

# Analysis of Performance Determinants of Health Laboratory Officers in Health Laboratory Centers and Medical Device Calibration in Maluku Province

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## ABSTRACT

The Center for Health Laboratories and Medical Devices Calibration has the task of planning, coordinating implementation and evaluation of clinical laboratory examinations/public health laboratories, referrals, education, technical training, research and development. Performance is the result achieved by someone according to the standards that apply to a particular job. There are several factors that influence the performance of officers, both individually and in organizations, namely the dimensions of performance, namely ability, motivation and opportunities. This study aims to analyze the factors that influence the performance of the staff at the Maluku Provincial Health Laboratory and Medical Device Calibration Center based on factors related to work, related to opportunities, related to infrastructure and related to officers. This type of research is a quantitative research with a survey method to obtain data from the field based on the existing population with a total sample of 56 people. Data processing is done using SPSS. The results showed that the opportunity factor and staff factor had a significant influence on the performance of the staff at the Maluku Province Health Laboratory and Medical Equipment Calibration Center, while the factors that did not give an effect were infrastructure and work factors. Suggestions for related agencies, namely the Health Service must provide motivation, work autonomy, workload according to ability, carry out work effectively and efficiently, communicate regarding access and availability of medical devices and must be able to strengthen the activeness of officers in carrying out tasks with supervision that does not interfere with autonomy health worker job.

**Key words:** Laboratory Hall, Performance, Laboratory Officer, Equipment, Medical devices.

## INTRODUCTION

Performance is the result achieved by someone according to the standards that apply to a particular job. Performance can also be interpreted as an appearance in terms of quality and quantity achieved by an employee in carrying out his duties according to the responsibilities given to him.<sup>1</sup> Meanwhile, Wijono (2018)<sup>2</sup> states that performance is the appearance of personal results, both quality and quantity in an organization which is the appearance of individuals or groups.

There are several factors that influence performance for officers, both individually and organizationally as mentioned by Veithzal Rivai *et al* in Sinambela (2016),<sup>3</sup> mentioning the dimensions of performance namely ability, motivation and opportunity. According to Indrasari (2017)<sup>4</sup> in his book on performance, he explains that motivation and performance are influenced by organizational conditions, individual creativity and activity characteristics.

The Health Laboratory Center and Medical Devices Calibration Center has the task of planning, coordinating the implementation and evaluation of clinical laboratory examinations/public health laboratories, referrals, education, technical training, research and development, established based on Regulation of the Minister of Health Number 364/MENKES/SK/III/2003, about the Health Laboratory. Meanwhile, the Promal BLK

Testing Laboratory, hereinafter referred to as the laboratory, was formed based on a Maluku Governor Regulation.

The results of laboratory examinations are important in determining diagnosis, prognosis, therapy, monitoring of therapy and disease prevention in order to meet the demands of the public for better and more reliable laboratory services and to anticipate the era of globalization in the era of free competition. For this reason, the existence of the Maluku Province Health Laboratory and Medical Devices Calibration Center is considered important to provide quality, accurate and reliable services and provide satisfaction to users, so the high performance of the Maluku Province Health Laboratory and Medical Devices Calibration Center staff is needed.

Officers at the Maluku Province Health Laboratory and Medical Equipment Calibration Center have a double duty so that when carrying out services they are not in accordance with the SOP standards that have been set.

From several theories and research described by Fillol, *et al* (2019),<sup>5</sup> John, Newton Lewis and Srinivasan (2019),<sup>6</sup> Anggun and Wahyono (2020),<sup>7</sup> Rubandiyah (2019)<sup>8</sup> it can be concluded that officer performance is influenced by several factors, namely officer motivation, officers' abilities, opportunities, leadership in the organization, training and education received by officers, conditions of the physical environment where officers work, human

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resource capabilities in the workplace, process disparities, and internal conditions of officers.

Based on the acknowledgment/input of several patients, they said that the examination samples and examination results were taken very long. Therefore, researchers are interested in conducting research on the Determinant Analysis of Performance of Health Laboratory Officers at the Health Laboratory Center and Medical Devices Calibration in Maluku Province.

## MATERIALS AND METHODS

The type of research was quantitative with a survey method to obtain data from the field based on the existing population. The research location was carried out at the Health Laboratory and Medical Equipment Calibration Center in Maluku Province. The research was conducted in August-September 2022. The determination of informants in this study used a survey method with a total sample of 56 people. Retrieval of data using a questionnaire where the independent variable and the dependent variable. Data analysis used univariate, bivariate and multivariate analysis.

