

East Kootenay Regional Hospital Laboratory

"Leaning" to the Client Make it Real, Make it Happen, Make it Last!

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ABSTRACT

Lean Six Sigma principles were applied at the East Kootenay Regional Hospital clinical laboratory to enhance client satisfaction through improved operational efficiency. The objectives were to reduce wasteful/non-value added activities, decrease errors, improve TAT's and optimize limited workspace. Further goals were to improve communication, teamwork and emnowerment

In just 16 weeks and at small capital cost, the project dramatically improved workflow, produced an efficient layout and a drastically reduced "Collect-to- Receipt" TAT by 47%. Improved overall TAT's resulted in earlier discharges freeing up much needed beds. Streamlined standard work processes reduced the potential for error and subsequent risk to patient safety.

Leaning to the Client delivered remarkable and sustainable quality improvements and continues to encourage process excellence initiatives both within the department and organization-wide.

INTRODUCTION

"Providing Quality, Caring Service and Promoting Health through Laboratory Excellence" EKRLS Mission Sta

East Kootenay Regional Hospital is a 69-bed acute-care hospital, and a Regional Center for six surrounding hospitals, serving a total population of 80,000, located in southeast British Columbia, Canada. The laboratory has a staff of 34 FTE's and processes an annual volume of approximately 2 million tests.

The Canadian publically funded healthcare system provided a unique opportunity to trial the Lean process in a midsized, unionized hospital laboratory. Unable to secure funding for a much-needed expansion, the laboratory at the East Kootenay Regional Hospital tried a Lean approach. Under the guidance of a ValuMetrix® consultant, a four-person team was able to boost productivity and substantially optimize space to meet client needs in only 16 weeks

Basic First Questions

What are the client needs?

Do our products or services

It also became apparent before the project began that not only did we need to have consultation and collaboration with the

"Clients" of the laboratory, we also needed

involvement and commitment to the project

environment where work orders are required and prioritized, the fast paced and

changing on the go plans for the redesign were going to need to be handled in a much different way. The planning and

completion of construction took place

Client Driven Project Scope:

The following areas were addressed: • Phlebotomy –Inpatient and Outpatie

Core Lab-Chemistry, Hematology, Coagulation and Urinalysis

Specimen Processing -In-house and Referral

Microbiology – Layout changes, standard workstations and standard work

Monstauous and standard work Blood Bank-Layout changes Materials Management – Inventory and

within the 16 week project timeline. The

project would have failed without the extra effort by our support departments.

re work orders are

to engage other departments such as Engineering and Housekeeping. Their

would be vital to it's success. In an

Who are the clients?

Where did we Start?

- Won Senior Management Support
- Secured Funding
- Selected the Team · Consulted with the Union Representatives
- Provided Staff Education
- Identified and Engaged the "Clients"

- answer the Voice of the Clien - at a price he is willing to pay? How do we know?

We identified the physicians, nursing departments and other affiliated laboratories as our primary clients We between use proposed is, how you want to be a set of the set of the set of the set of the provided in the provided in the borbary by the patient is rarely a direct direct of the department. The Outpatient phetohomy department was also considered. Once this was done meetings were held with these groups to assertian what they really needed from us. The following is a list of the client requirements for improving quality patient care, that we agreed to provide through improvements to our service.

EKH Lab "Voice of the Client" IP results to Chart by 0800 ER TAT STAT tests 40 mins Collect to Verify ER TAT ABG/UR BHCG 15 mins Receipt to Verify ER TAT Urinalysis 25 min Receipt to Verify IP/ER patients 12 mins Collect to Receipt All routine testing 40 mins Receipt to Verify Out Patient Collection 10 mins Order to Collect All Regional Testing FIFO and Resulted by midnigh Commitment to meet these goals 85% of the time

Client Driven Project Goals:

- Improve Client Satisfaction by: Reducing TAT Improving Collect to Received Time Recognizing the issues of Regional Lab Services vs. Hospital Lab Services
- ease Operational Flexibility in Laborator
- Mitigating staffing shortages Improving Shift Coverage
 - Dealing with Space Constraints vs. Business Growth



The Lean Team was selected after an Expression of Interest was circulated organization wide. We recruited staff from many laboratory disciplines and one member came from a larger facility in another city. The team spent an exhaustive Intelly according based on a full data intelligible can be determined as taged in the left and south day, in the total goal in a the baser then begun the way included goal of the south data in the data intelligible can be determined as the south of the south and the south of the south of the south data in processes and lack of standardization. They measure the entire Value Steam to identify ages, Staff members were finned while dong a bases and measurements of the time and staps lack to participation and proceeding as the south of the south of the processes and proceeding as the south of the sout participate in the process and prizes were drawn weekly for a spa treatment for staff who agreed to be filmed while working. Soon staff were calling the team to see if a certain process or test needed to be recorded.





