

**Work Load Evaluation for Determining Human Resources Needs
(Study of Emergency Room and General Clinic “Dokterku Taman Gading Clinic” Jember)**

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ABSTRACT

The role of humans as a resource in an organization is increasingly believed to be of importance. Human resource planning is deemed necessary in order to improve employee efficiency, effectiveness and productivity. An evaluation of workload is deemed necessary in order to determine effective and efficient work productivity without ignoring the physical and psychological conditions of employees. Workload evaluation is also needed to determine the needs of Human Resources for relevant agencies. Clinic “Dokterku Taman Gading” experiences an increase in visit of patients from year to year. This can affect employee work productivity so research is needed to evaluate employee workload with the Work Sampling method. This research method used direct observation of work activities on employees. This type of research was used *analytic observational* research. From a total sample of 4.800 observations, it knew that the productive activity of employees was 3825 (79.7%). The total standard time of each employee of “Dokterku Taman Gading”Clinic \pm 1 minute per activity. The standard time per activity will be accumulated to determine the minimum standard service time given to each patient.

Keywords: workload evaluation; HR planning; work sampling

INTRODUCTION

Human Resources is important in a company because it is a determinant of the survival of an organization. So, it is very important for an organization to manage human resources with optimal performance. Human resource planning activities are the basis for the preparation of work programs for units that deal with human resources in an organization. The benefit of human resource planning is that the organization can make better use of the existing human resources in the organization, so that through careful human resource planning work productivity of existing staff can be increased. Human resource planning is a systematic and continuous process to determine the needs of human resources, including the process of job analysis and workload calculation. Siagian⁽¹⁾ describe that the suitability of the workload regulated by the company for workers' conditions needs to be considered.

Anwar et al.⁽²⁾ describe Workload is a consequence of carrying out activities provided to workers workload shows the intensity of a task / job. Workload can also refer to the time parameter, meaning that the percentage of effective use of work time used by workers during working hours. Excessive workload can cause a work atmosphere that is less comfortable for workers because it can lead to faster work stress. Wibawa et al.⁽³⁾ Shortage of workload can cause harm to the organization. Workload analysis is a management technique that is carried out systematically to obtain information related to the level of effectiveness and efficiency of an organization's work based on work volume

Mufid⁽⁴⁾ described that work sampling method is an effective and efficient method to be used in gathering information related to productive and non-productive activities from employees. Said to be effective because it can quickly be used to determine the loose time available for a job. Said to be efficient because the desired information will be obtained in a relatively shorter time and with costs that are not too large.

“Dokterku Taman Gading” is a general clinic with total participant of BPJS (Health Insurance) are 10,041 participants in April 2017. Outpatient services are carried out as many as 6 days a week so that an average of 110 patients per day is obtained. The high rate of patients causes an increase in employee work productivity in the “Dokterku Taman Gading” Clinic. The increase in workload does not only occur in the medical service sector but also in the administrative process, as well as other operational activities such as medical treatment and supporting medical measure. The purpose of this study was to analyze employee workload with work sampling methods to further be used as a basis for determining employees.

METHODS

This type of research used in this research was observational analytic with evaluative approach and case study research design. Amirullah⁽⁵⁾ describe In terms of time this research method includes cross sectional survey and observation methods. Data analysis in this research used descriptive statistic. The researcher was assisted by an observer to facilitate the implementation of the research. This research was conducted in September - October 2017 at “Dokterku Taman Gading” Clinic. Observations were made as many as 4,800 observations with sample calculation techniques as follows:

$$\begin{aligned}
 n &= \left(\frac{k}{s}\right)^2 \frac{1-p}{p} \\
 &= \left(\frac{2}{0,05}\right)^2 \frac{1-0,25}{0,25} \\
 &= 4.800
 \end{aligned}$$

Explanation:

n = Number of observation

p = Probability of non productive activities

(1-p) = probability of productive activities

k = confidence level; with level of trust 95% (k=2)

s = degree of accuracy (normal distribution =0,05)

RESULTS

After observed, it is known that productive and non-productive activities are as follows:

Table 1. Number of productive activities

Day of observation	Doctor Productive activities	Nurse (general poly) Productive activities	Nurse (emergency unit) Productive activities	Reception Productive activities	Laboratory analyst Productive activities
Day 1	60	47	81	79	76
Day 2	82	79	81	86	75
Day 3	76	73	78	85	75
Day 4	81	87	79	79	78
Day 5	86	87	74	78	74
Day 6	84	76	77	89	79
Day 7	85	83	78	87	78
Day 8	75	73	78	88	76
Day 9	86	87	78	87	0
Day 10	88	90	81	86	0
Σ	803	782	785	844	611
% Productive activities	80.3	78.2	78.5	84.4	76.3

Furthermore, to test the uniformity of the data required a control map. The used of control charts in this case was to looked at conditions that was not reasonable, for example working conditions where there was patients with accidents and needed emergency medical action. Physically and psychologically this can affect employee work activities.

Calculation results, obtained employee control limits as follows:

$$\text{Upper Control Limit (BKA)} = p + k \sqrt{\frac{p(1-p)}{n}}$$

$$\text{Lower Control Limit (BKB)} = p - k \sqrt{\frac{p(1-p)}{n}}$$

Table 2. Upper and lower limit

	Doctor	Nurse (general poly)	Nurse (emergency unit)	Reception	Laboratory analyst
BKA	88%	88%	88%	90%	86%
BKB	72%	68%	68%	78%	66%

Result of Physical Activities

% Productive activities

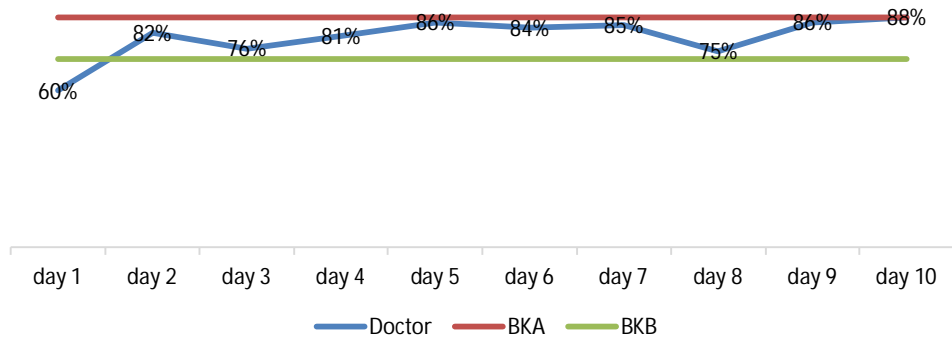


Figure 1. Productive activities percentage of doctor

The observations of the productive activities of general practitioners (figure 1) showed the high productive activities for general practitioners with an average percentage of productive activity of 80.3%. The most of the productive activities of doctor is happened on day 10 with 88% activities. Most of them was physical sign such as palpating pulse, breathing, sensory examination.

% Productive activities

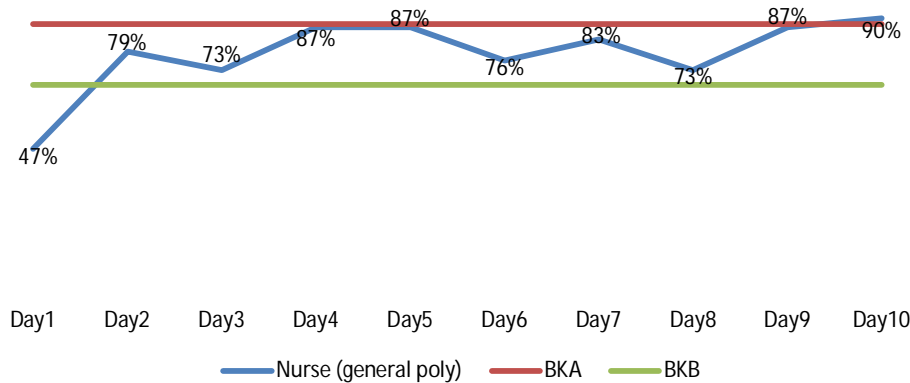


Figure 2. Productive activities percentage of Nurse at general poly

The results of observed the productive activity of General Nurse showed a high level of productive activity for care nurses with a percentage of 90% at day 10. Most of the activities was wrote medical record, sign-physical check up and medical treatment if needed. The high level of productivity of general nurse was fluctuated depend on the diagnose of each patiens

