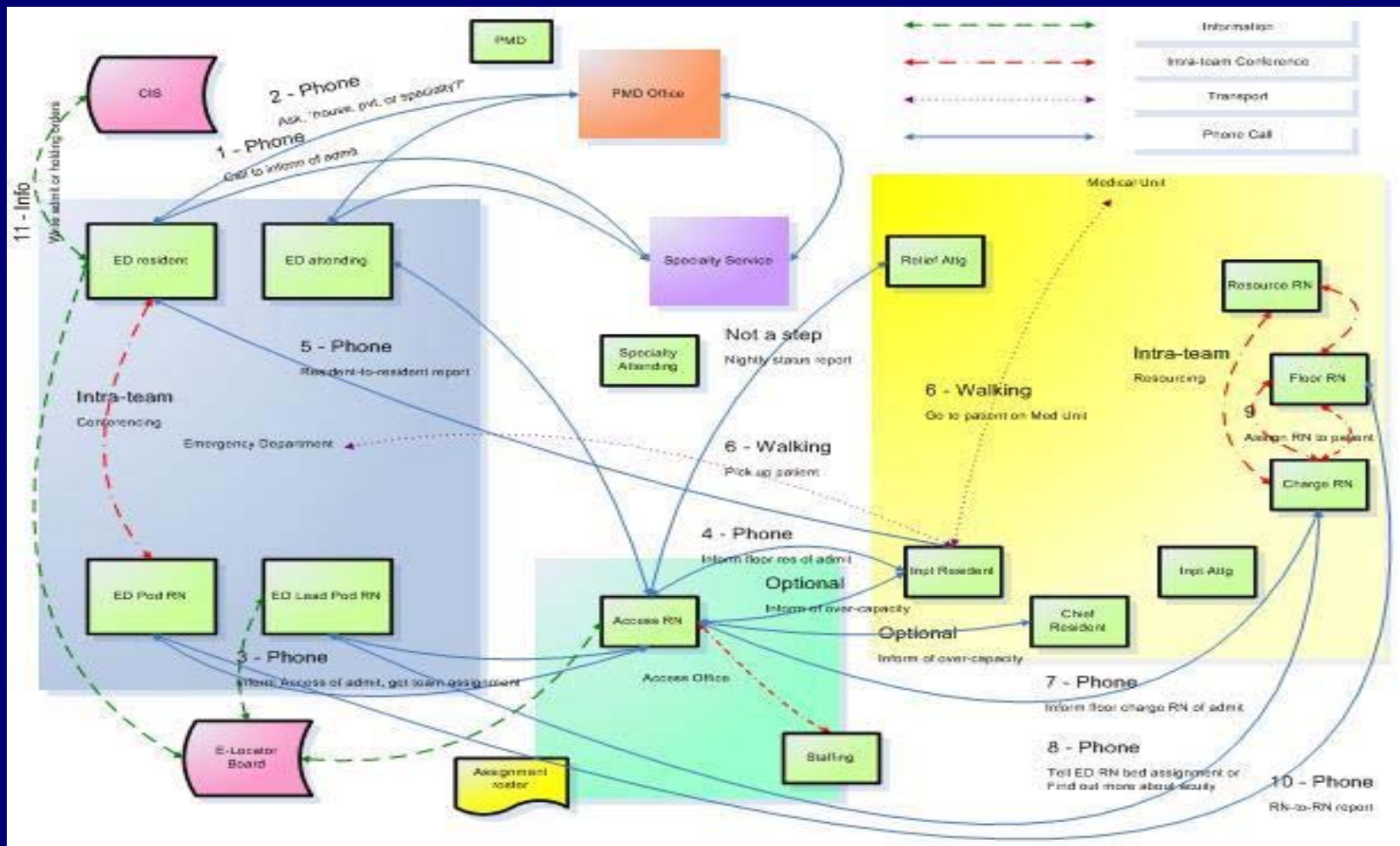
January 29, 2009  
Anaheim, CA

# A Case For Change

- > Safety Concerns
  - Communication
  - Medication Errors
- > Service Deficiencies
  - Communication
  - Access
  - Survey Results
- > Competition
  - Access & Service Trump Clinical Quality

