Using Human Centered Design to
Reduce Medication Errors

DEDICATED TO ACHIEVING POSITIVE HEALTH AND PREVENTION OF ILLNESS.

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Roles: Innovation Consultancy, Nice to Meet You!

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ABOUT the Consultancy

Our Kaiser Innovation Consultancy (IC) is a group of creative people who help challenge conventional thinking to develop human-centered designs and solutions.

Our ultimate goal is to positively impact the work experience of our employees and the health of our KP members. **We test out the usability of new products, workflows and space designs, and conduct simulations in real and mock patient environments. We work together with our KP employees, physicians, and members to better understand challenges and develop and prototype human-centered ideas using proven methodologies from both IDEO and IHI**
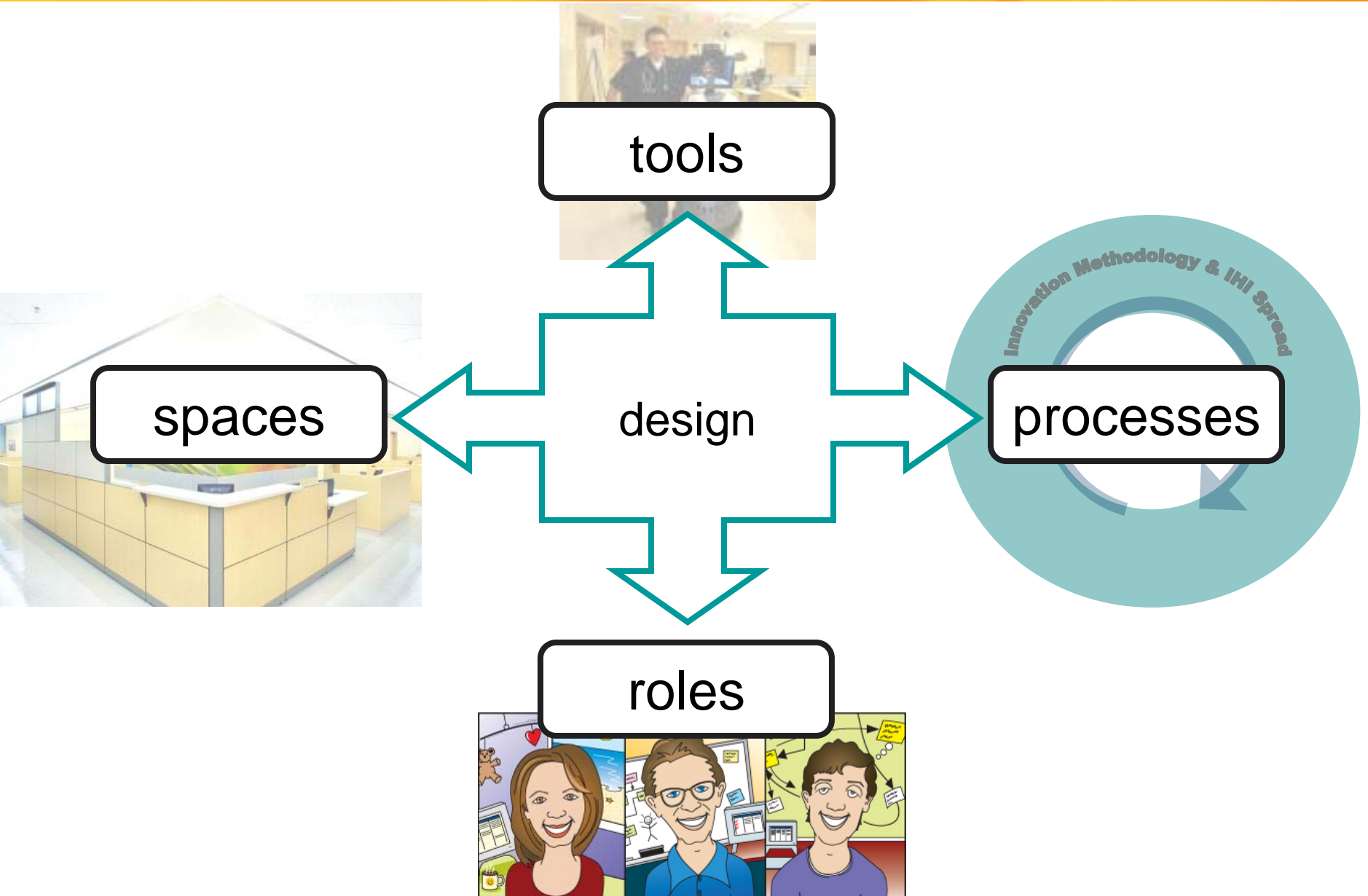
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Who is Kaiser Permanente (KP)?

