



The Calculation of The Need for Medical Record Personnel Based on The Full-Time Equivalent Method in The Outpatient Registration Department of Public Health Center

Sapto Adi¹, Dian Mawarni², Siti Istiqomah³ ✉

¹⁻³ Universitas Negeri Malang, Indonesia

✉ sitiistiqomah.2498@gmail.com, Phone: +6287789590800

Received: 4 November 2020/Accepted: 20 January 2021/Published Online: 28 February 2021

© This Journal is an open-access under the CC-BY-SA License

Abstract

Public health center X is one of the public health center with high outpatient loads in Malang City. On average, the daily amount of outpatients is 119. The high load of outpatient directly affects employee's working load. One of the units considered susceptible to working load increase is the medical record unit at the registration department because they have to interact with all visiting patients. The study aimed to discover the need for medical record personnel at the outpatient registration department of public health center X using the Full-Time Equivalent (FTE) method. The study used a descriptive study design and a quantitative approach. The researchers utilized a total sampling technique with two medical record personnel at the outpatient registration department. The study instrument employed was the outpatient registration daily log of Public health center X. The study results show that the working load of medical record personnel at the BPJS patient registration department had an FTE index value of $2.24 > 1.28$, categorized as overload. Meanwhile, medical record personnel at the non-BPJS patient registration department had an FTE index value of $0.96 < 0.99$, categorized as underload. Therefore, it can be concluded that Public health center X requires two additional medical record personnel at the BPJS patient registration department, while the non-BPJS patient registration department did not require additional medical record personnel.

Keywords: Medical Record Personnel; Full-Time Equivalent Method

INTRODUCTION

Public health center X is one of the public health center with a relatively high load outpatient visit in Malang City from 2017 to 2019 (Public health center X, 2019). The average daily outpatient visit is 119. The high load of patient visits directly influences employee's working load, including medical record personnel at the patient registration department that is considered susceptible since they interact in person with all patients (Lestari.T, 2014). An excessive working load may cause working stress, both in physical and psychological aspects and emotional reactions. In contrast, the lack of working load or the presence of motion repetition causes boredom that leads to the lack of attention to work, which potentially endangers the workers (Manuaba, 2000).

The working load level should balance the number of medical record personnel to avoid negative effects on the working performance decline of medical record personnel at the patient registration and satisfaction department (Sari. A & Rahyuda, 2019). Based on Siyoto and Pribadi's (2016) study, the impact of medical record personnel deficiency at Hospital Y was the failure to achieve the minimum service standard following the Indonesian Ministry of Health regulation.

Working performance decline of medical record personnel at the outpatient registration department of Public health center X could be observed in the failure to achieve the completeness value target of medical record data, which only achieved 81% from the actual 100% target.

Furthermore, the outpatient medical record provision value under ten minutes only achieved 62% from the actual 100% target (Public health center X, 2018). Based on the analysis conducted in Public health center X, it was due to the lack of medical record personnel at the registration department because there was no additional personnel from Public health center X's proposal in 2018. Another factor was the manual information system used by public health center. Hence, the registration, data processing, and reporting processes required a long time compared to other public health center that used computerized and internet-based information systems.

Therefore, the researchers were interested in conducting a study titled "The Calculation of the Need for Medical Record Personnel Based on the Full-Time Equivalent (FTE) Method at the Outpatient Registration Department of Public health center X."

METHOD

The study design was descriptive with a quantitative approach. The study was carried out at Public health center X from April to July 2020. The sampling technique used was total sampling, i.e., two medical record personnel at the outpatient registration department of Public health center X.

1. Tools and Instruments

The study utilized various tools, such as stationery, stopwatch, and study instrument. The study instrument was the medical record personnel daily log at the outpatient registration department of Public health center X, containing information regarding all registration activities of BPJS and non-BPJS patients. Daily log activities were collected from the researchers' observation on medical record personnel's activities during the registration process that was reconfirmed to the medical record personnel at the registration department to ensure all data were complete.

2. Procedure

This study stage was initiated by arranging the daily log instrument, collecting data using the observation method, and recording registration activities' duration according to the daily log. These results were then processed using the Full-Time Equivalent (FTE) method and continued with the describing stage of results and discussion by the researchers.

The study was declared ethical with a registration number of 885/KEP-POLKESMA/2020 by the Health Research Ethics Commission of Politeknik Kesehatan Kemenkes Malang and was free of plagiarism by the plagiarism team of Universitas Negeri Malang using the Turnitin system.