# "Dizzying Complexity"

## Communication to Admit One ED Patient



# A Benchmark: Toyota

- > High quality and reliability (best in industry)
- > Safety record that far exceeds others in industry
- > Cost effective for customers
- > Short response time to customers
- > High levels of employee engagement and morale
- > An organization wide philosophy and management system

## What We Learned From Toyota: Lean Matters

*Lean is a philosophy that shortens the time between the customer order and delivery by eliminating waste.*

- > A system
  - Not a set of isolated practices
- > A process, a journey
  - Not an end state
- > A thought revolution

# The Thought Revolution Starts With Senior Leadership

## Traditional Thinking

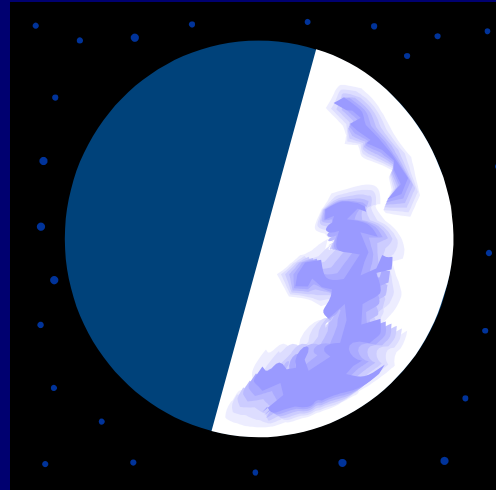
- > Attack direct labor
- > Quality, cost and cycle time (speed) are addressed individually and often seen as conflicting
- > Optimize subsystems
- > Use information technology as "the answer"

## Lean Enterprise Thinking

- > Attack waste, complexity and variation
- > Quality, cost and cycle time (speed) are addressed concurrently and are seen as highly related
- > Optimize the whole system (including suppliers and customers)
- > Use information technology as an enabler of lean processing

# Our Ultimate Challenge: Cut Waste in Half

- > Half the errors
- > Half the cost
- > Half the space
- > Half the labor
- > Half the time
- > Half the steps



