



The Assessment of Medical Recording Resources in Asembling Units with Workload Staffing Needs (WISN) Methods in Bendan General Hospital, Pekalongan

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Authors' contributions

This research has been conducted based on collaboration among all authors. Author NBA designed the study and wrote a draft article. Authors SI and NBA had written article protocols, managed and conducted research analyzes. Authors MTA and HK managed literature searches. All authors read and agreed to the final draft of the article.

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ABSTRACT

Objective: Bendan district general hospital is a type C hospital owned by the Pekalongan City Government which is demanded to have good service performance. The assembling unit in the Medical Records department at the Hospital is a unit that influences the overall service process because in this unit all medical records management for patients from all wards is managed.
Research Purposes: This study aims to find a general description of the workload and the needs of assembling officers in the medical records department. Method: This research was conducted by assembling officers, from February to March 2020, with the type of descriptive research using the interview method based on the Workload Indicator Staffing Needs (WISN) Formula.

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The Results: The results of the study were based on the calculation of the WISN method so that the officers' needs were 2 people for 7 hours / day and with 6 working days / week. The effective working day in 1 year is 227 days with a standard workload of assembling medical record documents on the inpatient ward of 14887 documents and inputting data in a computer with a standard workload of 23820 documents.

Conclusion: that the workload of the assembling officer in the medical record department is not appropriate, there is still a buildup of medical records in the assembling section.

Suggestion: It is necessary to add assembling officers to the medical record unit and to provide ongoing training so that the performance of officers is compatible in performing their work.

Keywords: Workload of officers; assembling units; performance officers; workload indicator staffing needs (WISN); medical record documents.

1. INTRODUCTION

Hospitals are an integral part of a social and health organization with the function of providing comprehensive services including curative disease healing services and preventive disease prevention to the community[1]. The operational units in implementing units in hospitals must have effective and comprehensive performance so that they can run well and sustainably [2]. The Medical Records Department is the most important unit and is the main key in service in hospitals, among others, to support the smooth management of medical records. In the implementation, it is needed enough officers, qualified and able to work optimally to improve the quality of hospital services. [3].

The medical record department is tasked with creating an orderly condition for the administration of medical records so that it can support efforts to improve health services in the hospital, without being supported by a good medical record management system, it will not create an orderly hospital administration[4]. The medical records department has an assembling work unit that is in charge of receiving medical record documents with a daily census from the ward then recorded in the expedition book, examines the ability of the contents of the medical records, compiles and reassembles the medical record files in the order specified, records and controls the record documents medical contents are incomplete, controlling the use of medical record numbers and inputting documents that have been assembled into hospital information system [3].

One way to improve the quantity and quality of adequate health workers is to do human resource planning based on the workforce needs and workload of officers. Human resource planning can be done by means of calculations using the method. One way to increase the quantity and quality of adequate health workers

is to do HR planning by taking into account human resources needs and workloads of officers. HR planning can be done by calculating using the Workload Indicator Staffing Needs (WISN)[5]. According to the Decree of the Minister of Health of the Republic of Indonesia Number 81 / MENKES / SK / I / 2004 states that the Employment Needs Indicator of Workforce is an indicator that shows the number of human resource needs in health facilities based on workload so that the regulation of the allocation/relocation of health workers will be easier and more rational. Staffing Needs Indicator is a method of calculating the need for human resources for health workers based on the real workload carried out by each category of health workforce resources in each work unit in health service facilities, hospitals, community health centers, and other health facilities [6].

Based on preliminary surveys in the Bendan area general hospital in Pekalongan City which is a type C hospital owned by the Pekalongan city government, it was identified that the length of the workforce of medical personnel (medical rehearsal officers) is 6 working days ie Monday - Saturday, as follows Monday to Monday Thursday starts from 07.00 - 14.00 then Friday which is 07.00 -12.00 and Saturday from 07.00 - 13.00. The human resources of the medical record officer in the assembling unit are that there is only one officer who carries out his own duties and functions resulting in excessive workload and there is a complete medical record document. There was a return of medical records that did not go to the assembling section but in another part, there was an error returning the medical record documents. This causes the assembling officer needs extra time to correct the error and causes the assembly process delay and workload buildup due to labor that is not in accordance with the workload [7].Based on these data it is necessary to research on managing the needs of assembling officers in the medical

record unit using the workload indicator staffing needs method based on the real workload on assembling officers at Bendan - Pekalongan Hospital in 2020 so that it can be known [8] the ideal number of officers in the assembling section is based on the workload of officers in the assembling unit building

