



## A CATALYST FOR BETTER PATIENT OUTCOMES: LEAN MANAGEMENT IN HEALTH CARE

TODAY'S HEALTH CARE LANDSCAPE IS INCREASINGLY COMPLEX AND RAPIDLY EVOLVING, CHALLENGING PROVIDERS TO IMPROVE QUALITY AND EFFICIENCY WHILE SIMULTANEOUSLY CONTROLLING COSTS AND BOLSTERING PROFITABILITY. LEAN MANAGEMENT PRINCIPLES CAN PROVIDE A SPRINGBOARD FOR SUCCESS BY CREATING MAXIMUM VALUE FOR PATIENTS. IMPLEMENTATION OF LEAN THINKING INVOLVES REAPPRAISING SERVICE PROCESSES AND SHIFTING THE FOCUS TO DEFINING VALUE FROM THE CUSTOMER'S PERSPECTIVE—WHICH, IN THE HEALTH CARE SPHERE, IS THE PATIENT. HERE WE EXPLORE THE KEY WAYS IN WHICH LEAN MANAGEMENT CAN GENERATE SUSTAINABLE RESULTS FOR HEALTH CARE BUSINESSES.

## APPLYING LEAN MANAGEMENT IN HEALTH CARE: CRITICAL OPPORTUNITIES FOR IMPROVEMENT

*"The foundational elements of Lean are designed to identify and eliminate wasted time and resources,"* said James Ryan, Principal Consultant at Four Principles. *"In a health care environment, application of these principles can result in using space more productively, improving emergency & operating room procedures and optimizing the pharmacy system—to name just a few examples. Regardless of the particular element, the emphasis of Lean is always on the patient experience."* Let's explore how key components of Lean generate demonstrable results in the health care sector.

**Identify value streams and map the patient journey** – This core tenant of Lean thinking involves creating a detailed map of how a process flows. Careful analysis of a mapped process exposes duplicate steps, unnecessary work, lack of clear responsibilities and other forms of waste.

*"I have learned to try to understand the core operations and processes beneath things, to not just accept them at face value and move on. Often when you do that, you find there isn't a lot of logic to why things are the way they are. So why not change it for the better? Here at Stanford [Health care] we use the 'Lean' process improvement approach or methodology. It derives from the Toyota Production System. It engages people to improve their performance and the performance of the hospital. You look at the hospital processes and identify which area is adding value, which area is delivering great value and which area is a waste of time. The Lean process follows the idea that by systematically and continuously improving processes, and by engaging the team, we can develop an organization that is focused, every day, on being better than it was before."*

Amir Dan Rubín, former President and CEO of Stanford Health Care, as told to Becker's Hospital Review

Lean can identify and improve multiple types of waste in the health care environment, including:

- **Defects:** Adverse drug reactions, surgery errors, mistakes in charting and billing;
- **Waiting:** Waiting for patients, doctors, staff, medicines or test results;
- **Transportation:** Commonly used items stored far from where they are used, delivery of medication from central pharmacy;
- **Overprocessing:** Duplication of information, asking for patient details multiple times;
- **Inventory:** Excess stock, expired drugs; **Motion:** Unnecessary movement by staff looking for supplies and paperwork, inefficient clinic layout;
- **Overproduction:** Unnecessary tests, blood drawn from patients but not used.

Value stream mapping helps expose and correct any inefficiencies. Consider the Hereford Hospitals NHS Trust endoscopy unit in the United Kingdom. Endoscopy unit staff initially said there weren't enough recovery trolleys to meet demand and had requested at least four additional trolleys. Once the unit's value stream was mapped, the team identified the true source of its problem: Transfusion patients – not endoscopy patients – were occupying chairs in the recovery space. The actual bottleneck was the lack of flow through recovery chairs, not a supply and demand issue with trolleys. The solution was to provide a different recovery space for transfusion patients. The detailed mapping also revealed the maximum and average number of patients in endoscopy needing recovery trolleys, and it was agreed that only three trolleys were ultimately required, resulting in a cost savings.

Consider also Lucile Packard Children's Hospital at Stanford University, where Lean principles cut down on patient wait time for operating rooms. The hospital eliminated its pre-operation holding area for ambulatory patients, shaving about 45 minutes from the pre-operative process. By identifying and remedying waste, the hospital reduced wait times for operating rooms from two hours to 60 minutes.

