Using Human Centered Design to Achieve Operational Impact

POMS College of Healthcare Operations Management

May 6th, 2010
Who is Kaiser Permanente (KP)?

- Founded in 1945.
- Nonprofit system headquartered in Oakland, California.
- 156,000 members.
- 34 hospitals.
- 416 medical offices.
- 13,729 physicians.
- 22,000 medical staff.
- 8,700,000 members.
FAST COMPANY
2010 MOST INNOVATIVE COMPANIES
Innovation and Design Thinking at KP

- spaces
- tools/tech
- Design Thinking
- processes
- people/networks
Innovation Consultancy – Who are we?

Innovation and Design Thinking on the Frontlines of Healthcare

We leverage design-thinking to develop human-centered solutions to impact patient care and the work experience of our care providers.

How you might know our work...

Medication Administration: Interruptions dropped by 50%, Process reliability increased, Medication errors reduced; spread across KP and abroad

Nurse Shift Changes: Nurses got to see patients at the start of their shift 3x faster under NKE pilot.
Minimizing Distractions and Enriching Patient Interactions

Key Measurements: Increase time at bedside by 15% and have measurable clinical patient outcomes
We have a nationwide need to address the fragmentation of bedside nursing care.
Participating Health Systems

- Ascension Health
- Inova Health System
- Kaiser Permanente
- New York-Presbyterian The University Hospitals of Columbia and Cornell
- Mercy
- Sisters of Mercy Health System
- Aurora Health Care
- Carolinas HealthCare System
- Christiana Care Health System
- Moses Cone Health System
- Duke University Health System
- Henry Ford Health System
- Trinity Health
- North Shore-LIJ Health System
- Saint Barnabas Health Care System
- Intermountain Healthcare
- Vanderbilt Medical Center
- Innovation Consultancy
Data Collection Results

767 licensed nurses (RNs, LPNs/LVNs) participated

In total, study data has been collected on 2,201 work shifts resulting in 21,882 hours of data.
7.2% of nursing practice time is spent on **patient assessment**

17.2% of nursing practice time is spent on **medication administration**

35.3% of all reported nurse time is spent on **documentation**

Nurses spend 30.8% of their time in **the patient rooms** and 38.6% of their time at the **nurse station**

During a typical **10-hour day**, a nurse travels **1-5 miles**
Other Results

- No consistent, statistically significant relationship was found between various unit architecture types and nursing time spent with patients.

- Distances traveled and time spent on activities varied considerably between shifts.

- Variability between individual nurses on the same unit was often greater than the variance across different hospital units.
Our Methodology

observations -> synthesis -> brainstorming -> prototyping -> feedback -> refine

Engagement and Understanding
1. Nurse Time By Location (Sacramento)

<table>
<thead>
<tr>
<th>Time By Location</th>
<th>Reference Study</th>
<th>Sacramento Baseline</th>
<th>Sacramento 1st Intervention</th>
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<tbody>
<tr>
<td>Nurse Station</td>
<td>214</td>
<td>132</td>
<td>171</td>
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<tr>
<td>Off Unit</td>
<td>38</td>
<td>69</td>
<td>47</td>
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<tr>
<td>On Unit</td>
<td>132</td>
<td>81</td>
<td>72</td>
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<tr>
<td>Patient Room</td>
<td>171</td>
<td>274</td>
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Minutes in a 10 Hour Shift

46%
Time and Motion Baseline

1. Nurse Time By Location (Santa Clara)

<table>
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<tr>
<th>Time By Location</th>
<th>Reference Study</th>
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<th>Santa Clara 1st Intervention</th>
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<td>On Unit</td>
<td>132</td>
<td>132</td>
<td>171</td>
<td>80</td>
</tr>
<tr>
<td>Patient Room</td>
<td>171</td>
<td>251</td>
<td>277</td>
<td>343</td>
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Monday, April 5, 2010
Observations
Our Journey to Understanding

- Time and Motion study conducted with nurses across the country

- Over 300 hours in observations:
  - nurses
  - patients
  - ancillary staff
  - physicians
  - support staff

- Over 20 hours formally interviewing RNs, UA, CNA, Unit Manager, ANM, Charge Nurse, Hospitalist, Bedhub, Pharmacy Tech, Engineering, Biomed, EVS, PCC, RSTC, Improvement Advisors
Hiding equipment

An example of problem solving happened when a patient needed to be weighed; The nurse had to go to the end of the other unit to find a scale. She wheeled it back and it took both nurses to weigh the patient.

