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Analysis of Human Resource Requirements After The Implementation of Electronic Medical Records at RSI Yarsis

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ABSTRACT

The implementation of Electronic Medical Records (EMR) at Yarsis Islamic Hospital Surakarta has changed the work system and workflow of outpatient registration officers. This different workflow will undoubtedly alter existing human resource requirements, impacting the productivity of registration staff. This study aims to analyze human resource (HR) requirements in the outpatient registration unit after the implementation of EMR using the Health Workload Analysis (ABK-Kes) method. This study employed a descriptive qualitative approach with a cross-sectional design. Data were collected through observation and interviews with four outpatient registration officers. Data processing included collecting, editing, tabulation, and data presentation. The analysis of human resource requirements was conducted using the Health Workload Analysis (ABK-Kes) method, which includes calculating available working time (WKT), determining workload components and standard time, calculating workload standards (SBK), supporting task standards (STP), and supporting task factors (FTP). The data were analyzed descriptively. The results showed that the required number of human resources was one officer for the morning shift and two officers for the afternoon shift. Currently, there are four registration officers employed at the hospital. It can be concluded that there is an excess of one registration officer. This study recommends regular evaluations of HR needs and workloads, particularly during increases in patient visits or changes in service systems, to ensure appropriate workforce allocation. Improving staff competencies and educational qualifications in accordance with applicable regulations is also necessary to support sustainable service quality.

Keywords: Human Resource Needs; ABK-Kes; Outpatient Registration; Electronic Medical Records

INTRODUCTION

Hospitals are healthcare institutions that provide comprehensive individual health services, including inpatient, outpatient, and emergency care. One important aspect supporting hospital service quality is medical record management. According to the Regulation of the Minister of Health of the Republic of Indonesia Number 24 of 2022, medical records are documents containing patient identity data, examinations, treatments, actions, and other services provided to patients, which are currently developing toward the use of Electronic Medical Records (EMR) (1)

The implementation of EMR aims to improve efficiency and security in healthcare services through easier data access, reduced documentation errors, and faster service processes. However, EMR implementation also requires the readiness of healthcare human resources, particularly outpatient registration officers who serve as the frontline of services and play an essential role in ensuring the completeness and accuracy of medical record data. The transition from manual to electronic systems leads to changes in workflows and task types, which may affect staff workload (2,3,4)

Based on a preliminary study at Yarsis Islamic Hospital Surakarta, EMR implementation still faces several obstacles, including limited internet connectivity, prolonged system bridging processes, and patient fingerprint verification issues. In addition, outpatient visits increased from 2022 to 2024, potentially increasing the workload of registration officers. These conditions indicate the need for an evaluation of human resource requirements to maintain optimal service delivery.

Health Workload Analysis (ABK-Kes) is a method used to calculate healthcare human resource requirements based on workload in accordance with assigned duties and functions. Therefore, this study aims to analyze human

resource requirements in the outpatient registration unit after EMR implementation using the ABK-Kes method at Yarsis Islamic Hospital Surakarta.(5,6,7)

METHODS

This study employed a descriptive qualitative design with a cross-sectional approach to analyze the workload and healthcare human resource requirements in the outpatient registration unit after the implementation of Electronic Medical Records at Yarsis Islamic Hospital Surakarta.(8,9,10)

The study subjects consisted of four outpatient registration officers, while the research object was the workload of outpatient registration officers. Data collection was conducted at a single observation period directly in the work unit.

Primary data were collected through observation and interviews. Observations were carried out by measuring the time required to complete each main activity using a stopwatch to obtain standard working time. Interviews were conducted using a semi-structured approach to gather information related to main tasks, supporting tasks, and work conditions. Secondary data were obtained from hospital documents, including hospital profiles, Standard Operating Procedures (SOP), and outpatient visit data.(11,12,13,14)

The analysis of human resource requirements was conducted using the Health Workload Analysis (ABK-Kes) method, which includes calculating available working time (WKT), determining workload components and standard time, calculating workload standards (SBK), supporting task standards (STP), and supporting task factors (FTP). The data were analyzed descriptively.