# Children's Adaptation of Toyota Production System

## *Continuous Performance Improvement*

*A Strategy*

*A Management system*

*A Philosophy*

*With a Set of Tools...*

*That Changes How We Look at Our Work*

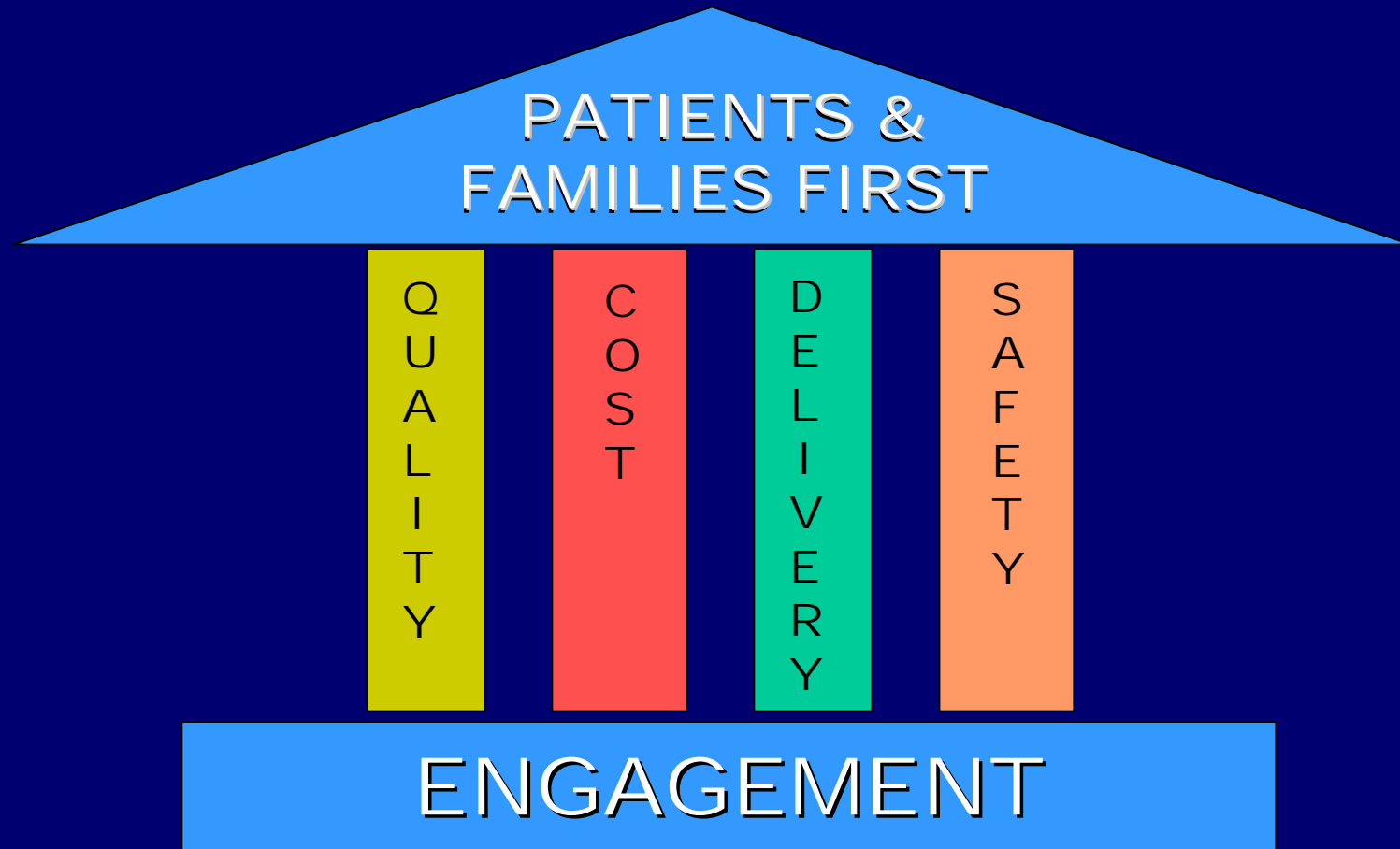
# CPI Philosophy

- > Focus must be on the patient and family
- > Staff and faculty engagement is critical
- > Facts and data drive decisions
- > Technology is an enabler, not "the answer"
- > This is a long term, "generational" effort

# Customer Focus

- > Patient Safety
- > Family Satisfaction
- > Staff and Physicians are our partners, not our customers

# CPI – Children’s Management System for Achieving their Vision



# How

> Tools

> Data

> Engagement

> Leadership

# How---Our CPI Tools

## CPI Tools

- > Leadership Training
- > Value Stream Assessment
- > 5 Day Rapid Design Workshops
- > 5 Day Rapid Process Improvement Workshops
- > 1-2 Day Focused Events
- > 5S - Sort, Simplify, Streamline, Standardize, Sustain
- > Root Cause Analysis
- > Failure Mode Effect Analysis

## IT Support

- > CIO part of Leadership Training and Participate as Sponsor
- > IT Representative on every Workshop Oversight Group
- > Leverage IT's broad understanding of the Organization
- > Help guide workshop members toward Process First, Technology Second
- > Leverage IT sitting in front of you

# How---Data

## Data

- > 3 Actuals
  - Actual Place
  - Actual People
  - Actual Problem
- > Scientific Method
- > Plan, Do, Check, Act

## IT Support

- > Assessment, Baseline data
- > Charter Review
- > Staff "someone" from IS

# How---Engagement

## Engagement

- > Engagement with our people is key
  - Directly related to results
  - Annual surveys, and response
- > Multi-disciplinary workshops and events
- > Remove barriers and burdens for staff
- > No layoffs from Continuous Performance Improvement

