INTEGRATED LEAN  PATIENT FIRST FROM PLANNING TO CONSTRUCTION
Lean has improved patient care in Saskatchewan while achieving more than $125 million in projected financial benefits.

"Lean is exceeding our expectations in terms of improving the quality and timeliness of services provided to patients - and we’ve only begun to tap its huge potential... the true benefit is how it’s making healthcare better on a daily basis for patients and their families."

- Health Minister Dustin Duncan  (Mar.2, 2015)
Wait Time for Surgery (90th Percentile)
Regina Qu’Appelle, Month

- # of days within which 90% of patients had surgery
- Median

*better care*
- Surgery, OR, Sterile Processing
- PACU
- Surgical Ward

388 Days November 2012
105 Days July 2015

Patients waiting > 3 months
- 5703 in Sept 2012
- 464 in May 2015
INTEGRATED LEAN  Patient First From Planning to Construction
Benchmarks for treatment and wait time in Saskatchewan

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Province Wide</th>
<th>Provincial Regions</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hip Replacement</td>
<td></td>
<td>100%</td>
</tr>
<tr>
<td>Knee Replacement</td>
<td></td>
<td>99%</td>
</tr>
<tr>
<td>Hip Fracture Repair</td>
<td></td>
<td>80%</td>
</tr>
<tr>
<td>Cataract</td>
<td></td>
<td>96%</td>
</tr>
<tr>
<td>Bypass Surgery</td>
<td></td>
<td>No benchmark established</td>
</tr>
<tr>
<td>Radiation Therapy</td>
<td></td>
<td>97%</td>
</tr>
<tr>
<td>CT Scan</td>
<td></td>
<td>No data available</td>
</tr>
<tr>
<td>MRI Scan</td>
<td></td>
<td>No data available</td>
</tr>
<tr>
<td>Bladder Cancer Surgery</td>
<td></td>
<td>No benchmark established</td>
</tr>
<tr>
<td>Breast Cancer Surgery</td>
<td></td>
<td>No benchmark established</td>
</tr>
<tr>
<td>Colorectal Cancer Surgery</td>
<td></td>
<td>No benchmark established</td>
</tr>
<tr>
<td>Lung Cancer Surgery</td>
<td></td>
<td>No benchmark established</td>
</tr>
<tr>
<td>Prostate Cancer Surgery</td>
<td></td>
<td>No benchmark established</td>
</tr>
</tbody>
</table>
Lean is the North American term for the Toyota Production System or Kaizen.

It the optimization of value to the customer through the elimination of waste to create flow using bottoms-up collaboration at the place (gemba) where the real work happens.
The Value Proposition

Traditional Focus: Work Longer, Harder, Faster, Add People and Equipment

Lean Focus: Improve Value Stream by Eliminating Waste

Value  Waste

Lead Time
The Case for Reducing Waste
Battleford Union Hospital
LEAN CONSTRUCTION IN PRAIRIE NORTH HEALTH REGION

• CHANGING THE WAY OF CONSTRUCTION/RENOVATION IN HEALTHCARE
WHY?

- NEVER AGAIN!!
- PATIENT FIRST
- DEPARTMENT FLOW/FUNCTION
- QUALITY END RESULT
NEVER AGAIN!!

- PAST FAILURES
- MORALE DIMISHED
- FRUSTRATION
- COST/SCOPE/
  SCHEDULE OVERRUN
PATIENT FIRST

- BETTER OUTCOMES FOR OUR PATIENTS/CLIENTS
- SAFER DELIVERY OF SERVICES
- DO NO HARM!
- INVOLVE THE PATIENT/USER IN DESIGN PROCESS
DEPARTMENT FLOW/FUNCTION

- SPACE TO PROVIDE SERVICE
- SPACE FOR EQUIPMENT
- STORAGE OF SUPPLIES
- ELIMINATE WASTE
QUALITY END RESULT

• SPACE FOR SAFE PATIENT CARE AND EQUIPMENT
• FLOW/FUNCTION MET
• FINISHED ON TIME, ON BUDGET WITH NO SCOPE CREEP
GOALS MET

• PATIENT FIRST APPROACH
• SAFE DELIVERY OF SERVICES
• FUNCTION AND FLOW REQUIREMENTS MET
• ON TIME/ON BUDGET/NO SCOPE CREEP
SUCCESS!!
INTEGRATED LEAN  Patient First From Planning to Construction

Lean House
Corporate Strategy (Hoshin-Kanri)

JUST IN TIME
Operate with the minimum resource required to consistently deliver:
• Just what is needed.
• Just the amount needed.
• Just where it is needed.
• Just when it is needed.

