

# Better

**Saskatchewan Lean Management System**

**Monthly Reporting**

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**Putting Patients First**  
*Transforming Health Care Through Lean*

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## **Kaizen Key Messages**

### **Patient/provider communication improvements continue in FHHR**

**(RPIW #13, FHHR)**

Patients and staff continue to benefit from improvements in communication and routine nursing care that were implemented in an earlier RPIW. Six months after the RPIW event, 95% of patients continue to receive nurse rounds every hour, where they are asked standard questions to ensure their needs are being met. In addition, the six-month post-event audit found that 96% of communication white boards in patients' rooms were being fully utilized. A quote from the audit process states that there is, "Excellent response to white boards from families and staff."

### **Improved efficiencies in diagnostic imaging sustained six months after RPIW event (RPIW #33, SHR)**

Adult patients continue to spend less time waiting for X-ray at Royal University Hospital thanks to the sustained result from a RPIW event conducted six months ago. Prior to the RPIW event, patients waited over an hour to complete their procedure. After the RPIW, patients waited only 22 minutes and six months later that improvement continues to benefit patients. Key to reducing the overall wait time for X-ray was to reduce the time it takes staff to prepare a room for the next patient. Before the RPIW it took over three minutes to clean and prepare the room. Post-RPIW, through implementation of standard work, this process took just over a minute. Six months later, this improved process continues to only take a minute of time.

### **Sustained improvements in scheduling process for youth team services in RQHR (RPIW #10, RQHR)**

Improvements targeted at decreasing the wait list for youth team services in RQHR have been sustained six months after the initial RPIW. Standardized booking procedures and improved communications for patients regarding appointment scheduling resulted in two to four more patients being seen by a clinician each day. Six months later, the process continues to support these results. This increase in productivity has helped to reduce the patient wait list for access to youth team services.

### **Patients continue to benefit from improved assessment process with Home Care Services at FHHR (RPIW #18, FHHR)**

Patients requiring home care services can still receive a completed assessment within 24 hours of an agreed upon/preferred time, and no inappropriate referrals are being made to home care from medical doctors, meaning that patients are not directed to care that they do not require. These two improvements have been sustained for 60 days following an RPIW event aimed at improving access to home care services.

## **Pediatric outpatients and their families continue to benefit from efficient registration process in SHR**

**(RPIW #37, SHR)**

A simple one-stop registration process in the Pediatric Outpatients Department continues to benefit children and families. Prior to the RPIW event, it took eight minutes to register for an appointment.

Through improvements made during the RPIW, the time for this process was decreased to three minutes. At the six-month audit of the event, this process was further reduced to just under two minutes, illustrating the continuous improvements being made by staff in this area.

## **Doing it Right with TWI**

Respect for people is a key component of the Lean approach and philosophy. One of the ways to live this principle is to make sure that we're supporting staff in being able to follow standard work. But often our training efforts fall short in helping people learn effectively. We default to just showing or telling, rather than taking the time to really teach.

The phlebotomy department at RUH in Saskatoon has changed their approach to training and is already seeing the impact on patient care. Since September 2012, they've been using a Lean approach called Job Instruction, part of the Training within Industry program used by Toyota.

The goal of job instruction is to quickly train employees how to do a job correctly, safely and conscientiously. Working one-on-one with the learner, the trainer walks through the process three times. Each time they add a bit more detail – important steps, then key points, then the rationale. Next, the learner demonstrates back at least four times, adding more information each time. By the end of the demonstration, both the trainer and learner are confident that they know how to do the job correctly. Follow up is provided to ensure the new skill sticks after the initial training.

Using this method, the phlebotomy team has seen significant improvement in proper specimen labelling. In one year, they were able to reduce labelling errors by 43%. This has improved the quality of care for patients. When specimens aren't labelled properly, it can mean delays in diagnosis and treatment. Samples have to be collected again, which is particularly challenging when dealing with NICU patients. And for outpatients, it means the inconvenience of having to come back to the hospital to be redrawn.

Job instruction provides a method to ensure that each and every phlebotomy technician can follow the standard work. The approach does require some up-front investment in training time. On average, it takes about 15 minutes to go through the steps with each learner. But the investment pays off in reducing the waste of re-work, not to mention the value-added for patient safety.

### **3P Highlight- Staff Scheduling 3P in SHR:**

In May 2012, SHR underwent a production preparation process (or 3P) in the area of staff scheduling. Their aim was to ensure a process that provides the right staff (skills), at the right place, at the right time and in the required quantity to provide quality levels of care, and also meets the needs of staff, management and unions.

The process began with the team exploring the current state of the scheduling process. The team found:

- There were three unique scheduling systems across the region – some staff scheduled through a centralized system, some through individual managers and some through a hybrid model.
- Low satisfaction with the process reported by schedulers, managers and staff.
- Overtime usage was high = 37.4 hours/FTE annually (~\$15 million/year)
- Multiple payroll corrections were required due to errors and confusion about shifts = \$812,596 / year (total cost for processing payroll corrections – not actual dollars paid)

As 80% of the region's operation costs are labor, the region was on course to realize a \$30 million deficit due to errors, inconsistencies and confusion created by the existing scheduling system. A re-design of this process was greatly needed.

In the next step, the team created a re-designed 'ideal state' scheduling process-with the following design outcomes:

- One scheduling model for the region (or province if provincial agreement)
- Standard work and processes
- A "pull system" with self-service options including ability to view the schedule and pick up available shifts online.
- Swipe card/fingerprint solution to eliminate defects in time entry
- Visibility on the unit or department
- Newly defined role of the scheduler.

With this 3P model, the region then set out to conduct a series of RPIWs to implement this ideal, future state—with a goal to realize these results within the next 3 years. Central to the redesigned future state was the development of website components that would complement and improve the scheduling process ([www.staffscheduling.ca](http://www.staffscheduling.ca)). The following section highlights the progress to date with this improvement work:

**September 2013:** Online scheduling information now available for managers and employees 24-hours a day, 7 days a week, and on multiple devices. Information is updated every 15 minutes. Prior to this improvement, staff scheduling would receive an average of 300 calls a day from employees asking questions about their schedule or looking to pick up a shift. This meant that up to 20 hours of a workday would be distributed among the staff schedulers to respond to these calls. With the online schedule process, 11.5 hours a day has been saved responding to these calls.

**October 2013:** Staff are now able to go online and pre-book shifts they are interested in picking up 24-hours a day until a shift closes. Prior to this improvement, staff scheduling did most of this work by phone. The department was able to pre-book an average of 7500 shifts per week and an individual scheduler could fill an average of 21 shifts per hour. With the improvements and online tools, now staff scheduling is able to pre-book 15000 shifts per week and an individual scheduler can fill an average of 100 shifts per hour. The schedulers are spending 4 less hours a day on pre-booking activity. This improvement has also led to increased staff satisfaction, as they can proactively identify shifts they want to apply for instead of waiting for a phone call from staff scheduling.

**November 2013:** Units now have access to an online 'dashboard' that shows 7 days of staffing information (i.e., how many shifts are working, premium, unfilled, leave and unplanned status). The dashboard is updated every 15 minutes and is color coded for quick reference. This allows staff and managers access to the same source of consistent information about current staffing levels and allows for more timely and efficient decisions to be made to ensure staffing levels are maintained and patient care is not compromised. Regionally – this same information is viewable across all sites – summarized by facilities and units to allow better coordination of unit, department or a facility's needs.

The region has 5-6 more RPIW planned in 2014-15 to address this work and continue to refine the implementation of this ideal future state for staff scheduling.

## **Kanban Update**

Kanban is a Japanese term that means signboard. This term refers to a visual signal that facilitates an efficient process for ordering and replenishing supplies. It is a lean tool that supports the right item, in the right amount being delivered at the right time to the right place.

Five Kanban seminars occurred in 2013-14 fiscal year – one in Regina Qu'Appelle Health Region (RQHR), one in Prairie North Health Region (PNHR), one in Five Hills Health Region (FHHR), and one in Saskatoon Health Region (SHR). An additional Kanban event was conducted in SHR focusing in supplementary areas of Home Care. Audits are completed at 60 days following the Kanban event to allow the organization time to implement the Kanban system and conduct staff training; with further evaluation occurring at 90 days following the Kanban event. The focus of the audits is to evaluate if the standard work is being followed, supplies are being utilized on a 'first in, first out' process, and if inventory quantity is being properly maintained. The following table summarizes the audit status of Kanban events conducted in this fiscal year and the corrective actions to mitigate any barriers to maintaining the improvements:

<b><u>Audit Criteria:</u></b>			
	"Kanban" is well understood and the Kanban is operated in line with the primary goal. Minor adjustments for "Kanban" issued standards (lot size, collection timing, etc.) are taking place, and the "Kanban" functions are sufficiently utilized		
<b>Yellow</b>	"Kanban" is correctly operated, but it needs to further review the issued standards (for lot size, collection timing, etc.).		
	"Kanban" is not well understood. Need a complete re-practice of the basic rules (kanban collection, input parts, etc.)		
<b>Region</b>	<b>Kanban Area</b>	<b>Audit Status (time period)</b>	<b>Corrective Action (required if yellow or red status)</b>
<b>RHQR</b>	Cardiovascular carts		
	Sterile processing department (SPD)	<b>Yellow (90-day)</b>	There are many inventory returns -need to study the amount needed, address this on the Kanban card that signals an accurate supply.
	Suture carts	<b>Yellow (90-day)</b>	There are many inventory returns -need to study the amount needed, address this on the Kanban card that signals an accurate supply.
	OR urology	<b>Yellow (90-day)</b>	There are many inventory returns -need to study the amount needed, address this on the Kanban card that signals an accurate supply.
<b>PNHR</b>	Housekeeping		
	Ward 2F		
	ER	<b>Yellow (90-day)</b>	Ensure the amount needed that is recorded on bin is the amount that is placed in bin.

<b>Audit Criteria:</b>			
			"Kanban" is well understood and the Kanban is operated in line with the primary goal. Minor adjustments for "Kanban" issued standards (lot size, collection timing, etc.) are taking place, and the "Kanban" functions are sufficiently utilized
<b>Yellow</b>			"Kanban" is correctly operated, but it needs to further review the issued standards (for lot size, collection timing, etc.).
			"Kanban" is not well understood. Need a complete re-practice of the basic rules (kanban collection, input parts, etc.)
	Lab		Daily usage of supplies does not appear correct. The lab needs to learn the true numbers of daily usage before they know what type of Kanban system to implement. They are currently using a bin system, but the daily usage does not support this because the usage is larger than the bin.
<b>SHR</b>	RUH Cath lab		
	RUH OR		
	RUH 6200 supply room		
	Home Care – RUH supplies	<b>Yellow (90-day)</b>	Wording of "reorder quantity" changed to "reorder amount" to address confusion with where to place signal Kanban card in reorder point.
	Home Care – palliative and east & west/CCA pick stations	<b>60-day audit not completed yet</b>	
<b>FHHR</b>	Home care		
	ICU	<b>Yellow (90-day)</b>	Addressing through staff training to ensure staff remember to remove the empty bin and put it in the correct location for restocking.
	Surgery	<b>Yellow (90-day)</b>	Addressing through staff training to ensure staff remember to remove the empty bin and put it in the correct location for restocking.
	Labor and Delivery	<b>Yellow (90-day)</b>	Addressing through staff training to ensure staff remember to remove the empty bin and put it in the correct location for restocking.



