Eduvest – Journal of Universal Studies
Volume 1 Number 9, September 2021
p- ISSN 2775-3735 e-ISSN 2775-3727

DOCUMENT STORAGE NEEDS ANALYSIS OF MEDICAL RECORD RACK AND SPACIOUS ROOM IN CLINICAL PERTAMEDIKA MAIN HALL

Ervina, Vela Jeriatin
Piksi Ganesha Polytechnic Bandung
E-mail: ervina1306@gmail.com, jeriatinvella@gmail.com

ARTICLE INFO

Received:
August, 26th 2021
Revised:
September, 8th 2021
Approved:
September, 10th 2021

ABSTRACT

Storage rack is one of the hospital equipment that functions to store medical record documents with the availability of medical record document storage racks in accordance with the storage capacity of medical record documents, there will be no buildup of documents on the floor. This study aims to determine the number of shelves needed for storing medical records of patients at the Pertamedika Pendopo Main Clinic in 2021. This research used a quantitative descriptive method by describing the results of the research and comparing it with the theory then conclude it. The study was conducted in June 2021 at the Pertamedika Pendopo Main Clinic. The population and sample used are storage shelves and all patient medical record documents. The instruments used in data collection include observation and interviews. The results of this study indicate that the number of visits of all patients at the Pertamedika Pendopo Main Clinic in 2020 was 5,197. The number of storage shelves needed at the Pertamedika Pendopo Main Clinic in 2021 amounted to 35 storage shelves with a length of 103 cm and a height of 224 cm. And the amount of space needed to accommodate 35 storage racks with a space between 90 cm and a distance of 150 cm is a room area of 157.59M ^ 2 with a length of 15.3 m and a width of 10.3 m. So that the shelf needed can be fulfilled and can accommodate all the patient's medical record documents systematically and does not complicate the

How to cite: Ervina, Vela Jeriatin. (2021) Document Storage Needs Analysis of Medical Record Rack and Spacious Room in Clinical Pertamedika Main Hall. Journal Eduvest. *1*(9): 832-840
E-ISSN: 2775-3727
Published by: https://greenpublisher.co.id/

officer in the process of storing and searching the patient's medical record document.

KEYWORDS Outpatient, Medical Records, Storage Racks, Room Area.

INTRODUCTION

Medical records that have been filled by health care providers will then be processed into reports and will then be stored into storage or filling rooms (Puspaningsih, 2018). As for the purpose of storing medical records documents according to (Suhartina, 2019) namely: (1) Facilitate and accelerate the rediscovery of medical records documents stored in the filling rack; (2) Easily retrieve from storage; (3) Facilitate the retrieval of medical records documents; (4) Protect medical records from the dangers of theft, the danger of chemical and biological physical damage.

Filling is the activity of structuring or storing medical records documents to facilitate retrieval (Rustiyanto & Rahayu, 2011). Medical records are stored in storage shelves to maintain confidentiality, avoid damage and make it easier for officers to take and return medical records (Hutauruk & Zega, 2020). In order for the service to be effective and efficient, it is necessary to plan the needs of sufficient storage shelves to store the patient's medical records within a certain time for future examination and facilitate retrieval by officers (Puspaningsih, 2018). Based on the description above, I am interested in lifting the title "Analysis of The Needs of Medical Record Document Storage Racks and Room Area in Pertamedika Pendopo Main Clinic in 2021".

RESEARCH METHOD

The type of research design used is quantitative research using a descriptive approach. Quantitative research method is a research method that tests certain theories by examining the relationship between variables or describing these variables quantitatively with statistical methods (Antwi & Hamza, 2015).

The population in this study were all patient medical record documents in the main clinic filling section of Pertamedika Pendopo in 2019 - 2020 which amounted to 6082 medical record documents (Zafar et al., 2013). While the sample in this study is the medical record document for 2019 - 2020 which was taken using the stratified random sampling technique or stratified random sampling because the heterogeneous characteristic population element has a significant meaning in achieving the research objectives the number of samples is obtained from the results of calculations using the formula slovin with an error tolerance limit of 10%, from the formula the results obtained are 98 medical record documents using the slovin formula (Hassan et al., 2017).

Sources of data in this study consisted of two types of data, namely primary data and secondary data. Primary data were obtained from interviews and direct observations in the field by measuring storage racks and medical record documents (Awang, 2012), while secondary data obtained the number of outpatient and inpatient visits in 2019-2020.