*1533 +** 🔷 OP Collection Area Pre and Post Lear Step 2: 5S - Sort and Shine: The Team removed

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non-productive inventory to a red tag area, cleaned and straightened holding questionable items to evaluate, then donated or discarded. Only what is necessary to do the job was kept in a defined space Sort, Shine, Stabilize, Standardize & Sustain

were the goals as we moved into new w

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Step 4: Kanban Inventory System: Pre Lean Step 4: Kanban Inventory System: Pre Lean supplies were very hard to access. "First In First Out" FIFO use of supplies was very difficult to maintain Reorder points were determined with 'gut' instinct and many standing orders were being used that were not flexed to the variation in the work load. There were several undefined locations for stock and many departments had "secret stashes" as there was no trust in the ordering system. With the implementation of a Kanban system FIFO principles were applied to inventory as well as patient specimens. Photo cards with reorder information for all inventory items were created and laminated. One central source for all commonly used inventory items was created. The inventory is now maintained at the **pull** of the client, in this case the laboratory department requiring the

The changes we have implemented were Il developed using the "Voice of the lient" requests to improve the quality of patient care in the East Kootenavs. The staff were reminded throughout the process that improving the patient outcome was our ultimate goal and that they are now working in an environme ement. Change fo continuous improvement. Chan provements would now be the n The Laboratory Professional Practice Leader said of the project: "I knew the results would be dramatic, but I had n idea they would be so dramatic so

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Step 5: Daily Metrics: Metrics were developed and all Key indicators are reported daily and posted for all staff to see. Audits are performed on all areas of the Standard Work Packages Changes are notified to staff continuously through email and direct communication

> The metrics are designed to look for issues with Process not People. Staff are continuously reassured that they are no being scrutinized, but rather the process is being examined. If there are issues with th daily metrics they are investigated to see if the process needs to be adapted to improv the outcomes. Sometimes there are ment issues or issues with couriers that result in the goals not being met. Thes are identified and where possible quality improvements are made to the process to prevent recurrence.



Step 6: Plan, Do, Check and Adjust (PDCA): Ongoing cycle to continuously monitor and improve. Metrics are monitored to see where we can improve and where perhaps we were too ambitious. All staff are encouraged to be constantly looking at ways to improve the work space, environment and TAT. Communication with staff and clients to ensure we are achieving the results that are required for quality patient care.

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Staff are encouraged to bring forward suggestions at regular staff meetings and a Patient Safety Learning System to track incidents was recently implemented o that issues are followed up quickly in an electroni environment. All staff are encouraged to report issues in a "No Blame" environment. The QM Coordinator emphasizes to staff the adage that "the sample is the patient" Non conformity reports are now rest o electronically and trends are much easier to identify and correct

"Test Tube Tammy" is used to raise awareness among staff that samples represent patients and they need to be treated accordingly. It is not "JUST" a sample but it "IS" the patient and any sample could potentially be a critical one. Samples need to be treated as if they were working directly with a patient.

RESULTS

Significant improvements in TAT were evident by the end of the 16 week implementation. The improved TAT's have eliminated the need for rush processing. Current routine TAT's are what used to be considered STAT. Average collect to receipt time fell from 20.3 minutes to 10.7, a 47% improvement. With Inpatient results consistently available by 8:00 am rounds, even the OR is benefitting from the gains. Discharge decisions can now be made first thing in the morning which frees up beds for same day admissions. The EKH Laboratory has acquired a culture of continuous improvement and we are constantly reviewing the metrics and looking into the incident reports to find better and more efficient ways of performing the work to ensure a sustained environment of Quality and Safety.



The project has also resulted in the development of a core team of people that has implemented "Lean Manufacturing Principles" and are available to spread the bonefits organizationally. Standard Work and Standard performance measurement tools have been developed to ensure an environment of continuous improvement within the aboratory. The laboratory has guined recognition from its circles, tool from within the facility and regionally. The laboratory is recognized as a pioneer within the Interior Health Authority.

CONCLUSIONS

The journey to a Lean Laboratory was a very rewarding but arduous one. Imagine taking down walls, moving equipment, changing a master rotation to improve work flow and cross training staff, while still running a full service laboratory! The staff were really challenged during the implementation and the Lean team put in many hours of work, around the clock, to trial new processes and to ensure the necessary changes were implemented. Ongoing staff education, test piloting of new routines, staff consultation, (with some things being negotiable and others not), were stressful for all involved. There are still some staff who would like things to be back where they were, but the improvements continue to speak for themselves. We have proven that the principles of Lean can be successfully implemented and can make a significant improvement to the guality of patient care in a mid-sized laboratory situation. The road to *Lean* never ends as we strive for continuous improvement

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