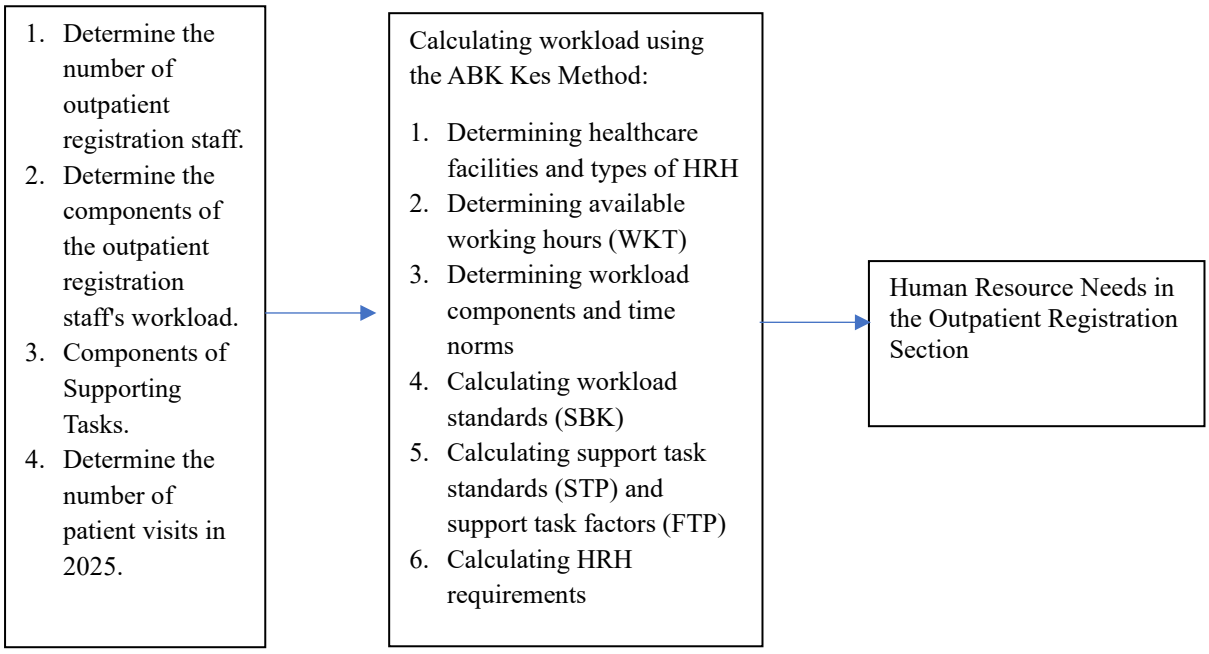

Figure 1. Research Stages Flowchart

RESULTS

Determining Healthcare Facilities and Types of Health Human Resources

The health facility in this study was Yarsis Islamic Hospital Surakarta. The type of healthcare human resources analyzed was outpatient registration officers. There were four officers, consisting of three officers with a Diploma (D3) in Medical Records and one officer with a senior high school educational background. Two officers were assigned to each shift (morning and afternoon).

Determining Available Working Time

Available Working Time (WKT) was determined based on the Regulation of the Ministry of Administrative and Bureaucratic Reform Number 01 of 2020, with an effective working time of 1,250 hours per year or 75,000 minutes per year.

Determining Workload Components and Time Standards

The workload components consisted of seven main tasks, including registering new patients, registering returning patients, fingerprint verification, creating SEP, printing clinic queue numbers, patient identity verification, and outpatient coding. The calculation results showed that the required number of outpatient registration officers was one officer for the morning shift and two officers for the afternoon shift.
(15,16,17,18,19,20)

Table 1. Workload Components and Standard Time

No	Workload Component	Standard Time
1	Registering new patients	3.24 minutes/patient
2	Registering returning patients	2.60 minutes/patient
3	Patient fingerprint verification	1.01 minutes/patient
4	Creating SEP	0.28 minutes/patient
5	Printing polyclinic queue number	0.10 minutes/patient
6	Patient identity verification	0.94 minutes/patient
7.	Outpatient coding	0.41inutes/patient

Calculating the Standard Workload (SBK)

The Standard Workload (SBK) is the volume or quantity of work over one year for each type of health human resource, where the calculation result is obtained by dividing the Available Working Time (WKT) by the time standard. Based on the research results, the Standard Workload of Outpatient Registration Officers can be calculated as follows:

Table 2. Workload Standard Calculation

Type of Task	Task	Standard Time (min)	Available Working Time (min/year)	Workload Standard
(1)	(2)	(3)	(4)	(4)/(3)
Primary Tasks	Registering new patients	3,24 minutes/patient	75.000	23.148,15
	Registering returning patients	2,60 minutes/patient	75.000	28.846,15
	Patient fingerprint verification	1,01 minutes/patient	75.000	74.257,43
	Creating SEP	0,28 minutes/patient	75.000	267.857,14
	Printing polyclinic queue number	0,10 minutes/patient	75.000	750.000
	Patient identity verification	0,94 minutes/patient	75.000	79.787,23
	Outpatient coding	0,41 minutes/patient	75.000	182.926,83

Calculating the Standard for Support Tasks (STP) and the Support Task Factor (FTP)

Support Tasks are tasks carried out to complete activities that are either directly or indirectly related to the main duties and functions performed by each type of health human resource. The Support Task Factor (FTP) is the proportion of time used to complete each activity per unit of time (per day, per week, per month, or per semester). Based on the research results, the Support Task Factor (FTP) is obtained by dividing the Available Working Time (WKT) by the activity time and then multiplying by 100, resulting in a value of

Table 3. Supporting Task Standard and Supporting Task Factor (Morning Shift)

Activity	Average Time	Annual Time (min)	Available Working Time (min)	FTP (%)	Activity
(1)	(2)	(3)	(4)	(5)	(4)/(5) x 100
Support Tasks	Monthly Medical Record Meeting	240 minutes /month	2880	75.000	3,84
	PORMIKI Meeting	360 minutes semester	720	75.000	0,96
	Seminar	360 minutes /semester	720	75.000	0,96
	In-house training	180 minutes /year	180	75.000	0,24
Support Task Factor (FTP) %					6.00
Standard for Support Tasks (STP) =(1/(1-FTP/100)					1,06