- **America's leading integrated health care organization. Health Plan, Hospital and Medical Group. Founded in 1945.**
- **Nonprofit system- headquarters in Oakland, California.**
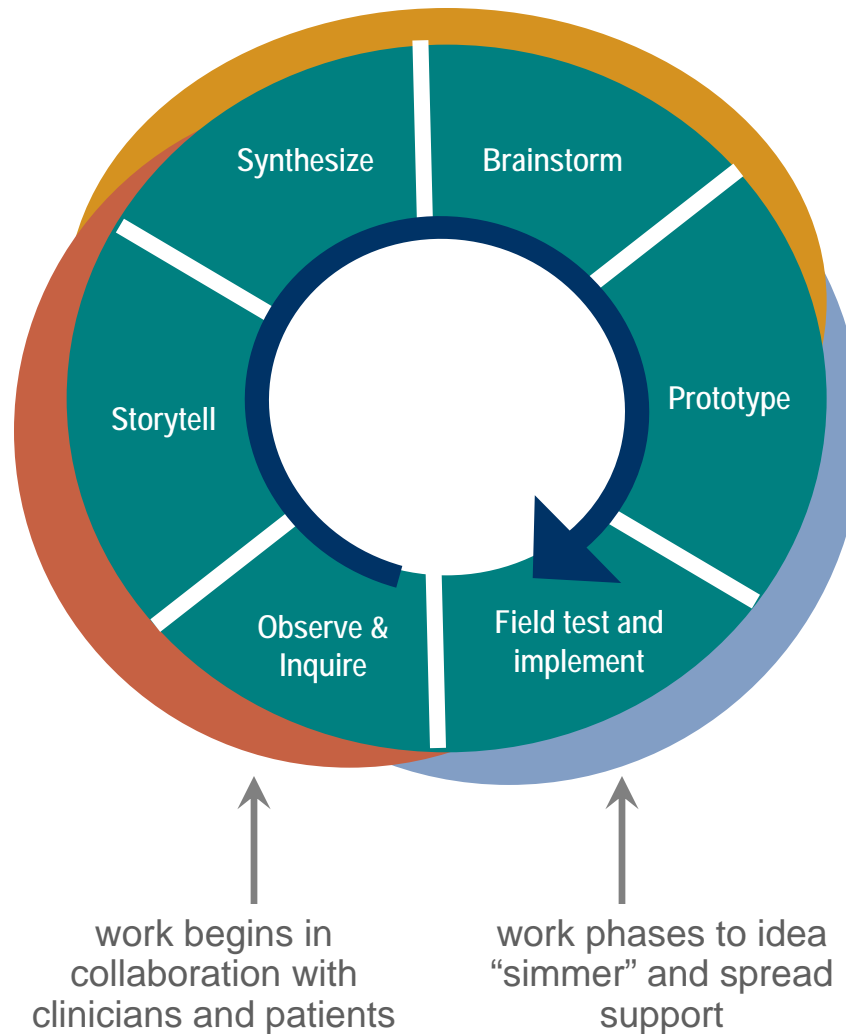
32

