
IMPLEMENTATION OF LEAN MANAGEMENT TO REDUCE WASTE IN HEMODIALIZATION INSTALLATION OF QIM BATANG HOSPITAL

Kusdarmadji^{1*}, Firman Pribadi¹, Iman Permana¹

¹Magister Administrasi Rumah Sakit, Universitas Muhammadiyah Yogyakarta

*Correspondence email: kusdarmadji.2025@gmail.com

ABSTRACT

Hospitals are efficient if they can use all available resources to produce something without leaving unwanted things. The purpose of the study was to determine the application of lean management in reducing waste in the Hemodialysis Installation of Qolbu Insan Mulia Hospital (QIM) Batang. This study uses a qualitative method with an Action Research research design whose results are presented narratively. The findings of this study indicate that there are three highest wastes, namely: waiting for waste (26%), motion waste (18%), and Defect waste (16%). There is a problem with waste waiting caused by a lack of human resources, in this case, the number of nurses, motion waste is caused by the movement of nurses who are too frequent in order to carry out inspections of patients undergoing HD and the large number of movements caused by inspections still using the manual method, and a waste defect found that HD failure was caused by anemia. Furthermore, there are efforts to reduce waste waiting, waste motion, and waste defect in the Hemodialysis Installation of Qim Hospital, Qolbu Insan Mulia Hospital (QIM).

Keywords: Lean Management; Hemodialisa; Waste.

INTRODUCTION

Hospital (RS) is a healthcare institution that provides complete individual health services in inpatient, outpatient, and emergency services. According to (RI, 2009) access to health is the right of everyone that has been guaranteed in the state constitution. Therefore hospitals have a strategic role in accelerating the improvement of the health status of the Indonesian people. According to the Minister of Health of the Republic of as a public service, hospitals provide various types of health services facilitated in polyclinics or clinics.¹ Therefore, hospitals are required to provide quality services and satisfy their patients.²

Quality health services can satisfy every service user following the level of satisfaction of the average population, and its implementation is under established standards and professional codes of ethics.³ One of the health service units with a

significant role is the hemodialysis installation.

QIM Batang Hospital is that there is still much waste, problems that often occur, include waiting when HD will be done, medical equipment without a permanent location so that officers go back and forth to take it when they want to use it properly. Look for it first happens. In the current economic conditions, it is essential to reduce waste and increase the efficiency of patient waiting time in therapy. Lean management in reducing waste, especially in the Hemodialysis Installation of Qim Hospital, QIM Batang Hospital, is needed because the causes of kidney failure undergoing hemodialysis continue to increase from year to year.

Qim Hospital Hemodialysis Installation in providing good therapeutic services requires various resources regulated by a good management

process. Hemodialysis is a kidney replacement therapy that uses a unique device intending to overcome the symptoms and signs due to a low glomerular filtration rate (GFR) so that it is expected to prolong life and improve the patient's quality of life. Hemodialysis cannot cure kidney disease suffered by patients, but hemodialysis can improve patients' lives with kidney failure.⁴ In 2011 alone, there were 17,259 active hemodialysis patients and reached 77,892, and only 31-34% of the time nurses spent with patients and most of the time spent by patients was waiting for.⁵

Waste or waste is any activity that does not reflect assistance in the process. The service process at the hospital found a lot of waste or inefficiency. According to Graban³, nurses in inpatient units spend 25-50% of their time on service activities directly related to patients, such as checking patient status, administering medication, answering patient questions, and providing medical guidelines. This shows that 50%-75% of the remaining time is used for non-value-added activities.