The scale was then “hidden” in a closet for use later to save time.

The scales were needed in the first place because the bed was broken. Engineering was called and they didn’t know how to fix the bed and “would be back later.”
The power of conversation

**RN to patient:** "I have your pain medicine, you said it was 10 out of 10, right?"

**Patient:** "It was, now it’s kind of gone down a little."

**RN:** Ok.

Later…

**Patient to wife on phone:**

"...I have to go to the bathroom every 4 hours, and it hurts."

"...It’s a sharp pain."

"...I’m not feeling the ache anymore, but I wonder if the [kidney] stone is sitting in one spot, and is that what it causing the pain?"

"..but my breathing is better, much better."
Hectic Starts

“The worst possible shift you can come into is with patients in pain.”
What is the root cause?

- The majority of nurse’s attention is on the **System**
- System attention smothers attention to **Caring**
- Keeps RNs away from the bedside
Our Methodology—a reminder

observations
storytelling → synthesis → brainstorming → prototyping → feedback → refine

Engagement and Understanding
field testing
refining
brainstorming
synthesis
observations &
storytelling

Laying the
foundation
Imagining the
possibilities
Building the
future
prototyping

Storytelling and Brainstorm - Video
Prototype
Prototype and enact – video snipit
Prototype and Field Test

Modular Care board version

Bedside version
Primary Content Areas

Pain – Assessment, measurement and understanding

Shift Change – Strong finish and strong start to a shift
PainScape – A tool for conversation and understanding

Interactions

Managing your pain is our top priority

Distractions

What has been your experience with pain? And why?

- Scared
- Tough
- Experienced
- Worried
- Sensitive
- Expressive

Additional methods to deal with pain

- Apply warm or cool washcloth
- Reposition your body
- Breathe deeply
- Listen to music
- Clutch pillows
- Apply ice packs
- Walk
Nurse Knowledge Exchange Plus - A strong finish and start

CUSTOM FITS: These components have built-in flexibility so they can be tailored to your unit.

Interactions

- Last Hourly Round
- Pre-shift Staffing

Distractions

- In-Room SBAR
- In-Room Safety Check
- Careboard with Shift Goals & Teachback

Unit Support
Minimizing Interrupts: The Final Hourly Round

What is it?

A specialized final hourly round designed to ensure that patients are well situated before shift change.

- 4Ps (Pain, Potty, Positioning, Personal items
- Double check IV fluids
- Hot Towels & Water (PCT'/CNA)

What's so great about it?

- Minimize avoidable interrupts during shift change.
- Reduced spill-over of patient needs to on-coming nurse.

“Patients really like the hot towels. They’re in a hospital, after all. Often times, they’re feeling gross and grimy. This is a nice way to help them freshen up.” - CNA
Unit Support

What is it?

Coordinated support from support staff (UA, Charge RN, Mgrs) to minimize RN disruptions.

• answer call lights, clarify patient needs, direct to other support staff when possible

• respond to call light requests as appropriate

• assist in managing incoming admits during shift change and activities related to admits (i.e., taking report from off-unit RNs)

What's so great about it?

Prevents RNs from being taken out of the room during shift change.

Allows them to focus on exchanging information and set expectations with their patients.
Unit Specific Safety Check

What is it?

A unit-decided transitional safety check during shift change to ensure key safety issues are addressed by 2 nurses with regular frequency.

Examples:
• Signage check and reminder
• Groin site 2x check

What’s so great about it?

Unit decides on safety issues they want and are able to address in the room with their patients – using shift change as a regular time.
Metrics

What are our metrics showing?
Time and Motion

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- Minutes in a 10 Hour Shift

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Shift Change

NKEPlus: Patient Engagement

- SAC 4W
- SAC CAM
- SCL 220
- SCL 235
Pain reassessment rate

Oral Pain Med Reassessment Rates - Weekly (SAC 4W) P CHART

p chart
Baseline: UCL = 55.43, Mean = 44.68, LCL = 33.93 (1 - 28)
Inspected Mean = 192.46, Counts Mean = 86.00

Field Testing Start
Field Testing End
GoLive

Design Thinking At Its Best
Sustainability and Continued Development

Meaningful and Fun
Unit Engagement
Distractions, Change Agent Coaching

Electronic Medical Record, Patient Room of the Future
The fun is just beginning!
Thank you!