% Productive activities

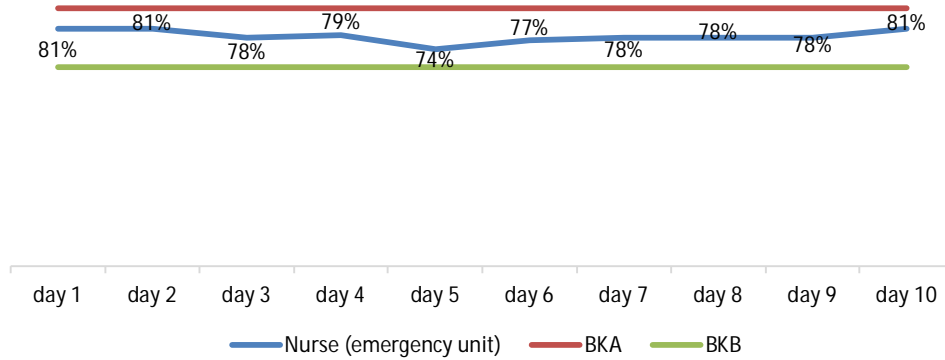


Figure 3. Productive activities percentage of Nurse at Emergency Unit

The observations of the productive activities of the nurse of emergency unit showed high productive activities for the nurses at the emergency unit with an average percentage of 78.5% and the highest activities is on day 10 with 81% productive activities. The most productive activities of ER (Emergency Room) nurses were writing a map of the patient's medical records and medical treatment. Medical activities nurse at emergency unit more higher than nurse on general poly.

% Productive activities

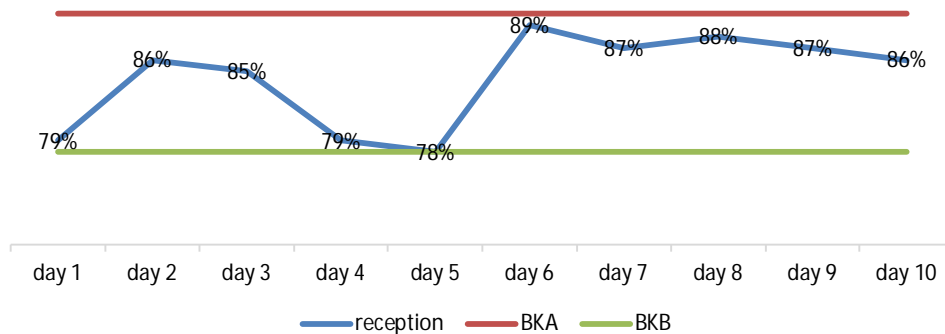


Figure 4. Productive activities percentage of reception

The observations of the productive activities of the receptionist showed the high productive activities with an average percentage of 84.4%. Most of the receptionist's productive activities were wrote and type (list of patients through a clinical license, medicine data entry, ect). Productive activity tends be unstabled from day 3

to day 6 because reception worked depend on the number of patients and other work such as patient visited data entry.

% Productive activity

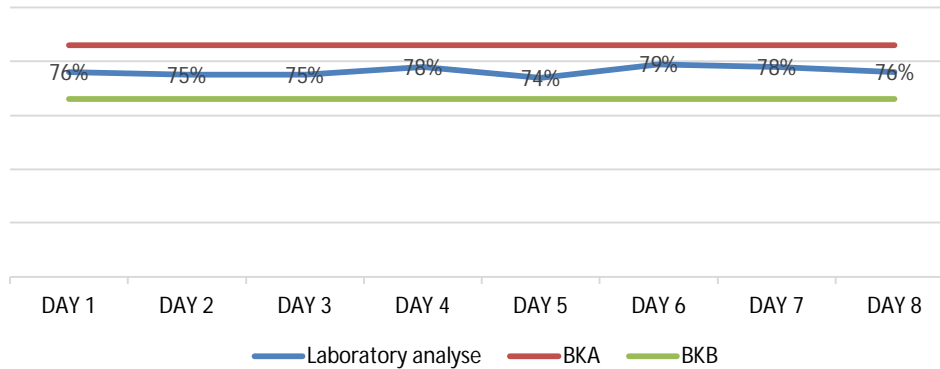


Figure 5. productive activities percentage of reception

The observations of the productive activities of laboratory analysts was average indicated productive for laboratory analysts with 76.4% percentage. The productive activity of laboratory analysts tends to stable because it depends on the number of samples to be tested in the laboratory. The samples tested came from outpatients and inpatients.

