



The Use of Information Technology to Short the Waiting Time for Examination of Road Care Patients at RSU Islam Klaten

Owin Bambang Wijanarko¹, Winny Setyonugroho²

^{1,2} Study Program of Master in Hospital Management, Muhammadiyah University of Yogyakarta

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ABSTRACT

Background: Outpatient services are a reflection of hospital services. As a form of health service facility that organizes health efforts, hospitals often experience difficulties in managing information for both internal and external needs. One form of application is through service systems by utilizing information technology through the use of computer-based on information systems. The Lean Hospital concept, which has been successfully implemented in several hospitals, is expected to eliminate waste and add value added activity which will ultimately increase patient satisfaction.

Purpose: The purpose of this study was to calculate patient waiting time with the application of information technology in the outpatient polyclinic of RSU Islam Klaten.

Research methods: This type of research uses a descriptive analytic method. This research method used a cross sectional approach. The sample in this study amounted to 81 respondents with the sampling technique using purposive sampling. The analysis in research using the t-test. The research instruments used included literature studies, interviews and direct observation of medical record officers, nurses of polyclinic nurses, registration departments, and patients at RSU Islam Klaten.

Result: There is a significant relationship between waiting time and patient satisfaction $p = 0.001$. Patients with long waiting times were more dissatisfied (60.0%), while fast waiting times were more very satisfied (73.9%).

Conclusion: The success of health services is seen from the patient's waiting time and patient satisfaction. Waiting time is the time used by patients to get health services from the registration point to getting in the doctor's examination room. Overall information technology shortens patient waiting time in parts of registration-polyclinic and Pharmacy.

Corresponding Author:

Owin Bambang
Wijanarko

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PRELIMINARY

In the current era of globalization, hospitals are required to improve performance and competitiveness as business entities without reducing the social mission they carry. Hospitals must formulate strategic policies including efficiency from within (organization, management, and human resources) and must be able to quickly and accurately make decisions to improve services to the community in order to become an organization that is responsive, innovative, effective, efficient and profitable.

As a form of health service facility that organizes health efforts, hospitals often experience difficulties in managing information for both internal and external needs. One form of application is through service systems by utilizing information technology through the use of computer-based on information systems. Abdul Kadir (2003, 114) Management Information System (MIS) is an

information system used to support operations, management and decision-making in an organization. Usually, SIM provides information for organizational operations.

Haag (2000,114) states that MIS is also often referred to as a management warning system because this system warns users of problems and opportunities. In hospitals, the optimal use of Hospital Management Information Systems (SIMRS) is needed, because SIMRS has a complete and integrated module, the module is in accordance with hospital service standards, the applications easy to operate. Utilization of information technology using a good system is the most appropriate solution in efforts to improve service quality, coordination, efficiency, responsibility, supervision and provision of information quickly, precisely and accurately.

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METHOD

This type of research uses a descriptive analytic method. This research method used a cross sectional approach. The sample in this study amounted to 81 respondents with the sampling technique using purposive sampling. The analysis in research using the t-test. The research instruments used

included instruments to analyze qualitatively using literature studies, interviews and direct observation of medical record officers, nurses of polyclinic, the registration department, and patients at RSU Islam Klaten.

RESULTS

Table 1. Overview of waiting times after using information technology in each section (2018-2020)

NO	POLYCLINIC	Year	Polyclinic Registration	PHARMACY	Total Waiting Time	Total Waiting Time Average
1	NEUROLOGY	2018	2:26:01	0:15:03	2:41:04	1:58:54
		2019	1:31:17	0:15:33	1:46:50	
		2020	0:58:43	0:30:13	1:28:48	
2	GENERAL SUIRGERY	2018	2:02:52	0:15:41	2:18:33	2:09:31
		2019	2:05:20	0:27:08	2:32:28	
		2020	1:08:27	0:29:05	1:37:32	
3	Ophthalmologist	2018	1:19:06	0:15:43	1:34:49	1:30:54
		2019	1:10:32	0:15:45	1:26:17	
		2020	1:19:08	0:12:28	1:31:36	
4	Pediatic	2018	1:24:24	0:14:25	1:38:49	1:26:55
		2019	1:04:42	0:19:40	1:24:22	
		2020	1:00:04	0:17:29	1:17:33	
5	OBSGYN	2018	1:17:39	0:15:09	1:46:47	2:02:12
		2019	1:41:43	0:15:02	1:56:45	
		2020	1:51:41	0:31:23	2:23:04	
6	Orthopaedic	2018	1:39:37	0:13:43	1:53:20	2:00:13
		2019	2:06:08	0:23:48	2:29:56	
		2020	1:09:10	0:28:14	1:37:24	
7	INTERNIST	2018	1:35:07	0:15:48	1:50:55	1:33:48
		2019	1:05:30	0:15:36	1:21:06	
		2020	0:58:31	0:30:53	1:29:24	
TOTAL WT AVERAGE			1:28:22	0:19:54	1:48:55	

