

Lean Healthcare Implementation : How is The Employee's Acceptance?

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Abstract. Lean healthcare is a new concept in hospital management that not only focus on patient value but also efficiency. This study aimed to understand how far the employees bring lean healthcare implementation in to their daily work. Lean healthcare phylosophy tend to built a lean culture. This study used a descriptive qualitative study design with lean team in several unit in Panti Rapih Hospital. This study adopted an instrument of Lean in Healthcare Quistionaire which measure four domain principal of lean, they are pylosophy, process, people and partner, and problem solving. Result of this study showed that not all indicators have met the highest level of maturity of lean healthcare implementation. Indicator standardization still low in the iplementation, in the other hand rewarding staff system is Panti rapih Hospital already design and have the haighest score. The management should focus on the improvement of job evaluation process with a certain indicator or procedures. Therefore, the employee's performance can be improve directly from the result of evaluation.

1 Introduction

Lean management is a method of building culture through continuous improvement to increase added value on goods or services (1). Lean culture will not be created without trust and appreciation for employees to be able to find fault without feeling afraid of guilt. Lean was first introduced by Toyota through the Toyota Production System (TPS). As a pioneer, Toyota still considers itself a learning organization and continues to develop itself, one of which is by changing the perspective of TPS to the Toyota Way. The main point of the Toyota Way is about culture that is formed from ways of thinking and ways of behaving that are strongly rooted in the philosophy and principles of the organization. The use of lean is not only in manufacture but also in health organizations (2). Lean comes from employees and the ultimate goal for employee welfare so that the reward system becomes very important in its

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implementation (3,4). The implementation of lean healthcare is in the background by the amount of waste that occurs in hospitals with almost 95% non value added activities (5).

In Indonesia, several hospitals have used the lean healthcare approach to improve services, for example studies to identify waste and value streams mapping patient flows (6–8). However, there are still few hospitals that adopt and make lean as an organizational culture as lean thinking philosophy. Making lean as a culture requires a fully supported process from both sides, management and all human resources in the hospital (9,10).

The failure of lean healthcare implementation can be caused by the implementation that focuses solely on short-term problem solving without thinking of continuous improvement (11). The failure that occurred in several public hospitals in the UK due to the perception of lean implementation as a tool for technical fixing rather than culture put the value patient as the main goal (12,13). In addition, another factor that causes failure is the organization's lack of preparedness in implementing lean healthcare (11,14). Readiness to change plays an important role in the success of a change. The success and sustainability of lean implementation to become a culture can not be separated from employee perceptions of the implementation of lean principles (15).

Panti Rapih Yogyakarta Hospital is an open hospital and accepts changes with the welcome for customer complaints. Some customer complaints are related to facilities, professional services, and systems. Panti Rapih Hospital needs to make improvements in terms of human resources, facilities and infrastructure, and the overall system in accordance with the values and preferences desired by patients. In order to improve service improvement, Panti Rapih Hospital has implemented Lean Management since December 2017. To improve the potential results and sustainability of lean implementation, it is necessary to evaluate employee perceptions of lean acceptance in the lean healthcare implementation process at Panti Rapih Hospital Yogyakarta.

2 Method

This study used a single holistic case study method with unit analysis at the level of the lean team at the Yogyakarta Panti Rapih Hospital. The population in this study were all employees involved in the lean healthcare implementation process at the Panti Rapih Hospital in Yogyakarta. At the time the research was conducted, only seven units that that already implement lean management, they are radiology, financial, public relation, human resources management, logistic and inventory, in care patient room Lukas 2, and in care patient room Lukas 3. The sampling technique in this study was a non-probability sample with purposive sampling. This is because the sample incorporated in this study must meet certain criteria so that the answers obtained are representative. The inclusion criteria in this study were employees who were directly involved and joined in the lean management implementation team in certain units and employees who had worked at least 6 months in the same unit on lean management implementation. This is done with the aim of the employee understanding the implementation of lean management in his unit. Exclusion criteria in this study were employees who did not understand lean implementation and employees who refused to be participants in the study. The total research subjects for quantitative data that meet the criteria were 50 respondents. For qualitative data, in-depth interviews were carried out on a number of seven key informants that represent each team. Qualitative data is needed to obtain more in-depth information and cannot yet be presented by quantitative data. Instrument of this research are case study protocol that contains research plans and procedures, Lean in Healthcare Questionnaire (LiHcQ) to see the level of acceptance, and interview guideline for in-depth interview.

