

Kaizen – lean in a week

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How to implement improvements in hospital settings within a week

Jens Weirsøe is one of Radiometer's most experienced Master Black Belts in Transactional Process Improvements (TPI or kaizen). He has facilitated 90 kaizen events in several countries (USA, Japan, Germany and Denmark), in several different industry functions (Production, Sales, Service, R&D and Marketing), and in different healthcare departments.

Facilitating kaizen events in so many different sites has given him an insight into many cultural differences along with an experience in which of the many lean tools available work best in different situations; e.g. a certain tool may be appropriate in a production process where everything is tangible, but useless in an information-flow process where you cannot "see" the product.

However, as Jens Weirsøe says: *"Every site, every process has one thing in common: they all have room for continuous improvements!"*

Introduction

Lean manufacturing has developed from being a way to streamline mass production, as in e.g. the automobile industry, to a lifestyle with continuous process improvement events that can be applied in all industries – also in healthcare. One of the key elements of lean is to run sessions of improvements to create more value by reducing waste.

The term waste covers everything that does not add value to the customer or the patient. A session of improvement is also called a transactional process improvement or a kaizen event and is done by bringing together key participants in a chosen process for an intensive 4- or 5-day session focused solely on analyzing current processes and implementing changes.

Jens Weirsøe explains: *"The process being analyzed needs to be very concrete, like e.g. "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'."*

Kaizen events in a healthcare setting

According to Jens 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 the different groups of personnel involved represented in the kaizen team.

One of the kaizen events that Jens Weirsøe has 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 much from patient to patient depending on e.g. the severity of the disease. It also involves many different groups of personnel such as surgeons, theater nurses and anesthesia nurses, thus resulting in a complicated information flow.

According to Jens Weirsøe, here are some of the observations made by the kaizen team:

1. The operating team spent 10 minutes investigating if the patient had received the required information about the surgical operation from the surgeon.
2. It took two theater nurses 30 minutes to unpack all the sterile disposables needed for the operation, since everything was packed as single devices.
3. 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.
4. The team had to wait 20 minutes for the patient to regain so much consciousness that a transfer to the recovery ward was safe.
5. 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 is planned to last for a week. During that week 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 Jens 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 Jens 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 they spend on doing them. Often this analysis will result in an increased respect for other people’s work.”*

According to Jens Weirsøe, the kaizen team at the event at the Copenhagen University Hospital consisted of:

- A surgeon
- Two anesthesia nurses
- A theater nurse
- A representative from the finance department
- 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 their 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 if 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 their analysis of the current state – this is done by being present where the process takes place. *“The team observes all that is going on, but without taking part of the process,”* says Jens.

All processes are written down and for every single step is noted the time it takes and whom it involves. 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, etc. The brainstorm will often result in a number of suggestions of solutions, some very simple and easy to implement, some very expensive and only possible to implement over a longer period.

According to Jens Weirsøe, the result of the brainstorm at the Copenhagen University Hospital resulted in some very simple and easy-to-implement solutions and some that are expensive and/or takes time:

1. Instead of waiting for the surgeon to tell if he/she had spoken with the patient, a new procedure was implemented: the surgeon draws an X on the patient's wristband when the patient has been informed about the surgical operation.
2. Larger packages of sterile disposables were made available; the extra cost is made up for by time savings in the unpacking.
3. Sets of standard checklists were developed to ensure that all the needed materials were gathered before the operation starts.

4. 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.
5. A procedure for when the hospital orderly is called was implemented, so the patient can be moved to the recovery ward right away.

There are different approaches to how the solutions are implemented. The team will map their vision of a future state, and the easy solutions they implement right away and again map the time they take. For the more complicated solutions the team will make a project plan for their implementation.

By the end of the week the team will give a report-out to the management and the involved personnel, to show the improvements already implemented, to show the plan for the coming improvements, to show the expected savings in time, money, etc. and to show a plan for the follow-up and measuring points that will ensure the sustainability.

Dos 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 in the process, including cleaning personnel, nurses, surgeons and administrative people, if these groups are involved or have an interest in the process. *“Analyzing another group's way of doing things is often an easier way to identify inexpediciencies in the process, but it is also as an eye opener to how busy your colleagues really are,”* says Jens Weirsøe.

He continues: *“Information and motivation of the 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 Jens 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 be:

1. Increase safety – i.e. both patient safety and personnel safety
2. Increase the quality of the treatment
3. Reduce the “lead” time (patient flow) or waiting lists
4. Increase productivity – without compromising points 1-3

Interviewee

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References

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Analysis of medical errors [1] have started a debate about patient safety in healthcare and revealed a very busy environment with many risks of making mistakes. The healthcare personnel are therefore highly motivated to improve processes, as they see it as a way to be able to take care of more patients without compromising the quality or the patient safety.

Conclusion

Both personnel and management have been very pleased with the result of the kaizen events that Jens 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, and it is still possible to find room for more improvements when the right team gets together and focuses on analyzing the processes carefully,”* concludes Jens Weirsøe.