Simulation

You Learn a Lot Learn by Doing the Work

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Seattle Children's Hospital: Overview

Seattle Children's Hospital

- Serving a four-state region (23% of US land mass):
  - Washington
  - Alaska
  - Montana
  - Idaho
- 47% of patients come from outside King County
- Licensed beds – total: 371

Leader in Pediatric Care

- 2016 *U.S. News & World Report* survey results:
  - #5 in *U.S. News* Honor Roll
  - Honored for the 24rd consecutive year
  - Honored in all specialty service lines
- UW Department of Pediatrics ranked # 5
- Ranked 5th on NIH list of children's hospitals
- Children's awarded Magnet status nursing excellence in 2013

Knowing The Unknowable

How do you know the unknowable?

What is Simulation?

simulation

noun sim·u·la·tion \ˌsim-yə-ˈlā-shən\

“Simple Definition”: something that is made to look, feel, or behave like something else especially so that it can be studied or used to train people

2) : a sham object : counterfeit

3) : ***a*** : the imitative representation of the functioning of one system or process by means of the functioning of another <a computer *simulation* of an industrial process>

4) : ***b*** : examination of a problem often not subject to direct experimentation by means of a simulating device

http://www.merriam-webster.com/dictionary

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Simulation in Education

Jan Spruijt – Dutch Education
Simulation Game Expert &
University Professor

When simulation is integrated into an educational curriculum:

+ 21% in student core satisfaction
+ 14% in engagement with literature
+ 46% in time spent
+ 19% industry interaction
+ 30% in first time pass rate

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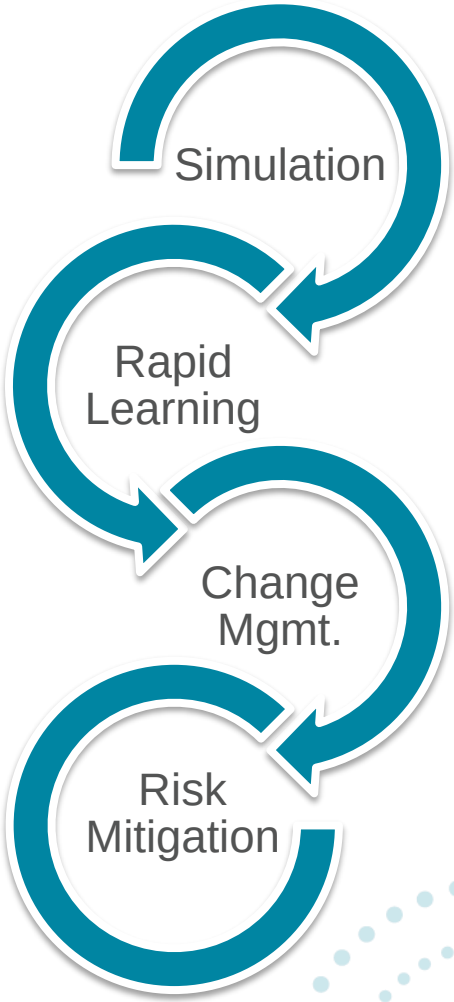
What's the Big Idea?



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Bedside Report

Bedside Report = Nurse Shift Change at the Bedside

in Our Region:

- Evergreen Hospital Medical Center
- Mary Bridge Children's Hospital
- Overlake Hospital Medical Center
- Swedish Hospital
- University of Washington
- Virginia Mason Medical Center
- Seattle Children's Hospital

Bedside Report Design

3 days

Nurses from all areas

Family involvement

Design content and process

Small test of change → Simulation

Plan for implementation and go-live

Go-live – July 20th

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Shift Change Logistical Challenge

Patient Room

Patient Room

Patient Room

Patient Room

Patient Room

Patient Room

Nursing Cluster

Imagine the environment...many providers, nurses, families, potential for waste

Patient Room

Patient Room

Patient Room

Patient Room

Patient Room

Patient Room

Each colored arrow represents a pair of RN's handing-off patients in the current process