*"You can cut out fifty percent of the waste in about a week. It takes a lot of effort, involvement of the front-line worker and some upfront cost, but we can improve these processes."*

Dr. Terry Platchek, clinical instructor at Lucile Packard Children's Hospital, as told to Becker's Hospital Review

**Pursue continuous improvement and flexible regimentation** – Creating "standardized" work is a core concept of Lean. In the health care setting, this regimentation must be flexible and efforts to improve processes must be ongoing.

Consider Inova, an integrated health care provider with nine emergency departments (EDs) that treat approximately 400,000 patients each year. In 2008, the provider initiated Lean-driven process improvements which began with value stream mapping of the intake and triage processes. The ED teams found that patients were bounced back and forth between registration, triage and the lobby—even when physicians were available to see them. The roadblock was the prevailing culture that a nurse would always see a patient in the examination room before the physician. The process was first changed so that physicians could enter the room at any time, and later, the process was again updated so that patients could go directly to a treatment location and all triage could be completed bedside.

Inova's initiatives have borne substantial results. By 2011, length of stay for discharge patients declined from 215 to 135 minutes and time to seeing a physician declined from 55 to 22 minutes. Furthermore, it is estimated that the EDs generated more than \$6 million in labor productivity gains by year-end 2012.

Additionally, in quickly changing health care settings, a "work-around" culture can be common, whereby new processes are continuously woven around and layered on top existing ones, regardless of the resulting waste and complexity. Implementation of Lean thinking can help organizations identify problems as they occur and improve systems while working within them.

For example, consider the development of a Patient Safety Alert System at Virginia Mason Medical Center (VMMC). The system requires a staff member to alert management as soon as an error (or potential error) is present. Senior managers are notified immediately and must address the root cause of the problem right away—a radical change from the previous process, where it took three to 18 months to resolve error reports. The system's rationale reflects the Lean principle that it is far more efficient to address a problem immediately by halting the process than it is to revisit the issue later—and in health care, addressing problems promptly can save lives. At VMMC, more than 14,000 alerts were reported between 2002 and 2009, and most were processed within just 24 hours. Premiums for professional liability insurance were subsequently reduced by 56%.

Outside of the alert system, VMMC has employed several Lean improvement tools and techniques. As a result, VMCC rose to the top 1% of all hospitals in the US in terms of both quality of patient care and system efficiency. Additionally, more efficient use of space drove \$11 million in savings in capital investment and freed an estimated 25,000 square feet of space using better design.

## CONSIDERING THE OPPORTUNITY FOR LEAN HEALTH CARE IN THE MIDDLE EAST AND SAUDI ARABIA

The health care landscape in the Middle East and Saudi Arabia continues to evolve as demographic trends drive the burgeoning demand for services. In fact, between 2013 and 2020, health care spending in MENA and Saudi Arabia is expected to grow by 6% and 7%, respectively. Government-owned hospitals are currently a dominant force, and while that isn't expected to change completely, the private sector is poised to grow, with experts forecasting the private health care market will be worth \$61 billion in 2020. Saudi Arabia is an important driver of this growth, as the government is seeking to expand the private sector's role as part of its ambitious Vision 2030 plan.

*"Now more than ever, health care providers are focused on effecting enduring improvements at every stage and eliminating unnecessary waste wherever possible,"* said Stefano Gaspari, Principal Consultant at Four Principles. *"Both public and private health care operators are striving to create tangible, sustainable results, and we believe Lean principles can be highly effective in both settings."*

While Lean thinking has its roots in Japanese manufacturing, it can be a transformative force across a wide array of industries in both public and private spheres. In the public space, it is especially important to expand the implementation of Lean beyond a focus on tools. Academic research suggests the successful adoption of Lean in the public sphere relies on a deep contextual understanding of culture and the impact of professional, managerial and regulatory roles. A commitment to sustained, ongoing improvement is vital to Lean success in the public health care realm in particular. It is certainly possible to achieve Lean success in public health care—for example, consider the public Flinders Medical Centre in Australia, which after two and a half years of implementing Lean was doing 15-20% more work, with fewer safety incidents, on the same budget, using the same infrastructure, staff and technology.

When your health care business is ready to embark on a transformational journey, Four Principles is here to deliver Lean Management Expertise, not idle talk. We develop sustainable Lean Solutions across various industries throughout the world. We implement. We are passionate about what we do. We are Lean experts with a proven track record in the healthcare sector. Learn more at <https://fourprinciples.com/>

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