2. METHODS

According to the World Health Organization that the method used to analyze the optimal number of medical personnel needs is to use the Work Load Indicator of Staffing Needs method by determining work units and categories of health resources, determining available time, compiling job descriptions and products produced, calculating workload, compile leeway standards, set Human resource requirements [5]

This research was conducted at Bedan Pekalongan General Hospital, February to March 2020. This type of research is descriptive. The object of this research is the workload of medical record personnel in the assembling unit using the Workload Indicator Staff Need (WISN) method. Calculation of the need for medical records in the assembling unit is done by observing work sampling and secondary data then the data are analyzed using the Workload Indicator Staff Need (WISN) formula[9]. The stages of research are as follows:

1. Set the available work time, with the formula:

$$\text{Available working time} = (a - (b + c + d + e)) \times f$$

Information:

- a) possible workdays of the year,
- b) Annual leave,
- c) Education and training in accordance with hospital rules,
- d) National holidays.
- e) Absence from work due to illness, permission, and so on.

- f) Working time in one working day
2. Establish work units and resource categories for medical record personnel in assembly units
 3. Develop workload standards. Standard workload is obtained by dividing the available work time in one year by the average completion time of each main activity unit. The time of completion of each principal activity unit is the average amount of time of each Principal activity in 1 day divided by the average number of main activities in one working day.
 4. Establish leeway standards. The allowance standard is obtained from the number of idles observed divided by the available work time.
 5. Calculation of medical record resource needs with the formula:

$$\text{The need for medical record personnel} = (\text{quantity of principal/standard of workload}) + \text{workload allowance standard}$$

Workload calculation is done by analyzing the comparison of the percentage of productive activity implementation time and nonproductive activity implementation time which is categorized into three categories, namely: high workload if the percentage of productive activity implementation time exceeds the optimum productive work time that is more than 80% of all activity time conducted by medical record personnel; optimum workload if the percentage of time for carrying out productive activities is 80% of the total time spent doing medical records, and; light workload if the percentage of time for carrying out productive activities is less than 80% of the total time for activities carried out by medical records personnel [10]

3. RESULTS

1. Planning the addition of assembling officers with the Workload Indicator Staffing Needs (WISN) Method as follows:

Table 1. Determination of available work time (AWT)

Factor	Medical record unit staff	Information
Working days: Monday - Saturday (A)	300	day / week
Annual leave (B)	12	day / year
Absence (C)	19	day / year
National holiday (D)	6	day / year
Working time (E)	8	hour / day
Allowance Time		8 hours of work / day
Allowance	25% x 8	2 hours of work / day
	7 - 2	5 hours of work / day

2. Average time on the main activities of assembling officers

Table 2. List of main medical records officer activities in the assembling unit

Main activity.	Unit	Quantity /years	Time/activity
a) Prepare medical record documents in accordance with applicable regulations	45 times	11,835document	4,03
b) Input medical record documents into the expedition book	45 times	11,835 document	2
c) Input the complete medical record documents into the computer system	45 times	11,835 document	1,06

Table 3. Category allowance factor

Additional activities	Average time	Average time / year	Available Working Time	Allowance standard
Assembling part coordination meeting	2 hours/ month	24 2 hours/ years	1,578	24:1,578 0,015
Morning ceremony	30 minute / month	6 hours/ years	1,578	6 : 1,578 0,003
Total standard $0,015 + 0,003 = 0,045 \times 100 = 4,5$				

Table 4. Individual allowance factors

Additional activities	Allowance standard		Percentage of standard allowance	%
Seminar training	6 hours / semester	12 hours / year	$12 : 1,578 \times 100\% =$	0,76%
Help other units	1.5 hours / day	271 hours / year	$271 : 1,578 \times 100\% =$	17,17%
			Total	17,93%

