



AN EMERGENCY INSTALLATION PERFORMANCE IMPROVEMENT OF ROYAL PRIMA HOSPITAL WITH LEAN MANAGEMENT METHOD

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ABSTRACT

Lean is a methodology that enables hospitals to improve the quality of patient care by reducing errors and waiting times. Lean is an approach that can support employees and physicians, removing barriers and enabling them to focus on providing care. IGD (Emergency Installation) is one of the busiest installations in hospitals. The ER is the first unit to treat patients. Lean methods are used by hospitals to improve the quality of service to patients by reducing two main problems, namely reducing errors and waiting time. This type of research is qualitative using in-depth interviews related to lean adoption and how far the implementation of the ER Royal Prima Hospital Medan, then analyzed by triangulation. The results showed that the adoption of lean management at Royal Prima Hospital came from the hospital itself, which had been established for 8 years. And its implementation has been carried out since the hospital was founded, especially the ER unit with the flow that has been set by the hospital in preventing wasting.

Keywords :Lean Management, Lean Hospital, Emergency Room

1. INTRODUCTION

Efforts to improve the quality of health services, especially hospitals, are based on increasing public awareness about health information and demands for quality health services. Hospitals are facing increasing pressure to improve the efficiency and cost-effectiveness of their services, due to competition among healthcare providers, higher customer expectations, stringent checks for insurance payments, new government regulations, an aging population, and reduced government spending (Al Owad, Samaranayake, Karim, & Ahsan, 2018).

The problem that may occur at this time is that many hospitals already have good lean hospitals which may be adopted from several hospitals that already use lean management, and it has been proven that lean management can affect hospital performance, but there are still many obstacles. which may occur in hospitals that have adopted lean management but have not been able to implement it, this is where every hospital must be able to immediately implement lean management if the adopted lean management already has tangible results and benefits. for hospital performance.

IGD (Emergency Installation) is one of the busiest installations in hospitals. The ER is the first unit that treats patients. This unit has the main purpose of receiving, triage, stabilizing, and providing acute health care for patients, including patients who need resuscitation and patients with certain emergency levels.(Mawlid, 2017).

The process of patient care in the ER does not always run smoothly as expected. There are several problems that occur in the ER such as queues, waiting, and excessive transportation. These problems cause patient service time to be longer and lead to patient health and safety. Emergency room patient service time is 2 hours (Kemenkes, 2016).



If these problems are allowed to occur, it will make people's trust decrease and even disappear so they prefer another hospital as a destination. This is where the importance of implementing lean management that may be adopted from government regulations, hospital regulations, and even regulations from other hospitals that are indeed lean management has provided tangible evidence of the performance of hospitals, especially in the emergency room.

Lean is a methodology that enables hospitals to improve the quality of patient care by reducing errors and waiting times. Lean is an approach that can support employees and physicians, removing barriers and enabling them to focus on providing care (Mawlid, 2017)

2. LITERATURE REVIEW

2.1. Lean Management

The premise of "Lean" stems from the Just in Time (JIT) production concept which was applied by Toyota as the pioneer. (Chase.RB 2018) states that: Lean Production is an integrated activities designed to achieve high-volume, high quality production using minimal inventories or raw materials, work in process and finished good.

Lean is a philosophical approach to management, focusing on the identification and elimination of all types of waste and loss and continuous improvement. Lean concepts can be evaluated by increasing value in production and business processes, redesigned and prepared to offer customers what they want in parallel with increased quality, increased safety, reduced delays and failures. (Kovacevic, Jovicic, Djapan, 2016)

Lean Hospital is a rule which is a management system and also a philosophy that can change the perspective of a hospital to be more organized and organized by improving the quality of service for patients by reducing errors and reducing waiting times (Graban 2009). Lean method used by hospitals to improve the quality of service to patients by reducing two main problems, namely reducing errors and waiting time. (Usman & Ardiyana, 2017).