RESULT AND DISCUSSION

To analyze the need for a document rack based on the addition of medical record

documents in the filling section of the Pertamedika Pendopo Main Clinic in 2020, the researchers took data from the medical record document as follows:

1. Average number of outpatients and inpatients

Table 1 Number of Outpatient and Inpatient Visits at the Main Clinic of Pertamedika Pendopo

Year of Visit	Number of Medical Record Documents
2019	885
2020	5.197
Quantity	6.082

From the table of outpatient and inpatient visits in 2019 – 2020, it is known that the number of patient visits is 6,082 patients.

2. Thickness of medical record documents

From the table of the thickness of the medical record documents for new outpatients and inpatients in 2020, which amounted to 98 medical record documents, the average thickness of the medical record documents was 1.1 cm. With the following calculation: The total number of medical record documents = 98 documents. Medical record documents size:

5 mm = 35 document
10 mm = 30 document
15 mm = 13 document
20 mm = 14 document
25 mm = 2 document
30 mm = 4 document

Then: 5mm × 35 = 175 mm
10 mm × 30 = 300 mm
15 mm × 13 = 195 mm
20 mm × 14 = 280 mm
25 mm × 2 = 50 mm
30 mm × 4 = 120 mm +
= 1120 mm
= 112 cm

Therefore the size of the thickness of the document which amounts to 98 documents is 112 cm. To find the average thickness of medical record documents using the following formula:

X= Total thickness of medical records ($\boldsymbol{cm}$)
Number of medical record documents
= 112
98
= 1,1 cm

From the calculation above, the thickness of the patient's medical record document that was taken into the sample was 1.1 cm.

3. Number of Medical Record Documents

Table 2. Number of Outpatient and Inpatient Visits at the main Clinic of Pertamedika Pendopo in 2019 – 2020.

No	Patient	Number of Patients	Percentage
1	Outpatient	4.813	79%
2	Inpatient	1.269	21%
Total		6.082	100%

Based on table 2 above, which is obtained from the documentation obtained from reporting sources, it is known that the description of each number of medical record documents is for outpatients totaling 4,813 patients, inpatients totaling 1,269 patients. So the number of medical record documents per year amounted to 6,082 patients. Based on Figure 2 above, it is obtained from observations obtained from the source of the medical record unit filling section, the length of the medical record document is 35cm, the width of the medical record document is 24cm, and the average thickness of the medical record document is 1.1cm.

4. Number of Storage Racks

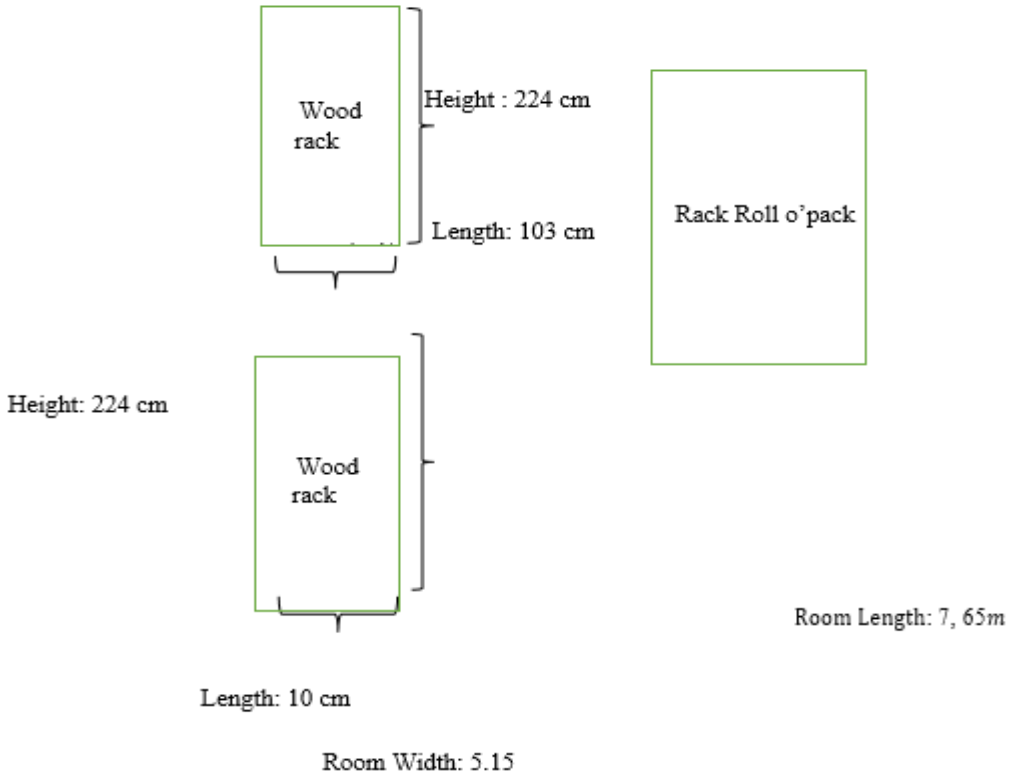
Based on the results of observations made in the medical record document storage room, the Pertamedika Pendopo Main Clinic currently has 1 roll o'pack rack and 2 shelves consisting of 20 sub shelves. The storage rack is full and thus hampers medical record officers in searching for medical record documents, rediscovery of medical record documents, the occurrence of errors in the rediscovery of medical record documents (Agrawal & Prabakaran, 2020). The following is a picture of a medical record document storage rack and the size of the shelf as follows:

Figure 1. Medical Record Document Storage Rack

Table 3. Medical Record Document Storage Rack Measurement Data

Storage Rack	Size
Average Shelf Length	103 cm
Average Sub Shelf Length	50 cm
Shelf Width	47 cm
Sub Rack Width	47 cm
Average Shelf Height	224 cm
Sub Rack Height	47 cm
Number of Shelves	2 Racks
Number of Sub Racks	20 Sub Racks
Average Distance Between Racks	90 cm

Sketch of the Storage Rack in the Filling Room of the Siti Fatimah Regional General Hospital, South Sumatra Province as below:



Based on the results of the shelves measurements in the filling section of the Main Clinic of Pertamedika Pendopo, the length and height of the total shelf length is 206 cm with an average shelf length of 103 cm and the overall shelf height is 448 cm with an average shelf height of 224 cm. Based on the percentage results and documentation to calculate the prediction of storage shelf needs in accordance with the increase in medical record documents in the filling section of the Pertamedika Pendopo Main Clinic in 2019 - 2020, it is obtained through a formula by determining the number of storage racks needed for medical record documents (Prihadi, Senjaya, & Santika, 2021).

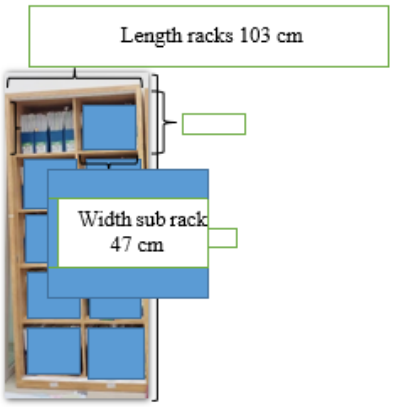


Figure 2. Size of Medical Record Document Storage Rack.

5. Spacious Storage Space

Based on observations at the Pertamedika Pendopo Main Clinic in the filling section, it has a room area of 39.40 m² with a length of 7.65 m and a width of 5.15 m and a traffic distance of 150 cm, with a distance between shelves of 90 cm. The filling room is still spacious due to the lack of storage racks. From these results, the filling room is in accordance with the standard (Seo & Mazumdar, 2011).

Discussion

Based on the results of the study, the results were obtained to calculate the need for storage racks for medical record documents in the filling section of the Main Clinic of Pertamedika Pendopo in 2020 with the following indicators:

1. Average Patient Visits

Every day the number of patients continues to grow and the medical record documents also increase along with the increase in the number of patients (Hussain, Ariyachandra, & Frolick, 2016). The more new patients who come for treatment to the clinic, the more the number of medical record documents in the storage rack will increase. In accordance with the results of research at the Pertamedika Pendopo Main Clinic, the thickness of the 98 medical record documents is 112 cm. With an average thickness of 1.1 cm medical record documents, so the addition of medical record documents will affect the storage shelves, because every day the patient continues to grow, the number and thickness of medical record documents will increase according to the number of patients who come for treatment at the Main Clinic of Pertamedika Pendopo. Average Thickness of Medical Record Documents (Martínez-García et al., 2013).

