

Hospitalists: Lean Leaders for Hospitals

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Unsustainable increases in health care costs mandate efforts at cost reduction.¹ Such efforts necessitate enhanced productivity, especially given the specter of an aging population afflicted by a burgeoning chronic disease burden.² Productivity is less a choice than an imperative forced upon hospitals and health systems as they attempt to address the competing requirements of diminished resources and increased demands. While the traditional mindset treats the goals of cost reduction and improving quality as tradeoffs, the methodology and philosophy known as “Lean” provides a proven approach for simultaneously improving both factors.³ Ideally, improved quality should lead to lower cost, and improved productivity should lead to better quality outcomes for patients.

This issue of the *Journal of Hospital Medicine (JHM)* describes multiple efforts to assess the activities of hospitalists and other hospital-based physicians through use of time-flow measurement.^{4–7} Understanding how health care workers spend their time and on which tasks that time is spent are essential steps toward applying Lean methodology at the point of care, or “gemba”—a Japanese word that means the place where the work is actually done.⁸ At many health care institutions this “gemba” focus has not been integral to healthcare management models, and likely is a contributing factor to the cost and quality levels that exist today. The studies directly observing care delivery published in this issue of *JHM* provide invaluable lessons on how we might both improve productivity and quality of care delivery in the hospital. In this editorial, we review essential components of Lean methodology and propose how hospitalists and hospitals can benefit from its application.⁹

Value and Waste

In the Lean model, work and activity are broken down into the general categories of “value” and “waste.” The time and activities, as viewed from the customer’s (ie, patient in the hospital) perspective, can also be categorized in a similar way. The goal in a Lean environment is to maximize value to the customer while reducing activities that are not “value” (ie, activities lacking value are “waste”).

Some define value as the simple mathematical equation of quality divided by cost.¹⁰ Better quality and/or lower cost means more value. A classical Lean definition of value requires three criteria to be met.¹¹ First, the customer

(patient) must be willing to pay for the given activity, directly or indirectly. When a hospitalist initiates care in the Emergency Department by placing admitting orders for a patient, the patient would view this activity as value because it progressed the care of the patient. However, if the patient is forced to wait 5 hours in the Emergency Room for an available inpatient bed while receiving minimal care, the patient may likely view that time as waste. Second, the activity must move the process forward toward the desired outcome in a meaningful way. Testing and exam activity that leads to a diagnosis would meet this criterion, while unnecessary CT scans might not. Third, the activity must be done properly the first time so as to minimize any rework, an important core quality component of the Lean approach.

All hospitalists perform activities that represent “value” and others that represent “waste” during their day. The nomenclature is not meant to be a value judgment on the clinician or their role. Lean provides a formal framework to describe waste in 8 key categories (Table 1), all meant to look at the system related elements of waste instead of the blaming of an individual.¹² Common applications of Lean in healthcare focus on reducing waste to free up more time to deliver value, or to ensure that the value work is done at the highest possible level of quality. When hospitalists must take time to locate a colleague or a piece of information, that “hunting and gathering” time is waste. It distracts them from providing value. Too much waste within a fixed time period may lead to corners being cut or a lack of responsiveness to patient needs—resulting in degradation in the quality of care and outcomes.

A simpler way of looking at activity for hospitalists and the care team often classifies any time spent in the patient room or at the bedside as “direct value.” This time can include clinical activities or time spent simply communicating with a patient and their families about their care or concerns. There may be activity in the room that could be considered “waste” (searching for information in the EMR), but proximity to patients is often considered valuable for other reasons. In the field of nursing, multiple studies in the past few years focused on identifying the percentage of time that nurses spend in patient rooms (consistently in the 30–35% range across health systems and continents).¹³ The problem of waste is a longstanding one in hospitals. In 1922 Henry Ford wrote, “In the ordinary hospital the nurses must make useless steps. More of their time is spent in walking than in caring for the patient.

TABLE 1. Eight Types of Waste

Defects (correction, rework)
 Overproduction
 Transportation
 Waiting
 Inventory
 Motion
 Overprocessing
 Human talent

NOTE: Adapted from Graban, Mark. *Lean Hospitals: Improving Quality, Patient Safety, and Employee Satisfaction*. Productivity Press, New York, 2008. From *Lean Hospitals: Improving Quality, Patient Safety and Employee Satisfaction*, by Mark Graban; copyright 2009, CRC Press, Taylor and Francis Group.