Productive and Non-productive Percentage

The highest percentage of employee productive time is the receptionist with a percentage of 84.4% while the low percentage of productive time is laboratory analyst. The high productive time of the reception staff is caused by the accumulation of work duties at the reception desk. Reception staff not only register but also administer medication to patients, administration including claims for inpatient and outpatient care.

Table 3. Productive and non-productive percentage activities

No	Employee	Obsevation	Productive activities	%	Non-productive activities (idle)	%
1	Doctor	1000	803	80.3	197	19.7
2	Nurse (general poly)	1000	782	78.2	218	21.8
3	Nurse (Emergency Unit)	1000	785	78.5	215	21.5
4	Reception	1000	844	84.4	156	15.6
5	Laboratory Analyst	800	611	76.3	189	23.7
	Σ	4800	3825		975	

Calculation of Delay Ratio

Delay ratio calculation is used to find out the operator's performance in doing a job, how much time the operator's work time is idle (idle).

Table 4. Ratio delay

No	Employee	Productive activities	Non-productive activities (idle)	Ratio delay
1	Doctor	803	197	0.25
2	Nurse (general poly)	782	218	0.28
3	Nurse (Emergency Unit)	785	215	0.27
4	Reception	844	156	0.18
5	Laboratory Analyst	611	189	0.31

Standard Time Calculation

The standard time is necessary to know the normal time from the adjustment factor with the Westinghouse system. Wignjosobroto [6] describe Normal time is known by multiplying the average time obtained from work measurements by the number of four rating factors chosen according to the performance shown by the operator. From observations that have been made, it is known that the “Dokterku Taman Gading” Clinic has the following performance rating:

Table 5. Standard time calculation

No	Employee	Skill	Effort	Condition	Consistency	∑	Adj
1	Doctor	+0.06	+0.05	+0.02	+0.00	+0.13	1.13
2	Nurse (general poly)	+0.05	+0.05	+0.02	+0.00	+0.12	1.12
3	Nurse (Emergency Unit)	+0.05	+0.05	+0.02	+0.00	+0.12	1.12
4	Reception	+0.06	+0.05	+0.02	+0.00	+0.13	1.13
5	Laboratory Analyst	+0.05	+0.05	+0.02	+0.00	+0.12	1.12

So that it is known for normal time clinic ivory park doctor employees are as follows:
 Normal time = Average time x adjustment factor

Determination of the value of allowance on the clinic “Dokterku Taman Gading” based on observations adjusted to the personal allowance table. So that the value of each employee's allowance is known as follows:

Table 6. Allowance time

No	Criteria	Doctor	Nurse (General poly)	Nurse (emergency Unit)	Reception	Laboratory Analyze
1	The power is very light	6	6.5	6.8	6	6.6
2	Work attitude	1	1	1	1	1
3	Work movement	1	1	1	1	1
4	Eye Fatigue	6	6	6	7	7.5
5	Temperature	5	5	6	6	7
6	Atmosphere	5	5	6	6	7
7	Environment	1	1	2	3	2
jumlah (%)		25.00	25.50	28.80	30.00	32.10
		0.25	0.26	0.29	0.30	0.32

Normal time is used to determine the standard time for each employee. Before determining the standard time, the employee allowance is first determined. Allowance or loose time is the time needed to interrupt the production process, in the process of production it requires leeway such as personal time (urinating, eating,

drinking), time to unwind, and loose time caused by delays. So that the workload of employees is not too heavy due to productive activities that are too often.

Table 7. Standard time

No	Employee	Normal time	Allowance	Standard time
1	Doctor	1.0057	0.25	1.25713
2	Nurse (general poly)	0.9744	0.26	1.22774
3	Nurse (Emergency Unit)	0.9744	0.29	1.25698
4	Reception	1.0622	0.30	1.38086
5	Laboratory Analyst	0.7616	0.32	1.00531

So it can be concluded that the standard time of each doctor of the Tamanku Gading clinic \pm 1 minute per activity. The standard time per activity will be accumulated to determine the minimum standard time service provided to patients. For example in Nurses in general poly when examining vital signs include 4 checks (blood pressure, temperature, pulse, respiratory rate) then the standard inspection time for vital signs \pm 4 minutes. However, this does not apply if the patient consults with a doctor. Effective communication between doctor and patient is necessary to obtain optimal results, in the form of health problems that can be resolved and the patient's recovery.