The thickness of the medical record document will continue to increase every day along with the increasing number of patients seeking treatment at the hospital (Adabi et al., 2017). The more new patients who come for treatment to the hospital, the more the number of medical record documents in the storage rack will increase (Liu, 2016). In accordance with the results of research at the Pertamedika Pendopo Main Clinic, the thickness of the 98 medical record documents is 112 cm. With the average size for one medical record document is 1.1 cm. With an average thickness of 1.1 cm medical record documents, so the addition of medical record documents will affect the storage shelves, because every day the patient continues to grow, the number and thickness of medical

record documents will increase according to the number of patients who come fortreatment at the Main Clinic of Pertamedika Pendopo.

2. Number of Medical Record Documents

Based on the results of observations in the storage room of the Main Clinic of Pertamedika Pendopo, there were 4,813 outpatient visits and 1269 inpatient visits with 6082 patient visits. From the calculation results, that to accommodate storage shelves with outpatient visits 4813 and the average document thickness of 1.1 cm is 112 cm. By looking at the increasing number of medical record documents each year, the clinic must pay attention to the addition of filling racks so that the medical record documents are confidential.

3. Number of Storage Racks

The number of storage racks at the Pertamedika Pendopo Main Clinic is 1 roll o'pack rack and 2 shelves with 20 sub shelves, this is the calculation of the number of additional medical record documents more than the current number of storage racks. Based on the percentage results and documentation to calculate the prediction of storage shelf needs based on the increase in medical record documents in the filling section of the Pertamedika Pendopo Main Clinic in 2019 - 2020, it is obtained through a formula by determining the number of storage racks needed for medical record documents.

According to the International Federation of Health Record Organization (IFHRO) in Hidayat (2016) the method of calculating the number of medical records is as follows:

$$\text{Required shelves} = \frac{\text{Medical record file within 2 years}}{\text{Medical record files in 1 racks}}$$

$$= \frac{6082}{2000} = 3{,}041 \text{ rounded up } 3.$$

Added shelves = Required shelves – Existing shelves
= 3 – 2
= 1

According to Irfan Wahyudi (2019) the formula for calculating the results of adding sub shelves is as follows:

$$\text{Result of adding sub rack} = \frac{\text{Number of sub racks}}{\text{Rack addition}}$$

$$= \frac{20}{1} = \textbf{20 Sub Rack}$$

Figure 3. Method of calculating the number of medical records

Therefore the number of shelves needed does not take into account depreciation because until now the Main Clinic of Pertamedika Pendopo has never done shrinkage of medical record documents.

4. Room Size

Based on observations at the Pertamedika Pendopo Main Clinic in the filling

section, it has a room area of 39.40*M*2 with a length of 7.65 m and a width of 5.15 m and a traffic distance of 150 cm, with a distance between shelves of 90 cm. The filling room is still spacious due to the lack of storage racks. From these results, the filling room is in accordance with the standard.

CONCLUSSION

From the results of research conducted at the Main Clinic of Pertamedika Pendopo and a discussion of the analysis of the need for storage racks for medical record documents in 2020 using 98 samples of medical record documents, the Main Clinic of Pertamedika Pendopo does require additional storage shelves.

There are 3 factors that affect the fulfillment of storage shelves, namely the number of medical record documents, storage shelves, and room area. From the calculation of the number of medical record documents at the Siti Fatimah Regional General Hospital, South Sumatra Province, the number of document racks currently available is 2 document racks and 1 roll o'pack rack. The average size of the patient's medical record document thickness at the Siti Fatimah Regional General Hospital Palembang is 1.1 cm. The number of storage shelves needed at the Siti Fatimah Regional General Hospital, South Sumatra Province in 2020 is 3 storage shelves with a length of 103 cm and a shelf height of 224 cm. The amount of space needed to accommodate 3 storage shelves with a distance between shelves of 90 cm and a passing distance of 150 cm is 39.40*M*2 room area with a length of 7.65 m and a width of 5.15 m.

REFERENCES

Adabi, Kian, Stern, Carrie S., Weichman, Katie E., Garfein, Evan S., Pothula, Aravind, Draper, Lawrence, & Tepper, Oren M. (2017). Population Health Implications Of Medical Tourism. *Plastic And Reconstructive Surgery*, *140*(1), 66–74.