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Change Management Challenge

What Nurses Told us:	Bedside Report Opportunities:
▪ Patients and families want to know that nurse hand-off includes all pertinent care information	▪ Communicate with patients and families by including them in the plan of care
▪ Oncoming nurse needs clear understanding of patient's clinical picture (i.e. IV drips, tubes/drains, incisions/wounds, supplies in the room)	▪ Visualize and respond to patient needs
▪ Nurses prefer not to hear negative things about a patient or family, causing preconceived judgments before even meeting them	▪ Improve nurse satisfaction by improving the quality and relevancy of the information communicated

Simulation Planning

Considerations:

- **Housewide Launch**
- **Housewide participation**
- **Compressed timeline**

Objectives:

- **Learn Quickly**
- **Identify Risks**
- **Gain Confidence**
- **Develop Content**

Setting:

- **Actual Patient Room Environment**
- **Electronic documentation**
- **Representative patient and family characteristics**

Evaluation Criteria:

- **Time**
- **Survey**
- **Design Principles**

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Design Principles

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Simulation Scenario Development Timeline

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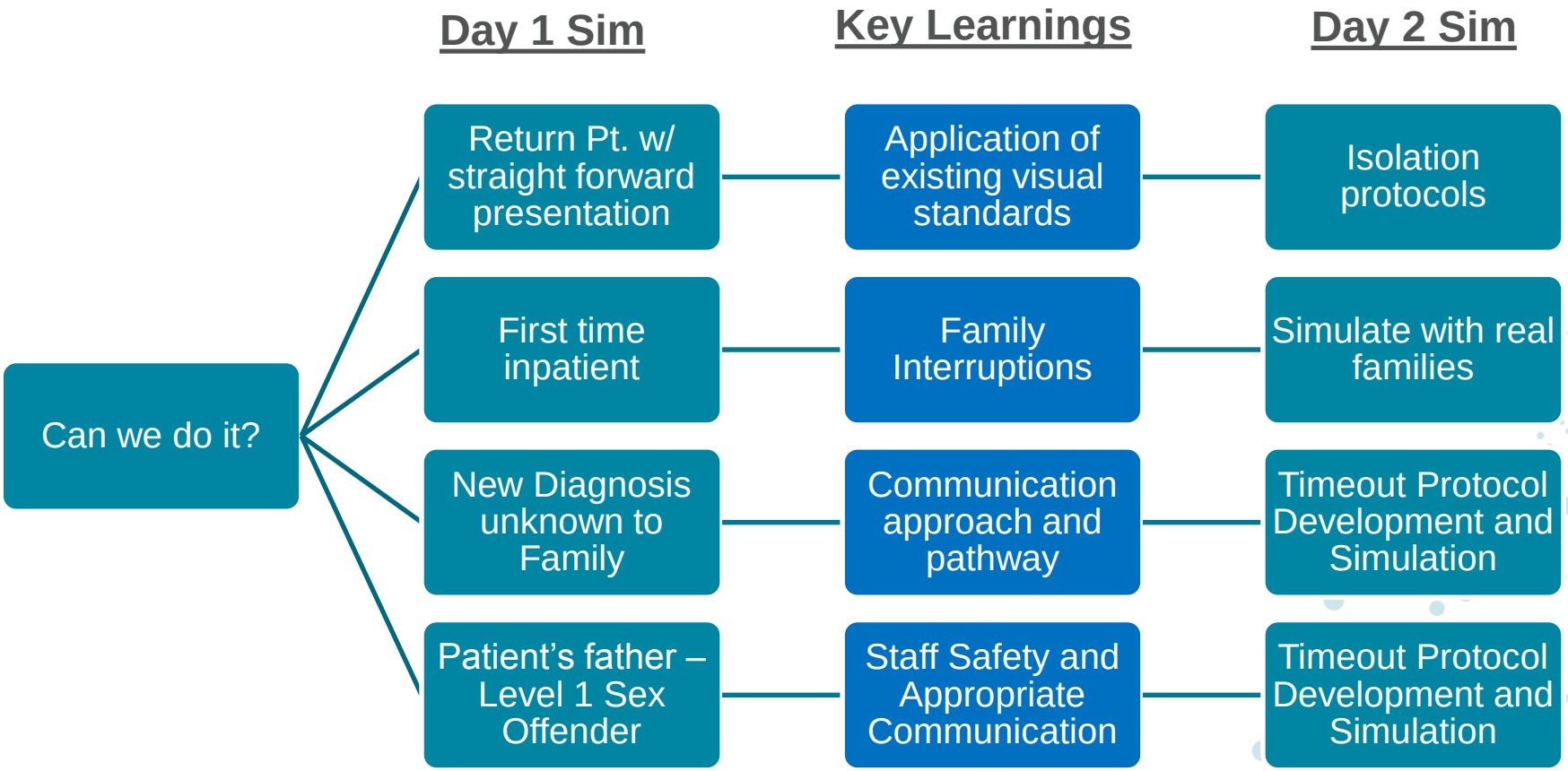
Simulation Cycles of Failure and Learning