Leanin Healthcare Questionnaire is structured based on the principles of applying lean management in four domains, namely philosophy-long-term thinking, process-waste elimination, people-respect and growth, and problem solving-continues improvement. in the reliability and validity test by (15). This instrument measures the level of acceptance of lean management in each individual who implements it. Each question type has five options indicating five levels of acceptance of lean management. Level one is the lowest level and level five is the highest level. Data analysis of this acceptance rate is descriptive. This means that the acceptance level of each individual will then be averaged to produce the level of institutional acceptance in the seven units. The qualitative data then transformed in to several themes and used to explain and adding information to the quantitative data.

This research used LRF instrument (Stakeholder-based Lean readiness framework) to measure how ready an organization is to implement Lean. The LRF instrument assesses two aspects, namely the level of importance and the level of readiness of hospitals in implementing Lean heathcare. This study obtained ethical approval from the Research Ethics Committee of Faculty of Medicine Universitas Gadjah Mada, Yogyakarta, Indonesia (ethical approval number: KE/FK/0496/EC/2019)

3 Result and Discussion

Respondents survey activities the level acceptance of lean management implementation as many as 50 employees with the distribution of the majority were women (84%), with ages ranging from 20-30 and 31-40 years (38%) and tenure of more than 10 years (42%). The 50 employees came from 7 different units: Lukas 2 inpatient care, Lukas 3 inpatient care, Public Relations, Human Resource, Radiology, Logistics, and Finance.

Table 1. Charactaeristic of Respondents in Panti Rapih Hospital 2020

Characteristic	N	%
Sex		
Female	42	84%
Male	8	16%
Age		
20-30 years.old	19	38%
31-40 years.old	19	38%
> 41 years.old	12	24%
Working experience		
< 5 years	12	24%
5-10 years	17	34%
> 10 years	21	42%
Department		
In care patient "Lukas 2"	7	14%
In care patient "Lukas 3"	7	14%
Public relation	5	10%
Human resource	6	12%
Radiology	5	10%
Logistic	10	20%
Finance	10	20%
	50	100%

The sustainability of lean management implementation also depends on the employee as the main milestone of improvement actors so it is necessary to see perceptions of acceptance of lean management among employees. The acceptance of lean management by employees at the Panti Rapih Hospital in Yogyakarta was measured using the Lean in Healthcare Questionnaire (LiHcQ) instrument by measuring 4 domains ranging from philosophy, process, people and problem solving.

Table 2. Lean Hospital Acceptance Data among Staff in Panti Rapih Hospital, 2020

Code	Items	Level of Acceptance					N (%)
		1 N (%)	2 N (%)	3 N (%)	4 N (%)	5 N (%)	
Philosophy and Long-term Thinking							
(Q1)	Employee's Commitment	3 6%	3 6%	21 42%	17 34%	6 12%	50 100%
(Q2)	First line manager's commitment	1 2%	2 4%	11 22%	29 48%	7 14%	50 100%
(Q3)	Time for improvement work	1 2%	13 26%	10 20%	8 16%	18 36%	50 100%
Process-Waste Elimination							
(Q6)	Value Stream Mapping	1 2%	28 56%	12 24%	1 2%	8 16%	50 100%
(Q7)	Standardization	4 4%	16 32%	6 12%	15 30%	9 18%	50 100%
(Q8)	Patient centered care	1 2%	4 8%	23 46%	11 22%	11 22%	50 100%
(Q10)	Sign and signal based on patient value	-	10 20%	20 40%	13 26%	7 14%	50 100%
(Q15)	Pro active planning	4 8%	14 28%	11 22%	6 12%	15 30%	50 100%
(Q11)	Visualizing improvement	3 6%	14 28%	18 36%	8 16%	7 14%	50 100%
(Q9)	Technology for quality control	-	12 24%	16 32%	15 30%	7 14%	50 100%
People-respect and grow							
(Q4)	Agent of change	3 6%	6 12%	22 44%	7 14%	12 24%	50 100%
(Q5)	customer value identification	4 8%	8 16%	16 32%	17 34%	5 10%	50 100%
(Q16)	Partner and supplier respect	1 2%	11 22%	10 20%	9 18%	19 38%	50 100%
Continues Improvement-Problem Solving							
(Q12)	Self evaluation	10 20%	9 18%	9 18%	11 22%	11 22%	50 100%
(Q13)	Problem solving	2 4%	15 30%	13 26%	13 26%	7 14%	50 100%
(Q14)	Staff Contribution on decision making	2 4%	14 28%	10 20%	15 30%	9 18%	50 100%