People  LPS  Standard Work

Materials  Kanban  One Piece Flow

Machines  Andon  Pull

Load Leveling (Heijunka)
Cost Reduction Through The Elimination of Waste (Muda)

Jidoka
One-by-one confirmation of expected outcomes. Stop and respond to every abnormality. Separate machine work from human work. Earliest possible inclusion of all stakeholders in every decision.
Last Planner Schedule

Pull Planning: Goal back to Precidents

Adaptation to achieve TPS “Just in Time” for Project systems

Cascade Format to show complexity of interrelationship between all the components of close working of multiple trades in the same areas
INTEGRATED LEAN  Patient First From Planning to Construction

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Pull
One Piece Flow
Kanban
Andon
Machines
Materials
People
LPS
Standard Work

Corporate Strategy (Hoshin-Kanri)

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Corporate Strategy (Hoshin-Kanri)
INTEGRATED LEAN  Patient First From Planning to Construction

**Cost Reduction Through The Elimination of Waste (Muda)**

**Load Leveling (Heijunka)**

**Lean House**

**Corporate Strategy** (Hoshin-Kanri)

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**Pull**
- One Piece Flow
- LPS
- Standard Work
- Kanban
- Andon
- Materials
- Machines

**Corporate Strategy** (Hoshin-Kanri)

**Integrated LEAN**

**Patient First From Planning to Construction**
You want WHAT!!! By WHEN???
Daily Visual Management
INTEGRATED LEAN  Patient First From Planning to Construction

Pull Production Schedule
Daily Visual Management

- Task to be completed
- Completed task
Pull Production Schedule

• Every work day at 1530 all trades onsite who are involved with this project are expected to meet at schedule

• Project Manager or Trades Supervisor goes thru all tasks for the day / week

• We identify what tasks need to be completed for the project to stay on schedule and to continue to move the project forward

• All trades are able to see and identify any tasks that may or may not require attention. Therefore, mitigating possible risk or issues
Standard Work for our daily huddle
One Large TASK and how DVM helped to accomplish our goal

- We had a planning meeting with all trades and or departments who would be affected.
- Each trade or department had input as to what tasks were needed for completion of this job and what it looked like to their specific department.
- Each trade knew best what it takes to get their task or job done.
- Each trade knew best what the timeline of the task was and what needed to be completed before they could complete their task.
Pull Production Schedule
( Day by Day)
Fishbone diagrams for the two trades completing the work
Newspaper
Lessons Learned / Improvement ideas

• The newspaper has been added for additional communication between all trades, and has been a invaluable communication tool.

• Our contractor who knew nothing about “pull production schedule” is totally on board and has commented to me how effective this is for the overall planning / and efficiency of work flow for this project.

• One contractor asked if he could “take pictures “ to share with his peers on how we are organizing our project and all the associated tasks.
In closing

• The Project Planning Vis Wall, is a invaluable tool to use!
• As I hope to have shown thru this presentation. We have been able to produce precise, accurate planning for this project. We have been able to follow the timeline.
• The way my Vis Wall is laid out gives opportunity for all involved to communicate openly and effectively to work towards a smooth ran project
INTEGRATED LEAN  
Patient First From Planning to Construction

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Pull
One Piece Flow
Kanban
Andon
Machines
Materials
People

LPS
Standard Work

Corporate Strategy
(Hoshin-Kanri)
INTEGRATED LEAN  Patient First From Planning to Construction
INTEGRATED LEAN  Patient First From Planning to Construction