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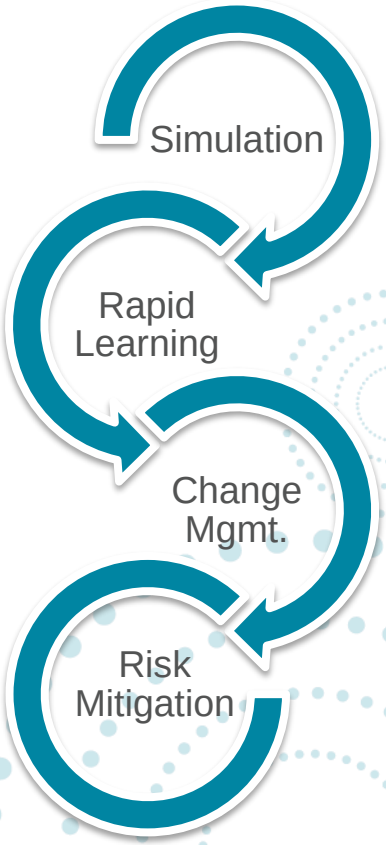
Did it Make a Difference?

- Bedside Report impact to Family Experience Survey scores
  - ✓ Nurses treated w/courtesy and respect + 11%
  - ✓ Nurses explain in a way you understand + 8%
- End of shift overtime – decreased
  - Before bedside report ~ 712 hours
  - After implementation ~ 684 hours
- Staff satisfaction – improved
  - My questions were answered
  - Patient condition matches report
  - Shift-to-shift report gives me pertinent information

Key Takeaways

- Have a bias for action
- You learn a lot from just doing the work
- Participants who experience simulation feel engaged and become your biggest advocates
- Simulation supports consensus