Table 2 The distribution of the level of acceptance of employees towards the implementation of lean management in the philosophical domain - long term thinking at the Panti Rapih Hospital in Yogyakarta. This domain has three indicators, namely employee

commitment, management commitment, and the time needed for lean work. Most employees (42%) showed commitment but still at level 3 namely giving ideas for improvement in lean management implementation and 6% of employees still not showing commitment. Most employees (48%) see management commitment at level 4, namely lean has become a daily life and encourages employees to dig up ideas. This is also supported by the statement that 36% of employees consider lean to be a daily life so that the time for lean work goes hand in hand with daily work.

The distribution of perceptions of employee acceptance of lean management implementation in the domain of process-waste elimination. This domain is measured by seven indicators. In the value stream mapping indicators, most employees (56%) are still at level 2, the Value Stream Mapping, but only a few services and are not updated and are not placed in easily monitored locations. For standardization indicators as many as 30% of employees are at level 4 which is standardization and evaluation. As many as 46% of employees are also at level 3 for patient-focused service indicators, namely understanding patient needs based on existing data (patient flow). This is also supported by several existing markings to facilitate patient understanding. The proactive planning process has reached level 5 for most (30%) employees because technology planning in the Panti Rapih Hospital comes from the ideas and needs of employees. But the use of technology for quality control is still at level 3, which is to facilitate daily work.

The distribution of employee perceptions of lean management implementation in the domain of people-respect and grow together. This domain is measured by three indicators, namely the presence of agent of change, identification of customer value, and respect for co-workers. Most employees (42%) perceive the existence of an agent of change (champion) still at level 3, that is, there is and is trained but has not been able to support, inspire and lead other employees to develop. Most employees (34%) have been able to identify customer value by determining Value Added and Non Value Added. 38% of employees consider collaboration with partners already at level 5, which is structured collaboration.

The distribution of the level of employee acceptance towards lean management in the domain of continuous improvement-problem solving. This domain is measured using three indicators, namely job evaluation, problem solving, and staff contributions. On the indicator of lean job evaluation, as many as 22% of employees have been at level 5, namely understanding performance evaluation, and developing procedures for evaluating improvements independently. But as many as 20% actually still consider job evaluation to be carried out only by direct supervisors (level 1). Most problem solving indicators are at level 4 (26%), which is an experimental approach to solving problems and evaluating them. Staff contributions to decision making have also been at level 4, namely by consensus with management. From the mean of the previous data we can found the level of acceptance in every domain in table 3.

Table 3. the level of acceptance in each domain

No	Domain	Level of Acceptance					Jumlah N (%)
		1 N (%)	2 N (%)	3 N (%)	4 N (%)	5 N (%)	
1	Philosophy-long term thinking	-	5	13	21	11	50
2	Process-waste elimination	-	13	18	9	10	50
			26%	36%	18%	20%	100%
3	People-respect and growth	1	8	16	14	11	50
		2%	16%	32%	28%	22%	100%
4	Problem solving-continues improvement	2	11	18	8	11	50
		4%	22%	36%	16%	22%	100%

Table 3 informing the distribution of employee acceptance rates on the implementation of *Lean* management at Panti Rapih Hospital, Yogyakarta. There are still 2% of employees who assess the implementation of *Lean* management in the people-respect and grow together domain is still at a low level, level 1 and as many as 16% rate level 2. Meanwhile in the problem solving domain - continuous improvement there are 4% who rate *Lean* management still at level 1 and 22% of respondents rate level 2. The average level of acceptance in lean implementation is level 3. Which mean that lean management is not fully adopted as a culture and not become a daily basic work yet. In order to be a long life learning process of lean management implementation, it should be adopted as a culture rather than a incidental program. The further discussion of indication level of acceptance in each domain as follows:

Philosophy-Longterm Thinking

Domains philosophy-long term thinking measure the extent to which lean implementation is carried out in accordance with its philosophy in order to maintain its long-term sustainability. This domain focuses on employee commitment, management commitment and lean engagement in daily work. As the main actor in implementing lean management in hospitals, employee commitment plays an important role for lean success (16)(15). Employee commitment can be built and strengthened not only through formal leaders but non-formal leaders as Agent of change or lean champions among these employees can turn weakness into team strength (15,17). Panti Rapih Hospital has lean champions in each team as activists, motivators, and supporters of employee performance in the team to be active. Employees are also committed through giving ideas and improvised solutions. But in its implementation the commitment has not yet reached the point where lean has dissolved in the daily lives of employees.

