



LEAN CASE STUDY:

GRAND RIVER HOSPITAL AND ST MARY'S GENERAL HOSPITAL INCREASES THROUGHPUT, CUTS COSTS USING LEAN

In healthcare today, having to do more with less goes with the territory. Volumes are increasing five to ten percent every year, regulatory and administrative burdens are becoming more restrictive, and wait times are rising. Already stretched providers struggle to keep up, even as healthcare consumes a growing chunk of the provinces' budgets.

These symptoms had been all too familiar at the pathology department of Grand River Hospital. For years, they faced complaints over long wait times, backlogs of work, and frustrated staff. "All in all it was a pretty chaotic environment, and highly stressful," says Vince D'Mello, Integrated Laboratory Administrative Director at Grand River and St Mary's General Hospital. "We never seemed to be getting out of the circle of events."

"It was very difficult to pinpoint what the real issues were," says Dr. Dimitrios Divaris, Chief Pathologist at the Kitchener-based hospital. "We were always doing quick fixes, so the problems kept recurring. It just wasn't sustainable." The lab was under-staffed, but D'Mello, who had prior experience with lean, knew that the root of their troubles lay deeper than that. Their department was trapped in a siloed environment where departments – the pathology lab, nursing, technical support, etc. – were self-contained and independent from one another. This caused several critical problems; work cells were blaming each other when something

went wrong; departments were competing for resources; and staff efforts were conflicting with one another.

A fundamentally different approach was needed - one that could break down these barriers and get everybody working together with the patients' interests in mind. D'Mello got approval to introduce lean to the department, and through a competitive process opted to bring in Lean Advisors as consultants.

Getting up to Speed

All lean journeys begin with education. Front-line workers – the primary change agents – need to understand not only how lean will help them make a difference, but also why it is important to do so. Without this source of motivation, their efforts can become little more than lip service.

D'Mello began by getting representatives from all departments in the same room. Working with Lean Advisors' Vice President of Client Services, Mike Boucher, he created a cross-functional team that would provide the spark for a lean transformation. Among the nine team members was a pathologist, Grand River's medical director, their department manager, senior technologists, and technologists from the non-pathology lab sections.

Boucher outlined the lean view of the pathology department for the group, showing how the traditional silo approach encourages departments to focus only on their internal needs. Lean, he explained, would break down barriers and create a system where every staff member's activities were linked to the needs of the patient. "Mike acted as a mediator more than

anything,” says Kerry Lackie, transfusion medicine technologist at the lab. “He steered the committee with questions, but he never gave specific answers on what to do. Those came from the people on the committee themselves.”

Next, Boucher introduced the team to value stream mapping (VSM), a lean technique that maps the flow of all information, materials, and activities leading to the desired outcome for the customer or patient. The “journey” of a blood sample through the lab – from receipt by the pathology department to the presentation of lab results to the patient’s physician – is a good example. In the mapping process, team members draw up two representations similar to flowcharts - one of the present, pre-lean state, and the other of the future state, whereby waste has been eliminated wherever possible.

In healthcare, waste includes walking by staff, waiting, paperwork, or any activity or outlay that doesn’t improve the wellness of the patient. Reducing this in every way possible is an ongoing mission for lean organizations.

VSM also teaches staff how the various parts of the organization interact. A secretary, for example, can better understand how patient information is used by technologists/technicians, doctors, and other staff. This transparency makes waste visible to everybody in the organization.

Finding the Cure

The first priority for the Grand River lean team was the pathology department’s growing backlog. In a telling example of staff frustrations, one technologist had said to D’Mello, “Vince

it's like this: I come to work on a Monday morning, and I have a backlog in front of me. I leave at five o'clock on a Friday, and I still have a backlog. Something has got to give.” In the current state, samples were divided into three groups: biopsies, routine samples, and large cases. The process had three phases:

- Pre-analytical, where a technologist and/or technical assistant sorted samples and matched them with relevant medical data.
- Analytical, where samples were prepared for analysis.
- Post-analytical, where the slides were delivered to the pathologist, who would make the diagnosis, write up the report, and send it to the physician who had ordered the test.