416

13,729

22,000

8,700,000

Human-Centered Design

Focus on people & their experiences for inspiration

Process: The Innovation Methodology*

Synthesize

Brainstorm

Storytell

Prototype

Observe & Inquire

Field test and implement

work begins in collaboration with clinicians and patients

work phases to idea "simmer" and spread support

*Methodology approach co-created with KP and IDEO

KP Innovation Consultancy

Context/Overview of KP MedRite

In the United States alone…

………7,000 deaths each year are caused by medication errors*

………1.5 million people each year are "harmed" by medication errors

………1 medication error per day per hospital patient

………$3.5 billion is spent each year treating medication injuries

*1999 report "To Err is Human: Building a Safer Health System"

In 2007…

A cross-regional effort began which focused on Medication Administration. Kaiser's Innovation Consultancy, supported by Quality and Safety, Patient Care Services and KP HealthConnect, was commissioned to frame the problem, and generate and try out ideas with front-line staff from three Kaiser Hospitals.

Patient Care Services

Quality and Safety

KP HealthConnect

Innovation Consultancy

- **Hayward**
- **West Los Angeles**
- **South Sacramento**
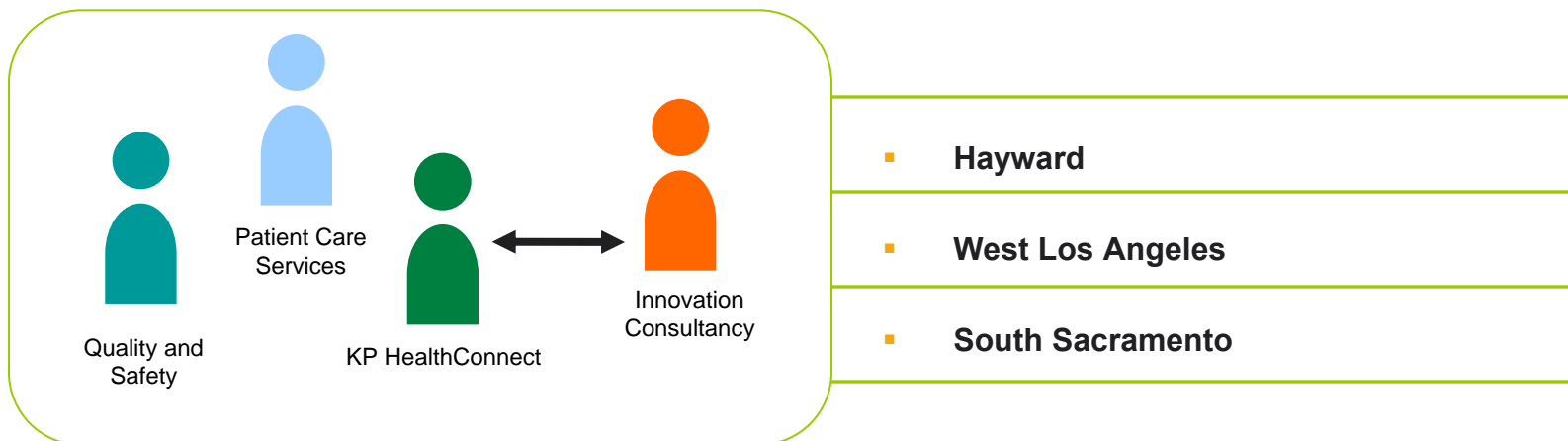
Observations
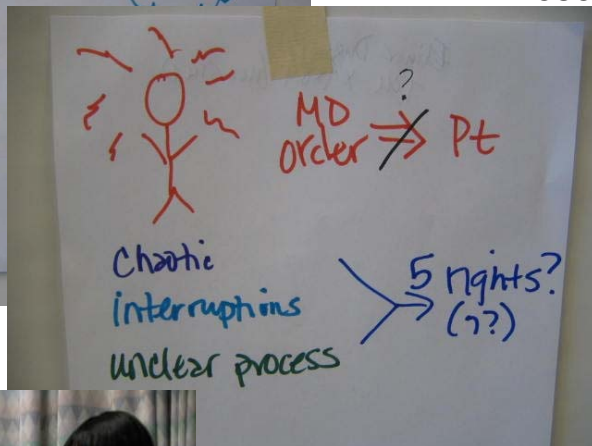
Nurses were asked to draw the first thing that came to their mind when they thought of "Medication Administration"

These drawings by nurses in Hayward and WLA summarized the voice of the nurses across the pilot sites.