[A hospital in Detroit] is designed to save steps . . . we have tried to eliminate waste motion in the hospital.”¹⁴

Activity outside of the patient room may be sometimes considered of “indirect value,” but this is often a gray area. Charting and medical decision-making may benefit the patient and move the care process forward, and thus be of clear value. Yet, such activity may have questionable patient value if undertaken solely for billing or regulatory reasons. Effectively coordinating care between different members of the care team from both inside the hospital as well as beyond its walls does have value, but waste typically occurs when information is transferred incompletely or inaccurately.

Reducing waste often requires systemic changes to processes, workflow, and physical space. Motion (walking and searching) is a common form of waste in healthcare. Systemic Lean improvements might include changing the location of equipment and medication storage, or even patients.¹⁵ Uneven workloads often cannot be addressed by an individual—there must be a systemic effort to level workloads (the Lean term being “heijunka”), for example, leveling patient discharges throughout the day instead of doing them all in the late afternoon.

Lean also focuses on not wasting human talent or professional potential, often referred to in the literature as the “eighth type of waste” because it is missing from some Lean reference books.¹¹ When hospitalists perform work that could be done by a midlevel provider (ie, physician assistant or nurse practitioner), or when a nurse performs work that could be done by a tech, the hospital wastes a scarce resource, human capital. Of note, changing these roles and responsibilities requires systemic effort rather than people just quitting a certain activity because it is below their pay grade; eg, it is better for the wrong person to be taking vital signs than to not have them documented at all.

Subject or Scientist

Toyota describes its management system, the Toyota Way, as having 2 “equally important pillars”: continuous improvement and what they call “respect for humanity.”¹⁶

If hospitals focus only on the improvement pillar, they run the risk of alienating the clinicians and staff members, under-

cutting any attempts at quality or productivity improvement. “Respect for humanity” is a much more sophisticated concept than just making employees happy in a superficial way. Respect, in a Lean sense, includes not robbing people of the opportunity to improve their own work. As participation increases the pride people feel in their work, more improvement results—a virtuous cycle.¹⁷

Importantly, the Lean approach to quality improvement does not mirror the classical approach to improving productivity in a factory. Frederick Taylor (1856–1915) and Frank Gilbreth (1868–1924) are considered the fathers of Industrial Engineering, but their philosophy promulgated the belief that workers are not smart enough to participate in improvement.¹⁸ While they contributed a number of work analysis and process improvement methods that we use to this day, their philosophy is not one that fits with the “respect for humanity” principle of a modern professional workplace. Taylor believed a primary workplace problem was that people loafed and did not work hard enough; a seeming defect in their character as opposed to something that management should investigate and understand (for example, asking “Why are people no longer motivated?”).¹⁹ Taylor stood over workers, timing and watching their efforts, devising methods that workers should use to maximize their productivity. The term “Taylorist” is often used to describe this forced separation between working and thinking. The modern approach to Lean management draws more on the philosophy of Deming—people want to do quality work, but the system gets in the way. The modern Lean approach emphasizes that every employee has 2 jobs—both to do the work and to improve it. The daily practice of “kaizen,” or continuous improvement, engages every employee in a problem-solving dialogue with their leaders. In a Lean hospital, everybody deserves respect for their role, from a night-time hospitalist to patient transporters, and all can play a role in process improvement.

Having research assistants shadow hospitalists could be done in a Taylorist or Deming way. Ideally, the role of a Lean improvement professional would be to teach those doing the work how to identify waste, allowing the hospitalists to develop and test their own improvements based on their existing professional knowledge combined with Lean principles. While the time-flow studies published in this issue of *JHM* identified how the hospital system can be a barrier to hospitalist efficiency, this also potentially represents a wasted opportunity. Ideally, if the observers had been Lean improvement professionals they would not have just shadowed hospitalists without talking to or engaging them. They would have helped identify batching in a process or teaching the hospitalists why that practice is often not optimal. Future research should focus on applying this approach to time-flow analysis in the hospital.