The problem was that there was no integration between the three stages. Technologists would deliver samples to the pathologists based on pre-assignment regardless of how busy the doctors were, and the samples would pile up on their desks for days, or even weeks. The congestion would eventually work its way back down the line, forcing technologists to constantly re-prioritize their work. “There was no visibility whatsoever,” says D’Mello. “Ultimately, it concluded with unhappy clients, and reports not being generated in a timely manner. We weren’t meeting the needs of the patient.”

The lean team responded by creating a future state map that eliminated the barriers between these phases, and outlined a smooth flow of work and information between them. “We adopted a vision that we needed to go forward with,” says D’Mello, “and that’s when the rubber hit the road.”

The lean team's goal was to increase throughput to 150 samples a day – a 22% increase over the current state level. To achieve this, the accessioning of data was re-assigned to clerical staff, who's superior typing skills helped eliminate the previous backlog of 20 cases per day. This change also gave technologists more time to better utilize their professional skills.

The pathology department also changed the system of case assignment. Previously, samples were pre-assigned to pathologists based on case type and severity, then hand delivered to the pathologists. This created imbalances – for example, there was a disproportionate share of biopsies chosen – and assignments had to be constantly readjusted to maintain a balanced distribution of case complexity between the available pathologists. Consequently, technologists were frequently wasting their valuable time running back and forth.

The lean team replaced the old system with a construct known as a lean supermarket, so-named after the food store equivalent where selections are presented to the consumer and continually re-stocked according to demand. At Grand River, the “consumers” are the pathologists who visit a central stocking area where samples are drawn out of slots. Each slot represents a day of the week, and is expected to be empty by the end of the day.

An important aspect of the new system was the replacement of the previous “pick and choose” approach with a first-in, first-out model. This ensured a smooth, consistent workflow, a lean goal that ensures maximum efficiency. With the supermarket in place, samples were no longer being pushed through the system while pathologists scrambled to keep up. Now, the doctors – in response to patient demand – determined the pace of the work flow, and the rest of the system responded to those demands. In lean, this is known as a pull system.

“The biggest benefit of the supermarket was that it didn't matter if you were a technician, or a pathologist, or a technical assistant,” says D’Mello, “you could see what was outstanding on a daily basis, or weekly basis in the supermarket. Everything became transparent.” The results speak for themselves. Before implementing the supermarket model, Grand River had a backlog of roughly 14 days. Six weeks after implementing lean, it dropped to two days.

The pathology department’s costs have dropped, too. A \$45,000 investment in lean initiatives is expected to save over \$117,000 every year, thanks to the elimination of wasteful processes, and a significant reduction in overtime hours.

“It’s phenomenal,” says Lackie. “There’s no longer the underlying sense of drowning. There’s light at the end of the tunnel.” In a post-lean survey of hospital staff, 50% said that bottlenecks and backlogs had been reduced significantly, and 38% said they had been reduced marginally.

Keys to Success

Because lean relies on front-line workers to provide solutions, managing people’s fears and resistances is essential. D’Mello addressed this by emphasizing open dialogue. “We were very transparent with our communications and our strategies,” he says. “Communication is a two-way street.” When pathologists were initially showing skepticism, Boucher met with them to discuss their concerns. “That was a turning point to get them on board,” says Boucher. “I have to give them credit when they supported the initiative, even though they were nervous about it. They really came through.” Dr. Divaris – who had wanted to implement lean for years

– was, as chief pathologist, also instrumental in providing leadership on this front.

The enthusiasm of the lean team gave the project the energy and enthusiasm it needed to succeed. Members described their co-workers as hard working, open to new ideas, and respectful of each other's opinions. "The sessions were fabulous," say Lackie. "The first session said 'check your egos, hats and qualifications at the door,' and this committee took that to heart."

Team chemistry like this is essential not only for launching a lean transformation, but also for sustaining it for months and years to come. The true spirit of lean is all about continuously improving, and understanding that a lean journey is never really over.

"I think it starts with effective leadership," says D'Mello, "and with having an engaging vision that is evidence-based, and patient-focused. If we just embrace those strategies, if we put the interests of the patient first, and then start strategizing around that to engage leadership, and engage workers, we can find a solution."

The team at Grand River succeeded because they discovered how to work together in a collaborative and respectful manner – rather than only for the good of their department – to better serve the patient. As Dr. Divaris says, "If the pathologists have a problem, the operational side has a problem, and vice versa. We are, after all, like partners in a three legged race. We can run together, we can stumble together, or we can fall together. One thing is for certain; we cannot go our separate ways."