## **Too Much Is Never A Good Thing: How using 5s can help save space, reduce costs and make everyone happier**

It happens in our health care system every day: talented, highly-skilled employees spend time not with patients, but searching for the basics they need to do their jobs. While trying to find the right supply might take only a few minutes, when multiplied by number of staff per day it quickly adds up to significant wasted capacity. Not to mention the frustration felt by care teams that just want to look after their patients.

But it doesn't have to be this way. One of the foundational concepts in Lean is 5S – a way of organizing a space to make things easier to find and easier to manage. Through the 5S process (sorting, simplifying, sweeping, standardizing and self-discipline), teams are able to think critically about what they are using and how much they need. They review every item to determine if it is necessary (and should be kept) or unnecessary (repurposed to another location or discarded). Teams then decide how to organize the space to maximize efficiency. They look at placement of items to reduce motion and prevent injury, as well as amount needed and frequency of use. They might use labels, outlining, or colour coding to visually organize the space. The goal is that at a glance, anyone can quickly see if anything is out of place. And anyone can easily find what they need.

The 5s approach isn't just for health care supplies. The Ministry of Health recently held a 5s campaign focused on desks and cubicle space. Staff attended training on Monday morning then spent the rest of the week being coached through the 5s steps. The results are impressive:

- Fourteen (out of 16) branches participated
- 9,500 pounds of paper removed
- More than 18,000 items removed
- \$14,365 in cost avoidance (from supplies being re-purposed)

### ***Pre-Kaizen 5s example:***



**Post-Kaizen 5s Example:**



While sometimes it can be hard for staff to “let go” of items, by the end of the week even the self-described hoarders are enthused about the results. As one employee involved in the 5S described it, *“Skepticism about it improving efficiency turned to belief once I did it.”*



Although the Ministry teams had a good week, the hard work is still to come. Sustaining the results is an ongoing process. Part of 5S is setting up an audit to track whether changes made are still working. Many teams make their audit metrics part of their daily visual management wall, so that it is always top of mind.

Even though it can be hard work, the benefits of 5S make it worth the effort. It can go a long way towards engaging team members, especially those who might not be involved in other Lean activities such as RPIWs. That was the experience at Wascana Rehabilitation Centre in Regina.

*"Although we all know that therapies are a key part of the care team, they're often overlooked when it comes to being the focus of lean projects. This time though, they were - and are we ever reaping rewards," says Ngaire Woodroffe Brown, Director of the Extended Care/Veterans Program. "In addition to sorting and streamlining the myriad of supplies, the team are now 'lean hungry' and are sharing this enthusiasm at the therapy weekly huddles. To help support our therapists, we're now developing 5S plans for all therapy areas. It's going to be a lot of work, but the team feels strongly that our residents will benefit through team members having the right supplies, at the right time, in the right location."*

Using 5S can be an effective way to introduce key Lean concepts, such as mistake proofing, visual cues and just-in-time supply. It gives teams an opportunity to talk about how they're working and what could be better. And ultimately, it's better for patients. Instead of providers spending time searching for supplies, they can spend time on the "stuff" that really matters – client care.

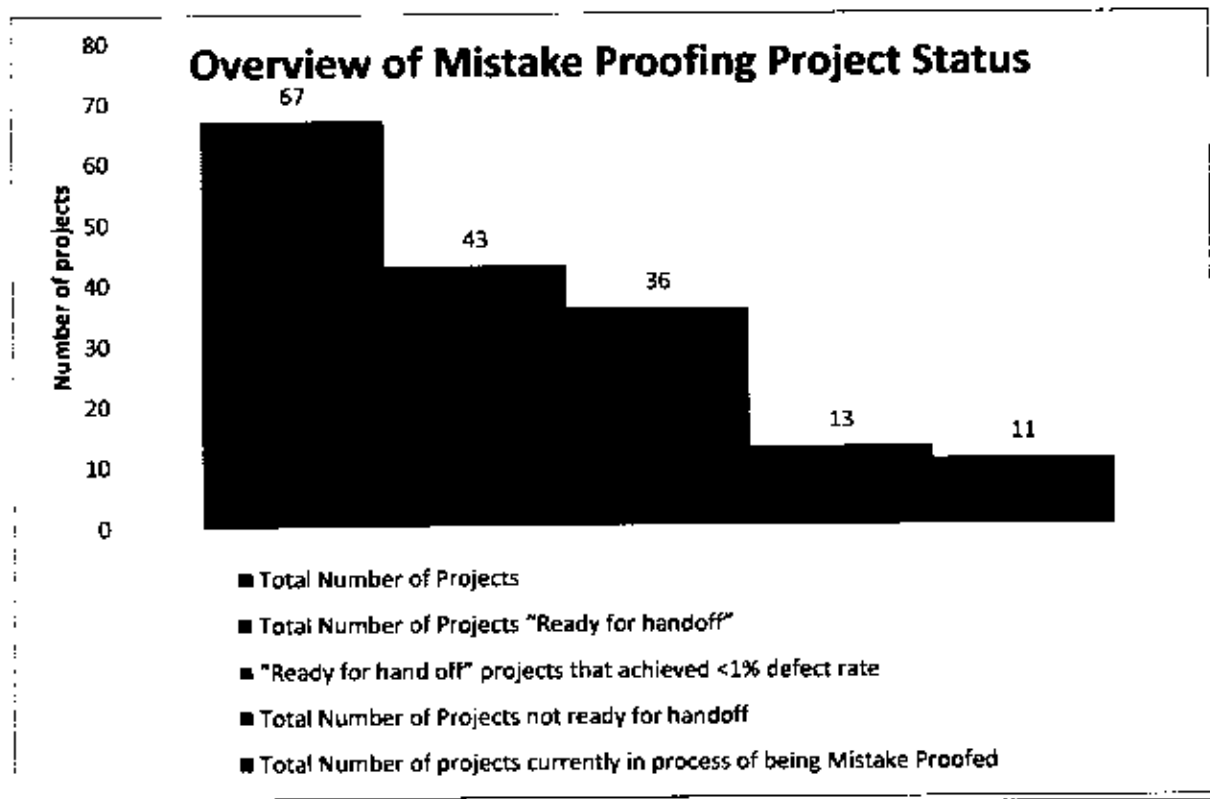
***Did you know? We are building our capacity across the province in 5S. Since 2012, we've had 53 Lean Leaders go through the 5S train-the-trainer sessions.***

## **Mistake Proofing Project Progress**

Mistake proofing projects are when a group of people come together to understand why and how a specific situation can produce mistakes. The team tests a number of ideas that would ensure that errors do not occur. The measures they put in place are then tracked over time to confirm that the improvement is maintained. The goal is zero defects, and a project isn't considered "ready for hand-off" until the process has been improved to eliminate potential for errors. Before transitioning back to the process owner (e.g., area manager), the team has to demonstrate that they have addressed the problems identified in the value stream map. Improvements are then monitored by the process owner to ensure further sustainability and opportunities for continual improvement.

The following graph illustrates Mistake Proofing project progress as of December 31<sup>st</sup> 2013.

### **April 2012-December 2013 Region Mistake Proofing Project Results**



## **RPIW Highlight**

### **Improving patient flow at the Saskatoon Cancer Clinic: Eliminating defects in turnover of infection control rooms (Saskatchewan Cancer Agency, RPIW #5)**

#### **What was the problem?**

When patients with infectious diseases visit the Saskatoon Cancer Clinic, any exam or treatment rooms where they receive care must be cleaned in a specific way to prevent other visitors from getting sick. When affected rooms are not cleaned promptly, other patients must wait before they can be seen in those rooms.

In the past, clinic staff have paged housekeeping when a room is ready to be cleaned. However, there are a variety of reasons why housekeeping staff could not always respond promptly, including other work demands, confusion over which rooms needs cleaning, and poor communication about what precautions need to be taken in cleaning a room.

Another problem was that the icon on patients' record indicating they have an infectious disease is not always removed when their condition no longer poses a risk to others. This causes confusion for both cancer clinic staff and the patients themselves.

#### **What improvements were made?**

The improvement team created work standards to improve processes for, and communication about, infection control, including

- how to use the infection control icon in the electronic health record – including when to remove it;
- how to signal when an infection control room has been cleaned; and
- how reception staff alert clinic staff when a patient with an infection arrives at the clinic.

As well, housekeeping staff now receive a list each day showing the appointment times for patients with infections, so they know when rooms need to be cleaned.

#### **How are things better for patients/clients?**

Now that the infection control icon is consistently removed from a patient's health record as soon as his infectious condition no longer poses a risk to others, staff stop following isolation precautions when caring for that patient. This should improve patients' care experience.

As well, patients should have shorter waits, thanks to a 40% reduction in the time it takes staff to clean infection control rooms.

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**"It is evident the way the clinics were run is more provider-focused than patient-focused."  
(Patient Advisor)**

**"I like receiving the infection control appointment schedule first thing in the morning because it helps me plan my day better." (Housekeeper)**

## Aggregated Roll Up of RPIW Activity to Date

Metric	Over time (Mar 1, 2012 - Jan 31, 2014) Total RPIW: 160		Report period (Dec 1 2013 - Jan 31, 2014) Total RPIW: 6		Examples
	Cumulative Baseline	Change % Change	Baseline	Change % Change	
Space (sq. ft.)	51,865.5	17,712.50 ↓ 34% ↓	3,382.3	185.5 ↓ 6% ↓	<u>FHR RPIW # 20</u> – freed up 4 drawers and the top shelf of supply cart at specimen collection at phlebotomist work station, a 19% reduction in space. Freeing up drawer and shelf space helps ensure workspaces are clean and clutter-free.
Inventory (# Items)	94,829.8	42,281.8 ↓ 45% ↓	2,381.0	798.0 ↓ 34% ↓	<u>FHR RPIW # 20</u> : – By documenting and reducing the number of inventory items on the supply cart in the lab, the process for restocking is now quicker and more efficient.
Walking Distance (ft.)	263,439.1	122,694.0 ↓ 47% ↓	3,444.0	2,122.0 ↓ 62% ↓	<u>CHR RPIW #2</u> : Removing waste from the process of A.M. Care for residents in long term care reduced walking distance of the Continuing Care Aid (CCA) from 16,089 ft. (over 3 miles) to 6764 ft. (1.3 miles); a 58% reduction.  <u>SHR RPIW #55</u> : By moving the location of patient chart and supplies closer to the patient room, nurses' walking distance was reduced from 300 to 132 feet; meaning less time searching for supplies and increased opportunity for direct patient care.  <u>SHR RPIW #56</u> : Through improvements to the discharge process for mother and newborn, the distance that nursing staff have to walk was reduced from 810 to 72 feet; a 91% reduction.