## RESULTS

This research is a quantitative study that aims to analyze the factors that influence the performance of the staff at the Maluku Provincial Health Laboratory and Medical Devices Calibration Center based on factors related to work, related to opportunities, related to infrastructure and related to staff. Viewed from the aspect of opportunity, proactive staff, infrastructure and work. This research was conducted from August to September 2022.

### Bivariate analysis

#### The relationship between knowledge and performance of health laboratory and medical equipment calibration officers in Maluku province

The results of statistical tests using chi square obtained a value of  $p = 0.788$ , with the conclusion that knowledge has no significant

**Table 1: Knowledge relationship with officer performance Center for health laboratory and calibration of medical devices in Maluku province.**

Variable		Performance		Total	p-value
		Good	Less		
knowledge	Good	Count	18	13	31
		% within knowledge	58,1%	41,9%	100,0%
	Less	Count	13	12	25
		% within knowledge	52,0%	48,0%	100,0%
Total	Count	31	25	56	
	% within knowledge	55,4%	44,6%	100,0%	

**Table 2: Relationship of skills with officer performance Center for health laboratory and calibration of medical devices in Maluku province.**

Variable		Performance		Total	p-value
		Good	Less		
Skill	Good	Count	15	11	26
		% within Skill	57,7%	42,3%	100,0%
	Less	Count	16	14	30
		% within Skill	53,3%	46,7%	100,0%
Total	Count	31	25	56	
	% within Skill	55,4%	44,6%	100,0%	

**Table 3: Relationship of access and availability with officer performance Center for health laboratory and calibration of medical devices in Maluku province.**

Variable		Performance		Total	p-value
		Good	Less		
Access and availability	Good	Count	28	6	34
		% within Access and availability	72,7%	27,3%	100,0%
	Less	Count	7	13	22
		% within Access and availability	30,4%	69,6%	100,0%
Total	Count	35	21	56	
	% within Access and availability	55,4%	44,6%	100,0%	

**Table 4: The Relationship between workload and officer performance Center for health laboratory and calibration of medical devices in Maluku province.**

Variable		Performance		Total	p-value
		Good	Less		
Work load	Good	Count	13	5	18
		% within Work load	72,2%	27,8%	100,0%
	Less	Count	18	20	38
		% within Work load	47,4%	52,6%	100,0%
Total	Count	31	25	56	
	% within Work load	55,4%	44,6%	100,0%	

**Table 5: Officer proactive relations with office officer performance Maluku province medical equipment calibration and health laboratory.**

Variable		Performance		Total	p-value
		Good	Less		
Proactive officer	Good	Count	8	6	14
		% within Proactive officer	57,1%	42,9%	100,0%
	Less	Count	23	19	42
		% within Proactive officer	54,8%	45,2%	100,0%
Total	Count	31	25	56	
	% within Proactive officer	55,4%	44,6%	100,0%	

**Table 6: Analysis of the effect of access and availability related to officers on the performance of health laboratory center and calibration officers Maluku province medical devices.**

		B	Df	Sig.	Exp(B)	95% C.I. for EXP(B)	
						Lower	Upper
Step	Access and availability	1,808	1	,003	6,095	1,886	19,696
1 <sup>a</sup>	Constant	-2,788	1	,002	,062		

a. Variable(s) entered on step 1: Access dan availability.

relationship to the performance of Health Laboratory and Medical Equipment Calibration Center staff in Maluku Province.

#### The relationship between skills and the performance of health laboratory and medical equipment calibration officers in the province of Maluku

The results of statistical tests using chi square obtained a value of  $p = 0.793$ , with the conclusion that skills have no significant relationship to the performance of Health Laboratory Center and Medical Equipment Calibration Center staff in Maluku Province.

#### The relationship between access and availability with the performance of health laboratory and medical equipment calibration officers in Maluku province

The results of statistical tests using chi square obtained a value of  $p = 0.003$ , with the conclusion that access and availability have a significant relationship with the performance of Health Laboratory Center and Medical Equipment Calibration Center staff in Maluku Province.

#### **The relationship between workload and the performance of staff at the Maluku province health laboratory center and calibration of medical devices**

The results of statistical tests using chi square obtained a value of  $p = 0.094$ , with the conclusion that workload has no significant relationship to the performance of Health Laboratory Center and Medical Equipment Calibration Center staff in Maluku Province.