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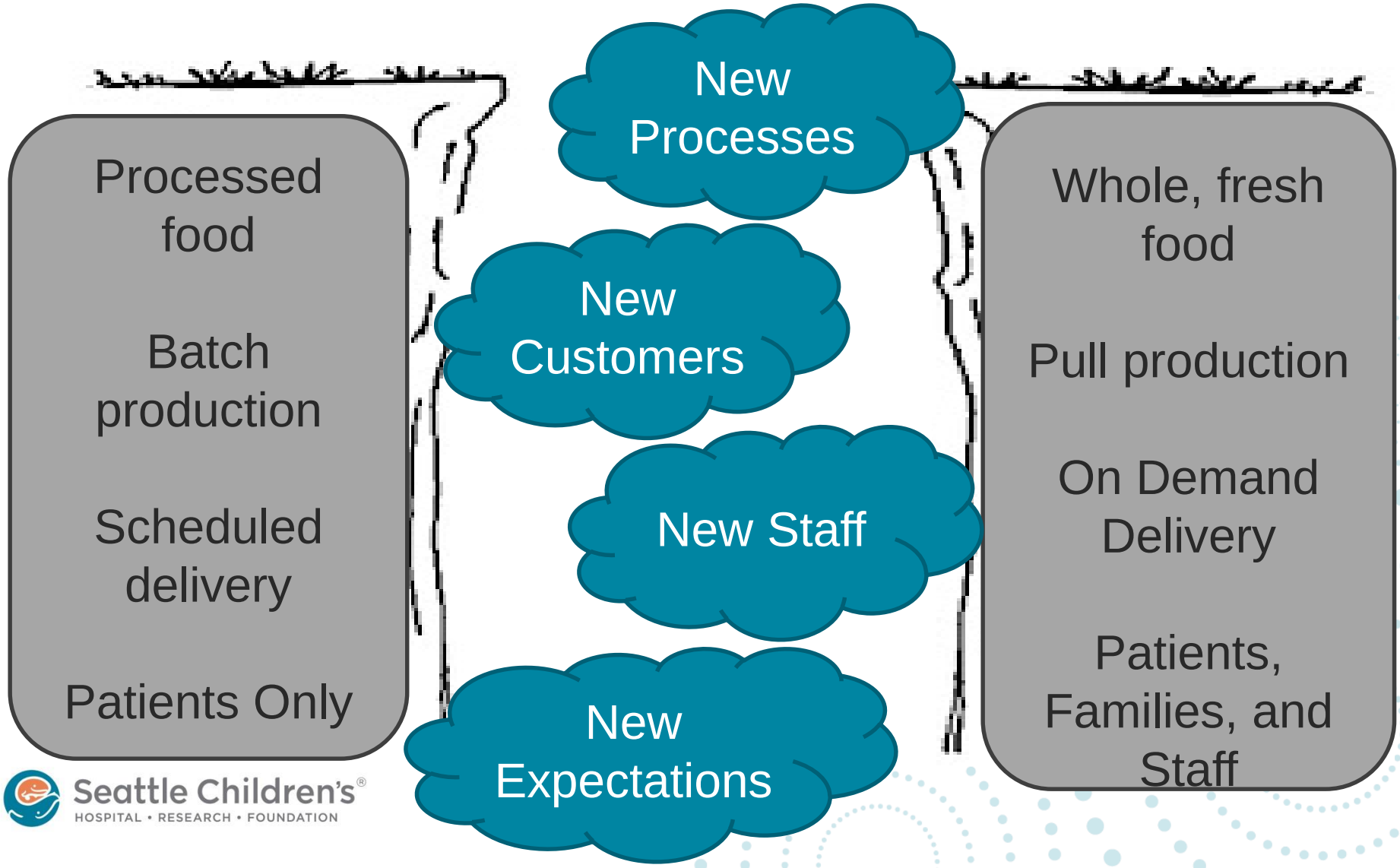
Crossing the Chasm: Getting From Here to There