3. Analysis of staff workload assembling medical records

Table 5. Analysis of the workload of medical records in the assembling unit

Main Activity	Average time / minute	Average time /hours	Available Work Time (hours / yr)	standard workload	Activity quantity	staff./ activities
Prepare medical record documents in accordance with applicable regulations	4,03	0,067	1,578	23,552	11,835	0,5
Input medical record documents into the expedition book	2	0,033	1,578	47.818	11,835	0,2
Input complete medical records into a computer system	1,06	0,017	1,578	92,823	11,835	0,1

Table 6. List of medical officer compliance checklist

Description of service	Officer 1																														
	P 1		P 2		P 3		P 4		P 5		P 6		P 7		P 8		P 9		P 10		P 11		P 12		P 13		P 14		P 15		
	y	t	y	t	y	t	y	t	y	t	y	t	y	t	y	t	y	t	y	t	y	t	y	t	y	t	y	t	y	t	
Does the official receive and record the patient's medical record after the patient receives inpatient services?	√		√		√		√		√		√		√		√		√		√		√		√		√		√		√		
Does the official conduct a qualitative and quantitative analysis of the completeness of medical records?	√		√		√		√		√		√		√		√		√		√		√		√		√		√		√		
When there are incomplete medical records, the officer returns the medical records to the inpatient department by using a control card?		√		√		√		√		√		√		√		√		√		√		√		√		√		√		√	
Do officers sort medical records according to their categories?	√		√		√		√		√		√		√		√		√		√		√		√		√		√		√		
Did the official sort the surgical case form in the order that was set?	√		√		√		√		√		√		√		√		√		√		√		√		√		√		√		
Does the official sort the child's general case form in the order specified?	√		√		√		√		√		√		√		√		√		√		√		√		√		√		√		
Does the official sort the adult general case forms in the order that they have been set?	√		√		√		√		√		√		√		√		√		√		√		√		√		√		√		
Does the official sort the obstetric obstetric nonoperation case form in the order specified?	√		√		√		√		√		√		√		√		√		√		√		√		√		√		√		
Does the official sort the gynecological obstetric case form in the order that has been set?	√		√		√		√		√		√		√		√		√		√		√		√		√		√		√		

Description of service	Officer 1																																			
	P 1		P 2		P 3		P 4		P 5		P 6		P 7		P 8		P 9		P 10		P 11		P 12		P 13		P 14		P 15							
	y	t	y	t	y	t	y	t	y	t	y	t	y	t	y	t	y	t	y	t	y	t	y	t	y	t	y	t	y	t	y	t				
Does the officer sort the obstetric midwifery case forms with surgery in the order they have been assigned?	√		√		√		√		√		√		√		√		√		√		√		√		√		√		√		√		√		√	
Did the officer sort the newborn case form in the order that was set?	√		√		√		√		√		√		√		√		√		√		√		√		√		√		√		√		√		√	
Did the clerk put additional forms on the back of the form?	√		√		√		√		√		√		√		√		√		√		√		√		√		√		√		√		√		√	

Table 7. List of qualitative checklists

No	Documnet	Identification		Recording		Reporting		Authentication		Information
		C	Ic	C	Ic	C	Ic	C	Ic	
1	20824xx	√		√		√		√		Complete
2	20859xx	√		√		√			√	Scribble that is not initialed
3	20798xx	√		√		√			√	Scribble that is not initialed
4	97570xx	√		√		√		√		Complete
5	11544xx	√		√		√		√		Complete
6	20894xx	√		√		√		√		Complete
7	20890xx	√		√		√			√	Crossed out writing
8	20945xx	√		√		√		√		Complete
9	20916xx	√		√		√		√		Complete
10	20878xx	√		√		√			√	Scribble on the drug form
11	20798xx	√		√		√		√		Complete
12	20915xx	√		√		√		√		Complete
13	18521xx	√		√		√			√	Initially empty nurse
14	20861xx	√		√		√			√	There are streaks
15	20619xx	√		√		√		√		Complete
16	20872xx	√		√		√			√	Scribbles and initials of nurse not filled
17	20877xx	√		√		√		√		Complete
18	18940xx	√		√		√			√	Initially not filled
19	20876xx	√		√		√		√		Complete
20	20910xx	√		√		√		√		Complete
21	20901xx	√		√		√			√	Initials of unfilled nurses
22	12786xx	√		√		√		√		Complete
23	20981xx	√		√		√		√		Complete
24	20345xx	√		√		√		√		Complete
25	16721xx	√		√		√		√		Complete
26	20564xx	√		√		√		√		Complete
27	10987xx	√		√		√		√		Complete
28	25128xx	√		√		√		√		Complete
29	20189xx	√		√		√		√		Complete
30	18529xx	√		√		√		√		Complete
	Total	30		30		30		16		14

