

Introduction to Lean Healthcare

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

Hospitals 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. Compounding the pricing pressures, the U.S. government, through Medicare and Medicaid, instituted new rules under which hospitals would no longer be paid for the care required to treat a range of preventable errors, including some hospital acquired infections and items left inside patients after surgery. Hospitals are left to absorb the cost of poor quality themselves, which provides incentives for improvement beyond the intrinsic motivation to provide the best care.

It is estimated that medical mistakes lead to the deaths of roughly 100,000 Americans each year and harm 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 being caused by incompetent or negligent individuals). **Standardized Work, 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** ("continuous improvement") 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. The need for labor productivity 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, allowing caregivers to spend more time with patients. Experts estimate that 50% 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 (but caught at last minute) |
| 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 |

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|-----------------|--|--|
| 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, the schedule exceeding capacity, or missing orders |
| 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 being listened to; people working below their skill level | |

Lean methods are also used to improve patient flow through Emergency Departments, Operating Rooms, and other patient care environments. **Heijunka** (level loading) 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.

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. Lean Hospitals do not get improvements by people doing their 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 creating infrastructures such as 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 event-driven 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. As the leading Lean Hospitals are about eight 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.

Recognized leaders in the application of Lean methods in healthcare include:

- ThedaCare (Wisconsin)
- Virginia Mason Medical Center (Washington)
- Seattle Children's Hospital (Washington)
- Group Health Cooperative (Washington)
- Denver Health (Colorado)
- 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.

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Books:

[“Lean Hospitals: Improving Quality, Patient Safety, and Employee Satisfaction,”](#)
August 2008. **[2nd Edition](#)** coming November 2011. www.LeanHospitalsBook.com

[“Healthcare Kaizen: Engaging Front-Line Staff in Sustainable Improvements,”](#)
co-authored with Joe Swartz, to be released in spring 2012. www.HCKaizen.com