Webinar: Lean in Healthcare – Why Canada Needs More

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Executive Summary

Lean in Canadian healthcare has arrived relatively late. The UK and area countries have had Lean healthcare successes for 10-15 years while most Lean healthcare work in Canada has started over the past few years. There is a shortage of Lean/TPS (Toyota Production System) practitioners with the skills necessary to support sustainable change, mirroring the rush to consult that has populated the manufacturing sector with many "instant experts".

To help fill the need for a balanced and expert understanding of Lean in healthcare, this article argues that Canadian hospitals must move to sustainable Lean/TPS practices. The financial resource and human capital base in healthcare is rapidly diminishing. Costs and demand for services are increasing at a growing rate. Experts suggest that healthcare in North America will be unsustainable by 2015. This paper argues that:

1) The 2015 challenge can be met by deploying Lean/TPS sustainably
2) The gains that can be achieved in healthcare with Lean/TPS are very often much larger than people anticipate
3) These Lean/TPS gains are the best way to finance growth and acquisition – requests for budgetary requests to meet the needs of a demographic wave will be both inappropriate and insufficient.

Healthcare in Canada is an issue close to the heart of the population. We need improvements that are efficient and sustainable. The best method to deliver those improvements is Lean, also known as the Toyota Production System.

For your consideration...

Here are the realities in Canadian healthcare:

- Hospitals cannot continue to balance budgets with cost cutting alone
- Closing beds causes service delivery shortages, longer wait times and other negative patient outcomes
- Hospitals have exhausted their “cuts” options
- Cuts don’t prepare hospitals for the growing healthcare needs
- Cuts make financial shortfalls worse
- Hospitals must met future needs without additional funding as the tax monies will decrease and demand increases
- Healthcare needs to move on and find new sources of savings

From the media...

Almost half of hospitals in deficit

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Ontario emergency room waits fatal, health officials say

Last Updated: Monday, April 18, 2005 | 10:48 AM

CBC News

ERs are overloaded

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Budget boost won't solve ER waits: hospital association

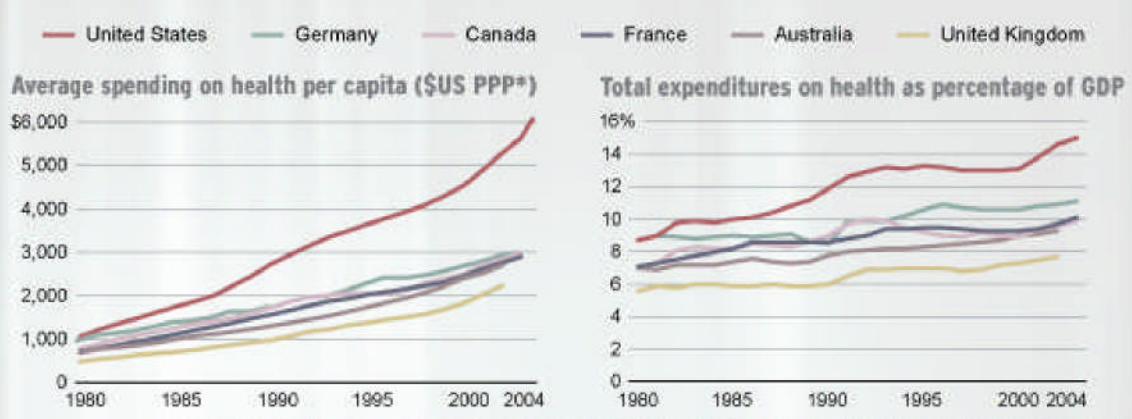
Province must first find care for long-term patients taking up ER beds

Last Updated: Wednesday, March 26, 2008 | 4:46 PM ET Comments 0 Recommend 3

The Canadian Press

> NATIONAL MEDICAL BILLS

The United States spent $6,102 per person on health care in 2004, twice as much as other industrialized countries. Canada, for instance, spent $3,165 on average. The U.S. spent 16 percent of its gross domestic product (GDP) on health care that same year, compared with 8 to 10 percent in other countries including France and the United Kingdom.



* *PPP = Purchasing power parity —an estimate of the exchange rate required to equalize the purchasing power of different currencies, given the prices of goods and services in the countries concerned.*

Source: The Commonwealth Fund, calculated from OECD Health Data 2006.

Lean Healthcare: Starting With Toyota

True Lean/TPS experts with legitimate Lean and Toyota experience are at the forefront of successful and sustainable Lean Healthcare. We see recognition of this from many sources.