Metric	Over time (Mar 1, 2012 – Jan 31, 2014) Total RPIW: 160		Report period (Dec 1 2013 – Jan 31, 2014) Total RPIW: 6		Examples
	Cumulative Baseline	Change % Change	Cumulative Baseline	Change % Change	
Part Travel Distance (ft.)	230,011.3	172,840.5 ↓ 75% ↓	609.7	497.2 ↓ 82% ↓	<u>CHR RPIW #2</u> : Reduced the distance a resident lift traveled during A.M. care by 32 %.  <u>SHR RPIW #55</u> : Reduced the distance a chart travels between patient room and clinical flow area by 56%, from 300 ft to 132 ft by creating a flow area.
Lead Time (hours)	48,092	14,250 ↓ 30% ↓	6,364	1,730 ↓ 27% ↓	<u>PAPHR RPIW #13</u> : By clarifying processes and establishing admission criteria, the team reduced the time it takes for a resident to be identified for a newly vacated room in long term care from 125 hours (over 5 days) to 6 hours.  <u>SHR RPIW #55</u> : The team reduced the time from when a patient is roomed in labour assessment to patient leaving labor assessment during the day shift by 46%, from 1 hour and 42 mins to 55 min.
Quality Defects (#)	3,922	2,865 ↓ 73% ↓	16	4 ↓ 25% ↓	<u>SHR RPIW #55</u> : By creating standard work consistent with medical evidence, non-stress test not given to patients who do not need it. Team reduced this defect rate by 89 %, from 12 or 12 patients receiving the unnecessary test to 1/9 patients receiving it.



<b>Set-up Time (hours)</b>	3,121	2,187	1.6	0.4 ↑ 25% ↑	<b>SHR RPIW #55:</b> Using visual controls to indicate when a room is ready to be cleaned, the turnover time of labour assessment patient rooms was reduced by half, from 12 to 6 minutes.
<b>Cycle Time (hours)</b>	4,381	2,290	2.4	0.32 ↓ 14% ↓	<b>SHR RPIW #54:</b> The time for the surgery scheduler to process a requisition for interventional diagnostic imaging procedure decreased from 4 ½ minutes to 1 minute; a 79% reduction in time.

### **Examples of Significant Improvements in Additional RPIW Measures (Productivity Gain, Capacity)**

**Productivity Gain:** Productivity is calculated using the number of the pieces (volume) of the work per person per hour. Productivity = volume of patients or providers ÷ number of operators in the process x hours worked. When you produce more products under the same conditions, or produce the same number of products with shorter hours, you can increase productivity.

#### **SCA RPIW #5**

A 17% improvement in productivity of infection control room turnover was achieved at the Saskatoon Cancer Clinic. Before the RPIW, housekeeping was able to clean 2.7 infection control rooms per hour; post-RPIW productivity was increased to 3.15 infection control rooms per housekeeper. Through the creation of standard work, the time for housekeepers to complete room cleaning of infection control rooms was reduced, thus improving the productivity for cleaning rooms.

#### **MoH RPIW #20**

The team working on improving water testing processes achieved a 23 % improvement in productivity gain (from 7.23 to 8.95) as they removed the need to have five people opening totes for one hour and can now process 188 samples in 21 hours (3 people x 7 hours).

#### **SHR RPIW #56**

Productivity of nursing staff for the discharge process of mothers and babies on the postpartum unit increased from 0.04 to 0.16, a 332% increase. Before this RPIW, it took nursing staff an average of 27 minutes to discharge mothers and babies from the postpartum unit. By creating

standard work for staff and preparing mothers for discharge throughout their hospital stay, the improvement team reduced this time to just six minutes, thus improving productivity.

**Capacity:** Capacity is calculated by dividing the available time over the cycle time; capacity is improved when the cycle time is decreased.

**Cypress Health Region (PSKOT) RPIW #3**

Capacity of the nurse to complete a pre-assessment clinic visit was increased by 11%, from 9 to 10. This was achieved because the cycle time was reduced by 4 minutes through the RPIW event. This means that the nurse can now complete one more pre-assessment clinic visits in the same amount of time than before the RPIW.

**PAPHR RPIW #13**

A 540% improvement was made in capacity of staff to determine LTC placements in PAPHR. Before the RPIW, the capacity was 0.2; post-RPIW capacity was 1.28. This improvement in capacity was due to a reduction in the time from when a bed is freed up to when a resident is chosen to be placed in long-term care; the time was reduced from over five days to just over six hours.

**SHR RPIW #56**

The team working to eliminate defects in the postpartum discharge process at RUH achieved a 344% improvement in capacity (from 9.0 to 31.0) as they were able to reduce cycle time for patient discharge from 27 minutes to 6 minutes, which means the number of patients who could be discharged between 8 a.m. and 12 noon went from 9 to 40 patients.

**Appendix A: Reported Cost Savings - RPIWs (Mar 1, 2012 - Jan 31, 2014)**

Metric	Budgeted Savings	Unbudgeted Savings	Avoided Future Cost	Capacity Increase 1 <sup>1</sup>	Capacity Increase 2 <sup>2</sup>	Reallocations
<b>TOTAL SAVINGS</b>	<b>\$21,314</b>	<b>\$1,393,504</b>	<b>\$100,472</b>	<b>\$0</b>	<b>\$348,207</b>	<b>\$0</b>
Space Total	N/A	N/A	\$76,171	N/A	N/A	N/A
> Office	N/A	N/A	\$0	N/A	N/A	N/A
> Clinical	N/A	N/A	\$64,943	N/A	N/A	N/A
> Storage	N/A	N/A	\$11,228	N/A	N/A	N/A
Inventory	\$60	\$0	\$18,053	N/A	N/A	N/A
Quality Total	\$374	\$876,000	\$0	\$0	\$1,058	\$0
> Defects	\$374	\$876,000	\$0	\$0	\$1,058	\$0
> Standard Work	\$0	\$0	\$0	\$0	\$0	\$0
Productivity Gain Total	\$20,880	\$507,174	\$4,490	\$0	\$347,149	\$0
> People	\$20,880	\$507,174	\$4,490	\$0	\$347,149	\$0
> Equipment	\$0	\$0	\$0	\$0	\$0	\$0
5S Total	\$0	\$10,330	\$1,758	N/A	N/A	N/A
> # 5S items	\$0	\$10,330	\$1,758	N/A	N/A	N/A
> Kanban items	\$0	\$0	\$0	N/A	N/A	N/A

<sup>1</sup>Capacity Increase 1: With potential hard savings with replication (one RPIW may show low hard savings, but once replicated across region will result in significant savings)

<sup>2</sup>Capacity Increase 2: Avoided future cost

Note: no cost savings associated with set-up time, cycle time, or capacity metrics, as per Regional Target Progress Report Monthly.

**Appendix B: Provincial Target Progress Report- RPIWs (Mar 1, 2012 – Jan 31, 2014)**

	Baseline	Target	Final	Change	% Change
Space (square feet)	51,865.50	≤ 50%	34,152.90	-17,712.50	-34.2%
> Office	7,649.50	≤ 50%	6,710.50	-939	-12.3%
> Clinical	16,017.20	≤ 50%	8,785.00	-7,232.20	-45.2%
> Storage	12,074.20	≤ 50%	8,045.20	-4,029.10	-33.4%
Inventory	94,829.80	Reduce (↓)	52,548.00	-42,281.80	-44.6%
Walking distance (feet)	263,439.10	≤ 50%	140,745.10	-122,694.00	-46.6%
> Patient	4,042.00	≤ 50%	2,292.50	-1,749.50	-43.3%
> Direct care	54,254.00	≤ 50%	29,215.50	-25,038.50	-46.2%
> Indirect care	46,088.60	≤ 50%	25,098.00	-20,990.60	-45.5%
Part travel distance (feet)	230,011.30	< 50%	57,170.80	-172,840.50	-75.1%
Lead time (hh:mm:ss)	48,092:10:47	≤ 50%	33,841:53:39	-14,250:17:08	-29.6%
> Patient	12,080:37:40	≤ 50%	5,281:38:33	-6,798:59:07	-56.3%
> Other	27,635:34:31	≤ 50%	25,543:19:45	-2,092:14:46	-7.6%
Quality (defects reduced)	3,922	0	1,057	-2,865	-73%
> Defects	3,606	0	1,001	-2,605	-72.2%
> Standard work	312	0	56	-256	-82.1%
5S (avg. score improvement)	N/A	3.0	N/A	N/A	51.7%
Set-up time (hh:mm:ss)	3,121:52:03	Reduce (↓)	934:24:21	-2,187:27:42	-70.1%
Cycle time (hh:mm:ss)	4,381:06:16	Reduce (↓)	2,090:52:27	-2,290:13:49	-52.3%

## LEAN IN THE HEALTH SYSTEM

- Saskatchewan is the first jurisdiction in Canada to apply Lean methodology across its entire health system.
- Our commitment to continuous improvement is enhancing patient and provider experiences, while creating a cost effective, sustainable health care system.
- Through Rapid Process Improvement Workshops, small tests of change, we have seen a savings of \$1.8M since March 1, 2013. Full financial impact of these improvement efforts will be realized through replication across the health system where appropriate.
- Within the Ministry of Health, improvements to inventory management of vaccine products resulted in one time savings of \$1.3 million, and through the Blood and Plasma Products improvement project we have saved \$35 million since 2010.
- Our improvement work has been focused on reducing lead time, eliminating waste and implementing standard work resulting in less waits, safer and improved quality of care for Saskatchewan patients as well as an improved working environment for care providers.
- There are 18 healthcare organizations involved in the deployment of the Saskatchewan Lean Management System.
  - The whole health system is *engaged* – health regions, provincial agencies, community based facilities and providers.

- The whole health system is *aligned* – toward achieving the common goals of defect free, no-waits, compassionate health care – what we know as Patient First
- Lean offers the opportunity to achieve *better health, better care, better value and better teams* for Saskatchewan patients.

## **RESULTS**

### **Kaizen Events**

Kaizen events are small change efforts resulting in improved patient care and safety resulting in large impacts to the healthcare system only when they can be replicated into other regions, across service service lines, system wide.

#### ***Key Metrics:***

Rapid Process Improvement Workshops (RPIWs) yielded the following savings/benefits province-wide:

- 77,335 excess inventory items removed from the system
- 45,117 sq/ft of useable space recovered in health facilities
- 228,179 ft of staff walking eliminated freeing up time for care
- 20,061 hours saved in lead time freeing up time for care
- 3746 quality defects removed from the health system

#### ***Kaizen Examples:***

##### **Reduced changeover time in the operating room, Regina Qu'Appelle Health Region**

There is now the opportunity for more patients to get surgery in Regina Qu'Appelle, thanks to recent changes in how staff clean and prepare operating rooms.

By creating standard instructions for room set-up, identifying which tasks can be done in parallel, documenting and training staff on standard work for room cleaning, and creating visual cues for when an operating room is ready for the next patient, an improvement team reduced by 26% the time it takes to turn over an OR (22 minutes to 16 minutes).

As part of this Rapid Process Improvement Workshop, the team also addressed a number of safety concerns, for example ensuring that cleaning products are left on surfaces the proper

length of time, and ensuring that housekeeping staff do not have to lift bags of linen heavier than 20 lbs.

**Mental Health and Addictions, Regina Qu'Appelle Health Region**

42% of appointments were cancelled; majority by the clinic NOW there are ZERO cancelled appointments by the clinic.

Only 15% of calls were handled by a clinician NOW 85% of calls are handled by a clinician

400 clients on wait list in 2012/13 NOW only 70.

**Faster diagnostic imaging for acute care patients, Prince Albert Parkland Health Region**

Prince Albert Parkland reduced the time from when a diagnostic imaging test is ordered for patients to when the test is completed from nearly 16 minutes to 7 minutes: a 66% reduction.

