Kaizen — LEAN in a week:

How to implement improvements in healthcare settings within a week

By Gitte Wennecke

LEAN manufacturing has developed from being a way to streamline mass production, as in the automobile industry, to a lifestyle with continuous process improvement events that can be applied in all industries — as in healthcare. One of the key elements of LEAN is to run sessions about improvements that create more value by reducing waste. The term waste covers everything that does not add value for the customer or the patient. A session of improvement is also called a transactional process improvement or a Kaizen event (“Kaizen” is Japanese for “improvement”) and is accomplished by bringing together key participants in a chosen process for intensive four- or five-day sessions focused solely on analyzing current processes and implementing changes.

Jens Weirsøe explains: “The process being analyzed needs to be very concrete, such as ‘a reduction in the time between two surgical operations,’ which at the macro process level would have been formulated as ‘cut down the waiting list.’” As an experienced Master Black Belt in Transactional Process Improvements (TPI or Kaizen), Weirsøe has facilitated more than 140 Kaizen events in the United States, Japan, Germany, and Denmark in several different industry functions (i.e., production, sales, service, R&D, and marketing) and in different healthcare departments. Facilitating Kaizen events in so many different sites has given Weirsøe an insight into many cultural differences, along with experience in which of the many LEAN tools available work best in different situations: “Every site, every process, has one thing in common: They all have room for continuous improvements!”

Kaizen events in a healthcare setting

According to Weirsøe, facilitating a Kaizen event in healthcare is a challenge — not only because the processes often entail a complicated information flow with many people involved, but also because processes often differ from time to time. Besides, demarcations are traditionally more stringent in hospital settings. It is, therefore, a “must” to have personnel from the different groups involved represented on the Kaizen team.

One of the Kaizen events that Weirsøe facilitated at the Copenhagen University Hospital was meant to reduce the time between surgical operations in an operating theater with the main focus on reducing the waiting list for gynecological interventions. These types of surgical operation are processes that vary from patient to patient, depending on the severity of the disease. They also involve many different groups of personnel (e.g., surgeons, theater nurses, and anesthesia nurses), resulting in a complicated information flow. According to Weirsøe, here are some of the observations made by the Kaizen team:

- The operating team spent 10 minutes investigating whether the patient had received the required information about the surgical operation from the surgeon.
- It took two theater nurses 30 minutes to unpack all the sterile disposables needed for the operation, since everything was packed as single devices.
- The anesthesia nurse had to leave the operating room five times during the preparation of the patient to pick up things that the operating team had forgotten.
- The team had to wait 20 minutes for the patient to regain enough consciousness that a transfer to the recovery ward was safe.
- After the operation, three nurses had to wait 10 minutes for a hospital orderly to pick up the patient from the operating room.

The Kaizen event lasts for a week, during which time the Kaizen team works intensively with analyzing the process they have been asked to improve. “It is a prerequisite that the group has the full attention of the management and their colleagues during the event, and it is very important that the process they work on is clearly defined,” says Weirsøe.

Kaizen teams

It is important that the composition of the Kaizen team is appropriate. “The event has to be done by the personnel who work with the processes on a daily basis and by personnel on all levels, so that decisions can be approved during the event and to ensure sustainability and acceptance of the result,” says Weirsøe.

“Working interdisciplinarily ensures the sustainability of the improvements, but another positive side effect is that the groups can analyze each other’s work processes to see how many steps each process actually includes and how much time is spent doing them. Often, this analysis will result in an increased respect for other people’s work.”

According to Weirsøe, the Kaizen team at the event at the Copenhagen University Hospital consisted of a surgeon, two

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anesthesia nurses, a theater nurse, a representative from the finance department, and a nurse from another operating ward (for the purpose of comparing processes). The facilitator’s role is to instruct the group in the use of the different tools available, and to help the Kaizen team analyze the processes. Each step has to be mapped in a current-state analysis, along with the time each step takes, how many persons it involves, and whether the step is of value to the patient.