Note: C = Complete, Ic =Incomplete

Table 8. List of quantitative checklists

No	Consistency of recording identity		Consistency in recording the main diagnosis		Consistent informed consent		Potential for harm		Information
	C	Ic	C	Ic	C	Ic	C	Ic	
20824xx	√		√		√		√		Consistent
20798xx	√		√		√		√		Consistent
20859xx	√		√		√		√		Consistent
97570xx	√		√		√		√		Consistent
11544xx	√		√		√		√		Consistent

No	Consistency of recording identity		Consistency in recording the main diagnosis		Consistent informed consent		Potential for harm		Information Consistent medical record
	C	Ic	C	Ic	C	Ic	C	Ic	
20894xx	√		√		√		√		Consistent
20989xx	√		√		√		√		Consistent
20916xx	√		√		√		√		Consistent
20878xx	√		√		√		√		Consistent
29879xx	√		√		√		√		Consistent
20901xx	√		√		√		√		Consistent
18521xx	√		√		√		√		Consistent
20861xx	√		√		√		√		Consistent
20878xx	√		√		√		√		Consistent
20872xx	√		√		√		√		Consistent
20877xx	√		√		√		√		Consistent
10894xx	√		√		√		√		Consistent
20876xx	√		√		√		√		Consistent
20910xx	√		√		√		√		Consistent
20901xx	√		√		√		√		Consistent
12786xx	√		√		√		√		Consistent
20981xx	√		√		√		√		Consistent
20345xx	√		√		√		√		Consistent
16721xx	√		√		√		√		Consistent
20564xx	√		√		√		√		Consistent
10987xx	√		√		√		√		Consistent
25128xx	√		√		√		√		Consistent
20189xx	√		√		√		√		Consistent
18529xx	√		√		√		√		Consistent
Total	30		30		30		30		

Table 9. Medical record information management system

Input	Process	Output
Assembling officer	Receive records and thoroughly complete the patient's medical record after receiving inpatient services	The refund time is 1x 24 hours to complete the medical record document
Minimum education is D3 Medical Record which can operate the existing system in the hospital	Perform quantitative and qualitative analysis of the completeness of medical record documents	Medical record documents - complete
Assembling Room. (Criteria: Close to the indexing coding officer away from the kitchen and bathroom or water storage)	Return the medical records to the inpatient room by including a complete control card / incomplete checklist if there is an inability to complete documents	
Supporting facilities	When it is complete reorder medical records according to the case category	
Assembling table		
Assembly officer seat		
Control card 2 copies		
Tools (Stationery and Computers)		
Resource informs		
Reviewing completeness based on qualitative and quantitative analysis		

4. DISCUSSION

The Bendan General Hospital is a technical unit of the Pekalongan city government that includes services to all populations of Pekalongan and is a referral hospital for 14 community health centers. The Bendan General Hospital has been a Class C hospital. With the development of the hospital's capacity, it should be supported with facilities, facilities, infrastructure, and medical personnel resources to improve the quality of services for patients. Table 10. addresses the number of patients from 2015 to 2019, which shows a significant increase.

Based on an analysis of modeling trends in the number of patients from 2015 to 2019 there was a significant increase in the number of live patients based on the linear equation $y = 640.5 x + 9355.7$ compared to the trend of the number of patients who died was $y = 33.7 x + 447.5$. Although the trend in the number of patients who died also shows a positive trend, the number of patients who live is much better. The tendency of the total number of patients can be used to predict the number of medical record documents that will be used to calculate plans to increase the number of medical records in an assembly unit with the Staff Staff Requirement Indicator Method (WISN). [11]

The main functions and duties of the assembling unit officer at Bendan General Hospital are to assemble medical record forms, examine the completeness of form contents, control the incompleteness of form contents and conduct a qualitative-quantitative analysis of medical records. Based on the theory of the main task of the recording staff, the tasks and functions are good enough, but there is still a buildup of medical record documents that have not been adjusted to the rules in the assembling section, there are still returns of incomplete medical record documents because they are not equipped with a control card medical. Forms and books used in assembling units for medical record services are logbooks for the use of medical record numbers and forms, incomplete logbooks, register assembling books, expedition books, and control cards[12].