The results of the average waiting time from 2018 to 2020 in all polyclinics were 1 hour 48 minutes 55 seconds consisting of waiting time at the registration-polyclinic 1 hour 28 minutes 22 seconds and in the pharmacy section 19 minutes 54 seconds. Overall patient waiting time was the fastest in the pediatric clinic, which was 1 hour 26 minutes 55 seconds

and the longest in the general surgery clinic, which was 2 hours 9 minutes 31 seconds. The average patient waiting time after using information technology from 2018 to 2020 has decreased. The comparison of the waiting time before and after using the information technology is presented in table 2.

Table 2. Difference in mean total waiting time before and after information technology

	Average total waiting time		Difference	p
	Before IT	After IT		
Overall waiting time	2:52:57	1:48:55	1:04:02	0.001
Registration-polyclinic	1:48:27	1:28:22	0:20:05	0.002
Pharmacy	1:04:30	0:20:33	0:43:57	0.001

The total average waiting time before using information technology was 2 hours 52 minutes 57 seconds and after that became 1 hour 48 minutes 55 seconds with a significant difference $p = 0.0001$ ($p < 0.05$). This means that

information technology shortens the overall patient waiting time by 1 hour 4 minutes 2 seconds.

The mean total waiting time at the registration-polyclinic before using information technology was 1 hour 48 minutes 27 seconds and after that became 1 hour 28

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minutes 22 seconds with a significant difference $p = 0.002$ ($p < 0.05$). This means that information technology shortens the waiting time for patients at the registration-polyclinic by 20 minutes 5 seconds.

The average total waiting time at the pharmacy department before using information technology was 1 hour 4 minutes 30 seconds and then became 20 minutes 33 seconds

with a significant difference $p = 0.001$ ($p < 0.05$). The meaning Information technology shortens patient waiting time in the pharmacy by 43 minutes 57 seconds.

To determine the relationship between waiting time and patient satisfaction, 81 respondents participated in this study with the following subject characteristics:

Table 3. Subject characteristics

		n (%) or mean \pm SD	
Age		44 \pm 13	
Gender	Male	28	34.6%
	Women	53	65.4%
Profession	Civil servants	5	6.2%
	Private	27	33.3%
	Entrepreneur	14	17.3%
	Labor	18	22.2%
	Does not work	17	21.0%
Education	Elementary School	10	12.3%
	Junior High	7	8.6%
	High school	43	53.1%
	D3 / S1	20	24.7%
	Master	1	1.2%
Type	Surgery	14	17.3%
	Obsgyn	8	9.9%
	Lungs	5	6.2%
	Internist	20	24.7%
	Dentist	8	9.9%
	Others	26	32.1%

Of the 81 respondents who participated in this study, it was found that they had a mean age of 44 years, the majority (65.4%) were women. Most respondents are private

(33.3%). More than half are in high school education (53.1%). Most respondents came from internist (24.7%).

Table 4. Overview of waiting time and patient satisfaction scores

		n (%) or mean \pm SD	
Waiting time (minutes)		75 \pm 69	
Time	Long	35	43.2%
	Fast	46	56.8%
Satisfaction score		71 \pm 17	
Satisfaction level	Very dissatisfied	0	0.0%
	Not satisfied	22	27.2%
	Satisfied	21	25.9%
	Very satisfied	38	46.9%

The average waiting time for patients was 75 minutes with a deviation of 69 minutes, namely the shortest 2 minutes and the longest 324 minutes, more than half the waiting time for patients in the fast category was <60 minutes (56.8%). The average satisfaction score was 71 with a deviation of 17 or

the lowest score was 38 and the highest was 99. The highest proportion of the satisfaction category was feeling very satisfied (46.9%).

Table 5. Relationship between waiting time and satisfaction level

	Average total waiting time		Difference	p
	Before IT	After IT		
Overall waiting time	2:52:57	1:48:55	1:04:02	0.001
Registration-polyclinic	1:48:27	1:28:22	0:20:05	0.002
Pharmacy	1:04:30	0:20:33	0:43:57	0.001

Patients with long waiting times were more dissatisfied (60.0%), while fast waiting times were more highly satisfied (73.9%). The results of the statistical test showed that the chi square test value was $p = 0.000$, which means that there is a significant relationship between waiting time and the level of satisfaction

DISCUSSION

The concept of Lean Hospital, which has been successfully implemented in several hospitals, is expected to eliminate waste and add value added activity which will ultimately increase patient satisfaction (Gasperz, 2011). Digitalization program in supporting services still under development so that in implementation it encountered several obstacles. Digitalization program in its development is proposed as an important strategy to reduce medication errors, improve the quality of patient care, and cost-saving for the hospital.