2.2. Lean Hospital Elements

(Womack, James. P and Jones 2000) mentions that waste or waste in Japanese is called young, which is all actions that are carried out without producing value. Examples of forms of waste are repairs made due to errors, production of unwanted goods by consumers, accumulation of inventory, process stages that are not really needed, unnecessary movement of people or materials from one place to another, waiting for untimely delivery. , and all goods and services that are not suitable in the eyes of consumers

Problems and disturbances that arise constantly, which interfere with work and patient care are called waste or waste (Graban nd, 2009). In Mark Graban's book Lean Hospital, it is shown that hospital employees typically make a high percentage of their time wasted in providing services to patients directly such as checking patient status, administering medication, answering patient questions, and providing medical guidance.

2.3. Value Stream Mapping Tools

Value Stream Analysis Tools are tools developed by (Hines, P., & Rich 1997) to facilitate understanding of the value stream that has been created and assist in the process of repairing waste in the value stream. Value stream mapping (VSM) is a tool (diagram) that is used to assist in viewing and understanding the flow of material and product information in the value stream (Mike and John, 2003).



Value Stream Mapping is also used in mapping related to product flow and information flow from suppliers, producers, and consumers in an image to cover all processes in one system (Agustiniingsih 2011). (Gaspers.V & Fontana.A. 2011) defines value stream as the process for creating, producing and delivering products to the market.

According to (Hines, P., & Rich 1997) Value stream mapping has seven tools that can be used, including:

1. *Process Activity Mapping Tool*

It provides an overview of the physical and information flow, the time required for each activity, the distance traveled and the level of product inventory in each stage of production. The ease of identification of activities occurs because of the classification of activities into five types, namely, operations, transportation, inspections, delays, and storage.

2. *Supply Chain Response Matrix Tool*

This is a diagram that illustrates the relationship between inventory and lead time on the distribution line, so that it can be seen whether there is an increase or decrease in inventory levels and distribution time in each area in the supply chain. This tool can also be used as management consideration for estimating stock requirements if it is associated with achieving short lead times. These tools are used to maintain and improve service levels to consumers in each distribution channel at a low cost.

3. *Production Variety Funnel Tool*

This is a visual mapping technique by plotting the number of products produced in each manufacture. This tool can be used to identify where a generic product is processed into several specific products. And this tool can also be used to identify bottleneck areas in process design. It can then be used to plan improvements to inventory policies and make changes to a product.

4. *Quality Filter Mapping Tool*

This is used to identify the location of quality defects in the supply chain. Evaluation of frequent loss of quality is done for short-term development. The quality problems are in the form of product defects, scrap defects, and service defects.

5. *Demand Amplification Tool*

This is used to visualize changes in demand in the supply chain in certain time intervals. The resulting information is used to make decisions and conduct further analysis to anticipate changes in demand, regulate fluctuations, and evaluate inventory policies.

6. *Decision Point Analysis Tool*

This represents a wide selection of different production systems, with the trade off between the lead time of each option and the level of inventory required to cover during the lead time process.

7. *Physical Structure Tool*

This is used to understand the supply chain at the production level. This is necessary to understand the condition of the industry, how it operates, and in directing attention to areas that have not received sufficient attention for development. Research on lean hospital is a research that is still rare in the world of operations management, especially in Indonesia because the development of society in Indonesia is still focused on to use lean only in production operations rather than service operations.

3. RESEARCH METHOD

This study uses a qualitative single case study research approach to find out in depth about the facts in order to identify the adoption of lean management and hospital performance and its implementation to the ER Royal Prima Hospital. Qualitative research is a research method based on the philosophy of positivism, used to examine the condition of natural objects, where the researcher is the key instrument, data collection techniques are carried out by triangulation (combined), data analysis is inductive/qualitative, and qualitative research results emphasize meaning, rather than generalization, (Sugiyono, 2017).

This research was conducted at the ROYAL PRIMA General Hospital in Medan which is located on Jalan Ayahanda No. 68A, Sei Putih Tengah, Medan Petisah District, Medan City, North Sumatra 20118. The time of the study was from July 2021 to August 2022

The population is a generalization area consisting of objects or subjects that have certain qualities and characteristics that are determined by researchers to be studied and then conclusions are drawn (Sugiyono, 2017). The population used in this research is lean management adopted at the Royal Prima Hospital, Medan.