The system associated with the assembling process is the process of assembling or compiling medical record files. Based on observations in the assembling section, the assembling process is in accordance with the standard operating procedures for inpatient

hospital medical record management. Form material used is in accordance with standard operating procedures, namely using paper HVS (wood fiber-free writing paper), paperweight 70 grams, the shape used is appropriate, rectangular, the size of paper used is appropriate, namely with a length of 30 cm and width of 26 cm with a white base and black ink. Medical resume form with the main components, namely heading, introduction, body, and close. In the Heading section is appropriate, namely the name of the agency, the name of the form, and the identity of the form. The introduction section is appropriate, the title reflects the purpose of the form, while in the body, the grouping of data items including spaces, margins, fonts, and font sizes are appropriate, as well as close, which is the name and signature of the doctor as the medical response. The medical record form contains items on patient identity and clinical data [13]

The allocation of medical record document numbers is based on the number of patients served so that health services differ from one another. The medical record number consists of 6 digits, from 00.00.00 to 99.99.99 with the use of this medical record number recorded in the medical record number usage book. The unit of control or allocation of numbers in medical record documents is an information system of hospital assembly and management so that the control of medical record numbers automatically from a computer system database Allocation of patient medical records is done automatically in the hospital information system billing system in the registration section so that if there are new patients the medical record number will automatically be registered in the billing system as the patient's medical record number [14]

Quantitative analysis is an analysis aimed at the number of sheets of medical records in accordance with the number of days of patient care including the completeness of medical sheets, paramedics and support according to established procedures Quantitative analysis components include identification, recording, reporting, and authentication then the Officer will analyze and perform validation of every medical record received. [15]. Qualitative Analysis is an analysis that aims to determine the consistency of the contents of medical record documents which include recording identity, recording the main diagnosis, agreement based on information, and things that cause harm to the hospital [16,17]. The quantitative and qualitative

analysis has been carried out at the Bendan General Hospital with a hospital information system controlled by coding officers but based on observations there are still found some incomplete documents containing medical record documents that are not recorded names and signatures of names of doctors/nurses in charge responsible service and there are still many scribbles that are not initialed. In the assembling section it still uses manual methods and systems but for the complete inputting of documents using a separate computer in another unit that is a data security storage unit. The security of the system using the user officer only has certain access rights for the officer's activities so that other people cannot access it, then the security of the data will be guaranteed. The role of assembling in medical record services is as a former of medical record forms, researchers fill in medical record data, control of medical record documents is incomplete, controlling the use of medical record numbers and controlling medical record forms [18]. The reporting system for using medical record forms to the Head of Medical Records Installation. Based on observations in the assembling unit at Bendan general hospital there were no reports of non-conformance with the Standard Operating Procedures

In the assembling unit there is still a buildup of medical record documents that have not been assembled, resulting in documents piling up and making work inefficient. This is due to the limitations of assembling officers, there is only 1 medical record officer.

The planning of hospital medical record personnel must be based on the function and workload of health services to be faced in the future. This is intended so that the hospital's function can run well. The planning of medical record personnel needs in the assembling unit is calculated based on the method of calculating the need for health workers based on the real workload of each work unit [19]. According to the Decree of the Minister of Administrative Reform No. Kep / 75M. PAN / 7/2004 concerning Guidelines for Calculation of Employee Needs Based on Workloads in the Context of Forming Civil Servants Formation, the employee needs analysis is a process that is carried out logically, regularly, and continue to find out the number and quality of employees needed [20]