- As Quebec's health system creaks under the weight of an aging population and a lack of resources, those under pressure to come up with solutions have turned to Japanese car manufacturer Toyota for inspiration.... Bolduc describes the Toyota Way as a "common sense approach to improving quality."[1]

- "If we could understand the Toyota system in health we would save thousands of lives and billions of dollars." [2]

- (H)ealth spending takes up an ever-greater share of economic activity in this country. Health care is expected to account for a record 10.7 per cent of gross domestic product this year.... But even that big bite will almost certainly look small in a year or two, and the question of sustainability will become more pressing.... Reform has slipped down the agenda. When Paul Martin, as prime minister, signed a 10-year, $41-billion health-care deal with the provinces in September, 2004, the mantra was “buy change.” It didn't happen. “Much of the funding came with no real strings attached,” says the Health Council of Canada, the body created to monitor how all that new money (and an additional $36-billion set aside a year earlier) was spent. The result is that “the state of health-care reform in Canada today is largely a patchwork of pilot projects, not a model of system-wide change.” In a report this year it listed nine areas of disappointment, including home care, primary care (family doctors) and accountability.

[1] CBC News, Quebec health minister inspired by Toyota philosophy: Management approach used in Boston, Pittsburgh, Seattle hospitals, from: http://www.cbc.ca/canada/montreal/story/2008/07/10/qc-healthminister0910.html
[2] Newt Gingrich, Former House Speaker, Founder, Center for Health Transformation [3]
Health care's appetite, Friday, November 13, 2008, Globe and Mail

Lean/TPS Healthcare Across the Globe

Globally, hospitals around the world that have been successful at implementing Lean have seen benefits for patients and all staff within the hospitals. These hospitals have been able to respond to the growing demand for services while their operating budgets are facing greater constraints.

- "Managers -- without more money or federal action -- can use Toyota management principles to create an environment where it is difficult to make a mistake and people can take joy in work and deliver better and better patient care."[4]

- At a time when we are overwhelmed by the staggering evidence that health care systems that we depend on often fail us, Lean captures the power of real transformation.[5]

A Google Trends review shows that the list of world cities asking about “Lean Healthcare” is led by the UK, where the National Health Service brought in Lean/TPS for national healthcare over 15 years ago.

The demand for more from less is not unique to healthcare, governments, the public sector and businesses all face this challenge.

[4] Clare Crawford-Mason, co-author, The Nun and the Bureaucrat: How They Found an Unlikely Cure for America’s Sick Hospitals and Thinking About Quality: Progress, Wisdom and the Deming Philosophy.
[5] Frank Christopher, PBS producer of the series Remaking American Medicine. Note: “Remaking American Medicine” won First Place at 2006 Association of Health Care Journalists Awards.

Comparison: Manufacturing and Healthcare

Manufacturing in Ontario is a good comparison. They have experienced rising costs and lower profits. Their artificial protection was from favourable currency exchange rates as opposed to tax-based contributions in healthcare. Both groups had businesses that did not communicate across units and departments because of departmental silos. Both groups were unaware of the need to drive down errors and cycle times.

However, healthcare is special in many ways because it touches us personally and deeply -- it directly impact quality of life and longevity.

The manufacturing crisis that started in the early 1970s has continued until today. It has forced two things to happen:

1) Those organizations that could not change, adopt Lean/TPS and embrace continuous improvement have closed or are in decline. This includes the organizations that "tinkered [6]" with Lean/TPS with disjointed kaizen and 5S[7] events and discovered that their attempts at Lean/TPS were not sustainable.

2) Those that could change, or came to this sector from abroad, have adopted Lean/TPS or some continuous improvement method as their business philosophy.

Healthcare organizations, from hospitals to clinics, tended to not fall into the second group. As a result, most of healthcare is still in silos, has a rush to decision-making, treats symptoms and not root causes and has true difficulty in managing complex organizations in an on-time and on-budget manner.

[6] When Dr. Hill worked with Dr. Deming, the latter was constantly reminding his clients not to dabble or "tinker" with a process. Deming demanded that standard work build continuous improvement and that these efforts were measurable.
5S – Originally from 5 Japanese words, now taken to mean sorting, straightening, shining and standardizing – all the way to sustaining.

Dysfunctional Decision Making in Healthcare

One of the first to point out dysfunctional decision making in healthcare was Kevin Patterson.[8] In speaking about the risks of allowing biases in medical decision making, Patterson noted that:

> The point isn't that some medical treatments don't work as well as it is thought, or even that in treating patients, doctors sometimes hurt them -- this has always been true. The point is that the conclusions doctors reach from clinical experience and day-to-day observation of patients are often not reliable. The vast majority of medical therapies, it is now clear, have never been evaluated by systematic study and are used simply because doctors have always believed that they work.

The impact (and truthfulness) of this can be seen in recent reversals about the efficacy of hormone replacement therapy and arthroscopic knee surgery, to name only two items with large impact.

