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Analysis Of Workforce Requirements Based On Workload Using The Workload Indicator Staff Need (Wisn) In The Casemix Of Emanuel Hospital Banjarnegara In 2025

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Abstract

Workload analysis is a crucial process used to determine the amount of working time required to complete specific tasks within a defined period. In healthcare facilities, particularly in administrative units such as casemix, an imbalance between staffing levels and workload volume can lead to delays in claim processing, reduced accuracy, and disruptions in hospital financial performance. This study aims to analyze workforce requirements in the Casemix Unit of Emanuel Hospital Banjarnegara for the year 2025 using the Workload Indicator of Staff Need (WISN) method. This descriptive qualitative study involved nine casemix staff members selected through total sampling. Data were collected through structured interviews and direct observation of key activities, including coding, grouping, uploading documents, and verification. The WISN method was applied by calculating available working time, workload standards, allowance standards, and the annual volume of main activities. The results indicate that the total workload in the casemix unit is high, requiring an ideal workforce of 12 staff members—4 coders, 3 groupers, 3 uploaders, and 2 verifiers. However, only 9 staff are currently available, resulting in a shortage of 3 workers. This shortage contributes to excessive workloads, extended working hours, and potential delays in BPJS claim processing, which may negatively affect hospital cash flow and service quality. Importantly, this study provides strategic insights for hospital human resource management by offering evidence-based recommendations for staffing allocation. Strengthening human resource planning through WISN can support more efficient workload distribution, improve operational accuracy, and enhance overall service quality within the casemix unit.

Keywords: Analysis, Staffing Needs, WISN

INTRODUCTION

A hospital is a healthcare facility that provides medical assistance to patients in a professional manner. (Averina & Widagda, 2021). Cahyandiar *et al*., (2021) a medical record is an official document containing information about patient identification, health status, diagnosis, treatment, and outcomes of care. It is a collection of documents and information regarding patient data, services provided, medications, care, and other healthcare services received by the patient. (Rika Ruspita dkk, 2022).

The National Health Insurance (JKN) is a component of the National Social Security System (SJSN), implemented through the Social Health Insurance system as stated in Article 40 of the 2004 SJSN law.(Suliantoro, 2022). Khoirunnisa *et al.*, (2024) the increase in population and the improvement of the community's economic conditions have also raised public awareness of health. As a result, the fluctuating number of outpatient visits has become a consideration for hospital management in planning, along with the growing number of facilities and infrastructure in hospitals, as well as the increasing workload of staff.

Residharmini *et al.*, (2023) the increasing number of patients using the National Health Insurance (JKN) at Mangusada Regional Hospital has become a contributing factor to the frequent challenges faced during the service monitoring stage. The large volume of JKN participant data certainly affects the process of BPJS Health claim financing. In addition, there are other additional tasks handled by coding staff, which require them to extend their working

hours by at least two hours per day. In line with this statement Sabran *et al*., (2024) if the number of employees does not meet the demands of the work, it will affect work productivity and impact the quality of hospital healthcare services.

Juli *et al*., (2024) the imbalance between the number of claim files and the available coding staff results in a heavy workload for the coders. The excessive workload leads to fatigue, which in turn causes errors in the claiming process and results in the return of claim files.
Minister of Health Regulation No. 33 of 2015 on Guidelines for Human Resource Planning is one of the methods that can be used to determine the appropriate workload (PERMENKES No. 33 Tahun 2015, 2025). Irmawati Mathar, (2022) The purpose of job analysis is to determine the number of employees needed to support a specific job and the amount of work that can be assigned to each employee. In addition, job analysis is also recognized as an advantage.