The results of the calculation of the workload in the assembling unit ideally should have 3

medical record personnel in the assembling unit, so that the optimization of the service process at the hospital will be better. Calculation of workload on the assembly unit is as follows:

a) Number of working days available per year

$$\begin{aligned} & \{ a - (b+c+d) \} \\ & \{ 300 - [12+19+6] \} \\ & 300 \quad - 37 \\ & 263 \end{aligned}$$

b) Available working time

$$\begin{aligned} & \text{Available working days x (business} \\ & \text{hours - AT)} \\ & 263 \times (8-2) \\ & 263 \times 6 \\ & 1,578 \text{ hours / year} \end{aligned}$$

c) Volume of daily activities

$$\begin{aligned} & \text{Volume of activity} = \text{predicted visit in} \\ & \text{2020/Number of effective working days} \\ & 11,913 / 263 \\ & 45 \text{ volumes/ activity} \end{aligned}$$

d) Factor in the category of assembling officers (FKK)

$$\begin{aligned} & 1: (1 - (\text{Total SKK} / 100)) \\ & 1: (1 - (4,5 / 100)) \\ & 1: (1 - 0.045) \\ & 1: 0.95 \\ & 1,052 \text{ workers} \end{aligned}$$

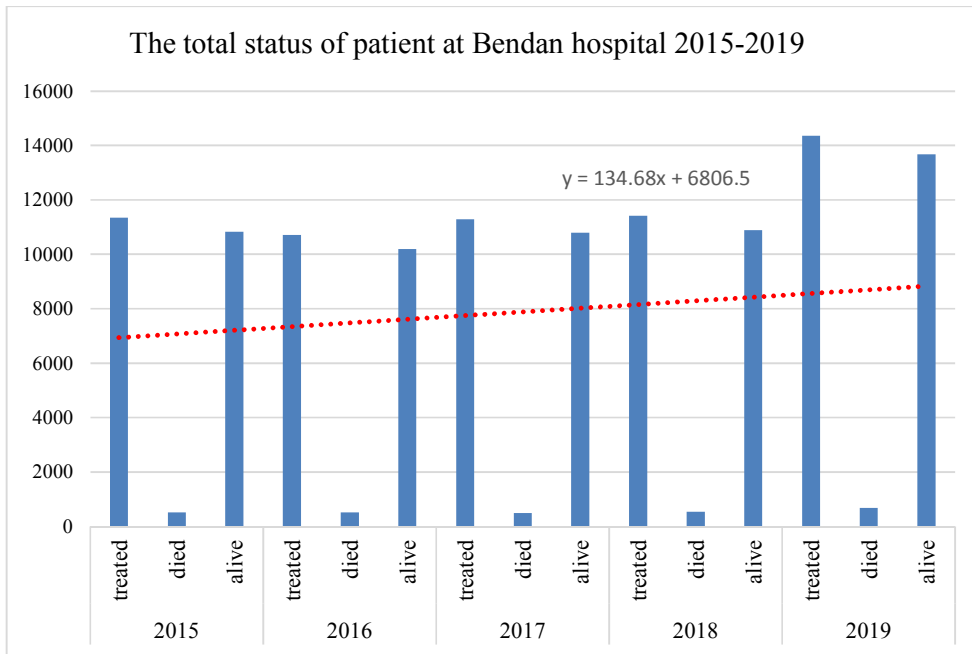
e) Individual Allowance Factors (FKI)

$$\begin{aligned} & 1: (1 - (17.93/100)) \\ & 1: (1 - 0,17) \\ & 1: 0,82 \\ & 1,219 \text{ worker} \end{aligned}$$

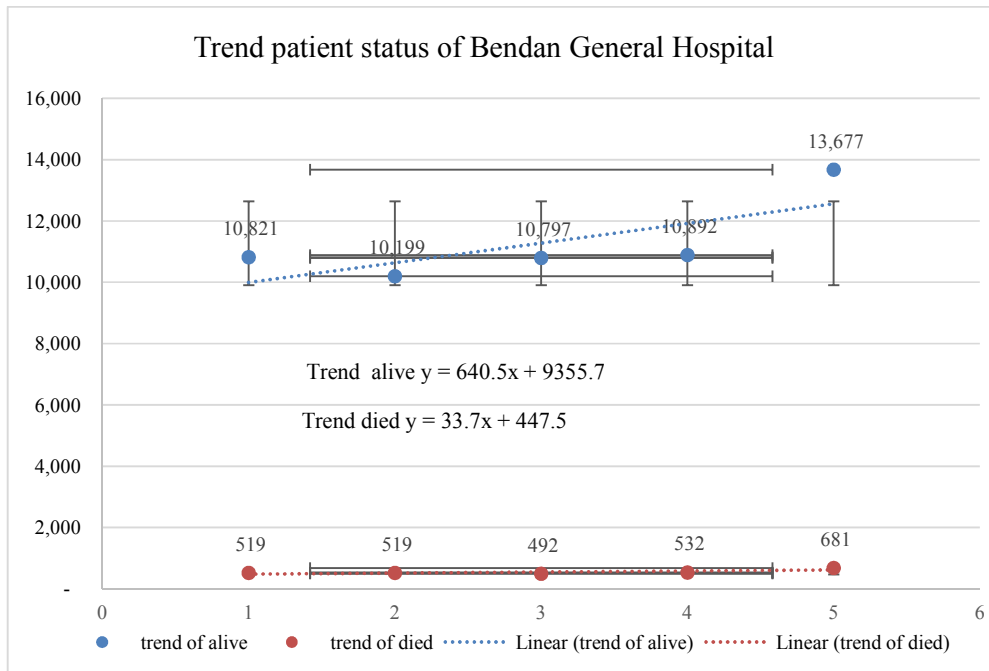
f) Total Staffing Needs/Activity x Category Allowance Factor) + Individual Allowance Factors)