RESULT AND DISCUSSION

The Calculation of the Need for Medical Record Personnel at the Registration Department using the Full-Time Equivalent Method

BPPSDMK states that there is no minimum amount of medical record personnel at public health center. However, the amount should be adjusted to the Public health center requirements (BPPSDMK, 2017). Factors influencing the need for medical record personnel in a public health center are the type of healthcare service institution, the number of visits, and medical record personnel's working hours.

Hence, the government stipulated the calculation of the need for medical record personnel according to their working load so that public health center can propose the need for human healthcare resources (SDMK) regulated in the Regulation of the Indonesian Ministry of Health Number 33 of 2015 on the Healthcare Human Resource Requirement Planning Arrangement Guideline. One of the calculation methods for SDMK based on the working load is Full-Time Equivalent (FTE).

The Full-Time Equivalent (FTE) method measures employees' working loads and needs in general, including medical personnel needs (Oashttamadea, 2020). Moreover, the need for medical personnel is obtained by converting the FTE index value generated from the Full-Time Equivalent (FTE) method calculation (Dewanto, 2014).

The Full-Time Equivalent value is categorized into three assessments (Dewi & Satrya, 2012):

Table 1 Category of the Full-Time Equipment (FTE) Index Value

Volume	Criteria	Note
0 - 0,99	Underload	The working load is under the minimum working capability of employees.
1 – 1,28	Inload	The working load suits the employee's working capability.
> 1,28	Overload	The working load is over the minimum working capability of employees.

Source: State Civil Service Agency, 2010

The number of FTE index value obtained was then used to determine the number of required personnel. The FTE index value of > 1.28 means two personnel are required, while the FTE index of > 2.0 means three personnel are required (Wardanis, 2018).

The following is the steps to calculate the need for medical record personnel in the patient registration department using the FTE method (Lestari. P & Rohmadi, 2014):

1. Making Daily Log of Medical Record Personnel at the Outpatient Registration Department

A daily log is the arrangement of patient registration activities, starting from the officer calling the patient according to the serial number until the personnel delivers the Medical Record Document (MRD) to the destination polyclinic. The daily log in

this study was arranged based on the flow review of patient registration services at Public health center X. Daily log was arranged to ease the researchers to calculate the normal time standard.

The outpatient registration flow at Public health center X is divided into two flows, i.e., BPJS and non-BPJS patient registration, then divided into new and old patient registration. The number of daily log activities in new BPJS patients was 11, while old BPJS patients were 10. Meanwhile, daily log activities for new non-BPJS patients were 10, and old non-BPJS patients were 7.

The difference in each registration flow activity was because new patients, both in BPJS and non-BPJS groups, should conduct a medical record registration activity and create a Medical Clearance Card (KIB). However, the registration flow of old patients, both in BPJS and non-BPJS groups, did not oblige patients to conduct a medical record registration activity nor create a Medical Clearance Card (KIB). In contrast to the patient's new status or duration, the difference in the flow of BPJS and non-BPJS patients was that data entry activities in the PCare application were only carried out in the BPJS patient registration flow.

Based on the description of the distribution and patient registration activities used as a daily log or research instrument, it can be said that Public health center X already has a fixed service flow for patient registration. The registration flow is following the medical record teaching material documents and health information issued by the Ministry of Health regarding the flow and stages of outpatient registration services (BPPSDMK, 2017).

2. Calculation of the Normal Time Standard for Medical Record Personnel at the Outpatient Registration Department

The researchers calculated the normal time standard based on the average daily log completion

time with data collection following the standard of level 5% degree of accuracy. The normal time standard calculation results for new BPJS patients were 434.75 seconds per patient and 261.1 seconds per patient in old BPJS patients. Meanwhile, the normal time standard calculation results for new non-BPJS were 373.33 seconds per patient and 197.4 seconds per patient in old non-BPJS patients.

The above calculations show that the normal standard time required to register new BPJS patients was longer than the registration time for other patients. This difference occurred because the BPJS new patient registration flow had a greater number of activities than other patient registration activities (Fanny et al., 2018).