Simply put—Lean and process improvement techniques run the risk of being disrespectful, ineffective, and unsustainable when they are done to somebody, (the Taylor/Gilbreth approach) instead of utilized to both assess activities and glean learning from the front-line staff. To be sustainable,

effective, and respectful, hospitals should strive to truly engage in process improvement the people who are actually performing the work. Instead of “efficiency experts,” we need skilled coaches and mentors who can guide people towards generating their own improvements. Finally, when we have experts like Taylor or Gilbreth leading process improvement, those experts become a crutch and a bottleneck. Only by teaching the clinicians and staff members these skills, combined with patient focus and “respect for humanity,” can we begin moving a hospital’s culture to one of true continuous improvement—leading to better patient safety and quality, better access, lower costs, and better staff morale.

Conclusion

Hospitalists seem to be ideal leaders in efforts to generate ideas for improvement to remove waste from the health care system. Efficiency, value, and quality will be the mantra as we head into an era of healthcare where every action will be analyzed as to whether the action provides value to the patient. Hospitalists are well poised as Dr. Peter Pronovost recently stated. “I think hospitalists’ roles are going to go up dramatically, and I hope the field responds by making sure they put out people who have the skills to lead.”²⁰ Hospitalists experience and “see” waste in the processes of care. Yet, as Lord Kelvin is credited with the saying, “If you can not measure it, you can not improve it” and future time-flow studies of hospitalists must take advantage of opportunities to also measure waste and not just document activity.

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References

1. Gruber J. The cost implications of health care reform. *N Engl J Med*. 2010 (in press).
2. Seshamani M. The cost of inaction: the urgent need for health reform. Available at: <http://www.healthreform.gov/reports/inaction/inactionreportprintmarch2009.pdf>. Accessed May 2010.
3. Toussaint J. Writing the new playbook for U.S. health care: lessons from Wisconsin. *Health Aff (Millwood)*. 2009;28(5):1343–1350.
4. Tipping M, Forth V, Magill D, Englert K, Williams M. Systematic review of time studies evaluating physicians in the hospital setting. *J Hosp Med*. 2010;5(6):353–359.
5. Tipping M, Forth V, O’Leary K, et al. Where did the day go?—A time-motion study of hospitalists. *J Hosp Med*. 2010;5(6):323–328.
6. Malkenson D, Siegal E, Leff J, Weber R, Struck R. Comparing Academic and Community-Based Hospitalists. *J Hosp Med*. 2010;5(6):349–352.
7. Kim C, Lovejoy W, Paulsen M, Chang R, Flanders S. Hospitalist time usage and cyclical: opportunities to improve efficiency. *J Hosp Med*. 2010;5(6):329–334.
8. Marchwinski C, Shook J. *Lean Lexicon: A Graphical Glossary for Lean Thinkers*. Cambridge, MA: Lean Enterprise Institute; 2003.
9. Kim CS, Spahlinger DA, Kin JM, Billi JE. Lean health care: what can hospitals learn from a world-class automaker? *J Hosp Med*. 2006;1(3): 191–199.
10. Fraser I. *Evaluating the Impact of Value-Based Purchasing: A Guide for Purchasers*. Available at: <http://www.ahrq.gov/about/cods/valuebased/evalvbp1.htm>. Accessed May 2010.
11. Graban M. *Lean Hospitals: Improving Quality, Patient Safety, and Employee Satisfaction*. New York: Productivity Press; 2008.
12. Womack J, Jones D. *Lean Thinking*. New York: Simon and Schuster; 1996.
13. Nelson-Peterson DL, Leppa CJ. Creating an environment for caring using lean principles of the Virginia Mason Production System. *J Nurs Adm*. 2007;37(6):287–294.
14. Ford H, Crowther S. *My Life and Work*. Garden City, NY: Garden City Publishing; 1922.
15. O’Leary KJ, Wayne DB, Landler MP, et al. Impact of localizing physicians to hospital units on nurse-physician communication and agreement on the plan of care. *J Gen Intern Med*. 2009;24(11):1223–1227.
16. Ohno T. *Toyota Production System: Beyond Large-Scale Production*. New York: Productivity Press; 1988.
17. Deming WE. *Out of the Crisis*. Cambridge: Massachusetts Institute of Technology—Center of Advanced Educational Services; 1982.
18. Nadworthy MJ. Frederick Taylor and Frank Gilbreth: competition in scientific management. *Bus Hist Rev*. 1957;31(1):23–34.
19. Taylor FW. *The Principles of Scientific Management*. Norwood, MA: The Plimpton Press; 1911.
20. Nelson B. The Year Ahead. *The hospitalist*. 2010;14(2):1, 4–5.