The rush to diagnose, to proceed with the familiar (and fall victim to decision-making biases) means that the healthcare community can be said to work harder and costlier to make poorer decisions.

Making matters worse is when healthcare professionals are promoted to managerial positions. They bring these same biases to organizational decision-making.

[8] Kevin Patterson, "What Doctors Don't Know (Almost Everything)", New York Times, Health, May 5, 2002.

Healthcare Needs Lean/TPS Experts – Not Healthcare Experts

Healthcare leaders and practitioners insist that Lean/TPS teams incorporate seasoned healthcare professionals.

This is wrong for three reasons:

1) Healthcare professionals are not good at process improvement or organizational change. Even though hospitals have attempted to hire people trained in healthcare and such areas as administration, human resources, etc.

2) Healthcare professionals often fail to listen to those at the Gemba (closest to production) level – the staff and patients who have the real expertise – Toyota demands that leaders stay close to the Gemba.

3) Health professionals treat organizational *symptoms* and not *true root causes* that can lead to sustainable countermeasures and improvements.

To be clear, the healthcare profession is truly full of people who care deeply about the health and recovery of their patients. There is no suggestion that they are not. We are addressing a matter of intentions to improve versus implementation success rate. There may be good intentions, but implementation success speaks for itself.

Remember, measurements of productivity are like accident statistics. They tell you there is a problem, but they don't do anything about the accidents.

Lack of Good, Sustainable, Decisions in Healthcare Organizations

The reality of healthcare is that they have not made good organizational decisions, with the data that's always been on hand, and find themselves at a crisis point.

Consider the automotive industry. Toyota did not have any secret or special information about the shift in demographics, the scarcity of gas or the shift to smaller vehicles. The Old Big 3 (GM, Ford and Chrysler) all knew this, too. The Old Big 3 are at dire risk now because they played to their old strengths that weren't that successful before and are fatal now.

Healthcare is in the same crisis.

They knew that the tax-paying population base would be shrinking. They knew the demand for healthcare services would only skyrocket. They knew about the demographic shift wherein they would lose half their nursing staff by 2010-2015. The health crisis is probably the largest, most expensive issue in North America.

IBM: Healthcare is Unsustainable by 2015

IBM looked at the healthcare crisis and concluded that:

> Healthcare is in crisis. While this is not news for many countries, we believe what is now different is that the current paths of many **healthcare systems around the world will become unsustainable by 2015**. This may seem to be a contradiction, given the efforts of competent and dedicated healthcare professionals and the promise of genomics, regenerative medicine, and information-based medicine. Yet, it is also true that costs are rising rapidly; quality is poor or inconsistent; and access or choice in many countries is inadequate....
>
> **In Ontario, Canada's most populous province, healthcare will account for 50 percent of governmental spending by 2011, two-thirds by 2017, and 100 percent by 2026**.[9]

[9] IBM. Healthcare 2015: Win-win or lose-lose?

Unsustainable by 2015? Really?

This “unsustainable by 2015” is reinforced by the fact that hospitals all over the world face a wide range of problems: Payers, ranging from government agencies to private insurers, are forcing price reductions on hospitals. Hospitals then try to reduce costs in order to maintain their margins. Even not-for-profit hospitals need to have a surplus to remain financially viable and to drive future growth. Hospitals are becoming less able to demand “cost plus” pricing that pays them for their efforts as opposed to being paid flat rates based on patient diagnoses.

A regional Canadian newspaper carried the picture (below) as part of a political advertisement. The sentiment (avoiding the political content) is that we need to “lose” something to improve healthcare’s book and not save or gain to balance the books.

While Canada is different than the United States and the UK, some changes might make their way to Canada.

The U.S. government, through Medicare and Medicaid, has proposed new rules under which hospitals would no longer be paid for care required to treat a range of preventable errors, including some hospital acquired infections and items left inside patients after surgery. Hospitals would be left to absorb the cost of poor quality themselves, which should provide incentives for improvement.

On a more positive note, the UK’s National Health Service (a Lean Healthcare leader) evidence-based medicine is now coming forward and will allow only those treatments and pharmaceuticals that have a proven track record of success (and not just testimonials from the pharmaceutical companies) before they can be used in a public health setting.

Cuts Versus Savings

The question should never be “What do we cut to save money?” but “How do we reduce errors, waste, waiting and improve quality?” The answer is the same as found in other sectors – make smarter decisions with Lean/TPS. Bring forward real organizational change that keeps sustainable success and always looks for continuous improvement. Yes, this is a challenge, but not one we can afford to pass.

Consider errors in healthcare...