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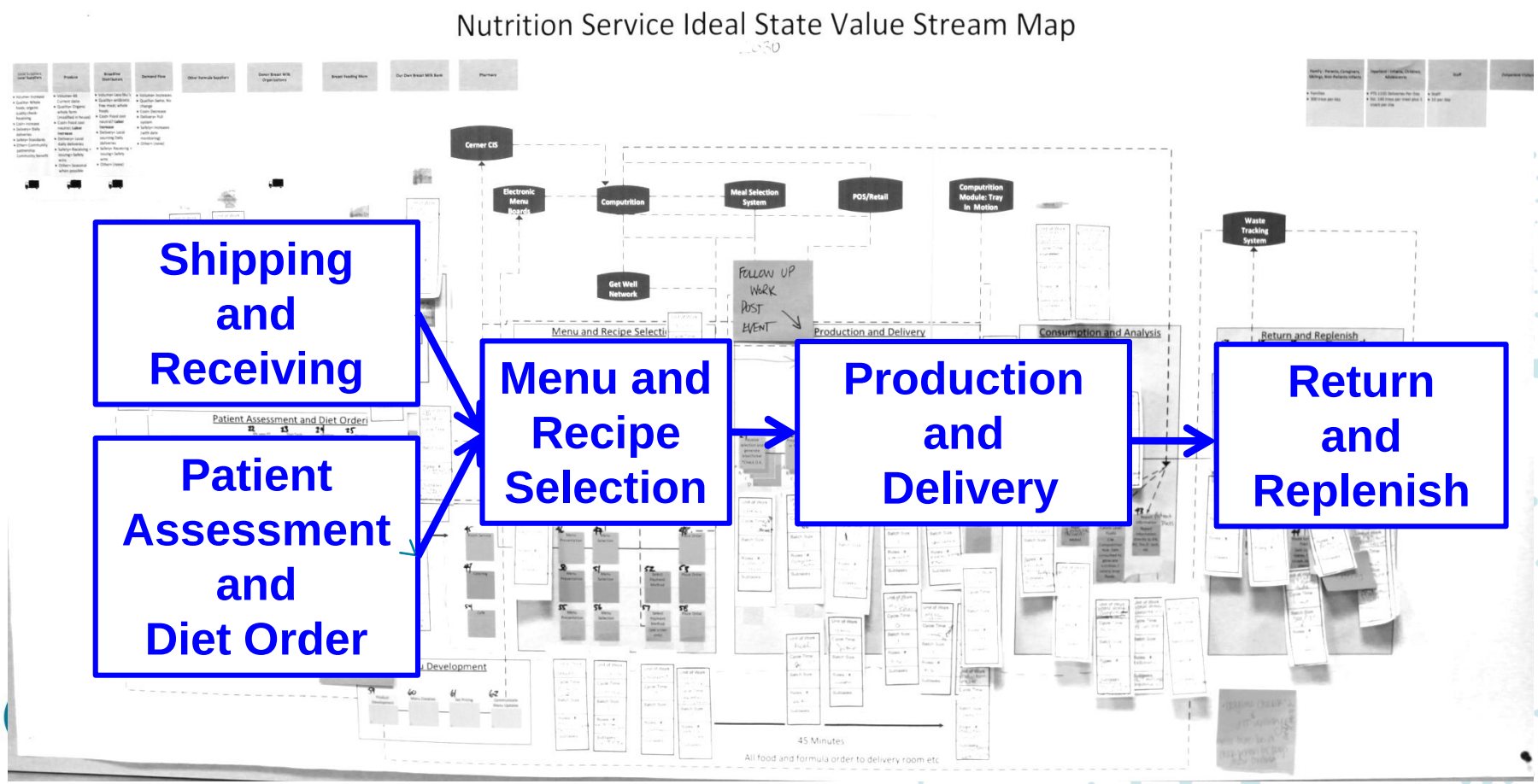
Forest Kitchen: High Level Value Stream

"Nourishing our community to thrive, each and every life"



Identify Burning Questions of the Team

Where and how will tickets be printed?

How will we handle gluten-free items?

How will we manage complex formulas?

Should families pay on delivery or prior to delivery?

How can patient pay? Cash? Credit Card?

Can formula orders be delivered on the same cart as food?

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Identify High Risk and Common Processes to Simulate

Process Designation	Formula Production	Meal Production
High Risk	**Complex Formula (Liquid or Powder)**	**Severe allergy ticket - able to be prepared safely in the U** **Large quantity of tickets and maintaining FIFO** **Running of cell during low times vs. high times** **Synchronizing of inner and outer U** **Synchronizing of multiple meals wanted for same delivery (assuming orders at the same time)** **Special Diet Order** **Synchronizing of multiple meals wanted for same delivery** **Separate production for allergy**
Common	Mom drops off during middle of production Breastmilk order pushed by batch production Breastmilk order pulled by nurse Sending fortifier to the floor Breastmilk with no fortifiers Breastmilk with fortifiers How best to deliver formula and breastmilk from the holding fridge to the patient Pump room maintenance Interface between orders and recipes : Standardized Recipe : Custom Recipe Simple Powder Formula Creation Simple Formula Liquid	10 minute or full 'cart delivery' Product replenishment at Point of Use cart delivery strategy (zone definition etc) Layout of inner u - are things in the correct location High volume vs. low volume production Amount of food and time for changeover between breakfast/lunch? Knowing which cart to put tray on Synchronizing of how cold and hot part of cell work Scan and auto 'bump-off' Expedited food order Location and timing of printing Content of what is printed where