Site Prep
- Mow
- Aggregate

Mixing
- Excavator
- Concrete
- Sand

Ramming
- Bulldozer
- Material
- Machine

Rammed Earth

Setup
- Man Power

Task Cards
- Check Oil/Grease
- Fill Fuel
- Tool Cart

Task Cards
- Check Oil/Grease
- Fill Fuel
- Tool Cart

Task Cards
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- Fill Fuel
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<table>
<thead>
<tr>
<th>Supplies</th>
<th>Tools</th>
<th>Tasks</th>
</tr>
</thead>
<tbody>
<tr>
<td>2” Wood Screws</td>
<td>Framing Hammer</td>
<td>Frame Hallway</td>
</tr>
<tr>
<td>2½” Wood Screws</td>
<td>Air Compressor</td>
<td>Frame Main Office</td>
</tr>
<tr>
<td>16d Framing Nails</td>
<td>16d Nailer</td>
<td>Frame Washrooms</td>
</tr>
<tr>
<td>2” Staples</td>
<td>Air Hose</td>
<td>Install Backing Plates</td>
</tr>
<tr>
<td>Masking Tape</td>
<td>Air Hose Hangers</td>
<td>Get Rockers Buyoff</td>
</tr>
</tbody>
</table>
## INTEGRATED LEAN  Patient First From Planning to Construction

<table>
<thead>
<tr>
<th>Task Details</th>
<th>Prints/Specs</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreman: Michael Pihowich</td>
<td>AHU Conductor/ Pipe Sizing Sheet</td>
<td>Sequence 1 AHU’s Priority</td>
</tr>
<tr>
<td>Area: Penthouse</td>
<td>E03-30W (Highlighted AHU/HRU’s)</td>
<td>1. AHU 103a + 103b</td>
</tr>
<tr>
<td>Task: Pull Cable for Sequence 1 Air Handling Units</td>
<td>E03-31C (Highlighted AHU/HRU’s)</td>
<td>2. AHU 105a + 105b</td>
</tr>
<tr>
<td></td>
<td>E03-32E (Highlighted AHU/HRU’s)</td>
<td>3. AHU 106a + 106b</td>
</tr>
<tr>
<td></td>
<td>Concept Drafted Blueprints</td>
<td>4. AHU 111a + 111b</td>
</tr>
<tr>
<td></td>
<td>Concept Drafted Crew List</td>
<td>5. AHU 202a + 202b</td>
</tr>
<tr>
<td></td>
<td>Concept Drafted Pull Schedule</td>
<td>6. AHU 110a +110b</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Safety Documentation</th>
<th>Individual Task</th>
<th>Lessons Learned</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration: July 5 to July 15h</td>
<td>FLHA</td>
<td>Crew 1: Pull cable for AHU 103 + 105, HRU 301 (RW90 to gutter and Teck cable to Units)</td>
</tr>
<tr>
<td></td>
<td>Harness/ Lanyard Inspection</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Lift Inspection</td>
<td>X</td>
</tr>
<tr>
<td></td>
<td>Live JHA</td>
<td>X</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Permits/Safety</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>LOTO: N/A</td>
<td>Crew 1: Pull cable for AHU 103 + 105, HRU 301 (RW90 to gutter and Teck cable to Units)</td>
</tr>
<tr>
<td>Confined Space: N/A</td>
<td></td>
</tr>
<tr>
<td>Critical Lift: N/A</td>
<td></td>
</tr>
<tr>
<td>Hot Work: N/A</td>
<td>Crew 2: Pull cable for AHU 106 + 111, HRU 302 (RW90 to gutter and Teck cable to Units)</td>
</tr>
<tr>
<td>Energized Work: N/A</td>
<td></td>
</tr>
<tr>
<td>Live JHA: N/A</td>
<td></td>
</tr>
<tr>
<td>Other: N/A</td>
<td></td>
</tr>
</tbody>
</table>
INTEGRATED LEAN  
Patient First From Planning to Construction

Set Up

**Internal**
- Work Must Stop
- Concurrent vs Linear
- Helper & Journeyman
- Prep Supplies/Tools
- Prepare Teardown Path

**External**
- Work Continues
- Convert Int. to Ext.
- Helper vs Journeyman
- Journeyman Flow
- Use Lean Tools
INTEGRATED LEAN  Patient First From Planning to Construction

Set Up
- Manpower
- Machine
- Material
- Method
Cut Parts

Assemble
- Manpower
- Machine
- Material
- Method
Finish

Framing 1st, Floor

Set Up
- Internal
  - Work Must Stop
  - Concurrent vs. Linear
  - Helper & Journeyman
  - Prep Supplies Tools
  - Prep Teardown Path
- External
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  - Convert int. to Ext.
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  - Journeyman Flow
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Task Card

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- 2" Staples
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Value

Waste

Lead Time
QUESTIONS