Errors can occur for many reasons. Simple errors, such as resistance to hand washing protocols and then infecting patients, are almost entirely preventable. Doctors resist hand washing as standard work because they don’t like standard work. Most medical professionals don’t like standard work. (I’ve been told people will go on strike if they’re “forced” to do standard work in hospitals!)

Standard Work – Medical Professionals Don't Like It!

Medical professionals make errors because they don't like standard work. There are consequences for this. People get hospital infections (e.g., MRSa, c Dificile, VRE) when there is process for prevention. Medical professionals do not want someone to take away their "art", preferences or shift their comfortable habits.

Patterson[10] noted this accurately:

> The feeling, the art, is precisely what is appealing about medicine for doctors. It is personal and warm, and dramatic, pithy platitudes about the indications for surgery are easier to remember and more satisfying to cite than the constantly changing and dry data on outcomes. But in the end, the art is simply what one wants it to be.

Toyota makes brilliant cars and has few errors because it follows a brilliant process and gets people to follow it. The Old Big 3 are suffering because they don't have brilliant processes as standard work with engaged people.

The same applies to healthcare.

In fact, healthcare is now here many manufacturers were 30 years ago. Those manufacturers that did not follow a Lean/TPS path have already closed their doors or are searching for alternate funding now. General Motors, for example, failed to learn from the Toyota Production System across a number of joint ventures. GM failed to drive costs down, failed to earn savings and failed to keep up with the competition. The result? GM is requesting a bailout or facing bankruptcy. This should not be allowed to happen to Canadian healthcare.

[10] Kevin Patterson, "What Doctors Don't Know (Almost Everything)", New York Times, Health, May 5, 2002.

Errors in Healthcare

Errors are becoming more costly for hospitals, but patients and their loved ones have long felt the effects of the patient safety and quality problems in the industry.

- The Institute of Medicine estimates that nearly 100,000 patients die in hospitals each year due to medical errors and harm to 2,000,000, **with more than half of these errors being preventable.**
    - This is three times the number who die on the highways. This number does not include deaths that occur in the ambulatory setting or deaths after discharge that resulted from medical errors when the patient was hospitalized.[11]
- The New England Journal of Medicine reported in 2003 that the quality of adult healthcare in the US was startlingly poor.
    - In that study, 439 indicators of clinical quality of care were reviewed from the medical records of 6,712 patients, for 30 acute and chronic conditions, plus prevention. Participants received about half of the prescribed care. The conclusion: **the "defect rate" in the technical quality of American healthcare was, per this study, approximately 45%.**

[11] Corrigan, J.; L. Kohn, M. Donaldson, eds. To Err is Human: Building a Safer Health System. Committee on Quality of Health Care in America, Institute of Medicine, The National Academies Press, 1999.

Errors in Healthcare: Hand Washing & Hospital-Borne Infections

Lean has been used to tackle hand washing and hospital-borne infections.

- The CBC reported that every year, 250,000 Canadians pick up infections while they are in hospitals being treated for something else. That's a staggering one out of every nine Canadians who are admitted to hospital becoming infected while the prevention was blazingly simple. **Every year, those infections kill more than 8,000 people**. Also from the CBC:[12]

- Another study estimated the cost of MRSA alone to the healthcare system at $100 million annually. Although it's difficult to pinpoint the exact cost of all hospital-acquired infections, some Canadian infection control experts have estimated it's as high as $1 billion annually.

- With better infection spread control, for example, better hand washing, an estimated 30 to 50 per cent of infections would be preventable in Canadian hospitals. Yet healthcare workers usually only wash their hands between five to 30 per cent of the time.

Excuses for avoiding standard work abound – these are the same types of excuses that healthcare workers use to avoid Lean and standard work across many healthcare settings. A study in Montreal found that occupational and physical therapists had the highest rate of compliance to MRSA hand washing guidelines, while nurses complied more often than doctors, cleaning staff and people visiting the hospital.

[12] From: http://www.cbc.ca/marketplace/webextras/dirty_docs/infection_stats.html?dirty_docs

Errors in Healthcare: Hand Washing & Hospital-Borne Infections

- About as many Canadians die from antibiotic-resistant hospital infections than car accidents, AIDS and breast cancer put together.

- A 2002 study found the most common hospital-acquired infections were: urinary tract infections, pneumonia, surgical infections, bacteremia and Clostridium difficile-associated diarrhea (respectively). The study by the Canadian Nosocomial Infection Surveillance Program and the Canadian Hospital Epidemiology Committee of Health Canada examined 29 acute care hospitals. The same study found that patients in intensive care units were more likely to have additional hospital infections. Infection rates were lower for children than adults, and higher for infants than older children.

- A Queen's University study released in 2003 of 172 hospitals found fewer than one infection control doctor per 250 beds. Of the hospitals with infection spread control, only 60 per cent had training programs.