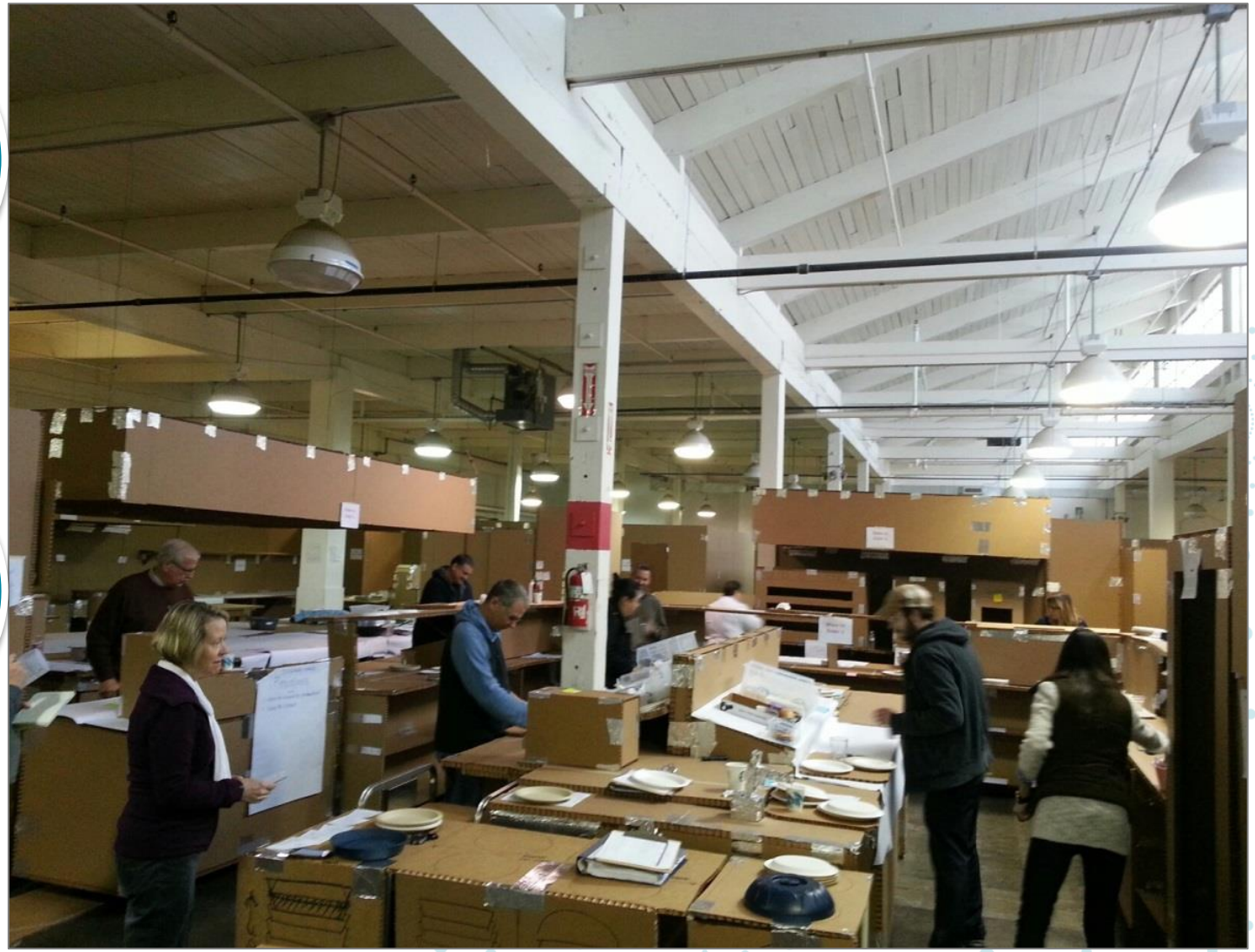
Designing Simulation Scenarios: Key Components

Identify Type of Risk	• Is this a high risk or common process?
Define the Scenario	• What conditions are being tested?
Develop the Boundaries	• What is the starting and ending point of the test?
Develop the Simulation Plan	• What are the key process steps for running the test?
Develop Evaluation Criteria	• How will we determine if the design passes?
Capture Burning Questions	• What questions do you want to answer?
Define Logistics	• What equipment/supplies/people will be needed to do the test?
Clarify Roles	• Who needs to involved? Down to the role detail!
Execute!	