-Chaotic

-Interruptions

-Unclear Process

Ask 12 nurses how they "Administer Medications" and you will get 12 different answers…

"I open my medications in the med room so I can get them ready to go for the patient. It makes it easier."

"I wait and open each medication in the room. That way the patient can see that it is clean, if they don't take it, it's not wasted. If they do take it we can double check the medication together."

Storytell and Brainstorm

- **For two-days in April 2007, over 70 people (nurses, doctors, pharmacists, experts and leaders) gathered at the Garfield Center to hear the stories, stretch thinking and then brainstorm ideas.**

- **They came up with over 400 ideas!**
    - Pharma TV
    - MedBed
    - Self-Administration
    - Sacred Zones

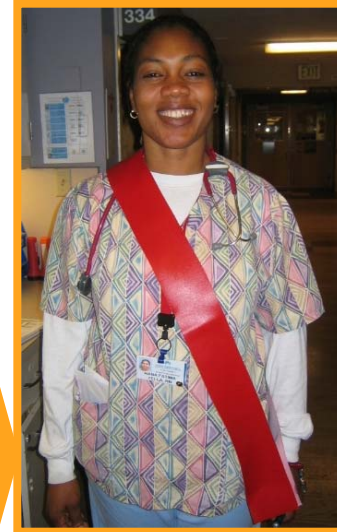# Field Testing – the "No Interruption Wear" evolution
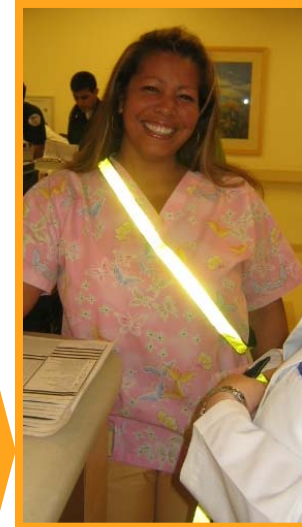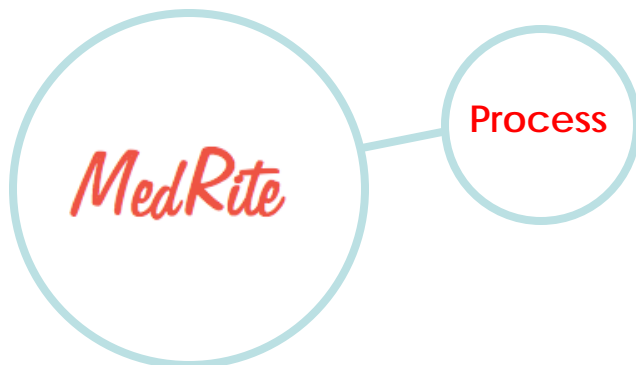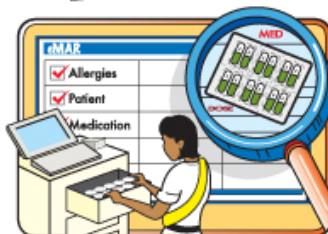

Deep Dive
4/07

SoSAC
5/07

Hayward
6/07

Hayward
6/07

West LA
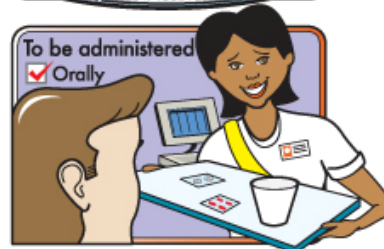9/07

Innovations for the Present

Components

MedRite — **Process**

__ Review MAR
__ Verify Correct Time
__ Enter Med Room
__ Put on NIW

__ Check Allergies
__ Pull Medication(s)
__ Verify Right Patient
__ Verify Right Medication
__ Verify Right Dose
__ Verify Right Route