- The Community and Hospital Infection Control Association Canada (CHICA) recommends three full time equivalent infection control professionals per 500 beds in acute care hospitals and one full time equivalent infection control professional per 150 to 250 beds in long term care facilities.

Medical Errors: Dennis Quaid

When Dennis Quaid was interviewed by 60 Minutes[13] about the medical errors that happened to his twins *twice* (4 errors) at Cedars-Sinai hospital in Los Angeles, he told the story of how his infant twins were given massive overdoses of a blood thinner that nearly killed them.

Quaid said:

> We all have this inherent thing that we trust doctors and nurses, that they know what they're doing. But this mistake occurred right under our noses, that the nurse didn't bother to look at the dosage on the bottle.... It was ten units that our kids are supposed to get. They got 10,000. And what it did is, it basically turned their blood to the consistency of water, where they had a complete inability to clot. And they were basically bleeding out at that point.... There was blood oozing out of little blood draws on their feet, and things like that, you know, through band-aids."

The Quaid Foundation[14] and hearings in the U.S. Senate have all been parts of the push to drive awareness about medical errors and the 100,000 US citizens who die annually from preventable medical errors.

[13] Dennis Quaid Recounts Twins' Drug Ordeal: Actor Tells 60 Minutes' Steve Kroft Medical Errors Kill Thousands. Aug. 24, 2008. http://www.cbsnews.com/stories/2008/03/13/60minutes/main3936412.shtml

[14] See: http://thequaidfoundation.org/

From Dennis Quaid to Sustainable Lean/TPS Success

Some hospitals are adopting Lean quality improvement methods, such as Root Cause Problem Solving (including the "5 Whys") and Error Proofing ("Poka Yoke") to prevent errors that are overwhelmingly systemic in nature (as opposed to be caused by incompetent or negligent individuals). Standardized Work methods, visual management, and other Lean management concepts are used to improve communication and to prevent errors caused by handoffs across caregivers and departments.

Fewer hospitals are adopting the necessary "blame free" cultures to encourage people to report problems so kaizen teams can solve them rather than employing workarounds or covering up problems out of fear of punishment.

To ask why Lean/TPS is so slow to come to healthcare can be partially answered in the past biases in the medical community. Some explanation also comes from the fact that so few people knew there were so many errors. The single largest resistance to Lean/TPS in healthcare is the naiveté in healthcare itself – from senior leaders and administrators down to the ward's professionals.

Why is Lean/TPS Slow to Come to Healthcare?

Frankly, healthcare has viewed quality and capacity problems in a naïve manner.

- Quality has typically been addressed by reducing the number of presenting problems (treating the symptoms and not the root causes.)

- Capacity has typically been addressed by asking for more money for more capacity – more beds, more physicians, more nurses, etc.

In either case, these views have precluded the search for true root causes that can be permanently fixed with appropriate countermeasures.

In effect, healthcare has become used to managing problems and not eliminating them. The proof? Consider the revolving bed crises, the hospital infections crises or the reappearance of problems that were once considered resolved. How many healthcare problems are old problems? Does a 2010 model year Toyota still have the problems of a 1970 Toyota? Neither should healthcare.

Poor Thinking about Staffing & Quality

The logic has been that people shortages leads to quality issues and wait times. If hospitals had more people, it has been argued, quality would go up and wait times would go down.

Hospitals have been facing severe shortages of key skilled employees, including nurses, pharmacists, and medical technologists. Some of this is the result of shifting demographic patterns. Consider retirement rates. It is estimated that that by 2012-2013, half the people working as nurses will have left for retirement.

Adding people to address quality will not work.

Poor Thinking about Capacity & Quality

Similarly, when thinking about wait times, hospitals have asked for more capacity. Emergency room waiting, access to radiation therapy, surgical procedures and other wait times were thought to be best answered by adding capacity – more machines, more beds and more funding.

The typical answers have been to add more diagnostic equipment – x-ray, radiation therapy, MRI, CAT scan equipment or more beds, new buildings, renovations or additions and more.

Adding this type of "capacity" will not work, either.

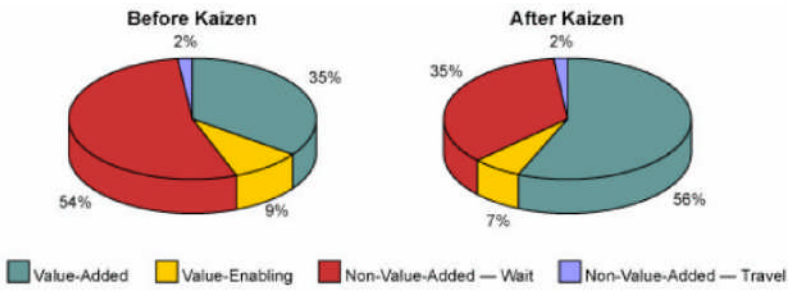
What Can Lean/TPS Deliver to Healthcare?