$$\begin{aligned} & (0,8 \times 1.052) + 1.219 \\ & 2.00 \end{aligned}$$

So the workload is > 1 then the workload is overloaded. The need for additional medical records in the assembling unit in Bendan General Hospital is 2 medical personnel, so the total requirement is 3 medical records.



Graph 1. The total status of patients at Bendan General Hospital



Graph 2. Trend status pasien at Bendan General Hospital 2015-2019

Table 10. The total status of patients at Bendan General Hospital

2015			2016			2017			2018			2019		
Total	Died.	Life.	Total.	Died.	Life.	Total.	Died.	Life.	Total.	Died.	Life.	Total.	Died.	Life.
11340	519	10821	10718	519	10199	10797	11289	492	10892	11424	532	13677	14358	681

5. CONCLUSION

The increase in the number of patients in Bendan public hospitals causes the number of medical peer documents to increase, so planning for the addition of medical records to the assembling unit is needed. The results of the analysis using the Workload Indicator Staffing Needs (WISN) method in Bandan District General Hospital required the addition of 3 medical records personnel in the assembling unit so that the optimization and effectiveness of operational services in the hospital runs perfectly

DISCLAIMER

All authors declare that there is no conflict of interest in the product manufacturer because we do not intend to use this product as a way for any litigation, but for the advancement of knowledge. This research was not funded by a producing company but was funded by the personal effort of the author.

CONSENT AND ETHICAL APPROVAL

As per international standard or university standard guideline participant consent and ethical approval has been collected and preserved by the authors.

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DATA AVAILABILITY

All relevant data has been registered on paper along with supporting information files. This study will help researchers to uncover critical areas regarding the prediction of returning medical record documents to the assembling unit so that activity and baseline action plans can be predicted in improving the quality of patient care.

COMPETING INTERESTS

All authors have stated that this activity is research without competing interests.

REFERENCES

1. Brownson RC, Fielding JE, Maylahn CM. Evidence-based public health: Afundamental concept for public health practice. *Annual Review of Public Health*. 2009;30:175–201. DOI: 10.1146/annurev.publhealth.031308.100134
2. Hussain M, Ajmal MM, Gunasekaran A, Khan M. Exploration of social sustainability in healthcare supply chain. *Journal of Cleaner Production*. 2018;203:977–89. DOI: 10.1016/j.jclepro.2018.08.157
3. Bhat S, Gijo EV, Jnanesh NA. Productivity and performance improvement in the medical records department of a hospital. *International Journal of Productivity and Performance Management*; 2016. DOI: 10.1108/IJPPM-04-2014-0063
4. Nan Z, Lu Z, Chenxia D, Wenyan S. Satisfaction survey on the work of medical record department. *Chinese Medical Record*. 2017;(1):4. Available:doi.org/10.3109/23256176.2013.840988
5. Mohamed N, Al-Qasmi A, Al-Lamki S, Bayoumi M, Al-Hinai A. An estimation of staffing requirements in primary care in Oman using the Workload Indicators of Staffing Needs method. *Eastern Mediterranean Health Journal*. 2018;24(9):823. DOI: 10.26719/2018.24.9.823
6. Ekawati A. The analysis of workload and need of nurse with wisn method in inpatient room in hospital X in Yogyakarta. *Jurnal Medicoeticolegal dan Manajemen Rumah Sakit*. 2018;7(1):69–75. DOI: https://doi.org/10.18196/jmmr.7158
7. Joarder T, Tune SNBK, Talha TUS, Ahmed SM. Assessment of staffing need through a workload analysis in Jhenaidah and Moulvibazar, Bangladesh: A Workload Indicator of Staffing Need (WISN) study. *The Lancet Global Health*. 2019;7:S37. DOI:https://doi.org/10.1016/S2214-109X(19)30122-6
8. Gialama F, Saridi M, Prezerakos P, Pollalis Y, Contiades X, Souliotis K. The implementation process of the Workload Indicators Staffing Need (WISN) method by WHO in determining midwifery staff requirements in Greek Hospitals; 2019. DOI: https://doi.org/10.18332/ejm/100559
9. Ernawati NLAK, Nursalam N, Djuari L. The real need of nurses based on Workload Indicator Staff Need (WISN). *Jurnal Ners*. Faculty of Nursing Universitas Airlangga in