They did this by reducing defects in the process for requisitioning scans, and by eliminating the walking that X-ray technicians previously did to check requisitions.

**Quicker test results for Saskatchewan patients, Saskatchewan Disease Control Laboratory**

Through an RPIW, the Reference Testing department at the Saskatchewan Disease Control Laboratory cut turnaround time for test results by 26 hours: a 68% reduction (from approximately 40 hours to 12 hours).

They also reduced both the numbers of results that are rechecked and amount of walking by lab staff.

This means reduced patient waiting time for lab results.

**Emergency Room Waits, Saskatoon Health Region**

The Emergency Room at Royal University Hospital in the Saskatoon Health Regions reduced to 0 the number of patients leaving without being treated. Previously about 12 patients per day left the ER because of excessive waits posing a safety issue for those patients.

**Lab results, Victoria Hospital, Prince Albert Health Region**

A laboratory in the Prince Albert Victoria Hospital achieved zero defects in reporting results, and reduced by 96% the overall time it takes to release test results.

**Endoscopy in Lloydminster**

An endoscopy unit at Lloydminster Hospital reduced the time it takes to serve patients from 3 hours to 2 hours 28 minutes.

## **Major Capital 3P Projects**

### ***Children's Hospital of Saskatchewan:***

- Within the NICU, teams created a design that will decrease the distance travelled by staff and newborn, putting the patients and their care givers together faster when complications at birth are identified and the newborn has to leave the delivery room.
- The 3P has resulted in a new model of care for maternal services: women who give birth will no longer have to be transferred from where they deliver to where they recover. Many pregnant women will labour, have their baby and stay with their newborn in the same room – a private room where there will be sleep space for their spouse or supportive partner.
- The Children's Hospital of Saskatchewan Lean design process helped teams find more efficient ways of providing services, while improving the hospital experience for patients and families.

### ***Moose Jaw:***

- Operational efficiencies of \$85 - \$160M over 20 years will be obtained in the Moose Jaw Union Hospital replacement by using Lean design.
- In addition, patient travel will be reduced by 40% and solutions will be implemented to achieve zero quality defects.

### ***Swift Current LTC:***

- The 3P resulted in the design of 10 bed, single storey resident house – the optimal layout for Best Practice for Eden Model LTC.
- House design maximizes patient independence, combating the plagues of aging, helplessness, loneliness and boredom.

### ***Saskatchewan Hospital North Battleford:***

- The 3P resulted in a building design of a single floor facility promoting maximum patient independence and participation in their wellbeing. In addition, the private patient space increased from 85 square ft per patient to 120 square ft per patient.
- The 3P captured the amount of time staff spent delivery direct patient care, 53%. A target of 70% was established, and through simulations it is anticipated that this target will be realized in the new facility.



Other smaller 3Ps have occurred including Battleford Union Hospital ICU and Endoscopy Unit, Yorkton Primary Health Care Clinic, Regina Primary Health Care Clinic, Provincial Laundry, and Saskatoon Health Region Staff Scheduling.

See APPENDIX A for the latest Provincial Kaizen Promotion Office Monthly Report

## **BACKGROUND:**

- Lean is based on the continuous pursuit of improvement through the elimination of waste as defined by the patient. Lean empowers health providers to generate and implement value-added, innovative solutions to problems. Value adding activities are those that directly benefit patients; everything else is waste and should be eliminated, simplified, reduced or integrated.
- In the fall of 2011, the health system took the next step in the Lean journey by working together to develop and deploy Lean as a management system. This Lean Management System (LMS) has involved collectively building the internal capacity, infrastructure, and overall organizational culture needed to advance Lean and to achieve better care, better health, better teams, and better value for the people of Saskatchewan.
- To help establish and deploy the LMS and advance our Lean efforts in the health system, we are receiving professional Lean consulting services from John Black and Associates LLC of Seattle, Washington, USA, who was selected through a public tendering process.
- Negotiations were completed for years one and two of the contract, with an option for annual renewal for up to two more years.
- Recently, the Provincial Kaizen Promotion Office launched BetterHealthCare.ca, a provincial website that shares the story of how Lean is being used to make health care better and safer in Saskatchewan
- See APPENDIX B for patient and provider quotes.

## **LEAN SPENDING TO DATE:** (April 2008 – December 2013)

- **MINISTRY - \$574 K (pre JBA lean consultant costs)**
- **RHAs/SCA - \$6.7 M (Releasing Time to Care, provincial Lean initiatives, pre JBA regional lean consultants)**
- **LEAN MANAGEMENT SYSTEM - \$18.8 M (JBA)**

## **Additional Background Information:**

Since January 2011 the Ministry of Health has invested \$18.8 M (19(1)(a) ) with John Black and Associates to establish the Saskatchewan Lean Management System.

Current measurable return on investment is \$1.8M (Budgeted, Unbudgeted and future avoided costs realized through RPIWs since March 1, 2013)

RPIWs are small tests of change. Full financial impact will be realized through replication across the health system where appropriate.

These dollars do not reflect reporting from all the regions. There have been challenges in the reporting due to lack of standard methodology. Methodology for reporting results, including financial metrics, has now been improved.

The Ministry of Health, the Provincial Kaizen Promotions Team and John Black and Associates have been working with RHAs to improve reporting and will continue to do so into the future.

17(1)(c)

#### Building Improvement Capacity:

- The Ministry of Health's investment with John Black and Associates is resulting in ability for the health system to build capacity so that we are well equipped to self-sustain the Lean Management System and continue to build a culture of continuous improvement where problems are solved everyday.
- Certification involves an intensive "learn do" approach which arms our providers, staff and administrators with improvement knowledge and skills while allowing us to simultaneously achieve improvements in key priority areas. Candidates receive about 10 days of didactic learning and more than 50 days of hands-on learning through participation in improvement work.

#### *Across the health system:*

- 52 Lean Leaders Certified
- 647 staff in Lean Leader Certification
- 42 Physicians in Lean Leader Certification
- 14,405 trained in Kaizen Basics
- 157 Rapid Process Improvement Workshops (RPIWs)
- 316 5S events
- 32 Kanban events
- 13 3Ps
- 64 Mistake Proofing Projects
- More than 1000 staff involved in lean improvement
- 1 or more patients or family representatives in every RPIW

- LMS visibility walls (measurement tracking for improvement efforts) have been established for the Ministry and provincial health system on the third floor at the TC Douglas Building and 'wall walks' for health leaders occur frequently.

*Within the Ministry of Health:*

- 42 staff in Lean Leader Certification
- 379 staff have completed Kaizen Basics
- 5 RPIWs (2 more scheduled before April 2014)

**DATE**  
**BRANCH**  
**CONTACT**  
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**PREPARED BY**

February 6, 2014  
Strategy and Innovation Branch  
Irish Livingstone  
787-3146  
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## **APPENDIX B**

### **Patient Experiences with Lean**

**“This experience was very empowering. I am confident patients are being listened to. This is a game-changer for the patients”**

***☞ Louise Frederick, patient team member who participated on a RPIW focused on ensuring all cancer patients receive consistent assessment and screening for pain and symptoms, every patient, every time.***

**“Patients and families will now be involved in hourly rounds and patients were consulted in redesigning communication boards in patients’ rooms”**

***☞ Patient on a RPIW focused on improving stroke care services.***

**“I am now a believer in these processes our hospitals are using to make things better for patients and families. I trust that they have me in mind, as a regular user of the health care system. I have seen the different changes the region is making as a result of these improvement events. And while some of the processes may still need more work, I know that another patient and or family member will be part of the team to make sure that their important perspective is kept front and center.**

**If you’re invited – as a patient or family member — to participate in one of these improvement events, I encourage you to take advantage of the opportunity. It will be a great learning experience. And it will renew your faith in our health care system. It certainly did for me.”**

***☞ Heather Thiessen, patient who participated on two Rapid Process Improvement Workshops and a 3P event. Heather has been in and out of the health system for the past 15 years to receive care for two chronic conditions: MS and Myasthenia Gravis.***

**“It has been very gratifying to be a part of this. I urge you to continue this improvement work.”**

***☞ Patient team member on RPIW focused on improved standardization in operating room carts.***

**“Stuff got done, I was amazed at how well everyone worked together as a team and how quickly we made things happen in Saskatoon Health Region.”**

***☞ Deb Johnston, patient who participated in a Rapid Process Improvement Workshop in Saskatoon. This team worked on reducing the time for patients who have been in emergency and are required to return for CT scans and ultrasounds.***

## Provider Experiences with Lean

"I was a skeptic, and many of my colleagues feel the same, but after participating, I see definite results that have changed my mind"

*☞ Physician sponsor on a RPIW focused on improving stroke care services.*

"{This has resulted in] happier teams!"

*☞ Dr. Joy Dobson, RQHR referring to a RPIW focused on improving stroke care services.*

"I got into this because there is only once or twice in a lifetime or in a career, where you get to do a big change, something that's really transformative and fundamentally different"

*☞ Dr. Gary Groot, General Surgical Oncologist*

"The greatest achievement, I think, is to shake up the surgical system from complacency. It's to put this out there that we have to improve what we're doing – that the status quo is not acceptable. That is the greatest achievement [and it] speaks to changing the culture."

*☞ Dr. David Kopriva, Vascular Surgeon*

"I am blown away. This work is crucial. It is important for patients to have pain management in a timely way, but it also saves time of doctors and administrators and improves morale. I can't believe what has happened this week"

*☞ Manager, palliative care, whose work areas was subject to a RPIW focused on ensuring all cancer patients receive consistent assessment and screening for pain and symptoms, every patient, every time.*

"This is like an early Christmas gift!"

*☞ Staff member responding to the efforts of the Lean team to improve the way supplies are organized and restocked in her area – giving her more time to spend with patients.*

"[The results are] awesome. Now we stock just what we need. We have a better sense of what's in the storage room. We've saved a lot of money and steps. I kind of mocked this at first but I'm on board now."

*☞ Staff member who participated in a Lean event at the ambulatory care cast clinic. This team returned more than \$15,000 in excess inventory and donated a further \$6,000 worth of equipment to Third World charity.*

## Leader Experiences with Lean

"I'm astounded. I had no idea how amazing they [RPIW team] would be"

☞ *Manager of area where RPIW occurred focused on improved standardization in operating room carts.*

"I wouldn't want to be anywhere else...because I want to be part of this; I want to see it succeed. At a very personal level, it is the most satisfying thing I have ever been associated with."

☞ *Maura Davies, CEO, Saskatoon Health Region*

"We are restlessly impatient for improvement"

☞ *Marlene Smadu, VP, RQHR.*

"The Saskatchewan Union of Nurses welcomes the opportunity for front-line care providers to have their voices heard as changes to patient flow and elimination of waste begins to transform our workplaces. A focus on patient- and family-centered care using best practice evidence and Lean principles will improve the patient experience and return nursing to a rewarding career."

☞ *Rosalee Longmaore, President, Saskatchewan Union of Nurses*

"I'm a lot less frustrated...I can see things happening in my community which is the whole purpose why I ever volunteered to be in a regional health authority in the first place."