## IT Engagement

- > CPI is THE priority
- > Conduct IT oriented Workshops
  - 5Sing Desktop Services, Storage Rooms, Help Desk
  - Pick area for Improvement and push for workshops

# How---Leadership

- > Presence
- > Knowledge
- > Participation
- > Tenacity
- > Patience

# Value Stream Focused Strategy

## Lean as a Tool

### Point Improvement

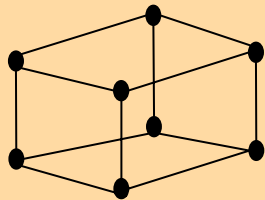
- Clinic
- OR
- Pharmacy
- In-Patient
- Central Processing

## Lean as a Strategy

### Line Improvements

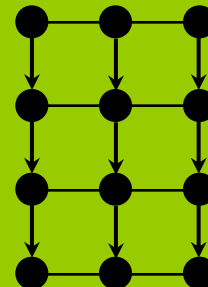
Medical Patient Flow

### Lean Enterprise



Extend Beyond  
the Hospital

### Plane Improvement



Replicate in ED,  
Lab, ICU

# Point Improvements

- > 1<sup>st</sup> Wave of "Point Improvements" – Non-Clinical
  - Loading Dock
  - Central Processing (Supplies)

# Loading Dock: Before & After



# Receiving: Before & After



# Point Improvements

- > Our 2<sup>nd</sup> Wave of "Point Improvements" – Clinical, without physician leadership
  - Medication Turnaround Times
  - Laboratory 5S

# Inpatient Pharmacy Medication Turnaround Time

	Baseline	Current
New Med Orders available for administration in less than 90 minutes	65%	>95% held for 8 quarters
Cart Fill Accuracy	93.7%	99.9%
IV wastage		\$350,000 per year saved

# Point Improvements

## > Inpatient Medicine

- 67% reduction in waste (from 178 steps to 59 per day)
- Reduction in handoffs from 17 to 10
- 50% increase in number of patients discharged by noon
- 61% increase in families rating care as excellent (from 44% to 71% "5s", 1-5 scale)
- 68% reduction in room turn times (time from family departure to bed ready for next patient), from 109 min median to 35 min

# Point Improvements

## > Operating Rooms

- 89% reduction in repeated documentation
- 67% reduction in number of forms
- 31% improvement in #1 family issue “waited too long on day of surgery”
- 36% reduction in non-operative time for selected surgery types (currently being replicated to entire OR)

# Point Improvements

## > Laboratory Services

- 20% increase in workload with no FTE increase
- Eliminated “stat” tests (routines are now as rapid as stats were before)
- Reduction in number of phlebotomy trays from 20 to 6
- Reduction in supplies using pull system

# Point Improvements

## > Ambulatory Services

- Patient referral to scheduled patient appointment reduced from 1-2 weeks to 24 hours
- 45% reduction in clinic registration time
- 23% reduction in new appointment wait time

# Point Improvements Emergency Services

Nov '04 Testing cellular layout



Dec '04 Go live

## Results

9% decrease in discharge LOS  
5% decrease in admit LOS  
43% improvement in time from  
arrival to bed



*57% decrease in LWBS*

*23% reduction in families who said they waited 1 hour or more to see a doctor*

# Point Improvements

- > Information Services
  - Account Provisioning
  - Supplemental Charts

# Point Improvement – IS Account Provisioning

PROCESS NAME: Account Provisioning  
 SPONSOR: CIO

PROCESS OWNER: [Security Lead]  
 CPI TEAM: 2 Members from CPI Team

## Boundaries

*Starting Point:* Offer accepted by employee  
*Ending Point:* Access is closed out upon departure  
*Sub-processes included:* Employee changes jobs, Initial 'turn on' of access, closing out access.  
*Out of Scope:* Department-specific systems (i.e. those that are not hospital wide, e.g. lab, radiology, pharmacy); 'notification only' portion of Access Request form; leaves of absence; elevated facilities access by key or code; Met Park access  
*Assumption:* Pilot areas during workshop week will be the UCs and the Surgical Inpatient floor nursing