Lean efficiency is not driven by reducing headcount, although some Lean "experts" have based their business model on this.

Lean efficiency is about the ability to do more work with fewer people – to build sustainable successes with wits, not wallets.

We know that at least 30-40% of a typical nurse's time is spent on waste, such as rework and searching for medication or supplies. Some reviews place that value at 90% and higher. Analysis of healthcare processes, similar to processes in other industries, shows that **roughly 80-99% of time spent is on waste or non-value added activities**. Improvement focused on the relentless search for Lean/TPS improvements therefore focuses on removing non-value-added steps versus doing value added steps faster.

What Can Lean/TPS Deliver to Healthcare?

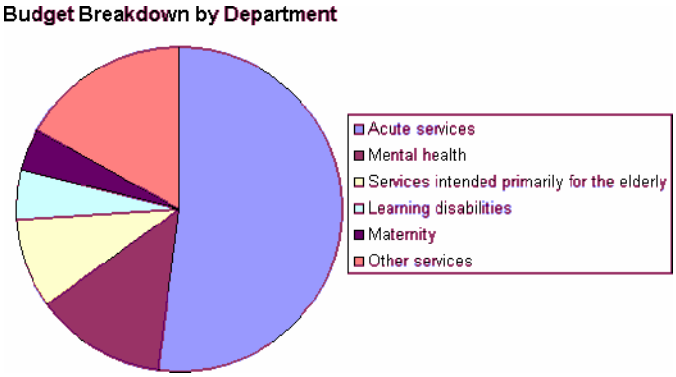


The typical Lean/TPS "types of waste" are seen throughout hospitals:

Type	***Laboratory Example***	***Patient Care Example (Oncology)***
Defects	Mislabeled patient specimens	Wrong medication delivered to patient
Overproduction	"Just in case" blood tubes drawn from patients, but not used	Patients seen by MD faster than can be treated with chemotherapy, causing delays
Transportation	Moving specimens long distances from receiving to testing	Long walks from MD clinic to chemotherapy
Waiting	Specimens waiting in batches for testing	Patients waiting due to physician lateness or schedule exceeding capacity
Inventory	Expired test reagents	Expired chemotherapy drugs
Motion	Technologist walking due to poor layout	Nurses searching for missing or poorly located supplies
Over-processing	Time/date stamps on labels that are not used	Time spent creating a schedule that is not followed
Human Potential	Employee ideas not listened to	

What Can Lean/TPS Deliver to Healthcare?

We can break down the current expenditures from a hospital and describe Lean/TPS savings. Using data from a UK study service expenditures, we see acute services consuming the largest share.



If we use these proportions to report very conservative Lean/TPS savings, we get the table that follows. Assuming an annual budget of $75 million, conservative estimates of possible Lean/TPS[15] savings are:

	Net Budget	10% Percent Savings	20% Percent Savings
Acute services	$ 39,000,000.00	$ 3,900,000.00	$ 7,800,000.00
Mental health	$ 9,750,000.00	$ 975,000.00	$ 1,950,000.00
Services intended primarily for the elderly	$ 6,750,000.00	$ 675,000.00	$ 1,350,000.00
Learning disabilities	$ 3,750,000.00	$ 375,000.00	$ 750,000.00
Maternity	$ 3,000,000.00	$ 300,000.00	$ 600,000.00
Other services	$ 12,750,000.00	$ 1,275,000.00	$ 2,550,000.00

From a recent Canadian Lean in Healthcare project:

- Within days of completing proper Lean/TPS training, one team believed they had reduced errors to zero for patient test data ...
- Another team showed how a simple solution could save 2-6 years of patient wait time **per every month** of their work ...
- An additional salary was saved from preventing loss of lab consumables ...
- 2.4 years of wasted time in process recovered ...

One team from that project commented:

> We were surprised at the size of the expected results. There were years of patient wait time that we could eliminate with a few improvements. We found we could save hundreds of days of waiting from some processes and unexpected dollar savings in other areas.

[15] An accurate average for Lean/TPS savings across many sectors is 20% and higher. The 10% savings range is included to show a very conservative, yet achievable, savings target.

Lean/TPS in ERs, ORs & More...

Lean/TPS methods are also used to improve patient flow through Emergency Departments, Operating Rooms, or other patient care environments.