☞ *Tina Rasmussen, Board Chair, Keewatin Yatthe Health Region*

"I really see that we [all regions, providers, decision makers] are all focused on the same goals...we can share our experiences...so as a province, we will get ahead a lot quicker"

☞ *Tyler Bragg, Board Chair, Cypress Health Region*

## LEAN IN THE HEALTH SYSTEM

- As the first province in Canada to apply Lean methodology across its entire health system, we are committed to providing patient- and family-centered, high quality care to all people in Saskatchewan.
- We are equally committed to providing taxpayers with the best possible value for their tax dollars. Lean improvements have focused on reducing waits, improving safety and quality of care for Saskatchewan patients as well as an improving the work environment for care providers.
- There are 18 healthcare organizations involved in the deployment of the Saskatchewan Lean Management System. The whole health system is *aligned* – toward achieving the common goals of defect free, no-waits, compassionate health care – what we know as Patient First.
- Lean has become the foundation for achieving *better health, better care, better value and better teams* for Saskatchewan patients and families.
- Total investment in Lean between 2008 and 2014 is \$26M. Total savings captured to date are \$39.9M. This includes budgeted, unbudgeted, and capacity savings.
- Additionally, operational efficiencies of between \$85M - \$160M are expected to be achieved over 20 years through the application of Lean to the design of the new hospital in Moose Jaw.

**LEAN INVESTMENT TO DATE:** (April 2008 - December 2013)

- o **MINISTRY - \$574 K** (pre JBA lean consultant costs)
- o **RHAs/SCA - \$6.7 M** (Releasing Time to Care, provincial Lean initiatives, pre JBA regional lean consultants)
- o **LEAN MANAGEMENT SYSTEM - \$18.8 M** (JBA: LMS + Hoshin Kanri)

**RESULTS OF LEAN**

- During the period from March 1, 2012 to January 31, 2014, a total of **638 Lean improvement events** were completed across the health system: 157 RPIWs, 369 5S events, 32 Kanban events, 13 3Ps, and 67 Mistake Proofing projects
- During the same period, a total of **18 Lean improvement events** were completed within the Ministry of Health: 3 RPIWs (2 more scheduled before April 2014), 1 Kanban event, and 14 5S events.
- These improvement events have resulted in a significant improvement in both quality and efficiency within the system. For example, the 160 RPIWs held across the system (157) and the Ministry of Health (3) have yielded on average:
  - 31% reduction in Space;
  - 45% reduction in Inventory;
  - 72% reduction in Defects (e.g. medical errors, falls, etc.); and
  - 52% reduction in Patient Lead Time.
- The estimated savings from these 160 RPIWs are **\$1.8M** (see the table below).

	<b>Budgeted Savings</b>	<b>Unbudgeted Savings</b>	<b>Avoided Future Cost</b>	<b>Capacity Increase 1</b>	<b>Capacity Increase 2</b>
Space total	n/a	n/a	\$76,171		
Inventory	\$60		\$18,053		
Quality (Defects + Standard work)	\$374	\$876,000	\$0		\$1,058
Productivity Gain (people)	\$20,880	\$507,174	\$4,490	\$0	\$347,149
5S total	\$0	\$10,330	\$1,758	n/a	n/a
<b>Total Savings</b>	<b>\$21,314</b>	<b>\$1,393,504</b>	<b>\$100,472</b>		<b>\$348,207</b>

Note:

- **Capacity Increase 1:** With potential hard savings with replication (one RPIW may show low hard savings, but once replicated across region will result in significant savings) **Capacity Increase 2:** Avoided future cost
- **RPIWs are small tests of change. Full financial impact will be realized through replication across the health system where appropriate.**



## LEAN TRAINING ACROSS THE SYSTEM

- One of the most critical components of the LMS is education and training of providers on Lean. Lean Leader Certification involves an intensive “learn do” approach which arms our providers, staff and administrators with improvement knowledge and skills while allowing them to simultaneously achieve improvements in key priority areas. Candidates receive about 10 days of didactic learning and more than 50 days of hands-on learning through participation in improvement work.
- As of January 31, 2014, a total of 71 staff and physicians have been certified as Lean Leaders; 718 staff and physicians are currently in Lean Leader Certification training; 15,726 staff have received Kaizen Basics training across the health system and the Ministry of Health.

	<b>Health System</b>	<b>Ministry of Health</b>	<b>Total</b>
<b># of Lean Leader Certified</b>	62 staff 4 Physicians	5 staff	71
<b># of staff in Lean Leader Certification</b>	636 staff 40 physicians	42 staff	718
<b># of staff trained in Kaizen Basics</b>	15,349 staff	377 staff (79% of Ministry staff)	15,726

- More than 1,000 staff have been involved in Lean improvement across the system. Every RPIW involved one or more patient and family advisors (PFAs) in order to incorporate patient and family perspectives and inputs into quality improvement and safety.
- LMS visibility walls (measurement tracking for improvement efforts) have been established for the Ministry and provincial health system on the third floor at the TC Douglas Building and ‘wall walks’ for health leaders occur frequently.

## LEAN IMPROVEMENT EXAMPLES

### Major Capital 3P Projects

- The Children's Hospital of Saskatchewan Lean design process helped teams find more efficient ways of providing services, while improving the hospital experience for patients and families. The result was a 15.6% reduction of space required at a cost savings of approximately \$30M - \$45M (**the Children's Hospital of Saskatchewan, Saskatoon Health Region**)
- Operational efficiencies of \$85 to \$160M over 20 years are anticipated in the Moose Jaw Union Hospital replacement by using Lean design. In addition, patient travel is anticipated to be reduced by 40% and solutions will be implemented to achieve zero quality defects (**Moose Jaw Union Hospital, Five Hills Health Region**)
- The 3P resulted in an approximate 9% decrease in construction costs. Construction costs were originally estimated at \$12.2M and were reduced to \$11.1M. The hospital had a

21% decrease in size. The reduction allowed for additional funding for renovations in the long-term care portion of the proposed integrated facility (**Kelvington Integrated Facility, Kelsey Trail Health Region**).

- The 3P held at the LTC facility in Swift Current resulted in the design of 10 bed, single story resident house – the optimal layout for Best Practice for Eden Model LTC (a model for resident-centred care). House design maximizes patient independence, combating the plagues of aging, helplessness, loneliness and boredom (**Swift Current LTC, Cypress Health Region**)
- The 3P resulted in a building design of a single floor facility promoting maximum patient independence and participation in their wellbeing. In addition, the private patient space increased from 85 square ft per patient to 120 square ft per patient. The 3P captured the amount of time staff spent delivery direct patient care, 53%. A target of 70% was established, and through simulations it is anticipated that this target will be realized in the new facility (**Saskatchewan Hospital North Battleford, Prairie North Health Region**)

#### **Other 3Ps**

- Smaller 3Ps have occurred including:
  - Battleford Union Hospital ICU and Endoscopy Unit;
  - Yorkton Primary Health Care Clinic;
  - Regina Primary Health Care Clinic;
  - Provincial Laundry;
  - Saskatoon Health Region Staff Scheduling; and
  - Stop the Line/Patient Safety Alert System.

#### **Other Lean Improvement Example**

- Within the Ministry of Health, improvements to inventory management of vaccine products resulted in one time savings of \$1.3 million, and through the Blood and Plasma Products improvement project we have saved \$35 million since 2010 (**Ministry of Health**).
- An operating room in Prince Albert achieved a 33% reduction in space required, 73% reduction in number of inventory items, 100% reduction in nursing time replenishing items, and 88% productivity gain for staff (**Victoria Hospital, Prince Albert Parkland Health Region**).
- A laboratory in Prince Albert Victoria Hospital achieved zero defects in reporting results, and reduced by 96% the overall time it takes to release test results (**Victoria Hospital, Prince Albert Parkland Health Region**).
- A mental health clinic in Regina reduced cancelled and rescheduled appointments from 42 per cent to zero. It also reduced the number of clients on wait list from 400 in 2012-13 to 70 as of January 31, 2014 (**Regina Qu'Appelle Health Region**).

- An endoscopy unit reduced by 21% (from 3 hours 7 minutes to 2 hours 28 minutes) the time it takes to serve patients (**Lloydminster Hospital, Prairie North Health Region**).
- An emergency room reduced to 0 the number of patients leaving without being treated. Previously about 12 patients per day left the ER because of excessive waits (**Saskatoon Health Region**).
- The Reference Testing department at the Saskatchewan Disease Control Laboratory cut turnaround time for test results by 26 hours: a 68% reduction (from approximately 40 hours to 12 hours) which translates into quicker lab results for patients (**the Saskatchewan Disease Control Laboratory, the Ministry of Health**).
- The Emergency Room at Royal University Hospital in the Saskatoon Health Regions reduced to 0 the number of patients leaving without being treated. Previously about 12 patients per day left the ER because of excessive waits posing a safety issue for those patients (**Royal University Hospital, Saskatoon Health Region**).

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## **APPENDIX A: Background**

- Lean is based on the continuous pursuit of improvement through the elimination of waste as defined by the patient. Lean empowers health providers to generate and implement value-added, innovative solutions to problems. Value adding activities are those that directly benefit patients; everything else is waste and should be eliminated, simplified, reduced or integrated.
- Lean was first introduced in the health system in 2006 in the Five Hills Health Region. The Ministry of Health launched Lean internally in 2008 and all other Regional Health Authorities and the Saskatchewan Cancer Agency began their respective Lean journeys in 2009.
- In the fall of 2011, health system leaders recognized the importance of building the internal capacity, infrastructure and overall organizational culture to further advance Lean in Saskatchewan and decided to develop and deploy Lean as a management system (i.e. Lean Management System)
- Through the public tending process, the John Black and Associates (JBA) was selected as a successful vendor for assisting the health system in establishing and deploying the Lean Management System (LMS).

### 17(1)(c)

- The Provincial Kaizen Promotion Office (PKPO) was established at the Ministry of Health in April 2012, to facilitate implementation of LMS through coordinating and supporting Lean improvement initiatives across the system. The function of the PKPO has been transferred to the Health Quality Council (HQC) effective April 1, 2013.
- A total of six KPOs were established in Saskatchewan during year one of the LMS (2012-13). The sites include the Ministry of Health, Saskatoon, Regina, Moose Jaw, Prince Albert and North Battleford. Other Regional Health Authorities (RHAs) and affiliated partners are currently transitioning their Quality Improvement areas to KPOs.
- The role of the Kaizen Promotion Offices (KPOs) is to implement the LMS within their own organization. Other important roles include setting direction for Lean improvement events, providing consistent training and application of Lean methods, ensuring visibility and accountability, developing health system Lean leaders, making rapid improvements and educating their own organization in Lean concepts.
- Recently, the PKPO launched BetterHealthCare.ca, a provincial website that shares the story of how Lean is being used to make health care better and safer in Saskatchewan.