## Current Situation

- > During a 3-week audit 1 out of 3 individuals did not have complete access to do their job
- > There is frequent rework around account provisioning and creating ID accounts
- > For exiting employees, the paperwork came reach HR several weeks after the employee's last day

## Current Situation (includes baseline data)

The hiring manager (or non-employee sponsor) is responsible for requesting all access needed for an incoming individual and does so by filling out an online access request form. In a 3-week audit, one out of three individuals did not have complete access at the end of Day One. Omnicell (Pharmacy) and Lawson (ERP) accounts are usually created after IS. There is frequent rework around account provisioning. For exiting, managers fill out a term form which goes to HR via interoffice mail. The HR term report triggers access deactivation for most systems. In a recent audit, the exiting paperwork can reach HR several weeks after the employee's last day.

**Resource Representatives**  
 MarComm: Staff and Web Manager

**Stakeholders**  
 Hiring authorities

## Targets

- > Complete 100% of employee logical and facilities access prior to Day One
- > Increase quality of account provisioning to a minimum of level 3

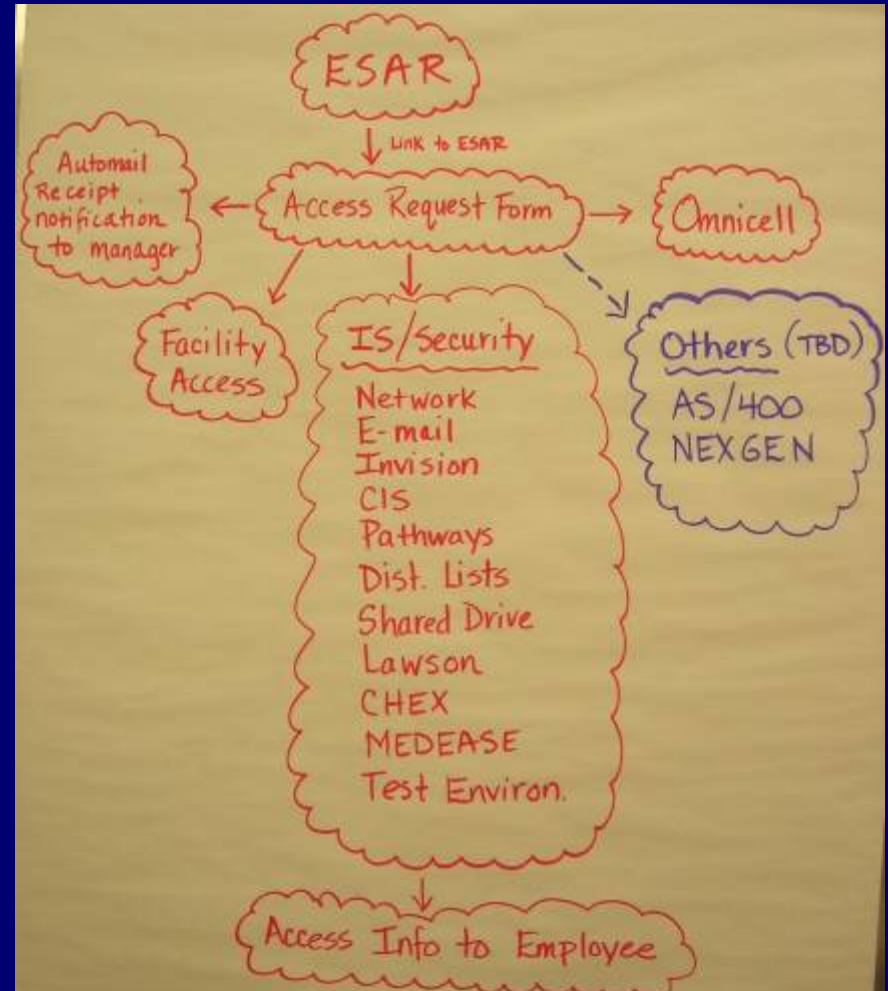
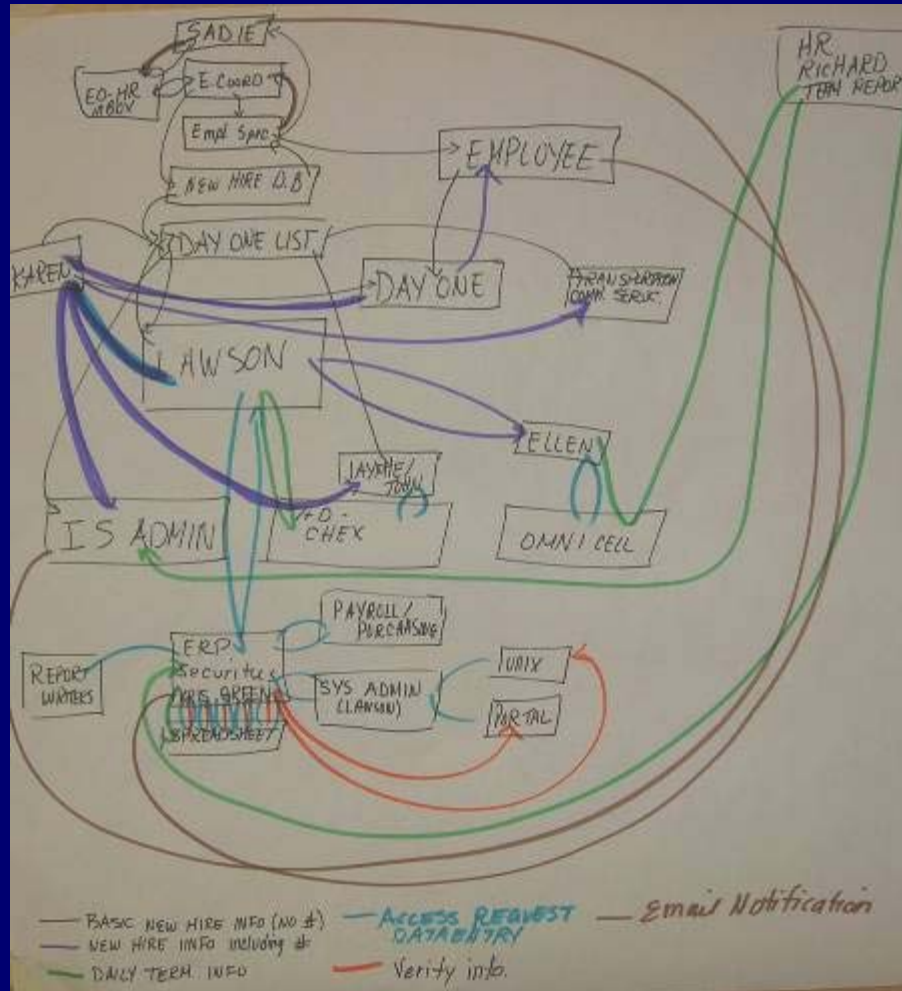
## RPI Targets

- 1) Complete 100% of employee logical and facilities access prior to Day One.
- 2) Increase quality of account provisioning to a minimum of level 3.

## RPI Theme

Quality, waste reduction, safety



# Spaghetti Diagram: Before and After



# IT Account Provisioning Vision

With accurate & timely access requests, we will consistently provide new & transferring employees needed access prior to start date. All exiting employees will have access removed within 24 hours of separation.