#### **The proactive relationship between officers and the performance of health laboratory and medical devices calibration centers for the province of Maluku**

The results of the statistical test using chi square obtained a value of  $p = 1.000$ , with the conclusion that the pro-activeness of the officers had a significant relationship to the performance of the staff at the Health Laboratory and Calibration Center for Medical Devices in Maluku Province.

### **Multivariate analysis**

In the multivariate analysis only variables that have a significant relationship will be analyzed in the bivariate analysis where the variables that have a significant relationship are access and availability on the dimensions of factors related to officers using a simple logistic regression test.

Based on table 6, the results of access and availability have an influence on the performance of the staff of the Maluku Province Health Laboratory and Medical Devices Calibration Center with ( $p$  value 0.003) with a proactive risk of 6.096 times greater to affect the performance of the staff of the Maluku Province Health Laboratory and Medical Devices Calibration Center (95% CI 1.886-19.696).

The conclusion from the bivariate and multivariate statistical tests is that of the 3 dimensions of the factors that influence performance, only factors related to opportunity have an influence on the decrease and increase in the performance of the Health Laboratory and Medical Equipment Calibration Center staff in Maluku Province.

## **DISCUSSION**

#### **The relationship between knowledge and performance of health laboratory and medical equipment calibration officers in Maluku province**

The results of statistical tests using chi square obtained a value of  $p = 0.788$ , with the conclusion that knowledge has no significant relationship to the performance of Health Laboratory and Medical Equipment Calibration Center staff in Maluku Province. Based on this, the hypothesis in this study that there is no effect of knowledge on the performance of program officers at the Health Laboratory Center and Medical Devices Calibration Center in Maluku Province is proven.

The component of knowledge on employee work productivity can be analyzed through each indicator which consists of indicators of educational background, work experience, understanding of job descriptions. The influence of the knowledge component through indicators of educational background, in this case employees have an educational background that is in accordance with the field of work they are involved in. Through work experience indicators.

The components of employee knowledge are seen based on indicators of educational background, work experience, and understanding of job descriptions. It can be stated that: first, educational background

indicators, most employees have an educational background that is appropriate to the field of work they are involved in. Second, the work experience indicator, employees have sufficient experience in the field of work currently being carried out. Third, an indicator of understanding the job description, employees can understand the job description that will be carried out.

So, it can be seen that the officers at the Maluku Province Health Laboratory and Medical Device Calibration Center have a good knowledge component, where most of the employees have an educational background that is in accordance with the field of work they are involved in, employees understand the job description that will be done, and can apply the available technological devices to carry out the work.

This is in line with the theory put forward by McClelland in Sedarmayanti (2011),<sup>9</sup> which says that competence is a fundamental characteristic possessed by someone who has a direct effect on, or can predict very good work productivity. Competence can be analogous to an "iceberg" where skills and knowledge form the tip that is above the water. The part below the surface of the water is not visible to the eye, but forms the foundation and has an influence on the shape of the part that is above the water. Social roles and self-image are in the "conscious" part of a person, while one's motives are in the "subconscious" part.

#### **The relationship between skills and the performance of the health laboratory center and calibration of medical devices in the province of Maluku**

The results of statistical tests using chi square obtained a value of  $p = 0.793$ , with the conclusion that skills have no significant relationship to the performance of Health Laboratory Center and Medical Equipment Calibration Center staff in Maluku Province. Based on this, the hypothesis in this study that there is no effect of skills on the performance of program officers at the Health Laboratory and Calibration Center for Medical Devices in Maluku Province is proven.

The skills component has had a significant impact on work productivity. The high influence of the skill component on employee work productivity is shown by the understanding of tasks given by superiors, completion of tasks according to the specified time standard, and employees can apply existing technological devices to carry out tasks.

Based on the research results, the influence of the skills component on employee work productivity can be analyzed through each indicator consisting of indicators of understanding tasks, completing work, and using technology. The influence of the skills component through indicators of understanding tasks, in this case employees understand every task given by their superiors.

Through the task completion indicator, in this case the employees can complete the task according to the specified time standard. Through indicators of applying technological devices, in this case employees are able to apply technological devices for the benefit of carrying out tasks.

The skill component is based on indicators of understanding tasks, completing work, and applying technology. It can be stated that: first, the indicators of understanding tasks employees already understand the tasks given by superiors. Second, the indicator of completing work, employees can complete the work according to the specified time standard. Third, the indicator of applying technology, employees can apply technology to do the tasks given.