3. Calculation of Personal Fatigue Delight (PFD)

Personal Fatigue Delight (PFD) is a stipulated allowance time of 15% of the length of time to complete an activity. The calculation of PFD is carried out according to the formula:

$$\text{PFD} = 15\% \times \text{normal time standard}$$

The researchers generated the new BPJS patient PFD value of 65.21 seconds and 39.16 seconds for the old patient value based on the calculation results. Furthermore, new non-BPJS patients had a PFD value of 55.99 seconds, while old patients had a value of 29.61 seconds. The PFD value calculation results show that the longest PFD value was in the daily log activities of new BPJS patient registration, while the lowest PFD value was in the daily log activities of old non-BPJS patient registration. It happened because the greater the normal time standard value, the longer the PFD value for each activity (Sugiyanto & Widodo, 2017). PFD is calculated to determine the level of fatigue of officers in carrying out registration tasks. Besides, the calculation of PFD was carried out to facilitate personnel to reduce fatigue by stretching muscles, eating, drinking, and other activities to support more

effective patient registration activities.

4. Calculation of Working Time Standard (SWK)

Working time standard is the number of normal time plus each personnel's PFD value. Hence, the SWK of medical record personnel at the BPJS registration department was 6.66 minutes and 5.46 for medical record personnel at the non-BPJS registration department. The calculation results demonstrate that the SWK values of BPJS and non-BPJS patient registration departments followed the Regulation of the Indonesian Ministry of Health Number 129 of 2008 concerning the Minimal Service Standard on the outpatient medical record document provision time under 10 minutes for each patient (Kemenkes RI, 2008). Besides, the SWK calculation results above also show an increase in the medical record personnel's performance in the patient registration section of Public health center X because previously, in 2018, they had not been able to achieve the target of providing medical record documents in less than 10 minutes.

The achievement improvement of medical record personnel was due to the addition of medical record personnel from the previous one personnel to two. Another supporting factor was the renovation of medical record document storage arranged according to the medical record serial number, facilitating the personnel to search medical record documents. Also, this increase in performance occurred because the distance was close between the registration, filling, and polyclinic sites, so that it did not take more than one minute.

5. Calculation of Hourly Patient Target

The hourly patient target resulted from one hour (60 minutes) divided by each patient's SWK. Thus, the medical record personnel target at the BPJS patient registration department was nine patients, while the non-BPJS registration was 11 patients. The patient target calculation aims to determine the

medical record personnel's speed in completing the patient registration task.

The number of targets that can be served each hour depends on the length of the standard working time for each activity. The longer the SWK of activity, the fewer target patients will be served per hour. It also applied in predicting the need for medical personnel at the outpatient registration department based on the FTE method at the RSUD Surakarta City in 2014, which resulted in an Askes patient hourly target of 10 patients with an SWK of 6.25 minutes. Meanwhile, the non-Askes patient hourly working target was 12 patients with an SWK of 5.03 minutes (Lestari. P & Rohmadi, 2014).

6. Calculation of Annual Working Hour

Table 2 Fundamental Data of Public health center X

Factor	Frequency
Annual working days	321 days
Annual leave for one year	12 days
Education and training in one year	6 days
Holidays in one year	15 days
Annual absence	0
Daily working hours	4 jam

Source: Study's Primary Data

Table 2 shows the annual working hour obtained with the following formula:

$$\begin{aligned} \text{Working Hour} &= \{(A-B+C+D+E) \times F\} \\ &= \{(321-12+6+15+0) \times 4\} \\ &= 1.152 \text{ jam per year} \end{aligned}$$

Medical record personnel working at the patient registration department had a working hour of 1,152 in a year. Medical record personnel at Public health center X had four working hours to conduct patient registration services, and the remaining four hours were used to code, record, and create medical record reports. The length of work time is also considered good because it is under Law Number 13 of 2003 concerning Labor, which states that a

person's effective working time at work has a length of 7 to 8 hours per day (UU RI, 2003). Besides, this working hour also show that Public health center X had an effective working hour following Ilyas' statement where one's working hour is considered effective if it lasts for six to eight hours per day, while the remaining hours are used for personal matters (Yovita et al., 2019)

7. Calculation of Working Load

a. Working load prediction of medical record personnel at the BPJS patient registration department of 2020

Table 3 BPJS Patient Visits in 2017, 2018 and 2019

Year	Y	x	xY	x ²	
1	2017	13.527	1	13.527	1
2	2018	16.284	0	0	0
3	2019	20.095	-1	-20.095	1
Total		49.906	0	-6.568	2