Many studies on lean management in hospitals have been carried out.⁶⁻¹² Paramita analyzed the application of lean in the redesign of the outpatient care process, and the results showed that the use of electronic medical records and patient data input via mobile-tab as a redesign has proven to be successful in reducing waste in the form of motion, streamlining service processes and being a solution for hospitals to improve service quality without changing cultural heritage buildings.¹³ As research by Noviani analyzes the application of lean methods in outpatient services, the results show that 90% of service time is a non-value-added activity, and only 10% of activities are value-added.¹¹ After conducting future state analysis with proposed improvements using the lean method in a simulative manner, namely 5S, Kanban Inventory, visual management, the non-value added activities became 78.30%, and value-added activities became 21.70%. The long waiting time in the outpatient service process will hamper the service,

impacting the queues that accumulate and result in inefficient services.

Triyani analyzes waste in the Outpatient Pharmacy Installation, and the results show that the critical waste that occurs is waiting and overprocessing waste.¹⁴ Factors that cause waste waiting are SIM errors; many officers have two jobs, while overprocessing is caused by repetitive activities, such as reviewing repeated prescriptions and writing e-tickets twice. Inefficiency in health services is a problem that needs to be addressed immediately so that various methodologies have emerged to overcome these problems, one of which is lean.¹⁵

Lean is an effort to eliminate waste (waste) and increase the added value (value-added) of products, both goods, and services, that take place continuously intending to provide value to customers (customers). The lean hospital concept is needed so that hospitals can optimally meet patient needs and provide health services as much as possible to patients by reducing waste (waste), which will create added value for hospitals.

Based on the background described, the researcher concludes that there is a problem, so the purpose of this study is to investigate the application of Lean Management to Reduce waste in the Hemodialysis Installation of Qolbu Insan Mulia Hospital.

MATERIAL AND METHODS

This type of research uses a qualitative approach, with an action research design that aims to implement lean management to reduce waste in the Hemodialysis Installation of Qim Batang Hospital. The research subjects were selected using non-probability with purposive sampling technique, namely the sampling technique of data sources with specific considerations, and was carried out several times to avoid bias in this study. The criteria used include exclusion criteria and inclusion criteria (Nursalam, 2015). The exclusion criteria in this study were: Medical staff who did not provide services at the

Hemodialysis Installation, Medical staff, or paramedics who were not willing to be the sample. Based on these criteria, the sample that meets the criteria requirements, namely: Hospital Service Manager (P01), amounted to 1 person, Person in Charge of Hemodialysis Installation at Qim Hospital Qim Batang Hospital (Researcher) (P0.2) amounted to 1 person, HD trained Hemodialysis Nurse (P03) totaled seven people, HD Admin (P 03) amounted to 1 person, and HD Patients from November to December 2020 amounted to 10 respondents.

Researchers must collect it directly by conducting observations, interviews, focus group discussions (FGD), and questionnaires. Primary data were obtained from direct observation of the Qolbu Insan Mulia General Hospital (QIM), and researchers conducted in-depth interviews with pre-determined informants. The informants will provide sufficient information and under the needs of researchers. The researcher will re-examine the interview results by conducting repeated observations aimed at checking whether it is following what happened in the field or can correct data that is not suitable if found ¹⁶. Other primary data is also obtained from the distribution of waste questionnaires adapted from previous research and will be addressed to the Hemodialysis Installation of Qim Hospital, Qolbu Insan Mulia General Hospital (QIM). Research instruments are tools that will be used for data collection. The data collection technique in this study starts from the pre-cycle, cycle 1, and cycle 2. In this study, the researcher will be directly involved in the action process and the data collection process so that the researcher's role is as a full participant from the initial stage of preparation to the documentation stage of making reports and instruments.

RESULT

The characteristics of respondents in this study consisted of gender and age. Respondents were ten hemodialysis patients, ten hospital management, and employees.

With the details of HD patients answering question 1 (waiting), respondents from hospital management answered questions 2-8 (other than waiting).