## Appendix B: Detailed Lean Investment To-Date

Initiative	Spent	Progress of Implementation
Lean in Ministry	\$574,417 <sup>a</sup>	Costs incurred since 2008 have been to develop 28 active Lean initiatives, train senior leadership and provide cultural change management.
Lean in RHAs/SCA	\$3,856,192 <sup>b</sup>	RHAs and the SCA have completed foundational Lean training and all have Lean initiatives underway. In total, approximately 300 Lean improvement initiatives have been completed or are currently active.
Lean Advancement	\$2,217,053 <sup>c</sup>	In Spring 2011, additional funding was provided to Regina Qu'Appelle Health Region, Saskatoon Health Region and Provincial initiatives to advance Lean improvement efforts.
RTC	\$630,000 <sup>d</sup>	Since 2008 RTC has been implemented and is now in 100% of all adult medical / surgical beds in regional and tertiary hospitals in Saskatchewan.
Hoshin Kanri (HK)	\$890,806 <sup>e</sup>	Hoshin Kanri efforts led to the completion of the Health System Plans for 2012-13, 2013-14 and 2014-15. Ministry has a contract with John Black and Associates.
Lean Management System (LMS)	\$17,916,566 <sup>f</sup>	Ministry has entered into the following three contracts with John Black and Associates: <ul style="list-style-type: none"> <li>o Year one (April 1, 2012 – March 31, 2013): \$10,329,105;</li> <li>o Year two (April 1, 2013 – March 31, 2014): \$9,861,507; and</li> <li>o Year three (April 1, 2014 – June 30, 2014): \$3,574,715.</li> </ul>

### Notes:

<sup>a</sup> A breakdown of Ministry Lean costs - (2008: \$40,673; 2009: \$101,483; 2010: \$207,924; 2011: \$141,934; 2012: \$82,405; 2013: 0)

<sup>b</sup> In May 2009, the Ministry of Health provided RHAs and the SCA with a common strategic framework for implementing Lean and one-time funding in the amount of \$5,000,000 (\$4,800,000 was distributed to RHAs and SCA; \$200,000 was held back for provincial initiatives, including the development of online learning modules)

<sup>c</sup> Athabasca RHA is not included in Lean funding spent. Lean funding spent by RHAs is as of June 12, 2012.

<sup>d</sup> Allocations were \$1,000,000 to RQHR, \$1,000,000 to SHR and \$2,000,000 to Provincial initiatives.

<sup>e</sup> RHA amounts spent are as of June 12, 2012. SHR spent \$857,048 on Lean design (3PI) at the Children's Hospital of Saskatchewan. RQHR has not spent any amount yet. According to HQC, as of October 15, 2012, \$1,360,005 had been spent on provincial Lean initiatives.

<sup>f</sup> RTC funds are managed by HQC. HQC has released \$630K in funding to-date to the RHAs. Two northern RHAs did not participate in RTC.

<sup>g</sup> SAHO paid John Black and Associates (JBA) fees for Hoshin Kanri efforts. Hoshin Kanri is for the benefit of the entire provincial health system.

<sup>h</sup> The LMS budget for 2012-13 is for the benefit of the entire provincial health system.

<sup>i</sup> LMS spending includes JBA 2011 fees (\$112,295,461), the interim contract during the negotiation (\$1,231,706,401), the Year One contract invoices paid (\$9,665,475,431) and the Year Two contract invoices paid to-date (\$6,907,089).

- As of January 31, 2014, the Ministry of Health has invested \$18.8 M (19(1)(a) ) with JBA to establish the Saskatchewan Lean Management System.

## **APPENDIX C: Quotes from Patients, Providers and Leaders**

### **Patient Experiences with Lean**

"This experience was very empowering. I am confident patients are being listened to. This is a game changer for the patients

- ☞ Louise Frederick, patient team member who participated on a RPIW focused on ensuring all cancer patients receive consistent assessment and screening for pain and symptoms, every patient, every time.*

"I am now a believer in these processes our hospitals are using to make things better for patients and families. I trust that they have me in mind, as a regular user of the health care system. I have seen the different changes the region is making as a result of these improvement events. And while some of the processes may still need more work, I know that another patient and or family member will be part of the team to make sure that their important perspective is kept front and center.

- ☞ Heather Thiessen, patient who participated on two Rapid Process Improvement Workshops and a 3P event. Heather has been in and out of the health system for the past 15 years to receive care for two chronic conditions: MS and Myasthenia Gravis.*

"Stuff got done, I was amazed at how well everyone worked together as a team and how quickly we made things happen in Saskatoon Health Region."

- ☞ Deb Johnston, patient who participated in a Rapid Process Improvement Workshop in Saskatoon. This team worked on reducing the time for patients who have been in emergency and are required to return for CT scans and ultrasounds.*

### **Provider Experiences with Lean**

I was a skeptic, and many of my colleagues feel the same, but after participating, I see infinite results that have changed my mind

- ☞ Physician sponsor on a RPIW focused on improving stroke care services.*

"The greatest achievement is that it has shifted the culture of the system – from complacency, it is to put this out there that we have to improve what we're doing – that the status quo is not acceptable. That is the greatest achievement (and it) speaks to changing the culture."

- ☞ Dr. David Kopriva, Vascular Surgeon*

"I am blown away. This work is crucial. It is important for patients to have pain management in a timely way, but it also saves time of doctors and administrators and improves morale. I can't believe what has happened this week"

**☞ Manager, palliative care, whose work areas was subject to a RPIW focused on ensuring all cancer patients receive consistent assessment and screening for pain and symptoms, every patient, every time.**

"[The results are] awesome. Now we stock just what we need. We have a better sense of what's in the storage room. We've saved a lot of money and steps. I kind of mocked this at first but I'm on board now."

**☞ Staff member who participated in a Lean event at the ambulatory care cast clinic. This team returned more than \$15,000 in excess inventory and donated a further \$6,000 worth of equipment to Third World charity.**

### **Leader Experiences with Lean**

"I'm astounded. I had no idea how amazing they [RPIW team] would be"

**☞ Manager of are where RPIW occurred focused on improved standardization in operating room carts.**

"I wouldn't want to be anywhere else...because I want to be part of this; I want to see it succeed. At a very personal level, it is the most satisfying thing I have ever been associated with."

**☞ Maura Davies, CEO, Saskatoon Health Region**

The Saskatchewan Union of Nurses welcomes the opportunity for front-line care providers to have their voices heard as changes to patient flow and elimination of waste begins to transform our workplaces. A focus on patient- and family-centered care using best practice evidence and Lean principles will improve the patient experience and return nursing to a rewarding career.

**☞ Rosalee Longmoore, President, Saskatchewan Union of Nurses**

"I really see that we [all regions, providers, decision makers] are all focused on the same goals. We can share our experiences. So as a province, we will get ahead a lot quicker"

**☞ Tyler Bragg, Board Chair, Cypress Health Region**

Quarterly Tracking of Lean Implementation - All Lean Activity (VSM, Kaizens, and Other Lean Tools) Plus Other Efficiency Initiatives

Ministry of Health

Allan Park Hospital										Thompson Rivers Health			Chilukotter Health
Project Name	Type of Lean Tool	Year of Implementation	Status	Impact	Cost	Savings	Patient Safety	Quality	Efficiency	Financial Impact			Notes
										Cost	Savings	ROI	
Inventory and Utilization	Lean	2015-16	Completed	Improved inventory management	\$15,000,000	\$1,000,000	0.0	50	50	0.0	50	50	Approximately 33% of inventory was used through the project and follow-up and 40% improvement in annual demand rate for units of red blood cells (RBC) 13.
Reduction of Inventory	Lean	2015-16	Completed	Improved inventory management	\$15,000,000	\$1,000,000	0.0	50	50	0.0	50	50	<ul style="list-style-type: none"> <li>Patients are receiving better blood</li> <li>Right blood in right place when needed</li> <li>Hospital staff have an enhanced understanding of the provincial, regional and hospital blood availability requirements (RBC) has been utilized during recent blood shortages</li> <li>National best practice standards are being applied to specific Saskatchewan patient populations using high cost plasma and platelet products</li> <li>Minerals like calcium in donated plasma are replaced by synthetic products</li> <li>Very good work - Cost savings due to a 40% reduction in RBCs</li> <li>Discharge rate for units of red blood cells was 200% IC</li> <li>Continued inventory management</li> <li>Enhanced engagement and increased experience of blood level</li> </ul>
Reduction of Discharge Abstract Database Submissions (DAD) with CSB	VSM	2015-16	In Progress	Reduced DAD submissions	100,000	100,000	0.0	80	80	0.0	80	80	<ul style="list-style-type: none"> <li>Very good work - Cost savings due to a 40% reduction in RBCs</li> <li>Discharge rate for units of red blood cells was 200% IC</li> <li>Continued inventory management</li> <li>Enhanced engagement and increased experience of blood level</li> </ul>
Reduction of Discharge Abstract Database Submissions (DAD) with CSB	VSM	2015-16	In Progress	Reduced DAD submissions	100,000	100,000	0.0	80	80	0.0	80	80	<ul style="list-style-type: none"> <li>Very good work - Cost savings due to a 40% reduction in RBCs</li> <li>Discharge rate for units of red blood cells was 200% IC</li> <li>Continued inventory management</li> <li>Enhanced engagement and increased experience of blood level</li> </ul>



Quarterly Tracking of Lean Implementation - All Lean Activity [VSM, Kaizen, and Other Lean Tools] Plus Other Efficiency Initiatives

Behind the Project

Project Name	VSM		Kaizen		Other Lean Tools		Other Efficiency Initiatives		Quantitative Results		Qualitative Results	Comments
	Yes	No	Yes	No	Yes	No	Yes	No	\$	Units		
<p>Project description: [Redacted]</p> <p>Manager Assigned: [Redacted]</p> <p>Requester: [Redacted]</p> <p>Request Date: [Redacted]</p> <p>Request Status: [Redacted]</p> <p>Request Type: [Redacted]</p> <p>Request Category: [Redacted]</p> <p>Request Sub-category: [Redacted]</p> <p>Request Priority: [Redacted]</p> <p>Request Urgency: [Redacted]</p> <p>Request Reason: [Redacted]</p> <p>Request Impact: [Redacted]</p> <p>Request Risk: [Redacted]</p> <p>Request Complexity: [Redacted]</p> <p>Request Effort: [Redacted]</p> <p>Request Budget: [Redacted]</p> <p>Request Resources: [Redacted]</p> <p>Request Status: [Redacted]</p> <p>Request Date: [Redacted]</p> <p>Request Status: [Redacted]</p> <p>Request Type: [Redacted]</p> <p>Request Category: [Redacted]</p> <p>Request Sub-category: [Redacted]</p> <p>Request Priority: [Redacted]</p> <p>Request Urgency: [Redacted]</p> <p>Request Reason: [Redacted]</p> <p>Request Impact: [Redacted]</p> <p>Request Risk: [Redacted]</p> <p>Request Complexity: [Redacted]</p> <p>Request Effort: [Redacted]</p> <p>Request Budget: [Redacted]</p> <p>Request Resources: [Redacted]</p>												
<p>Project description: [Redacted]</p> <p>Manager Assigned: [Redacted]</p> <p>Requester: [Redacted]</p> <p>Request Date: [Redacted]</p> <p>Request Status: [Redacted]</p> <p>Request Type: [Redacted]</p> <p>Request Category: [Redacted]</p> <p>Request Sub-category: [Redacted]</p> <p>Request Priority: [Redacted]</p> <p>Request Urgency: [Redacted]</p> <p>Request Reason: [Redacted]</p> <p>Request Impact: [Redacted]</p> <p>Request Risk: [Redacted]</p> <p>Request Complexity: [Redacted]</p> <p>Request Effort: [Redacted]</p> <p>Request Budget: [Redacted]</p> <p>Request Resources: [Redacted]</p>												