The sample is the part that becomes the real object in a study with the use of knowing which sample is where the characteristics contained in a limited sample it can really describe the actual situation in the whole population. The sample used in this study is the use of lean management in the Emergency Room of the Royal Prima Hospital Medan, which uses informants by determining the information by purposive sampling, namely the data source is selected based on certain considerations and objectives such as:

1. Informants know the problem more broadly and deeply related to the object of research
2. Informants can be trusted and competent as sources of data related to the object of research.

Table 1. Research Informants of Lean Management Adoption and Hospital Performance and Its Implementation in the Emergency Room at Royal Prima Hospital

No	Informant	Method	Amount
1	Director of Royal Prima Hospital	<i>Indepth Interview/ Questionnaire</i>	1 person
2	Doctor in Emergency Room	<i>Indepth Interview/ Questionnaire</i>	1 person
3	Head of Emergency Room at Royal Prima Hospital	<i>Indepth Interview/ Questionnaire</i>	1 person
4	Kasie Royal Prima IGD Nursing	<i>Indepth Interview/Questionnaire</i>	1 person
5	Nurse at ER	<i>Indepth Interview/Questionnaire</i>	5 people
6	ER patient	<i>Indepth Interview/Questionnaire</i>	3 people
7	The patient's family in the emergency room	<i>Indepth Interview/Questionnaire</i>	3 people



From the table above, the total number of informants who will be used as samples from this research is 15 people, each of which will be given questions in the form of interviews.

According to Sugiyono (2017), the main technical principle of qualitative analysis is to process and analyze the collected data into meaningful data. Qualitative data analysis lies in three related processes, namely: describing phenomena, classifying them, and seeing how concepts the concepts that emerge are one another. Data analysis is the process of systematically searching and compiling data obtained from the results of questionnaires, field notes, and data collection documentation, by organizing data into categories, describing it into units, synthesizing, arranging into patterns, choosing which ones are important and what will be studied, and making conclusions so that they are easily understood by themselves and others.

Drawing conclusions is only part of an activity from the complete configuration. Re-evidence or verification can be done to seek justification and approval so that validity can be achieved. In testing the accuracy of the data, qualitative research methods use credibility, transferability, dependability, auditability and Confirmability tests. Credibility testing in qualitative research is carried out in various ways, one of which is by means of triangulation which is defined as checking data from various sources in various ways and at various times.

1. Source Triangulation

Where to test the credibility of the data is done by checking the data that has been obtained from several sources which are then described, categorized, which views are the same, which are different, and which are specific from the various data sources. The data that has been analyzed by the researcher so as to produce a conclusion is then asked for an agreement (member check) with the source of the data.

2. Triangulation Method

This is done by checking data from the same data source but using different techniques. For example, data obtained by giving questionnaires, then checked again by means of observation, existing documentation or by questionnaires. If the three data credibility testing techniques produce different data, the researcher must conduct further discussions with the relevant data source or others to ensure which data is considered correct, or maybe all of them are correct due to different points of view.

3. Time Triangulation

Where data is collected by questionnaire in the morning, when the resource persons are still fresh, there are not many problems and affairs will provide more valid data so that it will be more credible. For this reason, in order to test the credibility of the data, it can be done by checking with the questions on the questionnaire, observation or other techniques in different times or situations. If the test results produce different data, then it is done repeatedly so that the certainty of the data can be obtained.

4. RESULTS AND DISCUSSION

4.1. Overview of Research Participants (informants)

The informants in this study were 15 informants consisting of 1 Director of the Royal Prima Hospital in Medan, 1 ER Doctor on duty, 1 Head of Emergency Medical Services at Royal Prima Hospital, 1 Head of the ER Nursing Section, 5 ER Nurses, 3 patients and 3 patients' families. .