__ Go to Patient's Room
__ Gel or Wash Hands
__ Turn down TV/radio
__ Turn on Lights
__ Verify Correct Patient using 2 identifiers
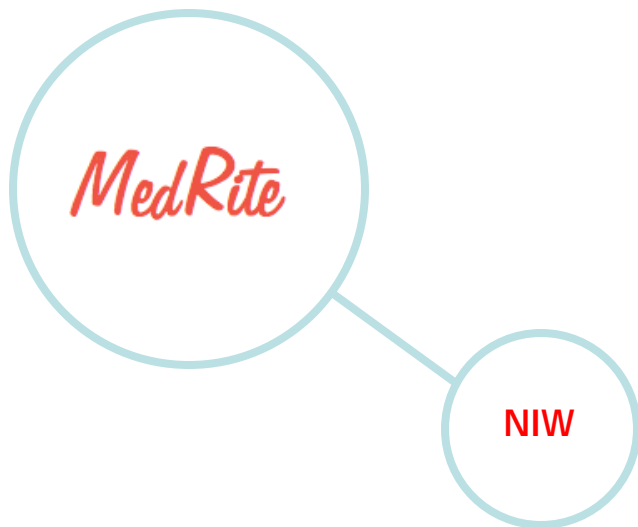
__ Explain the Med and its purpose to the patient (Verifies Right Med 2nd time)
__ Ask Patient if they have any questions
__ Re-Verify Dose
__ Re-Verify Route
__ Re-Verify Time

__ Administer Medication
__ Document on MAR
__ Gel or Wash Hands
__ Remove Sash
__ Exit Patient Room

Innovations for the Present

Components

MedRite

NIW

No Interruption Wear (NIW) is the tool that helps minimize interruptions during Medication administration.

It is put on in the Med Room and removed before exiting the Patient's Room. It is worn ONLY during the MedRite Process and NOT between med passes. This allows the nurse to not be interrupted while giving medications and support the other medical staff at appropriate times.

NIW is not meant to reduce friendliness! Nor is it meant to turn our nurses into robots. You are still feel free to smile while wearing NIW!

Innovations for the Present

Components

MedRite

Sacred Zone

The Sacred Zone is an area marked out in front of the PYXIS with tape. We recommend the use of tape as this is a common zone indicator in the OR and Pharmacy.

The space marked out should allow enough room for the drawers of the PYXIS to open and still allow the RN to stand comfortably in the zone. Remember the nurse will need to bend at times to pick the medications from the drawers.

Work with local engineering to select and apply the tape.

Innovation Outcomes

- **Pilot Results: 2 hospitals, 4 units**
  - 50% reduction in the number of staff interruptions to the medication administration process from approximately .7 interruption per med pass to .3 interruption per med pass
  - 15% faster per med pass from approximately 10:00 to 8:30 (minutes:seconds)
  - 18% increase in On-Time Med Passes from 61% to 79%
  - Significant increase in process reliability from 33% to 78%

- **Financial Value of Innovation Consultancy's KP MedRite Project**
  - The estimated cost of KP MedRite is $430,000 from backfill to prototyping to spread
  - If we avoided 3 medication errors, the project has paid for itself.

- **Because of the increased nurse and patient satisfaction and the results above, KP MedRite is spreading to all 32 Kaiser Permanente hospitals**

Innovation Outcomes

Pilot Data - Reliability

The "basic" five steps of medication administration are: 1)Compares medication with MAR, 2)Checks two forms of ID, 3)Explains the medications to the patient, 4)Opens blister packs in front of patient, and 5)Charts medications immediately.

MedRite improved the reliability that these five steps are completed from 33% before MedRite to close to 80% after MedRite!