Heijunka, or level loading schedules, helps reduce delays and solve capacity shortages. This benefits patients (through reduced waiting times), physicians (through improved productivity, which translates into higher pay), and the hospital (by often reducing or eliminating the need for multi-million dollar capital expansion). Hospitals are rethinking processes, often looking across value streams (such as the door-to-door journey for the patients), instead of focusing on individual departments.

- Consider the allegations that telehealth practitioners are responsible for flooding Emergency Rooms. Load leveling, for example, is not the same as pushing the problem from one area to another (e.g., telehealth to the ER.) Basic telehealth should offer important value at affordable cost. Telehealth should, as a call-centre system, create a platform for building a broadening spectrum of subacute healthcare services on the patient's timetable. However, it has been alleged that telehealth centres "dump" patients into ER rooms; "But emergency physicians and nurses say Telehealth still sends patients to the ER who shouldn't be there. [16]"

Nam Y. Huh / AP

A restaurant-style pager lights up signaling the holder that it is his turn in the emergency room at Silver Cross Hospital in Joliet, Ill.

- Handing out restaurant pagers will not reduce ER wait times [17] This simply shifts an overabundance of inventory – patients. Dumping patients to another waiting area does not reduce ER wait times.

[16] http://www.thespec.com/specialsections/section/emergency/191238 --'Real people come here'- Chapter 5.
[17] http://www.msnbc.msn.com/id/15487676/ -- Tired of waiting for the doctor? You're not alone
Some hospitals, clinics taking steps to prevent agonizingly long wait times

Lean/TPS & Value Stream Mapping in Healthcare

Value Stream Mapping proves effective in hospital settings as processes are typically silo-ed and complex. As in manufacturing, there is uncertain responsibility for the overall process, as hospitals are organized around departments and functional specialties.

Proper Lean/TPS training follows Toyota's "Train then do" methodology. No one needs to learn the entire Lean tool set at once (that would be ridiculous). Nor should they ever think the tools are the answer. When considering the value of the tools versus the value of successful change in leadership – the tools account for about 20% of the success – changing the culture and support from the leadership is the other 80%.

The full range of Lean tools can be applied to hospital environments. For example, quick setup (or Single Minute Exchange of Dies) methods are used to reduce the setup or changeover time for operating rooms or MRI machines. As in a Lean manufacturer, Lean hospitals do not drive improvements from people doing their value added work *faster*. Lean improvements come from eliminating waste and delays, supporting those who do the value added work, providing more time for patient care and a focus on quality and kaizen.

Lean/TPS & Sustainable Health Culture Change

Lean Hospitals do more than implement just tools and technical methods. Lean is also a cultural change and a management system, a transformation that takes time, effort, and persistence. The Lean journey is not an overnight change for any organization. Leading hospitals are implementing infrastructures that might seem familiar to a Lean manufacturer – Lean training functions, internal consultancies, or Lean promotion offices. Lean hospitals are making significant training and development investments to help teach their managers how to become true leaders, supporting their employees and driving continuous improvement.

Some Lean hospitals use a kaizen event method. Other hospitals have taken an approach that focuses less on short events and more on the structural transformation of processes and management practices. This is a similar difference in approaches that we sometimes see in the manufacturing world. As the leading Lean hospitals are about five years into their journey, time will prove which model (or models) will be the most sustainable. As in any sector, Lean hospitals will have to guard against backsliding to old practices or behaviors.

Thankfully, more hospitals are having success with Lean/TPS. Patients, their employees, their physicians and the hospitals themselves all benefit.

Conclusion: Fixing the Crisis in Healthcare

The crisis in healthcare is real and can be met. The demand for higher quality and more service is challenged by a diminishing resource base and growing patient population. It is truly time to live up to a Deming title, “Out of the Crisis.”

We can step forward with real organizational change that is sustainable and provides opportunities for cost savings, error and waste reduction and provides true improvement to patient care.

Lean/TPS is the means by which we can really do something about the healthcare crisis and deliver sustainable solutions.

About the Author

Tim worked with Deming (United States), Ishikawa (Asian Productivity Organization, Japan) and Imai (Japan Kaizen Institute, Japan.) He has worked with over three dozen healthcare facilities. He can be reached at drtim@kyoseicanada.ca.

- Tim was selected by Toyota Canada to train its employees on the Toyota Production System, Problem Solving for Quality and Toyota Business Practices – the new international Toyota standard. This Lean/TPS training also included Toyota's suppliers (current and potential.) He has developed a complete TPS Supplier Audit as well as a Lean/TPS Organizational Audit.
- Tim has worked with Toyota in Canada, China, Japan and the US for over 20 years, including partnering on books about Lean and Kaizen for industry, training materials and more.
- He created an international Lean Leadership training program for large automotive and automotive parts manufacturers based on Toyota leadership and Liker's "The Toyota Way".
- Tim has similar experience with Japanese car companies and their suppliers in Japan and internationally. Dr. Tim (below, left) is receiving a lifetime Lean/TPS award from the Society of Manufacturing Engineers (North America.)