Workload Indicator Staff Need (WISN)iIt is a method of assessing the need for Health Human Resources (SDMK) based on the actual work completed in each category for every work unit in healthcare services. (Afriani & Tarisyah, 2022). Workload analysis using the WISN method takes into account various important factors, such as available working hours, workload standards, allowance standards, and factors that affect work productivity. WISN is a method that serves as a guideline for determining the human resource needs in all work units within healthcare facilities (Latifah & Aisatus Saadah, 2023). The Workload Indicator of Staff Need (WISN) is a method developed by the World Health Organization to calculate staffing requirements based on actual workload. The method uses four main components: available working time, workload standards, allowance standards, and the annual volume of core activities. By integrating these elements, WISN produces evidence-based staffing figures that reflect the real demands of a work unit. This method is widely used to improve staffing accuracy and support effective human resource planning in healthcare facilities. The study conducted by Sukma, (2023) analyzed the staffing needs for medical record personnel in the outpatient registration unit at Miriam Lawang Hospital, where the number of patients reached 5,863 in 2021. Based on observations and calculations using the Workload Indicator of Staff Need (WISN) method, the results showed that additional staff were required to optimize services and ensure alignment with job responsibilities. Furthermore, according to the study by Desinta et al., (2024) at "X" Community Health Center using the WISN method, the available working time was found to be 1,988 hours per year, equivalent to 119,280 minutes annually. The main activities in the medical record unit included retrieving files and returning them to storage. The identified workload standard was 318,500 minutes with an allowance standard of approximately 0.09 minutes. Based on these results, the required number of staff was calculated to be one employee. As a recommendation for Community Health Center X, it was suggested to reduce two employees.

Rindiyani *et al.*, (2024) according to the calculations that have been carried out, it is still necessary to optimize the utilization of human resources to improve productivity in an efficient, effective, and minimal way. Excessive workload can affect the effectiveness, services, and productivity of medical record staff. This is supported by the findings of a research study by Tarigan *et al.*,(2023) The impact of workload on employee performance in the BPJS Claim Unit at Sundari General Hospital in 2022 shows that the workload carried by employees currently affects their performance. This occurs because the number of employees in the BPJS Claim Unit is still insufficient, resulting in suboptimal task execution.

Excessive workload at Emanuel Hospital Banjarnegara is caused by the increasing number of patients, which is not matched by an increase in the workforce. This is supported by research conducted by (Ilma Nuria S & Alfita Dewi, 2020) RSIA Siti Hawa it is a Class C private hospital with an increasing number of patients each year; however, this contrasts with the number of employees in the medical record unit, which consists of only four staff members. Excessive

workload without additional workforce can lead to decreased quality and effectiveness. Based on the results of observations, Emanuel Hospital Banjarnegara has 9 casemix staff members, consisting of 2 coding officers, 3 grouping officers, 3 uploading officers, and 1 verification officer. In relation to the problems mentioned above, the researcher intends to conduct a study on workload analysis in the unit entitled "Analysis Of Workforce Requirements Based On Workload Using The Workload Indicator Staff Need (Wisn) In The Casemix Of Emanuel Hospital Banjarnegara In 2025 ". The ultimate goal is to produce recommendations for the ideal number of personnel needed to improve the performance and quality of services in the casemix unit.

RESEARCH METHODS

The type of research in this study is descriptive with a qualitative approach, which describes the object in the form of workload and workforce needs of casemix unit staff at Emanuel Hospital Banjarnegara. The data collection techniques used in this research are observation guidelines and interview guidelines.

RESULTS AND DISCUSSION

RESULTS

1. Determining the Available Working Time in the Casemix Unit of Emanuel Hospital Banjarnegara.

Table 1. Available Working Time in the Casemix Unit of Emanuel Hospital Banjarnegara.

No.	Description	Number
A.	Working day	6 days
B.	Annual leave	12 days
C.	National holiday	17 days
D.	Absenteeism	12 days
E.	Education / Training	2 days
F.	Working hours	7 hours

Source: Interview Results with Casemix Unit Staff

Available Working Time

= {A-(B+C+D+E)xF)
= 312 – (12+17+12+2)x7
= (312 – 43)x 7
= 269 x 7 = 1.883 hours / year = 112.980 minute/ year

Based on the formula above, the available working time for the casemix unit staff at Emanuel Banjarnegara Hospital from the total working days in one year (312 days), after deducting annual leave, national holidays, training, and absences within one year, and multiplying it by the daily working hours in the casemix unit, results in 1,883 hours per person per year and 269 effective working days year.

2. Determining the Workload Standards in the Casemix Unit at Emanuel Hospital Banjarnegara.

Table 2. Workload Standards of the Casemix Unit at Emanuel Hospital Banjarnegara.