# Action/Countermeasure

Problem or Issue	Action/Countermeasure	Results Achieved
<p>New/Hires waiting... for access from multiple sources. Terms/hrs. retained access</p>	<p>Cleaned up Access form Simplified steps for managers &amp; staff Centralized Access Process Timely termination of access - steps created.</p>	<p>Consistent, streamlined, and timely access by start date. Terms/hrs. access changed within 24 hrs.</p>
<p style="text-align: center;">Before</p>  <p>The 'Before' diagram illustrates a chaotic and confusing process. A laptop screen shows a padlock with a question mark, indicating a dead end. A yellow diamond sign with 'DEAD END' is next to it. A giraffe with a padlock on its back is labeled 'CHRM'. Two stick figures at the bottom look confused, with question marks above them.</p>	<p style="text-align: center;">After</p>  <p>The 'After' diagram shows a streamlined process. A rainbow arches over a 'SAR-Fill' form and a 'CHILD' form. Two happy stick figures are at the bottom. A green sign says 'Welcome to Children's Say you stay'.</p>	

# Process Data: After

PROCESS MEASURES	WORKSHOP DAY 1
# OF STEPS*	77
# OF VALUE ADDED STEPS*	6
% of VALUE ADDED STEPS*	7%
LEAD TIME*	
% OF VALUE ADDED TIME*	
# OF HANDOFFS*	21
# OF CHECKING STEPS*	15
# OF WORK IN PROGRESS* (WIP)	
SPACED USED	
STAFF TRAVEL DISTANCE	
PAPER/MATERIALS/EQUIPMENT TRAVEL DISTANCE	
SET UP TIME	
THEME MEASURES	WORKSHOP DAY 1
QUALITY	
COST	
DELIVERY	
SAFETY	
ENGAGEMENT	

# Major Learning's in Account Provisioning RPIW

- > How unnecessarily complex the on-boarding process was.
- > Didn't realize that submitting the Network Access Forms did not automatically trigger access to be granted.
- > How random and decentralized the process was.
- > Surprised about support for centralization and our swift progress (inside and outside of IS)
- > Impressed with team dynamics; how the team could affect the organization by improving the process.
- > IS RPIW increased IS buy-in in CPI Methodology (now preaching benefits)

# Tiger Team

Allocation of creative “dumpster divers” who support CPI workshops and design events

- > Desktop and Network Services
  - More PCs, Printers, Phones/ACDs, numbers, faxes, etc. and/or need them moved
  - Other: Add/remove icons, create shortcuts, shared folders/SharePoint
- > ERP Applications Support
  - HR, Supply Chain, Purchasing/Payables
- > eForms
  - Common workshop solution for improving communication and handoffs
  - Must be completed DURING the workshop
- > Clinical Systems
  - Order Sets, Documentation, Rules

**CPI is the priority and “resistance is futile”**

# IT Considerations

## > Workshop Scope

- Incremental Improvements
- Have IT eyes and ears involved early and during workshop; steer toward existing solutions (if necessary)
- Don't violate policy (security, privacy, etc.)
- Avoid saying "no"

## > Replication

- Create standard, sustainable process
- Replicate across the organization
- Example: Shadow Charts

## > IT Forcing Functions

- Rules & Error proofing

**Process First,  
Technology Second**

# Barriers to CPI

"Not sure we should be using this *business* concept..."

"Standardization isn't possible or desirable in an academic medical setting"

"Patients aren't cars."

"Expectations too high too soon."

"I want to feel comfortable." vs. "If we are comfortable we aren't moving fast enough."

"We are moving from a 'no change culture' to a 'constant change' culture"

-----"Stop the world..... I want to get off"-----

# Accelerators

- > Common Goal: Commitment to families and patient safety
- > Physician champions
- > Board support
- > Partnership with lean manufacturing site
- > Realization that this is a long term journey
- > Willingness to change how we spend our time as managers
- > Creating a "lean brain trust" with significant investment in education
- > Tiger Team
- > CPI is the priority
- > Going to Gemba

# Sample Information Services Workshops

- > Supplemental/Shadow Charts
- > Service Desk (beyond the Help Desk)
- > HW/SW Request Process
- > Traditional vs Lean Systems Implementation
  - Integrating CPI Methodology into the traditional applications implementation process
- > Sustaining 5S in Information Services

# Process First, Technology Second

What questions  
do you have?

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