Percent of Med Passes where all five basic steps were completed (n≈68)
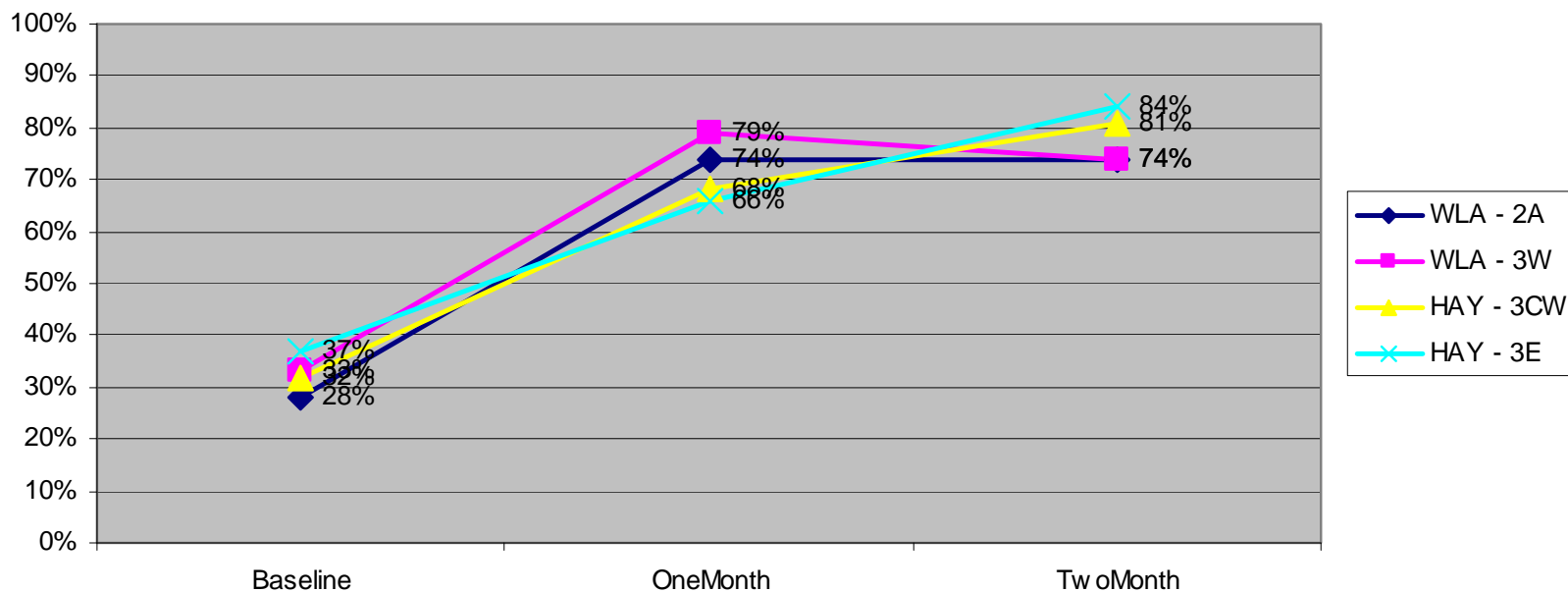
Thoughts from the Field

You do need to have a **concrete design challenge.**

You **don't** need "**bleeding edge ideas**" to be innovative.

Good ideas that **reduce pain** WILL spread and a **create PULL.**

Good **ideas FROM the folks** who use the ideas will **spread even better.**

If it ain't fun
we're doing something
very very wrong.

References:

1. Ascension Health. Kaiser Permanente. (January 2007). *A 36-Hospital Time and Motion Study.*
"How Do Medical-Surgical Nurses Spend Their Time?"
Ann Hendrich, RN, MSN, FAAN: Boguslaw A Skierczynski, PhD; Marilyn P Chow, DNSc, RN, FAAN; Zhenqiang Lu, PhD.

2. Stratton M, Blegen G, Pepper T. "Reporting of Medication Errors by Pediatric Nurses".
Journal of Pediatric Nursing, vol 19, Issue 6, Pg 385-392.

3. Pape, T. "The Nurses Role in Medication Safety", chapter 7.
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