Agrawal, Raag, & Prabakaran, Sudhakaran. (2020). Big Data In Digital Healthcare: Lessons Learnt And Recommendations For General Practice. *Heredity*, *124*(4), 525–534.

Antwi, Stephen Kwadwo, & Hamza, Kasim. (2015). Qualitative And Quantitative Research Paradigms In Business Research: A Philosophical Reflection. *European Journal Of Business And Management*, *7*(3), 217–225.

Awang, Zainudin. (2012). *Research Methodology And Data Analysis Second Edition*. Malaysia: Uitm Press.

Hassan, U., Ghonge, T., Reddy Jr, B., Patel, M., Rappleye, M., Taneja, I., Tanna, A., Healey, R., Manusry, N., & Price, Zachary. (2017). A Point-Of-Care Microfluidic Biochip For Quantification Of Cd64 Expression From Whole Blood For Sepsis Stratification. *Nature Communications*, *8*(1), 1–12.

Hussain, Sadath, Ariyachandra, Thilini, & Frolick, Mark. (2016). Patient Healthcare Smart Card System: A Unified Medical Record For Access And Analytics. *Proc. Conf. Inf. Syst. Appl. Res*, *2167*, 1508. Jakarta.

Hutauruk, Puput Melati, & Zega, Fince Rahmat. (2020). Analisis Luas Ruangan Berdasarkan Kebutuhan Rak Di Ruang Penyimpanan Berkas Rekam Medis Rawat Jalan Di Rumah Sakit Umum Madani Medan Tahun 2019. *Jurnal Ilmiah Perekam Dan Informasi Kesehatan Imelda (Jipiki)*, *5*(1), 20–29.

Liu, Paul Tak Shing. (2016). Medical Record System Using Blockchain, Big Data And Tokenization. *International Conference On Information And Communications Security*, 254–261. China: Springer.

Martínez-García, Miguel Angel, De La Rosa Carrillo, David, Soler-Cataluña, Juan Jose,

Donat-Sanz, Yolanda, Serra, Pablo Catalán, Lerma, Marco Agramunt, Ballestín, Javier, Sánchez, Irene Valero, Selma Ferrer, Maria Jose, & Dalfo, Anna Roma. (2013). Prognostic Value Of Bronchiectasis In Patients With Moderate-To-Severe Chronic Obstructive Pulmonary Disease. *American Journal Of Respiratory And Critical Care Medicine*, *187*(8), 823–831.

Prihadi, M. Dana, Senjaya, Teguh Redy, & Santika, Laras Ayu. (2021). Analysis Of Labor Requirement Provision Of Medical Record Document Based On Wisn To Effectivity Of Medical Record Distribution Service To Polyclinic. *International Conference On Business And Engineering Management (Icbem 2021)*, 12–17. China: Atlantis Press.

Puspaningsih, Nurhana. (2018). *Gambaran Kebutuhan Rak Rekam Medis Di Rumah Sakit Tk. Ii 04. 05. 01 Dr. Soedjono Magelang Tahun 2018*.

Rustiyanto, Ery, & Rahayu, Warih Ambar. (2011). Manajemen Filing Dokumen Rekam Medis Dan Informasi Kesehatan. *Yogyakarta: Politeknik Kesehatan Permata Indonesia*.

Seo, Yoon Kyoung, & Mazumdar, Sanjoy. (2011). Feeling At Home: Korean Americans In Senior Public Housing. *Journal Of Aging Studies*, *25*(3), 233–242.

Suhartina, Ina. (2019). Analisis Efektivitas Sop Pelaksanaan Penyimpanan Berkas Rekam Medis Di Puskesmas Lawang. *Jurnal Manajemen Informasi Kesehatan Indonesia (Jmiki)*, *7*(2), 128.

Zafar, S. Yousuf, Peppercorn, Jeffrey M., Schrag, Deborah, Taylor, Donald H., Goetzinger, Amy M., Zhong, Xiaoyin, & Abernethy, Amy P. (2013). The Financial Toxicity Of Cancer Treatment: A Pilot Study Assessing Out-Of-Pocket Expenses And The Insured Cancer Patient's Experience. *The Oncologist*, *18*(4), 381.