Most recently, he is responsible for savings millions of dollars and hours of patient wait time in hospitals in Canada by applying Lean/TPS to healthcare.

Tim represents a unique combination – practical leadership in both human resources and quality. He has been consulting to world leaders for over 25 years. He started consulting in order to share best practices with the people and businesses that needed them. Tim has worked with hundreds of organizations – from multinationals to family business and governments to non-profits. He has literally saved organizations millions and millions of dollars and time while creating sustainable continuous improvement and quality.

Tim started his studies in quality in Japan at places such as at the Asian Productivity Organization (with Ishikawa), the W. Edwards Deming Institute (with Deming), the Japan Kaizen Institute (with Imai), the Japanese Association of Suggestion Systems, the Quality Control Research Institute, Japan and the Japanese Union of Scientists and Engineers (JUSE) and more. He is listed as UWO's expert on human resources, Lean and corporate social responsibility.

He is a popular speaker, has authored a number of books, published hundreds of validated surveys, earned 7 Who's Who citations and consulted, taught and lived in Canada, Hawaii, China, Japan, Malaysia and West Africa. Tim returned to consulting under his own banner after leading the new international Lean Enterprise Group for the world's largest consulting firm. He is a Certified Lean Six Sigma Black Belt and is certified in Project Management. On a personal note, he is a licensed Private Pilot, SCUBA diver and internationally certified instructor for Spinning, Pilates and Tai Chi.

Questions & Answers

Here are a few questions and points to consider as a leader of the organization before starting a Lean Healthcare Transformation of your organization or to take your organization to the next level.

Question: How do I make Lean personal? You said it was contagious, what happens when I "catch" it?	**Dr. Tim**. You'll "catch" Lean and make it personal if you remember a few key ideas: • If it's predictable, it's preventable. • The process brings stable improvement and there's always room for more improvement. You see small gain in what you do and then remind yourself that those small gains are multiplied by the numbers of times you do that task every day of the year.
Question: What if my idea fails?	**Dr. Tim**: Remember that mistakes are like rate treasures, we need to find them all. They are wonderful continuous improvement opportunities, but only if your work culture embraces change and says it's safe to let people fail. Adults learn by failing, by making successive approximations to the ideal behaviour. No one was really born with the ability to drive a car, we trained into it and we got better. If your idea could have been better, go back to your problem solving tools (Ishikawa, 5 Why, Pareto) and look for revised problem – root cause – countermeasure change. Create a new PDCA cycle. Deming would be proud!
Question: We're busy! What happens when my Lean efforts conflict with other responsibilities?	**Dr. Tim:** Make the decision about the scheduling priority. If you are the Lean Champion for an area, try to give that first priority. If not, let someone else fill in for you – your "next in line" person. You should have a fan out for conflicts in meetings already prepared. Always send that next-in-line person to the event you can't attend with all of your information, reports and support. They will represent you and carry your contribution, but won't likely make your decisions as champion. They will bring back the information you need to make a decision. If you have shared your information needs and decision rule with that person, s/he should be able to make some decisions on your behalf.
Question: How do I measure my own Lean success?	**Dr. Tim:** Look at the data! You should have done some thorough data collection for your current stream value map. Use that data with your problem solving and root cause plus countermeasures skills to determine the largest improvement gaps and use the measures from the current state to express savings – the before-after differences. Take care to describe these differences in terms a novice or lay person would understand. If you're describing savings per day, month or year,

	try to describe those savings in: • Dollar terms -- $35 million/year saved from overall operations improvements; $45,000 saved from preventing reagent wastes per year, etc. • Time terms – 24 years of overall patient wait time saved per year • Liability or error reductions – number of error going to lab is down to zero for 3 months – Number of post-operative hospital caused infections have been 0 for 4 months; Number of ER or OR errors reduced by 75% • Quantitative surveys – patient satisfaction has doubled; Staff work satisfaction (as measured by specific stress reduction) has improved every month since our Lean project started 7 months ago • Lean measures success objectively, not subjectively
Question: As a Lean leader or champion, do I have to learn all of the Lean tools?	**Dr. Tim**: Not at all! While your training was comprehensive (think of those first 2-3 days!) there is no expectation that you will be an instant expert. Lean is a continuous improvement methodology. A good rule of thumb while you're learning is to stay a little ahead of your team, staff or superiors. If you don't know the answer to a Lean question, be honest and say so. Tell people you don't know now but you will get them answer. Any worthwhile consultant with experience (not the "instant experts") will still be available to answer your email questions.