Core activities	Job Description	Minute Time	Workload Standard

Coding	1. Outpatient coding	3 minute	37.660
	2. Inpatient coding	10 minute	11.298
		Total	**48.958**
Grouper	1. Input diagnosis	3,5 minute	32.171
	2. Tariff classification CBG	4 minute	28.245
	3. Data checking	4 minute	28.245
		Total	**88.661**
Uploader	1. Scan documents	3 minute	37.660
	2. Upload file to the system BPJS	3 minute	37.660
		Total	**75.320**
Verificator	1. Checking the completeness of documents	3 minute	37.660
	2. Ensuring there are no coding errors or service duplications	5 minute	22.596
	3. Revalidating	3 minute	37.660
		Total	**97.916**

Source: Based on observation results in the casemix unit at Emanuel Hospital.

$$\text{Workload Standard} = \frac{\text{Available Working Time}}{\text{Ttime activity}}$$

Overall Workload Standard = coding+ grouper + uploader + verificator
= 48.958 + 88.661 + 75.320 + 97.916
= 310.855 minute / year

3. Determining the Allowance Standard

Table 3. Allowance Standard of the Casemix Unit at Emanuel Hospital Banjarnegara

No.	Activity	Time Minute	Allowance Standard
1.	Meeting	2 hours / month	0,0127
2.	Daily briefing	35 minute	0,0833
3.	Morning reflection	30 minute	0,0714
		Total	**0,1674**

Source: Based on interview results with Casemix staff.

$$\frac{\text{Average Time} \quad \text{Allowance Factor}}{\text{Available Working Time}}$$

Based on the calculation, it was found that the allowance time, according to the time per allowance factor, resulted in a proportion of 0.1674 minutes per year.

Working hours = 7 hours (with a 25% allowance for morning reflection and briefing)
= 7 − 1.75 = 5.25 hours

4. Determining Workforce Requirements

a. Quantity of Main Activities
   1) Inpatient Documents = 50 documents
      = 50 x 312 days
      = 15.600
   2) Outpatient Documents = 500 documents
      = 500 x 312 days
      = 156.600

Total average number of documents in one year = Inpatient Documents + Outpatient Documents
= 15.600 + 156.600
= 171.600 / year

b. Formula for Workforce Requirements.

$$\frac{\text{Quantity of Main Activities} + \text{Allowance Standard}}{\text{Workload Standards}}$$

Table 4. Workforce Requirements in the Casemix Unit of Emanuel Hospital Banjarnegara

Main Activities	Quantity of Main Activities	Standard Workload	Standard Allowance	Requirements
Coding	171.600	48.958	0,1674	4
Grouper	171.600	88.661	0,1674	3
Uploader	171.600	75.320	0,1674	3
Verificator	171.600	97.916	0,1674	2
Total Overall				**12**

Source: Based on the results of calculations of available working time, workload standards, allowance standards, and the quantity of main activities.

Based on the results of the workforce calculation in the Casemix unit at Emanuel Hospital Banjarnegara, there are currently 9 staff members consisting of 2 coding officers, 3 grouping officers, 3 uploading officers, and 1 verification officer. At present, the Casemix unit has only 2 coding officers and 1 verification officer. Therefore, it is necessary to add 2 more coding officers and 1 additional verification officer. Meanwhile, the number of grouping and uploading officers is sufficient according to the calculation results, so no additional staff is required for those positions.

DISCUSSION

1. Results of Available Working Time Calculation in the Casemix Unit at Emanuel Hospital Banjarnegara
   Based on the study, the calculation results show that the available working time in one year is 269 working days or 1,883 hours per year. Meanwhile, the effective working time, obtained from the average shift per day, is 7 hours. According to the calculation results shown in Table 1, the available working time in the Casemix unit at Emanuel Hospital Banjarnegara is already ideal, namely 1,883 hours or 112,980 minutes per year. At Emanuel Hospital, the number of national holidays in the Casemix unit is determined by the YAKKUM Foundation.
2. Results of Workload Calculation for Casemix Unit Staff at Emanuel Hospital Banjarnegara
   Based on Table 2, the results of observations in the Casemix unit show that the total workload proportion in the unit is 310,855 minutes per year, which indicates a fairly high workload. The length of the standard workload is influenced by the duration of activities carried out by the staff as well as the average time required by them to complete their tasks, such as coding, grouping, uploading, and verification.
3. Results of Allowance Standard Calculation in the Casemix Unit at Emanuel Hospital Banjarnegara
   Based on the results of the allowance standard calculation in Table 3, it is known that the

allowance standard is 0.1674. Meetings, briefings, and morning reflections are routinely conducted; however, their total duration is not significant compared to the total annual working time. As a result, the allowance proportion obtained is relatively low. The portion of time allocated for allowance activities is quite small, making the allowance percentage insignificant in relation to the total working hours. Based on the calculation results, casemix staff experienced a reduction of 1.75 hours of effective working time per day due to routine briefing and morning reflection activities conducted before starting work. Although these activities are beneficial for improving motivation and discipline, they indirectly reduce the time available for task completion. To maintain a balance between workload and effective working time, an additional working duration of approximately 2 hours per day is required.