Table 2. General Data of Informants

No	Informant	Gender	Age (Years)	job	Informant Status
1	AH	Man	50	Doctor	Director of Royal Prima Hospital
2	DN	Man	30	Doctor	Doctor on duty ER Royal Prima Hospital
3	SW	Man	32	Doctor	Head of Emergency Room at Royal Prima Hospital
4	RI	Man	31	Nurse	Head of IGD Nursing Section
5	MY	Man	29	Nurse	Emergency room nurse at Royal Prima Hospital
6	TE	Woman	24	Nurse	Emergency room nurse at Royal Prima Hospital
7	NS	Man	26	Nurse	Emergency room nurse at Royal Prima Hospital
8	UB	Woman	33	Nurse	Emergency room nurse at Royal Prima Hospital
9	SS	Man	26	Nurse	Emergency room nurse at Royal Prima Hospital
10	MT	Man	19	Student	Patient
11	AL	Man	75	Self-employed	Patient
12	SN	Woman	52	Self-employed	Patient
13	ZH	Man	33	Self-employed	Patient Family
14	NV	Woman	47	Self-employed	Patient Family
15	JM	Man	47	Self-employed	Patient Family

Table 2 explains that there are 11 male informants and 4 female informants. Vulnerable age 19-75 years. In this study, all informants were obtained from the Emergency Room.

4.2. Interview Results About Adopt Lean Management.

Based on the results of interviews conducted with the Director of the Royal Prima Hospital. Has Royal Prima Hospital been doing lean management, especially in the emergency room since the hospital was founded. Implemented from upstream to downstream. for example, from treatment in the ER to treating patients to the treatment room. All persons must be invited to implement. Even all aspects of working at the Royal Prima Hospital Medan. The performance of the Royal Prima Hospital is very good in the implementation of management, the difference lies in the progress of the evaluation, there is no difference that decreases there is an increase and progress from the evaluation of management. Implementation constraints at the Royal Hospital are usually unscrupulous, administration and communication between implementing management.

Based on the results of interviews conducted with the Head of the Emergency Room at the Royal Prima Hospital, especially in the ER, adopting lean management. Management



implementation has been carried out since the hospital was established for approximately 8 years. Lean management is carried out in the ER, Royal Prima Hospital, Medan. Starting from the initial admission of the patient to the triage determination. All individuals must be invited to implement the lean management of the emergency department at the Royal Prima Hospital in Medan. All emergency room staff and related aspects, especially nurses and doctors. The hospital's performance after the implementation of lean management was carried out in the Emergency Room of the Royal Prima Hospital, Medan. Very Good. Differences before the adoption of lean management. The difference is that there is no significant difference, but every year the emergency room facilities continue to improve, so it can improve the implementation of lean management.

4.3.The results of the Lean Method used in the ER Royal Prima Hospital

The Lean method used to treat patients in the ER so as not to waste red patients does not change if they are yellow for about 60 minutes, if they are black they die. The method of handling in the ER is immediately taken to the ER where the doctors and nurses are handling them. The evaluation used so far is good and there is no change. When the patient registers for hospitalization, he must return to the register room for registration using his KTP, KK and BPJS.

Based on the results of this study, it is different from (Nanda H. Juniarti, 2018) which shows that the impact of implementing patient safety standards starts from patient rights, education for patients and families, patient safety and service continuity, the use of performance improvement methods, the role of leadership in improving patient safety, educating staff about patient safety and communication in the hospital have been implemented and implemented properly in accordance with existing regulations.

Based on the results of this study which are the same as (Indrianawati Usman & Mira Ardiyana, 2017) it can be concluded that the flow of the patient care process in the ER is very flexible because the treatment for each patient is different and requires different time.

4.4.Patient Services at the Royal Prima Hospital Emergency Room

In patient care for the room there is still no change, it is still small in patient care so that the flow is fast. He did it in the ER through the door which was handled by door officers, doctors and nurses. Hospital performance after service in the ER resulted in reducing constraints. The change over the past 5 years is the more patients each heart has the faster it is due to the evaluation. The administration is waiting for confirmation from the patient's family, for all the tools already exist.

Based on the results of the research that has been done, it is different from (Indrianawati Usman and Mira Ardiyana, 2017) who concluded that the flow of the patient care process in the ER is very flexible because the treatment for each patient is different and requires different time. Waste identified in the patient care process in the ER based on annual internal data is waiting, defect and inappropriate process.