Apart from employee commitment, management commitment also plays an important role in the successful implementation of lean. Management commitment can be seen through transformational leadership and employee reward systems (18,19). Without support from management, Lean implementation will not be able to run in the long term. Panti Rapih Hospital has a management commitment at level 4, which means that management is able to encourage employees, raise employee ideas, and do not consider Lean to be the work of employees alone but together. This is also evidenced by the reward system implemented through KPI (key performance indicator) points that accommodate indicators of creativity and contribution of improvement ideas. Other awards are also given directly through the entire team competition program in implementing lean management.

Process-Waste Elimination

The Domain process- waste elimination focuses on implementing lean management technically to eliminate waste including Value Stream Mapping, standardization, visualization, technology utilization, proactive planning, and patient-focused services. Lean in principle is to place patients on the main focus through reducing waste and improving services that are safe, effective and efficient (20–22). Waste that occurs in the service process will have an impact on patients directly or indirectly. Waste can be in the form of non-value-added waiting time, repetitive services, and additional costs. One of the waste reduction processes is the Value Stream Mapping analysis to see service flow maps and analyze Value Added and Non Value Added activities (23).

Ideally, after knowing the Non Value Added activities the Lean team will try to minimize the waste in order to increase the value added activities by standardizing and visualizing new service flows. Panti Rapih Hospital has implemented VSM on several services but it is still at level 2, which is neither updated nor well documented. Even though employees have been able to understand the patient's needs (Level 3) and the use of technology for smooth service

(Level 3). This is very unfortunate because if it is not well documented and visualized, then evaluation of improvements in the future will also be difficult to do.

People-Respect and Growth

Domain people- respect and growth focus on measuring the reward process for lean teams, co-workers, and patients in order to grow together for improvement (24). Lean does not only focus on solving technical problems but also changes overall culture. This cultural change is very dependent on existing stakeholders including patients, partners, and employees themselves. Commitment to grow together must emerge from all stakeholders because lean does not belong to a particular team but all people involved in the organization. Lean leaders in the team must be trained and have the competence to support, inspire and be able to lead the team to continue to grow.

All employees must also understand the concept of patient value, be able to identify and evaluate continuously. Coordination and relationships with co-workers must be standardized and structured in order to create the same quality of service (24,25). Panti Rapih Hospital in developing an environment that is able to grow together has been able to create well with the existence of competent agent of change (level 3), views on patient values (level 4), and relationships with partners (level 5). This will support the collaboration of all stakeholders in the context of the sustainability of lean management implementation.

Problem Solving-Continues Improvement

Domain problem solving - continuous improvement focuses on the extent to which lean implementation in the hospital in accommodating the ability of employees to develop includes self job evaluation, problem solving, and staff contributions in decision making (24). Organizations are said to have a high maturity level when all employees are able to understand performance evaluations and workflows and are able to carry out their respective evaluations without waiting for their superiors. Evaluation of improvement in lean management implementation plays an important role because of the continuous nature of improvement. Continues improvement is a characteristic of lean management implementation (19). In an effort to improve, ideally there is a mature structure for the improvement process in performing problem solving. In this domain, the indicator with the highest level 5 is appreciation for co-workers. This is evidenced by the reward system implemented through KPI points which accommodates creativity indicators, and contributes to ideas for improvement. Other awards were also given directly through the entire team's race program in lean management implementation.

Indicator with lowest level is evaluation of work. Lean management implications in Panti Rapih Hospital Yogyakarta for job evaluation indicators are still searching for methods for evaluation (level 2). This is related to the assessment of lean performance into the KPI assessment which is assessed by direct supervisors. In addition, the problem solving process is still at level 2, which focuses on finding the cause of the problem. However, staff involvement in decision making is already at level 4 where decision making is consensus

4 Conclusion

The Panti Rapih Yogyakarta Hospital as a whole has been able to adopt lean management at level 3 in terms of philosophy, process, people, and problem solving. The indicator with the lowest level of acceptance is the job evaluation and indicator with the highest level of acceptance, namely the award of co-workers. Panti Rapih Yogyakarta Hospital needs to re-grow the spirit of lean management implementation through certain motto and slogan. This

is expected to improve performance and achievement of lean management so that it can be sustainable in the long term.

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