4. Result of Workforce Requirement Calculation

Based on the calculation of workforce requirements in Table 4 using the Workload Indicator of Staffing Need (WISN) method, the required number of staff is 12. Currently, the Casemix unit at Emanuel Hospital Banjarnegara has only nine staff members, therefore an additional three staff members are needed.

CONCLUSION AND RECOMMENDATIONS

CONCLUSION

Based on the results of the study conducted in the Casemix Unit at Emanuel Hospital Banjarnegara, it can be concluded that:

1. The available working time in the Casemix unit at Emanuel Hospital Banjarnegara in 2025 is 112,980 minutes per year.
2. The standard workload of the staff in the Casemix unit at Emanuel Hospital Banjarnegara in 2025, calculated from the activities carried out by the staff as a whole, is still quite high, amounting to 310,855 minutes year.
3. The allowance standard in the Casemix unit at Emanuel Hospital in 2025 is 0.1674 minutes year.
4. Based on the calculation results using the Workload Indicator of Staffing Need (WISN) formula, the required number of staff is 12; therefore, an additional 3 staff members are needed.

One limitation of this study is that the calculation of human resource requirements using the WISN method depends heavily on workload data from a single period. As a result, the consistency of the human resource requirement figures may be affected by fluctuations in patient visits, variations in document volume, or changes in staff activities throughout the year. Therefore, the staffing numbers produced may not fully represent future conditions if workload patterns shift significantly

RECOMMENDATIONS

1. For Emanuel Hospital Banjarnegara
   a. Based on the calculation results using the Workload Indicator of Staffing Need (WISN) method, the hospital should increase the workforce in the Casemix unit, specifically by adding 2 coding officers and 1 verification officer, in order to prevent excessive workload and to ensure that the BPJS claim process can be completed more quickly and accurately.
   b. Management can use the results of the Workload Indicators of Staffing Need (WISN) calculation as a basis for planning and allocating workforce, ensuring a more balanced distribution of work.
   c. With an adequate number of staff, the hospital can improve the speed of claim processing, reduce the risk of delayed payments, and enhance the hospital's cash flow.

d. The effective working time of casemix staff decreased from 7 hours to approximately 5.25 hours due to allowance time. It is recommended to add approximately 2 hours of working time so that all claim documents can be completed on time.

2. For Future Researchers
   1. The results of this study can serve as a basis for future research with the same discussion and theoretical framework. It is recommended to conduct studies in other work units and to expand the variables used.
   2. This study was conducted using a qualitative method; future research should consider using a quantitative method or combining qualitative and quantitative approaches (Mixed-Method) to provide a more comprehensive picture of the workload conditions.

REFERENCES

Averina, R. Y., & Widagda, I. G. N. J. A. (2021). Analisis Penerapan Rekam Medis Elektronik Terhadap Efisiensi Dan Kualitas Pendaftaran Rawat Jalan Di Rumah Sakit X. *Tjyybjb.Ac.Cn*, *27*(2), 635–637.

Cahyandiar, M. I., Khotimah, S., & Duma, K. (2021). *Jurnal Sains Dan Kesehatan*. *3*(3), 395–403.

Desinta, A., P, R. B. M. T., H, R. P., Falah, F., & P, O. M. (2024). *Analisis Kebutuhan Tenaga Kerja Berdasarkan Beban Kerja Dengan Metode Workload Indicator Of Staffing Need (Wisn) Unit Rekam Medis Di Puskesmas " X ." 2*(1), 25–31.

Ilma Nuria S & Alfita Dewi. (2020). Analisis Kebutuhan Tenaga Kerja Berdasarkan Beban Kerja Unit Rekam Medis Rsia Siti Hawa Padang. *Syedza Saintika*, 57–58. Https://Jurnal.Syedzasaintika.Ac.Id/Index.Php/Psnsys

Irmawati Mathar[1], A. K. (2022). *Analisis Kebutuhan Sdm Kesehatan Berdasarkan Metode Wisn (Workload Indicator Staffing Need) Di Unit Kerja Rekam Medis Rsud Kota Madiun Stikes Bhakti Husada Mulia Madiun , Indonesia Menurut Permenkes Nomor 4 Tahun 2018 Tentang Kewajiban Rumah Sakit Dan K*. *02*, 30–40.

