

Lean Healthcare

By Mark Graban

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Hospitals around the world are successfully implementing Lean methods for the benefit of patients, employees, physicians, and the hospital organizations. It is possible, through Lean and the Toyota Production System, to simultaneously provide better care, better quality, and lower costs.

Hospitals worldwide face a wide range of problems and pressures that have inspired them to look outside of healthcare for inspiration. Payers, ranging from government agencies to private insurers, are forcing price reductions on hospitals, which requires hospitals 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. Compounding the pricing pressures, 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.

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. It is estimated that medical mistakes lead to the deaths of roughly 100,000 Americans each year and harm to 2,000,000, with more than half of these errors being preventable. 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. Some hospitals are adopting “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.

Hospitals also face severe shortages of key skilled employees, including nurses, pharmacists, and medical technologists. Labor efficiency is driven not by a desire to reduce headcount, but rather out of a necessity to do more work with fewer people. Lean improvements through Standardized Work, layout and flow improvements, and 5S are reducing waste and non-value added time, reducing labor requirements or allowing caregivers to spend more time with patients. Experts estimate that 30-40% of a typical nurse’s time is spent on waste, such as rework and searching for medication or supplies. The typical Lean “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	Patients waiting due to physician lateness or

	testing	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
Overprocessing	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	

Lean 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. 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.

The full range of Lean tools can be applied to hospital environments. For example, quick setup (or SMED – 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 Production model, 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 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, yet alone a hospital. Leading hospitals are implementing infrastructures that might seem familiar to a Lean Manufacturer – Lean training functions, internal consultancies, or Kaizen 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 primarily Kaizen Event driven event methodology, although the method is sometimes called “Rapid Process Improvement Workshops” or by another name in healthcare. 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 organization, Lean Hospitals will have to guard against backsliding to old practices or behaviors.

Leaders in the application of Lean methods in hospitals include:

- ThedaCare (Wisconsin)
- Virginia Mason Medical Center (Washington)
- Park Nicollet Health Services (Minnesota)

- NHS Bolton Trust (England)
- Avera McKennan (South Dakota)
- Florida Hospital (Orlando and Central Florida)
- Flinders Medical Centre (Australia)

Thankfully, this is a quickly changing and evolving list, as more hospitals are having success implementing Lean methods – for the benefit of their patients, their employees, their physicians, and the hospitals themselves.

Mark Graban is an active consultant in the field of Lean healthcare, working with hospital clients throughout North America. Mark is also the founder of www.leanblog.org, a leading website about Lean and the Toyota Production System. He is the author of a book titled "[Lean Hospitals: Improving Quality, Patient Safety, and Employee Satisfaction](#)," published by Productivity Press.