DISCUSSION

The need for human resources by the company is a prediction of the organization's needs for the future. Notoatmodjo⁽⁷⁾ describe that Forecasting the need for human resources is not just quantity but also concerns quality. The doctor's clinic at Taman Gading is deemed to require additional manpower when viewed from job descriptions and employee workloads from productive activities. The most basic workforce needs are pharmaceutical workers. Judging from the requirements for the establishment of a Primary Inpatient Clinic according to the Republic of Indonesia Ministry of Health Regulation No. 28 of 2011 mentioned in article 22 if a pratama inpatient clinic must have pharmaceutical personnel. Increasing the need for medical personnel and paramedics is also felt necessary, when viewed from the visit of patients seeking treatment at the ivory park doctor's clinic. The need for medical personnel needs to be considered given the high doctor's workload. According to the Royal College of General Practitioners (RCGP), in the Indonesian Journal of Medical Ethics (2017), fatigue is one of the main factors of health workers that can endanger patients. Fatigue affects concentration and ability to complete tasks so that it often becomes the root of the problem of mistakes made by doctors. Some things that cause fatigue in doctors, among others, lack of sleep and excessive work, so it is necessary to apply work time and limit the number of patients who will seek treatment. An alternative solution to implementing efficient work time is by reducing the hours of outpatient poly services by about 1 hour or by limiting the number of outpatients treated.

The paramedics in the current implementation have a high workload because there are additional tasks for home visits. This task is carried out to meet the assessment standards of the BPJS related to the contact rate of healthy BPJS patient visits, so that BPJS participants who do not visit the clinic for a month will be visited at their respective homes. Arrangement of outpatient poly service hours or limiting the number of patients per day is expected to reduce the workload available on paramedics. Evaluation of workload at reception is also felt necessary because of high productive activity. The receptionist's work in the service is now becoming more and more due to the existence of a number of additional tasks which are receiving parking fees and filling SOAP of inpatient BPJS patients who are going home. Parking fees are applied by management to manage the safety and order of visitors' motorcycle parking. Parking fees at the Doctorku Taman Gading clinic use an electronic system with integrated payment with the receptionist.

Management efforts in overcoming physical workload on employees can be done by providing adequate rest periods. Resting is basically necessary to restore physical or mental freshness. The total amount of time needed to rest on average ranges from 15% of the total work time. In addition, management can endeavor to shorten daily work hours so as to improve the quality of the output provided. The workload standard is determined based on the available work time owned by each HR divided by the time needed to complete a main activity. Allowable working time for medical personnel is 8 hours a day for 5 working days per week. The number of

hours worked may change according to the needs of each agency or unit. However, to regulate and determine the number of doctor's working hours, there are values that need to be considered in making decisions

However, efforts to shorten working hours are difficult for emergency nurses because emergency services are open 24 hours and are divided into 3 work shifts. Nurses are important personnel in health services, considering nursing services are provided for 24 hours continuously. Quality nursing services, effective and efficient. An alternative that can be provided for emergency room nurses is to provide energy intake and design workplace conditions in accordance with work ergonomics and physiology. The energy intake provided is an additional good nutrition of food / drink for employees so that it becomes a source of energy to complete activities that take place over a long period of time. Energy intake should be energy intake that is ready to be absorbed by the condition of the body that is tired from physical activity. In addition, the energy intake provided is expected not to be excessive.

CONCLUSION

Based on the results of the study, it was concluded that the workload of the doctorku Taman Gading clinic employees when measured by the work sampling method is relatively high. High workload can be seen from productive activities and workload criteria that exist in each individual that has been measured. The standard time measured by the work sampling method is the standard time for health services at the "Dokterku Taman Gading" clinic.

Suggestions from researchers related to workloads namely the need for periodic evaluations of job descriptions and employee workloads adjusted to the number of workers available so that there is no high turnover and it is recommended to limit the number of patients examined so that the workload of employees is reduced

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