

**Lean Action Research Learning Collaborative
Overview
January 2017**

Background

In recent years the pace of change in health care has accelerated. Some of these important changes include the growing adoption of value-based payment arrangements that require healthcare providers to accept more financial risk for the care they provide patients, increasing requirements for reporting on the safety and quality of care provided, and greater transparency regarding providers' performance with respect to efficiency, processes of care, outcomes, and patient and staff safety. In response, many healthcare organizations have begun to implement the cultural beliefs and values, tools, and processes of lean management. Lean is an approach to managing organizations that evolved from the Toyota Production System, first developed in the 1950s to eliminate waste and improve quality in the manufacture of automobiles. More specifically, we define lean as:

The development of a culture that enables an overall management system to create value for customers by eliminating waste and solves problems through the daily application of the scientific method in creating standard work.

Lean has been implemented in many manufacturing and service industries in numerous countries. As hospitals and other healthcare providers have adopted lean management, the organizations' leaders, managers, and frontline patient care staff have tried to transform the way they identify and solve problems in care processes using new ideas (such as focusing on value from the patient's perspective), tools (such as value stream process mapping), and problem solving routines (such as A3 thinking and the plan, do, study, act (PDSA) cycle of improvement).

But does research on lean management in healthcare show that it makes a difference in key outcomes such as efficiency, quality of care, patients' satisfaction with their care, or employees' satisfaction with their working conditions? Unfortunately, we do not yet have a clear answer to that question. Many case studies using interviews or other qualitative techniques report positive perceptions of lean's effects among managers and frontline care staff. However, analyses of quantitative data on quality, efficiency, and other performance metrics report mixed results, leading to the following conclusion from a recent systematic review of the published quantitative research on lean in healthcare:

“While some may strongly believe that lean interventions lead to quality improvements in healthcare, the evidence to date simply does not support this claim. More rigorous, high quality and better conducted research is required to definitively ascertain the impact and effectiveness of lean in healthcare settings.”¹

To meet this need, the Center for Lean Engagement and Research (CLEAR) will establish a Lean Action Research Learning Collaborative (LARLC). LARLC will bring together approximately 10 selected hospitals/ integrated health care systems (organizational members) that see lean and related transformational improvement approaches as an overall management operating system to improve the value of care to patients. We will seek organizational members that will commit to continuing their participation in LARLC for at least five years, which will provide enough time to do meaningful longitudinal studies of the impact of lean management on performance outcomes.

LARLC's research goals are to:

1. Work collaboratively with its organizational members to develop a lean research agenda relevant to understanding the effects of lean management interventions in healthcare settings and the contextual factors that influence the effectiveness of those interventions
2. Organize teams of academic researchers to conduct the research identified in the research agenda. Not all research will necessarily be conducted by UC-Berkeley investigators. Depending on the topic, CLEAR will work with a variety of expert investigators at other Universities (see the list below).
3. Disseminate the results of the lean research through bi-annual meetings at which the research team(s) will present their findings. These meetings will serve as a forum for all participants to discuss the findings and apply the results to improve the implementation of lean at each member organization.
4. Disseminate the results of the LARLC research projects through publication in peer-reviewed journals; media outlets, webinars and related sources.
5. Where feasible and relevant, develop case studies of successful lean implementations in healthcare organizations that can be used in executive education and related educational programs.

Some examples of research questions that organizational members may identify are:

- What is the current state of the organizational culture in member hospitals with respect to patient safety, quality of care, and acceptance of performance improvement initiatives? How do these cultural beliefs differ across departments or care settings within the organization? How has lean management influenced these beliefs over time?
- What has been the effect of lean management interventions in specific clinical or functional departments, such as the emergency, intensive care, surgery, radiology and cardiology departments, and medical/surgical care units? How have these effects changed over time?
- What has been the effect of enterprise-wide lean management interventions on

hospital level measures of patient safety, quality of care, and operational efficiency? How have these effects changed over time?

- What are the advantages and disadvantages of simultaneously implementing lean management and other performance improvement initiatives, such as a high reliability organization initiative, in a hospital or other care setting?
- Is the implementation of lean over time causing fatigue or “burnout” among clinical or managerial staff? What are the specific causes of this fatigue and what countermeasures are effective at ameliorating it?
- What characterizes a “mature” lean management implementation? Are there observable differences in the effects of mature lean implementations in comparison to the effects of lean implementations that are at an earlier stage in the developmental process?

LARLC’s healthcare and academic members will be guided by a set of principles:

- Use appropriate research designs and methods to determine what lean interventions work best in what types of organizations and contexts
- Ensure that LARLC’s deliverables offer high value to healthcare managers and academic researchers
- Offer timely and actionable research results to organizational members
- Interact effectively and establish frequent opportunities for rich, rigorous dialogue between leading healthcare managers, executives and academic researchers
- Improve the performance of healthcare organizations by generating actionable research evidence regarding the effects of lean on important processes and outcomes

LARLC’s university partners will be drawn from several prominent academic institutions, each with graduate programs in health services administration (in alphabetical order):

- ◆ Arizona State University
- ◆ Boston University
- ◆ Harvard University
- ◆ New York University
- ◆ Northwestern University
- ◆ Ohio State University
- ◆ University of California at Berkeley
- ◆ University of California at Los Angeles
- ◆ University of Colorado at Denver
- ◆ University of Michigan

- ◆ University of North Carolina
- ◆ University of Pennsylvania
- ◆ University of Southern California
- ◆ University of Toronto
- ◆ University of Washington
- ◆ Virginia Commonwealth University
- ◆ Yale University

Specific Criteria for Selecting LARLC Participants

Evidence that they view lean as an overall management operating system to culturally transform the organization to provide continuous improvement to add value in the delivery of care to patients as opposed to the limited use of lean methods and tools for specific problems or units.

Evidence of Board and top leadership commitment to the lean/transformational improvement journey. Ideally, some degree of confidence that the CEO will likely remain in their position for five years.

Open access to all data and information needed to carry out the agreed upon research projects. CLEAR will ensure that all data are kept confidential and de-identified in any published reports or articles unless desired by participant members in which case written permission will be obtained.

Identification of a “point person” or “facilitator” who will be responsible for interacting with the CLEAR center and research teams in facilitating access to data, arranging for on-site and phone interviews, scheduling phone calls and meetings, and in general “trouble shooting” to promote an effective working relationship. Based on past experience, working with over a dozen hospitals and health systems this does not require hiring an additional person but rather requires about a .25 of an existing person’s job responsibilities.

Provision of \$50,000 per year to fund the research. Each participant will be leveraging all other participants’ funding. Assuming 10 member participants this creates a research budget of \$500,000 per year which based on past experience should be adequate to successfully execute the agreed upon projects.

*If potentially interested in participating, contact Janet Blodgett:
Janet.Blodgett@berkeley.edu or (510)643-9732*

¹ Moraros, J., Lemstra, M., and Nwanko, C. (2016). ‘Lean interventions in healthcare: do they actually work? A systematic literature review’, *International Journal for Quality in Health Care*, 28 (2), pp. 150-165.