Table 1. Characteristics of Informants

		Status			
		Patient		Hospital Management	
Gender	Male	3	30.0%	6	60.0%
	Female	7	70.0%	4	40.0%
Age	< = 30 years	2	20.0%	2	20.0%
	>30 years	8	80.0%	8	80.0%

Based on the critical waste questionnaire results at the Hemodialysis Installation of Qim Batang Hospital distributed to 10 HD patients and ten management staff, three male patients (30.0%), seven female patients (70.0%), ageless or more minor. The same 30 years two people (20.0%), age more than 30 years eight people (80.0%). While the management staff is six men (60.0%), four women (40.0%), two people less or the same age 30 years (20.0%), and eight people over 30 years old (80,0%).

DISCUSSION

Data collection waiting and other than waiting in this study using a questionnaire conducted before (pre-cycle), while the stages are as follows:

1. Waste weighting in this study using the Borda method, the results obtained are waste waiting (26%), motion waste (18%), and waste Defect (16%). Thus, it can be concluded that the highest critical waste of the Qim Hospital Hemodialysis Installation is waiting for waste.
2. After the waste weight is obtained, the composition of VA, NVA, and NNVA using the Process Activity Mapping (PAM) tool, the PAM score with the highest value is 7, 2.
3. In research to find the root of the problem using fishbone waste waiting, the results of the lack of human resources are obtained, the waste motion is obtained by

inspection still using the manual method. Furthermore, waste defect results obtained HD failure caused by anemia.

4. Current Value Stream and Future Value Stream so that they can be compared, and a decrease in lead time results in an increase in VAR of 4.75%.

Result of Action

There are improvement efforts in reducing waiting waste and motion waste at the QIM Batang Hospital Installation. The management supported these improvement efforts with the addition of 4 nurses, shifting nurses from other places to add tasks at the nurse station, and the DPJP doctor's visit route was changed to procure one monitoring machine. The results showed that waste waiting and motion waste was reduced by increasing the VAR by 4.75%. This shows that lean management is significant in improving the efficiency of a service process by identifying and eliminating waste or non-value-adding activities through continuous improvement. At the same time, the lean hospital is a management system and a philosophy that can change a hospital's perspective to be more organized by improving service quality by reducing errors and reducing waiting times.³ The results of Rusli's research (2017) found that the implementation of lean in hemodialysis services can be eliminated. Rastri Paramita's research (2020) analyzes the application of lean in the redesign of the outpatient care process, and the results show that the use of electronic medical records and monitoring machines can reduce waste in the form of motion.

There are improvement efforts in reducing waste defects in the Hemodialysis Installation of QIM Batang Hospital, with the first stage of anemia prevention education. In contrast, the knowledge results before and after anemia prevention education are known to affect patient knowledge before and after anemia prevention education, an increase of 35% with a p -value=0.014 ($p<0.05$). The second stage is an evaluation of compliance in carrying out the five checklists as

guidelines for implementing the implementation of patients at home. From these results, not all HD patients are obedient when carrying out the anemia prevention checklist at home, so that in January 2021, there will be a decrease in HB, even though knowledge and patient compliance regarding kidney failure have increased. This was because nine patients did not carry out the checklist properly, namely, not injecting EPO. After all, they could not afford to buy EPO, and one patient, Mr. Aslis, does not undergo a diet according to nutrition. This shows that the positive impact of anemia prevention education is that it makes it easier for patients to behave in a healthy life to follow the checklist obediently. The patient eats according to the nutritionist's instructions, takes vitamin B12 and folic acid drugs, and erythropoietin injections. By doing activities while at home, anemia can be prevented as early as possible, and if anemia occurs, it can be handled immediately. Anemia prevention education is essential because anemia is a complication that almost always occurs in chronic kidney disease (CKD).¹⁷ The anemia prevention education checklist sheet results are expected to be a reference or input for the Batang QIM Hospital.