- Collaboration with Indonesian National Nurses Association. 2011;6(1). Available:<http://dx.doi.org/10.20473/jn.v6i1.3970>
10. Haryanto E, Sekarwana N, Somantri I. Work load analysis of implementing nurses at room medical surgery rsud cibabat cimahi. *KnE Life Sciences*. 2019;726–36. DOI: 10.18502/kls.v4i13.5331
 11. Nayebi AB, Mohebbifar R, Azimian J, Rafiei S. Estimating nursing staff requirement in an emergency department of a general training hospital: Application of Workload Indicators of Staffing Need (WISN). *International Journal of Healthcare Management*. 2019;12(1):54–9. Available:<https://doi.org/10.1080/20479700.2017.1390182>
 12. Mann R, Williams J. Standards in medical record keeping. *Clinical Medicine*. 2003;3(4):329. DOI: 10.7861/clinmedicine.3-4-329
 13. Rosalin S. *Manajemen arsip dinamis*. Universitas Brawijaya Press, Malang; 2017. ISBN: 978-602-432-369-1
 14. Yu B, Wijesekera D, Costa PCG. Informed consent in electronic medical record systems. In: *Healthcare Ethics and Training: Concepts, Methodologies, Tools, and Applications*. IGI Global. 2017;1029–49. Available:<https://doi.org/10.4018/IJRQEH.2015010103>
 15. Oktoriani EN, Sutrisno J, Mayasari E, Sodik MA. Analysis of medical record complete flexibility to complete claims of health BPJS RS Baptis Kota Batu. *Journal of Global Research in Public Health*. 2018;3(1):46–53. Corpus ID: 86645617
 16. Rizki F, Noor NB, Mangilep AUA. Description of health employees knowledge regarding the completion of medical records in inpatient installation unit at Stella Maris Hospital in Makassar. *Enfermería Clínica*. 2020;30:22–6. DOI: 10.1016/j.enfcli.2019.07.020
 17. Greiver M, Barnsley J, Glazier RH, Moineddin R, Harvey BJ. Implementation of electronic medical records: Theory-informed qualitative study. *Canadian Family Physician*. 2011;57(10):e390–7. PMID: 21998247 PMCID: PMC3192105
 18. Purnama BE. Distributed data patient in medical record information system. *International Journal of Scientific & Technology Research*;2020. Corpus ID: 18458174
 19. Alam S, Raodhah S, Surahmawati S. Analisis Kebutuhan Tenaga Kesehatan (Paramedis) Berdasarkan Beban Kerja Dengan Menggunakan Metode Workload Indicator Staffing Needs (WISN) di Poliklinik Ass-Syifah UIN Alauddin Makassar. *Al-sihah: The Public Health Science Journal*. 2018;10(2). Available:<https://doi.org/10.24252/as.v10i2.6903>
 20. Indonesia KPANR. Kep.Men.PAN Nomor: KEP/75/M.PAN/7/2004: Pedoman Perhitungan Kebutuhan Pegawai Berdasarkan Beban Kerja dalam Rangka Penyusunan Formasi Pegawai Negeri Sipil (Kep. Men. PAN Nomor: KEP/75/M. PAN/7/2004). Jakarta (ID): Kementerian Pendayagunaan Aparatur Negara; 2004.

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