Simulation Scenarios Examples

Type C-Common H-High Risk	**Scenario Definition-** What conditions are we testing	**Starting Point**	**Ending Point**	**Test Plan-** What are the key process steps for running the test?	**Evaluation Criteria-** How will we determine if the design 'passes'?	**Questions You Want To Answer?**	**What equipment will be needed at the mockup?**
H	Complex Formula (Liquid or Powder)	Production Label printed	Completed formula is placed in holding fridge	Matt : Pull from Standard Work document	Is there appropriate process to complete a double check?	*Is the double check adequate for the most complex formulas (ie, salt)? *Do we need independent verification? Where is the holding fridge?	Spigot for water, gram scale, jugs/bottles for mixing and delivery, whisks, gloves
C	Location and timing of printing	Ticket prints to U and order appears on screen in U	Meal item is passed off to next operator w/ ticket and order 'bumped off' screen	See standard work	the workflow of Outer and Inner U workers are in sync	Timing, specific handoff step to reduce risk of dropping, burns, mixup of specific items	plate, the pass thru from outer to inner U, a mocked up printer & monitor, paper ticket

Simulate! Learn! Pivot! Repeat!



In Process Picture of the Forest Kitchen

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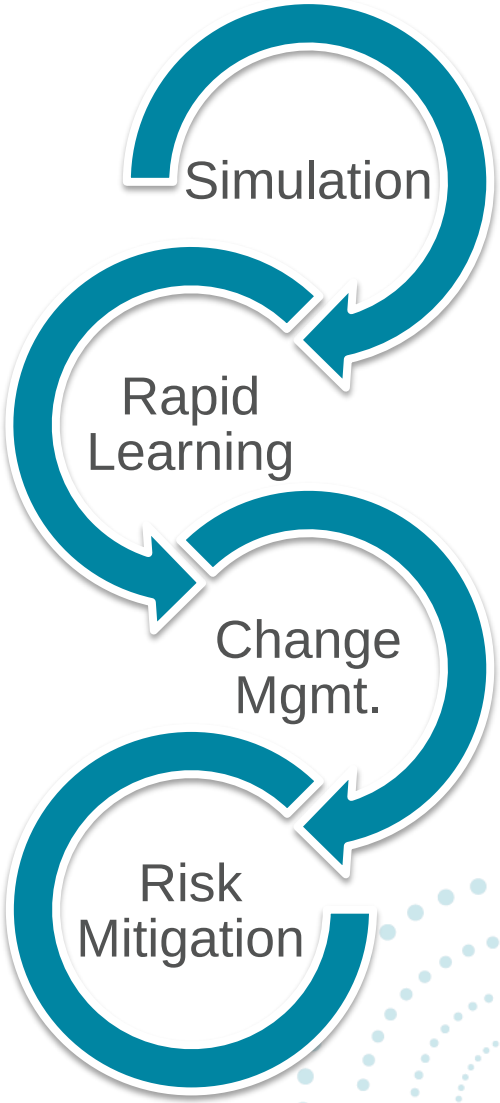
Benefits and Key Learnings

- If you create the environment and space for people to voice their concerns, they will speak up…and ***if you don't know their concerns, how can you address them?***
- Standard work is the basis for improvement. As you simulate, ***change your standard work***!
- Anxiety decreased as staff and leaders practiced in new environment and ***this practice enabled the leaders to actually lead the change.***
- Simulation makes waste (*painfully*) visible
- ***Failure is not a worst case scenario*** while simulating, it's actually the best case scenario. Fail when the stakes are low!

Simulate to Know The Unknowable



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Final Thoughts…

" I never teach my pupils, I only provide the conditions in which they can learn"

Albert Einstein
1879-1955

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