The hospital must also have a standard time in providing certain health services, with this time standard, it is hoped that officers will have guidelines in carrying out the services provided to patients and have the goal of achieving a predetermined time target (Sabarguna, 2008)

Another factor that shortens the waiting time after the existence of information technology is increasingly qualified information technology by operators. Based on the results of the study, the shortest waiting time was in March, October and September in the Paediatric polyclinic, where in that month it was school or non-holiday periods so that the number of patient visits was less than in other months. The longest waiting times are in July, February and January at the surgery polyclinic, which is the school holiday period which is usually used by patients to perform elective surgery so that patient visits increase that month.

The doctor's time is more valuable than the patient's, so doctors are not left waiting for the patient. Management of examination schedules and timing of doctors in clinics has been shown to significantly reduce waiting time with the doctor's appeal to arrive on time, supported by the presence of an independent registration platform to increase the efficiency of registration services, and the Electronic Medical Records program to improve polyclinic services. Good and quality service is reflected in friendly, fast, and comfortable service (Ministry of Health of Indonesia, 2007).

Lean as a set of equipment (tools set), a management system and methodology that can change hospitals in regulating and managing to reduce errors, reduce waiting times, remove all obstacles and support the

activities of doctors and employees aimed at improving the quality of service and patient care (Grabau, 2016). Lean Hospital is a systemic and systematic approach to identify and eliminate waste or non-value adding activities through radical continuous activities by flowing products (material, work). -in-process, output) and information using pull systems from internal and external customers to pursue excellence and perfection (Gasperz, 2011)

The total waiting time before and after information technology shows that the total average waiting time before information technology is 2 hours 52 minutes 57 seconds and after information technology becomes 1 hour 48 minutes 55 seconds with a significant difference $p = 0.0001$ ($p < 0.05$). This means that information technology shortens the overall patient waiting time by 1 hour 4 minutes 2 seconds. The mean total waiting time at the registration-polyclinic before using information technology was 1 hour 48 minutes 27 seconds and after information technology became 1 hour 28 minutes 22 seconds with a significant difference $p = 0.002$ ($p < 0.05$). This means that information technology shortens the waiting time for patients at the registration-polyclinic by 20 minutes 5 seconds. The average total waiting time in the pharmacy department before information technology was 1 hour 4 minutes 30 seconds and after information technology was 20 minutes 33 seconds with a significant difference $p = 0.001$ ($p < 0.05$). This means that information technology shortens patient waiting time in the pharmacy by 43 minutes 57 seconds. This shows that waiting time is the time used by patients to get health services from the registration point to getting in the doctor's examination room.

The relationship between waiting time and patient satisfaction mean patient waiting time is 75 minutes with a deviation of 69 minutes, namely the shortest 2 minutes and the longest 324 minutes, more than half of the patient waiting time in the fast category (56.8%). The average satisfaction score was 71 with a deviation of 17 or the lowest score was 38 and the highest was 99. The highest proportion of the satisfaction category was feeling very satisfied (46.9%). Correlation results show that the shorter the waiting time, the higher the patient's satisfaction $p = 0.000$, $r = -0.565$. It can be seen that patients with long waiting times are more dissatisfied (60.0%), while fast waiting times are more highly satisfied (73.9%) which shows a significant relationship $p = 0.000$. This indicates that satisfaction with waiting time covers a wide range of things, from registering to getting service of medical staff on

outpatient department. Many things affect patient satisfaction, including: smooth registration, fast service, friendly, courteous, good skills and care of medical personnel, professional, clean rooms, complete facilities (Parasuraman and Zeithml, 1990).

CONCLUSION

Conclusion

The success of health services is seen from the patient's waiting time and patient satisfaction. Waiting time is the time used by patients to get health services from the registration point to getting in the doctor's examination room. Overall information technology shortens patient waiting time in parts registration-polyclinic and Pharmacy.

Suggestion

1. For the Hospital
Minimum Service Standards of Outpatient according to the Ministry of Health is less than 60 minutes, but based on the results of the study it is known that from 81 respondents there were 35 patients (43.2%) in the old category, namely > 60 minutes. So that there needs to be an evaluation and improvement from RSU Islam Klaten.
2. For researchers
For researchers, the use of information technology at RSU Islam Klaten can further explore the factors related to the use of information technology at RSU Islam Klaten.

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