Juli, D., Lestari, E., Chalidyanto, D., & Rakhmawati, R. (2024). *Analisis Kebutuhan Jumlah Petugas Koding Bpjs Dengan Metode Analisis Beban Kerja Kesehatan Di Rumah Sakit Umum Haji Surabaya Analysis Of The Need For The Number Of Bpjs Coding Officers Using The Health Workload Analysis Method At The Haji Surabaya General*. 362–369.

Khoirunnisa, N., Tasikmalaya, P. K., & Rmik, P. S. (2024). *Media Informasi Prediksi Jumlah Serta Faktor Yang Dapat Memengaruhi Kunjungan Pasien Rawat Jalan Di Rumah Sakit Sumber Kasih Kota Cirebon Tahun 2023*. *20*, 43–50.

Latifah, U., & Aisatus Saadah, A. (2023). Analisis Beban Kerja Petugas Admisi Rawat Jalan Dengan Menggunakan Metode Work Load Indicator Staff Need Di Rumah Sakit Umum Daerah Sidoarjo. *Jk: Jurnal Kesehatan*, *1*(5), 693–703.

Permenkes No. 33 Tahun 2015. (2025). Peraturan Menteri Kesehatan Republik Indonesia Nomor 33 Tahun 2015. *Sustainability (Switzerland)*, *11*(1), 1–14. Https://Pubmed.Ncbi.Nlm.Nih.Gov/28459981/%0ahttps://Doi.Org/10.1016/J.Resenv.2025.

100208%0ahttp://Scioteca.Caf.Com/Bitstream/Handle/123456789/1091/Red2017-Eng-8ene.Pdf?Sequence=12&Isallowed=Y%0ahttp://Dx.Doi.Org/10.1016/J.Regsciurbeco.2008.06.005%0ahttps:

Residharmini, G. A. P., Maba, I. W., & Wiryawan, I. W. G. (2023). Analisis Beban Kerja Dan Kebutuhan Tenaga Koding Data Klaim Jaminan Kesehatan Nasional Di Instalasi Penjaminan Rsd Mangusada Kabupaten Badung. *Briliant: Jurnal Riset Dan Konseptual*, *8*(4), 962. Https://Doi.Org/10.28926/Briliant.V8i4.1331

Rika Ruspita Dkk. (2022). *Abdimas Universal*. *4*(1), 45–48.

Rindiyani, F. D., Fauzi, H., & Sari, A. A. (2024). *Indonesian Journal Of Health Information Management (Ijhim) Vol . 4 No . 2 (2024), 27 Analisis Kebutuhan Sumber Daya Manusia Dengan Metode Wisn (Workload Indicator Staffing Need) Di Unit Kerja Rekam Medis Rsud Krt . Setjonegoro Wonosobo Analysis Of* . *4*(2), 27–37.

Sabran, S., Azizah, S. N., & Rachmawati, E. (2024). Prediksi Kunjungan Pasien Rawat Jalan Dengan Metode Analisis Trend Linear Di Rsud Haji Provinsi Jawa Timur Tahun 2023-2025. *Jurnal Manajemen Dan Administrasi Rumah Sakit Indonesia (Marsi)*, *8*(1), 26–32. Https://Doi.Org/10.52643/Marsi.V8i1.4046

Sukma, S. A. S. H. (2023). *Analisis Kebutuhan Tenaga Kerja Rekam Medis Unit*. *02*, 6–13.

Suliantoro, S. (2022). Analisis Pengajuan Klaim Bpjs Kesehatan Rawat Inap Di Bangsal Sadewa Rsud Saptosari Gunungkidil, Yogyakarta. *Jurnal Ekonomi, Manajemen Pariwisata Dan Perhotelan*, *1*(2), 254–260. Https://Doi.Org/10.55606/Jempper.V1i2.440

Tarigan, R., Nasution, Y. E., & Meliala, A. (2023). The Effect Of Workload On Employee Performance At The Bpjs Claim Unit At Sundari General Hospital In 2022. *Science Midwifery*, *10*(6), 2721–9453. Www.Midwifery.Iocspublisher.Orgjournalhomepage:Www.Midwifery.Iocspublisher.Org

Yuni Afriani, R. T. (2022). *Analisis Beban Kerja Petugas Rekam Medis Berdasarkan Metode Workload Indicator Staff Need (Wisn) Di Puskesmas Xxx Tahun 2021*. 167–172.