The Kaizen process
As a start, the team is introduced to the LEAN principles by the facilitator, and they will do a couple of exercises to get familiar with the most important tools. Then the team starts its analysis of the current state — this is done while present where the process takes place. “The team observes all that is going on but without taking part in the process,” says Weirsøe.

All processes are written down; and for every single step, the time it takes and whom it involves is noted. When this analysis is done, the team has a very good overview of which of the processes and steps are the heavy time-consumers. The analysis continues with the identification of the value-adding and the non-value-adding activities. “During this current-state analysis, the team has to evaluate if the processes reflect the daily problems,” he adds.

With the overview and deep insight into all processes across the different personnel groups, the team can now start brainstorming solutions. In the LEAN toolbox, there are a number of tools that can be used in this process.

One of the important issues to address is that the solutions have to be measurable either as time saved, fewer loops, fewer steps, lower costs, and so on. The brainstorm will often result in a number of suggestions of solutions. According to Weirsøe, the result of the brainstorm at the Copenhagen University Hospital resulted in some very simple and easy-to-implement solutions, along with some that are expensive and/or takes time:

- Instead of waiting for the surgeon to verify that he has spoken with the patient, a new procedure was implemented: The surgeon now draws an “X” on the patient’s wristband when the patient has been informed about the surgical operation.
- Larger packages of sterile disposables were made available; the extra cost is negated by time savings in the unpacking.
- Sets of standard checklists were developed to ensure that all the needed materials are gathered before the operation starts.
- An investigation of the anesthetic depth was planned. The purpose is to ensure that the anesthetic is given in the exact amount needed, so the patient wakes up by the time the operation is finished.
- A procedure to call the hospital orderly was implemented so the patient can be moved to the recovery ward right away.

There are different approaches as to how the solutions are implemented. The team will map its vision of a future state and the easy solutions are implemented right away, then the team maps the time the solutions take. For the more complicated solutions, the team will make a project plan for implementation. By the end of the week, the team will give a report to management and the involved personnel to show a) the improvements already

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implemented, b) the plan for the coming improvements, c) the expected savings in time and money, and d) a plan for the follow-up and measuring points that will ensure the sustainability.

**Do’s and don’ts**

The most difficult part of a Kaizen is to ensure sustainability; therefore, it is important to ensure that the event is very well planned with a clear and measurable goal. The Kaizen team has to consist of the right combination of people representing the different personnel groups involved or that have an interest in the process, including LEANing personnel, nurses, surgeons and administration.

“Analyzing another group’s way of doing things is often an easier way to identify inxepediencies in the process, but it is also as an eye-opener as to how busy your colleagues really are,” says Weirsøe.

He continues, “Information and motivation of personnel are other important issues. Introducing healthcare employees to a Kaizen event often results in an initial reaction of ‘How will they cut us down this time?’ The facilitator’s job is to emphasize that the Kaizen team makes all decisions—they will be pressured to make improvements, but, at the end of the day, they decide what they think is reasonable.”

**Discussion**

According to Weirsøe, a Kaizen event in healthcare has to be in the interest of the patients; otherwise, nobody will be interested in investing the effort or the money in the project.

When improving processes in healthcare, the priority of the solutions must:
- increase safety (i.e., both patient and personnel safety);
- increase the quality of the treatment;
- reduce the “lead” time (patient flow) or waiting lists;
- increase productivity — without compromising the first three points here);
- and analyze medical errors

— The Institute of Medicine started a debate about patient safety in healthcare and revealed a busy environment with many risks of making mistakes. Healthcare personnel are, therefore, highly motivated to improve processes, as they see this as a way to be able to take care of more patients without compromising quality or patient safety.

Both personnel and management have been very pleased with the result of the Kaizen events that Weirsøe has facilitated in healthcare institutions.

“The departments have often made many improvements already, as they have been asked to cut their expenses from time to time; yet, it is still possible to find room for more improvements when the right team gets together and focus on analyzing the processes carefully,” he concludes.

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Gitte Wennecke works with Radiometer Medical ApS in Denmark. Reprinted with permission from bloodgas.org, a knowledge site maintained by Radiometer.

**Reference**