Quarterly Tracking of Lean Implementation - All Lean Activity (VSM, Kaizen, and Other Lean Tools) Plus Other Efficiency Initiatives

Annual Report										Fiscal Year 2011				Fiscal Year 2012				Fiscal Year 2013				Fiscal Year 2014											
Project Name	Project Description	Start Date	End Date	Status	Phase	Lead	Sponsor	Budget	Actual	Variance	ROI	Risk	Impact	Benefits	Challenges	Lessons Learned	Next Steps	2011				2012				2013				2014			
																		Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<p><b>Healthcare Initiatives - Adult Complete Cases</b></p> <p>Project Name: <b>Healthcare Initiatives - Adult Complete Cases</b>                      Project Description: <b>Healthcare Initiatives - Adult Complete Cases</b>                      Start Date: <b>01/01/2011</b>                      End Date: <b>12/31/2014</b>                      Status: <b>Completed</b>                      Phase: <b>Completed</b>                      Lead: <b>John Doe</b>                      Sponsor: <b>John Doe</b>                      Budget: <b>\$50,000</b>                      Actual: <b>\$50,000</b>                      Variance: <b>\$0</b>                      ROI: <b>100%</b>                      Risk: <b>Low</b>                      Impact: <b>High</b>                      Benefits: <b>Improved patient care, reduced costs, increased efficiency.</b>                      Challenges: <b>Staff resistance, limited resources.</b>                      Lessons Learned: <b>Clear communication, staff training.</b>                      Next Steps: <b>None.</b></p>																																	
<p><b>Healthcare Initiatives - Youth Complete Cases</b></p> <p>Project Name: <b>Healthcare Initiatives - Youth Complete Cases</b>                      Project Description: <b>Healthcare Initiatives - Youth Complete Cases</b>                      Start Date: <b>01/01/2011</b>                      End Date: <b>12/31/2014</b>                      Status: <b>Completed</b>                      Phase: <b>Completed</b>                      Lead: <b>John Doe</b>                      Sponsor: <b>John Doe</b>                      Budget: <b>\$50,000</b>                      Actual: <b>\$50,000</b>                      Variance: <b>\$0</b>                      ROI: <b>100%</b>                      Risk: <b>Low</b>                      Impact: <b>High</b>                      Benefits: <b>Improved patient care, reduced costs, increased efficiency.</b>                      Challenges: <b>Staff resistance, limited resources.</b>                      Lessons Learned: <b>Clear communication, staff training.</b>                      Next Steps: <b>None.</b></p>																																	

Quarterly Tracking of Lean Implementation - All Lean Activity [VSM, Kaizens, and Other Lean Tools] Plus Other Efficiency Initiatives

Description of the process	About the Step(s)												Impact/Value					
	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q	1Q	2Q	3Q	4Q						
Operational Excellence - Operational Excellence Process	<p>2008 No 2009-11 In Progress</p> <p>2010-12 Not Implemented</p>												<p>Continuity working on Phase 2C. Expected benefits were not implemented.</p> <ul style="list-style-type: none"> <li>To complete 100% of operational reviews once every two years.</li> <li>Managerial reimbursement has been implemented. Operational Review (functions) have been completed and all leaders with entry office at May and June 2011 have been reviewed. Admin: HQ PCH</li> <li>Process and results (O) - PCH</li> <li>Process: HQ Expected outcomes: To reduce the number of actions left in PCH by 50% (reduction by 25% complete 50% of improvements prior to launch starting 1/1/11)</li> <li>Start every 2 years based on 1/1/11 goal. (The original outcome was to be in PCH 1 per year, however this was changed following the President's Office's request which was implemented independent based on risk)</li> <li>To start and implement more items at least once every year.</li> <li>Following the 1st report the plan to be in PCH every year will be modified to be in PCH 1 per year, however this will be implemented by the next operational grid review.</li> <li>Highly wide standardizing and templates have been implemented and are improving the billing cycle process.</li> </ul>					
Deputy's Office - Bringing More Patients/Process	USM	No	2011-11	Completed	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	50	50	50	50
Drug Plan - Income Targeted Benefit Programs Claims, Premiuming	IM	No	2009-10	Completed	100%	100%	100%	100%	100%	100%	100%	100%	100%	100%	50	50	50	50

Quarterly Tracking of Lean Implementation - All Lean Activity (VSM, Kaizens, and Other Lean Tools) Plus Other Efficiency Initiatives

In Progress at the End of the Quarter	About the Project												Final Status: Open / Closed	
	Project Name	Project Lead	Start Date	End Date	2011:12 Completed (Y/N)	2012:1 Completed (Y/N)	2012:2 Completed (Y/N)	2012:3 Completed (Y/N)	2012:4 Completed (Y/N)	2013:1 Completed (Y/N)	2013:2 Completed (Y/N)	2013:3 Completed (Y/N)		2013:4 Completed (Y/N)
Drug Plan and Extended Benefits - Online Claims Billing	Project Name	Project Lead	Start Date	End Date	2011:12 Completed (Y/N)	2012:1 Completed (Y/N)	2012:2 Completed (Y/N)	2012:3 Completed (Y/N)	2012:4 Completed (Y/N)	2013:1 Completed (Y/N)	2013:2 Completed (Y/N)	2013:3 Completed (Y/N)	2013:4 Completed (Y/N)	Final Status: Open / Closed
Drug Plan and Extended Benefits - Palliative Care	Project Name	Project Lead	Start Date	End Date	2011:12 Completed (Y/N)	2012:1 Completed (Y/N)	2012:2 Completed (Y/N)	2012:3 Completed (Y/N)	2012:4 Completed (Y/N)	2013:1 Completed (Y/N)	2013:2 Completed (Y/N)	2013:3 Completed (Y/N)	2013:4 Completed (Y/N)	Final Status: Open / Closed
Drug Plan and Extended Benefits - PDU Program	Project Name	Project Lead	Start Date	End Date	2011:12 Completed (Y/N)	2012:1 Completed (Y/N)	2012:2 Completed (Y/N)	2012:3 Completed (Y/N)	2012:4 Completed (Y/N)	2013:1 Completed (Y/N)	2013:2 Completed (Y/N)	2013:3 Completed (Y/N)	2013:4 Completed (Y/N)	Final Status: Open / Closed



Quarterly Tracking of Lean Implementation - All Lean Activity (VSM, Kaizen, and Other Lean Tools) Plus Other Efficiency Initiatives

Project Name	Project Lead	Start Date	End Date	Status	Quarterly Progress										Qualitative Results		
					Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2		Q3	Q4
<p><b>Drug Plan - Special Needs Equipment Requisition Process</b></p> <p>Special Care Home</p>	Kaizen	4Q	2011-12	Completed (Event only)	Yes	No	18K (100%)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	<ul style="list-style-type: none"> <li>Elimination of duplicate entry at Special-Care Home</li> <li>Eliminate requirement of duplicate documents with a weekly log from Central Requisition Agency</li> <li>Secure online access for resident HES</li> <li>Anticipated save based at the Special-Care Hospital level and Ministry.</li> </ul>
<p><b>Plant Tools Service - Information Form Collection Process</b></p>	VSM	4Q	2008-10	Completed (Event & Implementations)	No	No	18K (100%)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	<ul style="list-style-type: none"> <li>Standardized information processes and</li> <li>Standardized information systems and processes - most concrete outcomes to date have been time saving, staff satisfaction, increased efficiency and reduction in information.</li> </ul>
<p><b>Hospital Services Branch - Canadian Annual Oil/Tire Processing</b></p>	VSM	4Q	2008-09	Completed (Event & Implementations)	No	No	18K (100%)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	<ul style="list-style-type: none"> <li>Reduced processing time for requests from 10 days to 2 days.</li> <li>In the first quarter of 2011/12 the average turnaround is 10 days which is under the original target of 14 to 15 days.</li> <li>Eliminated backlog of 2100 claims</li> <li>Achieved an 8% improvement in waste processing time for permit - 6 days down to 4.4 days</li> <li>In the first quarter of 2011/12 the average turnaround was 19 days</li> </ul>
<p><b>Medical Services Branch - Out of Country Claims Processing</b></p>	VSM	4Q	2008-09	Completed (Event & Implementations)	No	No	18K (100%)	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	\$0	<ul style="list-style-type: none"> <li>Reduced processing time for requests from 10 days to 2 days.</li> <li>In the first quarter of 2011/12 the average turnaround is 10 days which is under the original target of 14 to 15 days.</li> <li>Eliminated backlog of 2100 claims</li> <li>Achieved an 8% improvement in waste processing time for permit - 6 days down to 4.4 days</li> <li>In the first quarter of 2011/12 the average turnaround was 19 days</li> </ul>







Quarterly Tracking of Lean Implementation - All Lean Activity (VSM, Kaizen, and Other Lean Tools) Plus Other Efficiency Initiatives

Project Name	Quarterly Progress												Quarterly Budgets				Qualitative Results		
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4			
<p><b>Sanofi/Chiron Disease Control Lab - Molecular A Inventory Management</b></p> <p>Inventory reduced by 20%</p> <ul style="list-style-type: none"> <li>Eliminated the need for one entire storage area.</li> <li>Reordering time reduced by 50%</li> <li>Receiving time reduced 4000 US by 2 minutes</li> </ul>																			
<p><b>Sanofi/Chiron Disease Control Lab - Testing workflow (sequencing, vials, DNA)</b></p>																			
<p><b>Capital Planning Process</b></p>																			

Quarterly Tracking of Lean Implementation - All Lean Activity (VSM, Kaizen, and Other Lean Tools) Plus Other Efficiency Initiatives

Mount Top Project										Mount Laryspain DS				Healthcare Benefits		
Year	Q1	Q2	Q3	Q4	YTD	Q1	Q2	Q3	Q4	YTD	Q1	Q2	Q3	Q4	YTD	
Project Name	Start	End	Lead	Owner	Impact	Start	End	Lead	Owner	Impact	Start	End	Lead	Owner	Impact	
Health Provider Gateway Program	2013-13	2013-13	2013-13	2013-13	2013-13	2013-13	2013-13	2013-13	2013-13	2013-13	2013-13	2013-13	2013-13	2013-13	2013-13	<ul style="list-style-type: none"> <li>There were approximately 500 changes of all files that were completed in 2013/13 and an additional 100 files are to be added by December 2013.</li> <li>Recommended changes to the program have been successfully implemented.</li> <li>Realization of these changes was completed March 1, 2013 and a review of the report was shared with the RWJ's. Further changes have been made to the Clinical Placement offices which would help the process for the Clinical Placement Coordinators by streamlining the need to confirm location of the final placement, reducing processing time for applicants.</li> <li>Review of the Home Practitioner database is underway with possible changes to be made in 2013-14.</li> <li>Effective April 1, 2013 approval was given to have applicants enter all physician specialties identified by the Program Registration Agency of Social Security (SSA). Data Sharing Agreement established. WPIG and applicants working with PHS to transfer all electronic and paper medical files for patients has been achieved.</li> <li>Space required for archive reduced by 55% (PH to 20 sq. ft.).</li> <li>Waiting distance for staff reduced 90%.</li> <li>Productivity has improved, which has resulted in a 22% increase in capacity at this site.</li> <li>Process inefficiencies in completion was lowered by 45%.</li> <li>Waiting distance for staff has been reduced 90%.</li> <li>Costs have been reduced by 60%.</li> <li>Staff time required by 10%.</li> <li>This began to reduce the standard work and a decision was announced to use when making an invoice to reduce errors. Client impact is yet to be realized as new patients are still being implemented.</li> </ul>
Drug Plan Customer Care										100%					50	<ul style="list-style-type: none"> <li>Space required for archive reduced by 55% (PH to 20 sq. ft.).</li> <li>Waiting distance for staff reduced 90%.</li> <li>Productivity has improved, which has resulted in a 22% increase in capacity at this site.</li> <li>Process inefficiencies in completion was lowered by 45%.</li> </ul>
AP Ambulance Billing										95 (100)					50	<ul style="list-style-type: none"> <li>Space required for archive reduced by 55% (PH to 20 sq. ft.).</li> <li>Waiting distance for staff reduced 90%.</li> <li>Productivity has improved, which has resulted in a 22% increase in capacity at this site.</li> <li>Process inefficiencies in completion was lowered by 45%.</li> </ul>



