Making Improvements to Processes
Structured Project Lifecycle

Initiate
- Select a Project and Gain Approval
- Generate Awareness and Desire for the Project

Plan
- Define Project Scope and Team Members
- Understand Current State and Measure It
- Decide on Improvements and Communicate the Vision

Execute
- Test Improvements
- Measure Results
- Empower Stakeholders to Act

Monitor
- Check for Sustained Impact
- Formalize Improvements
- Don’t Let Up

Close
- Change Systems and Structures to Sustain Change
- Make It Stick
PLAY TIME
LEGO ACTIVITY
LEGO Set Up

Step 1: At Each Table Assign Roles

- Transporter
- Assembler 1
- Assembler 2
- Assembler 3
- Warehouse Manager
- Time Keeper
LEGO Set Up

Step 1: Sit in the right place
LEGO Set Up

Step 3: Review Rules- Do Not Start Game

- **Transporter**- is the **ONLY** one who can move parts from place to place.
- **Assembler 1**
- **Assembler 2** Build per instructions- Use Reqs
- **Assembler 3**
- **Warehouse Manager**- No Requisition- No Parts
- **Time Keeper**- Starts the Game, Starts the Timer. Stop Timer when parts are complete and at customer location
LEGO Set Up

Step 4: Get Ready To Start Game

• Open LEGO packet
• Give the warehouse manager all the LEGO
• Give requisitions to each assembler- DO NOT FILL OUT YET
• Timekeeper get ready to time the game

FINAL QUESTIONS???????
At your tables- Complete the following Activities as a team

1. Record your time
2. Create a process map of what you did
3. Create a spaghetti diagram of the transporter’s steps

30 MINS
Up Next: Intro to Lean

BREAK – 10 MINS
Five Principles of Lean

1. Specify Value
   Define value from the customer’s perspective and express value in terms of a specific product or service.

2. Map the Value Stream
   Map all of the steps...value-added & non-value-added...that bring a product or service to the customer.

3. Establish Flow
   The continuous movement of products, services and information from end-to-end through the process.

4. Implement Pull
   Nothing is done by the upstream process until the downstream customer signals the need.

5. Work to Perfection
   The complete elimination of waste so all activities create value for the customer.

Learning to Think Lean
The Goal Of Lean

“All we are doing is looking at a time line from end to end and we are reducing that time line by removing the non-value added wastes”

Taiichi Ohno, *Toyota Production System* 1978

3 Categories of Waste

- Activities that consume resources but create no value for the customer. (*Muda*)
  - Type 1- activities that are needed by the process but don’t add value
  - Type 2- activities that are not needed by the process and add no value
- Waste on the system due to overburdening or unreasonableness (*Muri*)
- Waste due to unevenness or variation (*Mura*)

Excess energy and effort is wasteful. Eliminate waste, improve the process, reduce cost.
Overburdening or Overdoing  

- Waste from unnecessary/unreasonable overburdening of people, equipment or systems by demands that exceed capacity.
- What do you see?
  - Overtime
  - Turnover
  - Morale problems
  - Defiance/Compliance mentality
  - Backlog
  - Absenteeism
  - System Outages

If we could just get out from under this pile!
Unevenness (Mura)

- This is waste from variation in quality, cost and delivery. “This represents all the resources that are wasted when quality can not be predicted.” (Lean for Dummies, by Sayer & Williams)

- What do you see?
  - testing
  - inspection
  - containment
  - rework
  - returns
  - overtime

Energy wasted in explanations, paper trails. Inability to predict success.
# Forms of Waste *(Muda)*

<table>
<thead>
<tr>
<th>Type</th>
<th>Example</th>
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<tbody>
<tr>
<td><strong>Over Processing</strong> (doing more steps than needed)</td>
<td>Completing more fields, ordering more tests than necessary</td>
</tr>
<tr>
<td>Waiting</td>
<td>Results, available room, shared equipment, system downtime, waiting</td>
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<tr>
<td>Excess Motion</td>
<td>Walking, searching for someone/thing,</td>
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<tr>
<td>Excess Inventory</td>
<td>More needle sizes than use, email, patients waiting, call back list</td>
</tr>
<tr>
<td>Transport (moving things or people)</td>
<td>Moving patient from intake to exam room, offsite lab</td>
</tr>
<tr>
<td><strong>Over Production</strong> (provide/produce more than is needed)</td>
<td>Informational packets, paperwork</td>
</tr>
<tr>
<td>Defects</td>
<td>Mistakes in care, omissions in care, med errors</td>
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<tr>
<td>Underutilized People</td>
<td>Not working to capability / capacity</td>
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</tbody>
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Making Data From Your Value Stream Map

• Look at your process map and identify waste
• Tally the forms of waste
• Calculate value add and non-value add time- use estimates
• Look at non-value add time as a % of total time
• Calculate distance in steps or feet from a spaghetti map
• Count the number of repeat trips

Let’s take 20 mins to work on data for your project
## A3: Box 4 Gap Analysis

<table>
<thead>
<tr>
<th>Problem</th>
<th>Root Causes</th>
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Identify specific things about the current process that are not Lean. Name the waste you see. Identify the top causes of long cycle time in the process. Summarize your top picks on the A3.
Next Up - Figuring Out Potential Solutions

BREAK 10 MINS
The continuous movement of products, services and information from end-to-end through the process.

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Establish Continuous Flow

- “An ideal state where people move through a process, one at a time without waiting or stopping.” Sayer and Williams, Lean Six Sigma for Dummies

- Focus on eliminating obstacles to flow
  - Insufficient information/tools to act effectively
  - Batches, queues, backlogs
  - Poor organization of things, information
  - Lack of time to complete task

- Line up all of the steps that truly create value so they occur in a rapid sequence

- Require that every step in the process be:
  - Capable – right every time
  - Available – always able to run
  - Adequate – with capacity to avoid bottlenecks and over capitalization (right-sized tools)

Batch Processing – 1 minute per piece

Continuous Flow – Make One Move One

Flow achieves value stream compression and cycle time reduction
Quick Fixes for Common Forms of Waste:

• Eliminate wait time- Establish flow
  – Eliminate batching
  – Reorder work so that there is a continuous stream of well
    organized activity
  – “Take one, make one”
• Reduce inventory – Helps with flow
• Design processes that better utilize people
• Mistake proof (not inspection)
• Inspect at the source, enable fixes to happen when they are
  discovered
  – Don’t make the work go back through the process
  – Assures accountability
• Eliminate or reduce motion and transportation with 5 S
A3 Box 5  Developing Solutions

Steps to complete box 5

Develop Solutions

- Brainstorm areas to improve
- Improvements should eliminate or reduce a form of waste
- Be specific because you will (most likely) need to design an intervention for each idea
A3: Box 6  Rapid Experiments

<table>
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<tr>
<th>Rapid Experiments</th>
<th>Expected Outcomes</th>
<th>Actual Outcomes</th>
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- Design your PDSA cycles.
- Time each PDSA cycle to measure improvement.
Improve the Process

- Goal: Reduce time by 75%
- Iterate through 2-3 PDSA cycles and measure each time
  - Plan the changes you will try
  - Do the redesigned process
  - Record how long it took
  - Discuss what worked, what else you would like to try
  - Use what you learned to design next cycle

You have 30 Mins
REGROUP AND DEBRIEF
Project Work

• Use the playbook to help you.
• Work with your PI Consultant to complete the execute phase items.