Based on the results of this study, it is the same as (Rene Trisbiantara and Andrea Meliala, 2018) The implementation of lean management in hospitals can be started because of strong transformational leadership from the main leader and the formation of staff commitment at the beginning based on rewards by transactional leadership.



4.5. Implementation of lean management and hospital performance in the ER Royal Prima Hospital.

Royal Prima Hospital has implemented lean management, especially in the emergency room since the hospital was founded. Implemented from upstream to downstream. For example, from treatment in the ER to treating patients to the treatment room. All persons must be invited to implement. Even all aspects of working at the Royal Prima Hospital Medan. The performance of the Royal Prima Hospital is very good in the implementation of management, the difference lies in the progress of the evaluation, there is no difference that decreases there is an increase and progress from the evaluation of management.

Based on the results of research that has been carried out, it is different from (Dewi Kurniasih, Nuryakin and Firman Pribadi 2021) which states that the problems that commonly occur in outpatient services in hospitals are the length of waiting time, administrative processes, availability of information, and others. One of the quality improvement approaches used in this study is lean hospital with the aim of achieving effectiveness and efficiency in the use of time, manpower, space, and other resources.

Based on the results of the research that has been done, it is the same as (Siti Nur Aisyah Maulidiah, 2018) which states that in this condition, the hospital management needs a model or method to reduce or eliminate waste so as to produce more effective and efficient performance. This paper proposes an interactive model with consideration for optimizing decisions with lean management and TDABC implementation tools. In this condition, the hospital management needs a model or method to reduce or eliminate waste so as to produce more effective and efficient performance. This paper proposes an interactive model with consideration for optimizing decisions with lean management and TDABC implementation tools. In this condition, Hospital management needs a model or method to reduce or eliminate waste so as to produce more effective and efficient performance. This paper proposes an interactive model with consideration for optimizing decisions with lean management and TDABC implementation tools.

5. CONCLUSION.

The implementation of lean management at Royal Prima Hospital can be started because of strong transformational leadership from the main leader and the formation of staff commitment at the beginning based on rewards by transactional leadership so that the Hospital Emergency Room can run well. However, with the support of doctors, nurses and patients who are able to comply with the regulations of the Royal Prima Hospital, it is formed.

The adoption of lean management that has been carried out since the hospital was established for approximately 8 years is not adopted from other hospitals but from the Royal Prima Hospital itself. Lean management is carried out in the ER, Royal Prima Hospital, Medan. Starting from the initial admission of the patient to the triage determination. All individuals must be invited to implement the lean management of the emergency department at the Royal Prima Hospital in Medan. The influence obtained by Royal Prima Hospital from the previous year for this year has a very good effect because the lean management used can run well according to the flow of patients from arriving to entering the ER Royal Prima Hospital.

To find out the adoption of lean management as well as hospital performance and its implementation to the emergency room in the hospital, we need time and regulations that must be applied in every hospital so that lean management can run well in the hospital.



Adoption of lean management of Royal Prima Hospital as follows. Royal Prima Hospital has adopted lean management for 8 years. The flow of patient care in the ER Royal Prima Hospital starts from examination with a duration of less than 5 minutes, then the patient from the emergency room to the target treatment room is approximately one hour, for patients who are stable or patients who do not require additional examinations. Security guards who help direct patients help speed up the process of action and service. The implementation of lean management is carried out by all personnel at Royal Prima Hospital. The performance since the implementation of lean management has been well done in the ER. The difference lies in the facilities but in lean management there is no difference. What are the obstacles that occur in the ER? Constraints that occur in the ER in the administration section and sometimes there is a miss communication to the patient or family.

In this research the implementation of lean management and hospital performance in the ER Royal Prima Hospital. Royal Prima Hospital has been doing lean management, especially in the emergency room since the hospital was founded. Implemented from upstream to downstream. for example, from treatment in the ER to treating patients to the treatment room. All persons must be invited to implement. Even all aspects of working at the Royal Prima Hospital Medan. The performance of the Royal Prima Hospital is very good in the implementation of management, the difference lies in the progress of the evaluation, there is no difference that decreases there is an increase and progress from the evaluation of management.

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