CONCLUSION

There are several conclusions based on the research results conducted at the Hemodialysis Installation of Qim Batang Hospital. First, before taking action, there are three highest wastes, namely: waiting for waste (26%), motion waste (18%), and Defect waste (16%). There is The problem with waste waiting is caused by a lack of human resources, in this case, the number of nurses, motion waste is caused by the movement of nurses who are too frequent in order to carry out inspections of patients undergoing HD and the large number of movements caused by inspections still using manual methods, and a waste defect found that HD failure was caused by anemia. Second, there are improvement efforts in reducing waste waiting and waste motion by

adding four nurses and buying one monitoring machine to increase VAR by 4.75%.

REFERENCES

1. RI P. Peraturan Menteri Keuangan Republik Indonesia Nomor 176 /PMK.05/2017 Tentang Pedoman Renumerasi Badan Layanan Umum. 2017 p. 2.
2. Nia Budi Puspitasari MSA. Pengaruh Kualitas Pelayanan Terhadap Kepuasan Pasien. In: Prosiding SNST ke-7 Tahun 2016. 2016. p. 1.
3. Graban M. Excerpt from Chapter 6 (5S and Visual Management). Vol. 6. 2016. 2008–2016 p.
4. Novitasari ACDD. Kepatuhan Pembatasan Asupan Cairan Terhadap Lama Menjalani. *J Prodi Keperawatan Univ Aisyiyah Yogyakarta*. 2014;8(1):104–12.
5. Mcmanus H. Application of Lean to Healthcare Processes: A Complex System Perspective. EdNET LAI. 2012. 13 p.
6. Rusli NT. Analisis Biaya dan Faktor-Faktor Penentu Inefisiensi Layanan Hemodialisis pada Pasien Gagal Ginjal Kronik Rumah Sakit Rk Charitas Palembang Tahun 2016. *J Adm Rumah Sakit*. 2017;3(3):158–68.
7. Hines, Peter and Taylor D. *Going Lean, Lean Enterprise Research Center*. Vol. 95, Cardiff Business School Business School. 2000. 42–46 p.
8. Jones D, Mitchell A, Enterprise L, Uk A. *Lean thinking for the NHS A report commissioned by the NHS Confederation*. NHS Confederation; 2006. 14 p.
9. Usman I, Ardiyana M, Ardiyana M. *Lean Hospital Management , Studi Empirik pada Layanan Gawat Darurat*. *J Manaj Teor dan Terap*. 2017;10(3):257–70.
10. Ayu Muthia, Ratna Atina Riandhini AS. *Optimalisasi Upaya Penerapan Lean Hospital di Unit Rawat Jalan Rumah Sakit Tugu Ibu Depok*. *J Manaj Kesehat Yayasan RSDRSoetomo*. 2020;6(1):108–27.
11. Noviani ED. Penerapan Lean Manajemen pada Pelayanan Rawat Jalan Pasien BPJS Rumah Sakit Hermina Depok Tahun 2017. *J Adm Rumah Sakit*. 2017;3(3):219–30.
12. Handoyo DWI. Analisis pengaruh penerapan lean hospital terhadap kepuasan konsumen rumah sakit pku muhammadiyah surakarta. 2019.
13. Paramita R. Penerapan Lean Pada Redesain Proses Pelayanan. *Manajerial*. 2020;19(1):31–41.
14. Triyani F. Analisis Waste (Pemborosan) pada Instalasi Farmasi Rawat Jalan Menggunakan Pendekatan Lean Management di RS PKU Muhammadiyah Bantul. 2019.
15. Kim CS, Spahlinger DA, Kin JM, Billi JE. Lean Health Care: What Can Hospitals Learn from a World-Class Automaker? *J Hosp Med*. 2006;1(3):191–9.
16. Sugiyono. *Metode Penelitian Kuantitatif, Kualitatif, dan R&D*. Bandung: ALFABETA; 2017. 222 p.
17. Puspita AAPG, Sukarsa IM, Sudana AAKO. Perancangan SIMRS Terintegrasi Modul Human Resource Development Pada Rumah Sakit Pendidikan. *Lontar Komput*. 2015;6(1):37–48.