Quarterly Tracking of Lean Implementation - All Lean Activity (VSM, Kaizens, and Other Lean Tools) Plus Other Efficiency Initiatives

About the Project	Calendar Year												Quantitative Benefits	Other Qualitative Benefits	
	09	10	11	12	13	14	15	16	17	18	19	20			
<p>HEALTHCARE: The project is an administrative improvement project.</p> <p>Lower Extremity Wound Care</p> <p>Standardization of Physician Quality Measurement Voluntary Standard</p> <p>Healthcare Patient Experience Mapping</p> <p>Healthcare Operating Session</p>															
<p>HEALTHCARE: The project is an administrative improvement project.</p> <p>Lower Extremity Wound Care</p>															
<p>HEALTHCARE: The project is an administrative improvement project.</p> <p>Standardization of Physician Quality Measurement Voluntary Standard</p>															
<p>HEALTHCARE: The project is an administrative improvement project.</p> <p>Healthcare Patient Experience Mapping</p>															
<p>HEALTHCARE: The project is an administrative improvement project.</p> <p>Healthcare Operating Session</p>															

Calendar Year	09	10	11	12	13	14	15	16	17	18	19	20
<p>Lower Extremity Wound Care</p>												
<p>Standardization of Physician Quality Measurement Voluntary Standard</p>												
<p>Healthcare Patient Experience Mapping</p>												
<p>Healthcare Operating Session</p>												

YOU RESPONSIBLE

HEALTHCARE

SUMMARY OF LEAN ACTIVITY	
How many Lean VSM events has the health system undertaken [cumulative]?	570 Kaizen Events *See below for breakdown
Has the health system implemented Lean Management?  Saskatchewan's health care system has begun the long-term process of implementing Lean Management. There is no end date to this work – there will always be opportunities to make care safer, timelier, more effective and more efficient. The investment in and application of Lean methodology is not a time-limited project, but rather a new way of managing and delivering health care, and a new way of relating to and working with patients as partners in their care.  We have learned from other systems that have adopted Lean that this change is a long-term journey. For example, Virginia Mason has made huge improvements since first adopting Lean in 2001, and they are still constantly working to become better.	

QUESTION	RESPONSE
	<ul style="list-style-type: none"> <li>• We now have one common improvement method for making health care better in this province. We have a common set of operating philosophies and methods for ensuring that we are creating maximum value for patients by reducing waste including the waste of time waiting for service. Committing to one methodology offers the opportunity for us all to learn together, so that we can think and act as one system.</li> <li>• More than 800 leaders and managers will receive in-depth knowledge about and the capability to apply Lean principles and methods, through a rigorous certification process called Lean Leader Training.</li> <li>• We now have specific approaches to continually improve the way we organize and deliver care, including Rapid Process Improvement Workshops (RPIWs), Kanban, 5S campaigns, and mistake-proofing, as well as tools such as value stream mapping, daily visual management and standard work. Lean is providing leaders, managers and providers with new tools for examining processes to determine what adds value in the eyes of the patients we serve.</li> <li>• We are learning from other high-performing systems. A key component of Lean training is visiting and learning from a few North American industries and health care systems that are very experienced in using Lean to deliver maximum value to their respective customers.</li> <li>• Lean is helping change the health care culture to one where everyone – clinicians, administrators, support staff, provincial agencies, patients and family members – understand they have a role in identifying opportunities to make care safer and better, and that leadership's role is to remove barriers to improvement. The Lean methodology is engaging and</li> </ul>

empowering team members to bring forward and implement solutions that result in better patient care.

- Lean has also introduced our health care system to a new approach to planning and setting targets (Hoshin Kanri). Through our visioning sessions we are engaging stakeholders, care providers, patients and family members in identifying problems and collectively providing solutions with actionable desired outcomes. Additionally, we are identifying when actions will be complete and by whom, which will ensure accountability and progress towards our goals and outcomes.
- We are learning how to work differently:
  - Leaders are starting to go to where the work is done to see and learn; ask questions and listening to those closest to the work for their ideas on how to make improvements; and remove barriers.
  - Staff are testing improvement ideas on a small scale and learning from these experiments.
  - People are being encouraged to treat failures as opportunities to learn.
  - Organizations are standardizing work, by documenting in writing the steps involved in work, everyone know what is expected of them. If there is no standard, then there can be no improvement.
  - Staff are being encouraged to “stop the line” to prevent mistakes and mistake proof processes to eliminate defects.
  - Leaders and managers are learning that improvements come by attacking flawed processes, not by blaming the people carrying out those processes.

**Key metrics:**

- 570 Kaizen Events: 157 RPIWs, 13 3P events, 33 kanban events, 51 mistake-proofing projects, and 316 5S events.
- Over 600 lean leaders in training throughout the province with 52 people fully certified.
- 14,405 health care workers trained in Kaizen Basics.
- Kanban seminars have resulted in an inventory cost reduction from \$244,377 to \$125,199.
  - Note: 3SHealth is now working on a provincial strategy to roll Kanban out province wide and into multiple service lines.
- 45 of 51 mistake-proofing projects have been handed off to their process owner (i.e. achieved 0 defects), while the remaining teams continue to work until they reach 0.

Rapid Process Improvement Workshops (RPIWs) yielded the following

savings/benefits province-wide:

- 77,335 excess inventory items removed from the system
- 45,117 sq/ft of useable space recovered in health facilities
- 228,179 ft of staff walking eliminated freeing up time for care
- 20,061 hours saved in lead time freeing up time for care
- 3746 quality defects removed from the health system

Here are some specific examples of how Lean is benefiting Saskatchewan citizens:

**Better morning care for long term care residents in Cypress Health Region (RPIW #2, CHR)**

Long-term care residents in Cypress Health Region are receiving a more home-like experience in the morning, thanks to changes in where care supplies are stored. By reducing the distance staff must walk to get supplies (16,089 to 6764 feet; 58% improvement) and move lifts (325 to 220 feet; 32% improvement), the region is now delivering morning care before breakfast to all residents who request it. As well, new standard work that ensures lifts are properly locked will help prevent injuries to residents and providers.

**Quicker access to Adult Mental Health Day Hospital Program in RQHR (RPIW #26, RQHR)**

Patients requiring care through Regina Qu'Appelle's Adult Mental Health Day Hospital Program are being seen sooner, thanks to a recent Rapid Process Improvement Workshop. By simplifying the admission process, and adding a second program, the health region has shortened by 71% the time from referral to service (24 days to 7 days).

**Reducing changeover time in the operating room at Pasqua Hospital (RPIW #24, RQHR)**

There is now the opportunity for more patients to get surgery in Regina Qu'Appelle, thanks to recent changes in how staff clean and prepare operating rooms. By creating standard instructions for room set-up, identifying which tasks can be done in parallel, documenting and training staff on standard work for room cleaning, and creating visual cues for when an operating room is ready for the next patient, an improvement team reduced by 26% the time it takes to turn over an OR (22 minutes to 16 minutes). As part of this Rapid Process Improvement Workshop, the team also addressed a number of safety concerns, for example ensuring that cleaning products are left on surfaces the proper length of time, and ensuring that housekeeping staff do not have to lift bags of linen heavier than 20 lbs.

**Improving the Patient Discharge Process for Inpatient Mental Health Unit (RPIW #23, RQHR)**

All patients receiving care in Regina Qu'Appelle's Inpatient Mental Health Unit are now being contacted by the appropriate community service before they leave the unit, thanks to a new standard discharge process. Prior to this Rapid Process Improvement Workshop, 79% of patients were leaving hospital before they had been connected with community support services. The improvement team created a standard discharge process to ensure patients are ready for discharge and that they receive support in the community.

**Improved communication and appropriate service for patients requiring alternate level of care (ALC) at St. Paul's Hospital (RPIW #57, SHR)**

Patients at St. Paul's Hospital waiting to be moved to long-term care are now getting the care they need while still in hospital and are being transferred sooner, thanks to a recent Rapid Process Improvement Workshop. There are now standard processes for assessing and classifying patients who require an alternate level of care (ALC), and 100% of patients on the ward are reviewed for the appropriate

One area where we can do a better job is in aligning individual improvement events with overall system targets. For example, ensuring that Rapid Process Improvement Workshops contribute to the targets of a specific Service Line's future state value stream map, and that these in turn contribute to the overall Provincial Strategic Plan (i.e. Hoshins, 3-5 year targets, Improvement Targets). Phase 1 regions are beginning to develop this maturity, while Phase 2 regions require support in thinking and planning in this way.

A second area for improvement is our use of Daily Visual Management (DVM). We have an opportunity to strengthen its application, so there is better "line of sight" across all levels in our system, e.g., so that people working on the front line understand how their day-to-day work connects to provincial improvement targets.

All Lean improvement events in Saskatchewan involve patients, family members, and health care staff. Here are some of their comments:

"I feel confident that this team has made improvements for future patients that truly will make a difference because patients and family will be encouraged to participate in the new Multi-Disciplinary Rounds. We will be able to discuss our care and ask questions." (Maureen, Patient Advisor Prairie North Health Region)

"Benefit of this (SS) is that it made room for me to sit at my desk in front of my computer and be actually able to have room to write on my document in front of my computer. So neat and tidy and it made me feel better being in there. Overall I really liked the process." (Kyla Oakes, Intake Worker Prince Albert Parkland Health Region)

"It was fascinating to carefully watch the work of another member of the health care team, with the intention to make their work easier. The greatest learning was to keep asking why until initial assumptions related to potential changes were confirmed or refuted." (Dr. Corrine Jabs, Regina Qu'Appelle Health Region)

"Kaizen Basics has opened my eyes to the fact that 0 defects is possible." (Participant, Kaizen Basics training day in Cypress Health Region)

"I found the process quite rewarding and I am honoured to be part of a group making so many changes. I felt I was an equal part of the group." (Janet Barber, Patient and Family Advisor Regina Qu'Appelle Health Region)

BetterHealthCare.ca is new website chronicling how Lean is making health care better and safer in Saskatchewan (BetterHealthCare.ca)

A collection of videos about use of Lean in Saskatchewan's health care (<http://blog.hqc.sk.ca/videos/>)



General information about HoshinKanri planning (<http://hqc.sk.ca/improve-health-care-quality/hoshin-kanri/>)

General information about Continuous Improvement / Lean (<http://hqc.sk.ca/improve-health-care-quality/lean/>)