Sumber: Laporan Public health center X

$$\begin{aligned} a &= \text{the number of } Y/n & b &= \text{the number of } xY/x^2 \\ &= 49.906/3 & &= -6.568/2 \\ &= 16.635 & &= -3.284 \end{aligned}$$

$$\begin{aligned} Y &= a + bx \\ &= 16.635 + (-3.284 \times -2) \\ &= 16.635 + 6.568 \\ &= 23.203 \text{ patients in 2020} \end{aligned}$$

Based on the calculation result above, the working load, i.e., BPJS outpatient visits in 2020, was 23,203 patients.

b. Working load prediction of medical record personnel at the non-BPJS patient registration department in 2020

Table 4 Non-BPJS Patient Visits in 2017, 2018 and 2019

Year	Y	x	xY	x ²
2017	18.546	1	18.546	1
2018	19.633	0	0	0

2019	14.334	-1	-14.334	1
Total	52.513	0	4.212	2

Source: Report of Public health center X

$$\begin{aligned}
 a &= \text{the number of } Y/n & b &= \text{the number of } xY/x^2 \\
 &= 52.513/3 & &= 4.212/2 \\
 &= 17.504 & &= 2.106
 \end{aligned}$$

$$\begin{aligned}
 Y &= a + bx \\
 &= 17.504 + (2.106 \times -2) \\
 &= 17.504 + (-4.212) \\
 &= 13.292 \text{ patients in 2020}
 \end{aligned}$$

Based on the calculation result above, the working load, i.e., non-BPJS outpatient visits in 2020, was 13,292 patients.

The difference in the number of visits was because Public health center X had a higher number of visits by outpatient BPJS patients compared to non-BPJS patients in the last three years, i.e., 2017, 2018, and 2019. According to research by Lestari and Rohmadi (2014), there is a relationship between workload and work capacity that is influenced by internal and external factors. In achieving a good level of productivity, it is necessary to balance the workload and the number of workers who do the work. Besides, it is necessary to pay attention to the appropriate placement of each person for their jobs.

8. Calculation of the Need for Medical Record Personnel

a. The need for medical record personnel at the BPJS patient registration department

$$\begin{aligned}
 \text{FTE} &= \frac{\text{Annual working load}}{\text{Hourly target} \times \text{annual working hour}} \\
 &= \frac{23.20}{9 \times 1.152} \\
 &= 2.24 \text{ (3 registration personnel)}
 \end{aligned}$$

Based on the calculation results of the need for medical record personnel at the BPJS patient registration department in 2020, the FTE index value was 2.24, or over 1.28. Therefore, it has an overload

working load with the need for three medical record personnel. Public health center X had one personnel, and thus, requiring two additional personnel. This addition in the registration department aims to accelerate the registration process and reduce the previously high working load (Fanny et al., 2018).

b. The need for medical record personnel at the non-BPJS patient registration department

$$\begin{aligned}
 \text{FTE} &= \frac{\text{Annual working load}}{\text{Hourly target} \times \text{annual working hour}} \\
 &= \frac{13.292}{12 \times 1.152} \\
 &= 0.96 \text{ (1 registration personnel)}
 \end{aligned}$$

Based on the calculation results of the need for medical record personnel at the non-BPJS patient registration department in 2020, the FTE index value was 0.99, or under 0.96. Therefore, it has an underload working load without the need for more medical record personnel because Public health center X already had one personnel.

The difference in the number of needs for BPJS and non-BPJS medical recorders at Public health center X occurs because there is a difference in the number of BPJS patient registration flow activities, which is more than the number of non-BPJS patient registration flows. Another factor affecting this difference was the patient visit data, where the number of visits by BPJS patients was more than the non-BPJS patients at Public health center X. Besides the number of visits and the duration to complete patient registration, another factor was the patient's forgetting to bring patient registration requirements, thus increasing the duration of the patient registration process (Rahmawati & Rustiyanto, 2016). Other causes of the mismatch in the number of medical record personnel at Public health center X were the manual information system used that prolongs the patient registration process

than other public health center and the absence of training to improve medical record quality personnel.

If it is possible to increase the number of medical record personnel in the registration section, it is hoped that it will also be accompanied by an increase in the Public health center X health information system's quality to switch to using the computer and internet-based information systems. The researchers expect such changes to occur because Public health center X already had its computer devices and self-internet network, allowing modernization in the information system. The healthcare information system upgrade in Public health center X should be supported by training for medical record personnel, particularly in the patient registration department, because Bayu (2015) argues that the patient registration department has a high workload and responsibility. This attempt is expected to reduce the working load of medical record personnel at Public health center X.