Table 4. Supporting Task Standard and Supporting Task Factor (Afternoon Shift)

Activity	Average Time	Annual Time (min)	Available Working Time (min)	FTP (%)	Activity
(1)	(2)	(3)	(4)	(5)	(4)/(5) x 100
Support Tasks	Monthly Medical Record Meeting	240 minutes /month	2880	75.000	3,84

Activity	Average Time	Annual Time (min)	Available Working Time (min)	FTP (%)	Activity
(1)	(2)	(3)	(4)	(5)	(4)/(5) x 100
	PORMIKI Meeting	360 minutes /semester	720	75.000	0,96
	Seminar	360 minutes /semester	720	75.000	0,96
	In-house training	180 minutes /year	180	75.000	0,24
	Religious Study Session	120 minutes /month	1440	75.000	1,92
Support Task Factor (FTP) %					7,92
Standard for Support Tasks (STP) =(1/(1-FTP/100)					1,09

Calculating Human Resources for Health Needs (SDMK)

Based on the research results, the required number of health human resources for Outpatient Registration Officers on the morning shift is shown in the following table

Table 5. Human Resource Requirement Calculation (Morning Shift)

Type of Task	Activity	Annual Output 1 year	Calculating the Standard Workload (SBK) (minutes)	Health Human Resource Requirement
(1)	(2)	(3)	(4)	(3)/(4)
Primary Tasks	Registering new patients	3828	23.148,15	0,17
	Registering returning patients	10332	28.846,15	0,36
	Fingerprint verification	10284	74.257,43	0,14
	Creating SEP	10284	267,857,14	0,04
	Printing queue number	14160	750.000	0,02
	Identity verification	14160	79.787,23	0,18
	Outpatient coding	14160	182.926,83	0,08
	JKT (Total Core Task Requirement)			0,97
	Standard for Support Tasks (STP)			1,06
	Health Human Resource Requirement (JKT x STP)			1,03
	Rounded Value			1

Based on the above calculations, the Total Workload Requirement (JKT) is 0.97. This value is multiplied by the Supporting Task Standard (STP) of 1.06, resulting in 1.03, which is rounded to 1 officer assigned to the morning shift. Currently, the number of outpatient registration officers on the morning shift at Yarsis Islamic Hospital Surakarta is 2 officers; however, based on the calculation, only 1 officer is required

Table 6. Human Resource Requirement Calculation (Afternoon Shift)

Type of Task	Activity	Annual Output 1 year	Calculating the Standard Workload (SBK) (minutes)	Health Human Resource Requirement
(1)	(2)	(3)	(4)	(3)/(4)
Tugas Pokok	Registering new patients	3630	23.148,15	0,16
	Registering returning patients	13854	28.846,15	0,48
	Fingerprint verification	13548	74.257,43	0,18
	Creating SEP	13548	267.857,14	0,05
	Printing queue number	17486	750.000	0,02
	Identity verification	17486	79.787,23	0,22
	Outpatient coding	17486	182.926,83	0,10
	JKT (Total Core Task Requirement)			1,21
	Standard for Support Tasks (STP)			1,09
	Health Human Resource Requirement (JKT x STP)			1,32
	Rounded Value			2

Based on the above calculations, the Total Workload Requirement (JKT) is 1.21. This value is multiplied by the Supporting Task Standard (STP) of 1.09, resulting in 1.32, which is rounded to 2 officers assigned to the

afternoon shift. Currently, the number of outpatient registration officers on the afternoon shift at Yarsis Islamic Hospital Surakarta is 2 officers

DISCUSSION

The results of the ABK-Kes analysis indicate that the outpatient registration unit at Yarsis Islamic Hospital Surakarta is staffed by four officers working in two shifts. Most officers have a Diploma in Medical Records, although one officer still holds a senior high school educational background.

The supporting task factor (FTP) was 6.00% for the morning shift and 7.92% for the afternoon shift, resulting in supporting task standards (STP) of 1.06 and 1.09, respectively.

Based on these calculations, the staffing requirement is one officer in the morning shift and two officers in the afternoon shift, indicating an excess of one officer. Regular evaluations of workload and human resource requirements are recommended, particularly during changes in patient volume or service systems. Improving staff competencies and educational qualifications in accordance with regulations is also essential to maintain sustainable service quality.(21,22,23,24,25,26,27,28,29).

CONCLUSION

Based on the Health Workload Analysis (ABK-Kes), the required number of outpatient registration officers is one officer for the morning shift and two officers for the afternoon shift. Therefore, there is an excess of one officer. Hospitals should conduct regular evaluations of human resource needs and workloads, particularly during increases in patient visits or changes in service systems, to ensure appropriate workforce allocation. Enhancing staff competencies and educational qualifications is also necessary to support sustainable service quality.

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