CONCLUSION

Based on the study results, it can be concluded that there were an overload and the need for two additional medical record personnel at the BPJS patient registration department. Meanwhile, the non-BPJS patient registration department did not require additional medical record personnel because the available personnel had followed the need.

REFERENCES

- Bayu, S. Analisis Kebutuhan Tenaga Kerja Berdasarkan Beban Kerja di Loker Pendaftaran Rumah Sakit Haji Jakarta Tahun 2015. *Jurnal Kesehatan Masyarakat*.2015.
- BPPSDMK. *Informasi kesehatan II: Sistem dan Sub Sistem Pelayanan RMIK*.2017.
- Dewanto, F. Penerapan Full Time Equivalent dalam Manajemen Sumber Daya Manusia. *Business Lounge Journal*.2014.
- Dewi, U., & Satrya, A. Analisis Kebutuhan Tenaga Kerja Berdasarkan Beban Kerja Karyawan Pada PT PLN Persero Distribusi Jakarta Raya

- dan Tangerang Bidang Sumber Daya Manusia dan Organisasi. *Jurnal Manajemen SDM*.2012.
- Fanny, N., Rahayuningsih, L., & Ulfah, M. Produktivitas Kerja Petugas Rekam Medis Unit Pendaftaran Rawat Jalan Di Rumah Sakit Universitas Sebelas Maret Tahun 2018. *Jurnal Ilmiah Rekam Medis Dan Informatika Kesehatan*.2018.
- Kemenkes RI. *Peraturan Kepmenkes RI Nomor 129 Tahun 2008 Tentang Standar Pelayanan Minimal Public health center*. Menteri Kesehatan RI.2008.
- Lestari, P., & Rohmadi. Prediksi Kebutuhan Tenaga Kerja di Bagian Pendaftaran Pasien Rawat Jalan Berdasarkan Rumus Full Time Equivalent di RSUD Kota Surakarta Tahun 2014. *Jurnal Rekam Medis*.2014:7.
- Lestari, T. Analisis Ketersediaan Tenaga Kesehatan di Public health center Kota Mamuju Provinsi Sulawesi Barat Tahun 2014. *Jurnal DPR RI*.2014; 21, 75–88.
- Oashttamadea, R. Workload Analysis of Medical Record Staff in a Primary Healthcare in Batusangkar Using Full Time Equivalent (FTE) Method. *International Journal of Research and Review*, 7(9).2020.
- Public health center X. *Profil Public health center X Tahun 2018*. Public health center X.2018.
- Public health center X. *Laporan Public health center 2019*. Public health center X.2019.
- Rahmawati, F., & Rustiyanto, F. Analisis Kebutuhan Petugas Rekam Medis Berdasarkan Instalasi Rekam Medis RS Aisyiyah Muntilan. *Jurnal Kesehatan Vokasi*.2016; 1(1).
- Sari, A., & Rahyuda, A. G. The Effect of Work Loads on Job Satisfaction Mediated By Job Stress. *International Journal of Economics and Management Studies*.2019.
- Siyoto, S., & Pribadi, Firstanto. Analisis Implementasi Standar Pelayanan Minimal Rekam Medik dengan Kepuasan Pasien di Poli Kandungan RSIA Puri Galeri Bersalin Kota Malang. *Jurnal Care*.2016;4.
- Sugiyanto, L., & Widodo. Analisis Kebutuhan Tenaga Rekam Medis di Bagian Pendaftaran di Rumah Sakit Umum Daerah Ambarawa. *Jurnal Manajemen Informasi Kesehatan Indonesia* 2017; 2.
- UU RI. *UU Nomor 13 Tahun 2003 tentang ketenagakerjaan*. Presiden Republik Indonesia.2003.
- Wardanis, D. Analisis Beban Kerja Tenaga Rekam Medis Rumah Sakit Bedah Surabaya Menggunakan Metode FTE. *Jurnal Administrasi Kesehatan Indonesia*.2018;6.

Yovita, M., Uswatun, K., & Chairunnisa, R.
Gambaran Waktu Penyediaan Dokumen Rekam
Medis di Public health center Karang Pule Kota
Mataram. *Jurnal Rekam Medis Dan Informasi
Kesehatan*.2019.