So, it can be seen that most of the employees of the Maluku Province Health Laboratory and Medical Devices Calibration Center have good work skills. This can be seen from the results of questionnaires and interviews which state that employees of the Maluku Province Health Laboratory and Medical Devices Calibration Center can

understand every task that will be carried out. done, can complete the work in accordance with the specified time standard, and can apply technological devices.

#### **The relationship between access and availability with the performance of health laboratory and medical equipment calibration officers in Maluku province**

The results of statistical tests using chi square obtained  $p$  value = 0.003, with the conclusion that access and availability have a significant relationship to the performance of Health Laboratory Center and Medical Equipment Calibration Center staff in Maluku Province. Based on this, the hypothesis in this study that there is no effect of access and availability on the performance of the Health Laboratory Center and Medical Devices Calibration Center program in Maluku Province is not proven.

Health facilities (faskes) are health service facilities that are used to carry out promotive, preventive, curative and rehabilitative individual health service efforts carried out by the government or the community.<sup>10</sup> The appearance and capability of the physical facilities and infrastructure of health facilities and the condition of the surrounding environment are clear evidence of the services provided by service providers which include physical facilities (buildings and warehouses), equipment and tools used (technology) and the appearance of employees.<sup>11-13</sup>

As every health facility that provides good, quality and quality services is an obligation that has been regulated in the Minimum Service Standards (SPM) in Ministry of Health regulation No. 828/MENKES/SK/IX/2008, apart from that, quality health service facilities are the people's dream that can provide satisfaction for people who use health services or patients. Services that can increase satisfaction are generally known in the Scale for Measuring Service Quality (SERVQUAL) theory which Parasuraman, Zeithaml, and Berry (1988)<sup>14</sup> summarized into 5 main dimensions, including Physical Evidence/Facilities (Tangibles), Reliability, Power Responsiveness, Assurance and Empathy.

#### **The relationship between workload and the performance of staff at the Maluku province health laboratory center and calibration of medical devices**

The results of statistical tests using chi square obtained a value of  $p$  = 0.094, with the conclusion that workload has no significant relationship to the performance of Health Laboratory Center and Medical Equipment Calibration Center staff in Maluku Province. Based on this, the hypothesis in this study that there is no workload on the performance of program officers at the Health Laboratory Center and Medical Devices Calibration Center for Maluku Province is proven.

This is in line with research put forward by Maryati (2012)<sup>15</sup> entitled factors related to the performance of pulmonary tuberculosis officers at the Semarang Health Center, where the study found that there was no relationship between workload and the performance of P2TB program officers. However, the results of this study are not in line with the theory of John, Newton-Lewis and Srinivasan (2019)<sup>6</sup> stating that workload affects officer performance and according to research conducted by Harmiyati, Kurdi and Sulastris (2016)<sup>16</sup> with the title Effects of Individual Characteristics and Capabilities and Organizational Characteristics on Perceptions of Perkesmas Nurse Performance at the Palembang City Health Center suggest that there is a close relationship between workload and performance.

Based on the Guidelines for the Ministry of Empowerment of State Apparatuses and Bureaucratic Reform (2004), workload is a number of work targets or target results that must be achieved in a certain time unit, Muhamad Reza Pahlevi (2012)<sup>17</sup> states that the factors that affect the workload of health workers are 1) tasks main health workers, 2) additional tasks, 3) working time and 4) number of patient visits.

According to Juliia Uly (2020)<sup>18</sup> in her research, workload is influenced by 2 factors, namely internal factors and external factors. Internal aspects are aspects that originate from within the officer's own body as a result of external workload responses, internal aspects are somatic (gender, age, body dimensions, nutritional status and health and psychological conditions (motivation, perception, belief, will and satisfaction) External factors are those from outside the body of the officer, namely physical tasks, work tools and facilities, worker organizations such as the length of time working, the work environment is the relationship between fellow staff and the social environment, there are also internal and external factors for health workers are workload factors addition.

#### **The proactive relationship between officers and the performance of health laboratory and medical equipment calibration center officers in Maluku province**

The results of the statistical test using chi square obtained a value of  $p$  = 1.000, with the conclusion that the proactiveness of the officers had a significant relationship to the performance of the staff at the Health Laboratory and Calibration Center for Medical Devices in Maluku Province. Based on this, the hypothesis in this study is that there is no proactive effect of officers on the performance of program officers at the Health Laboratory Center and Kalibra.

## **REFERENCE**

1. Mangkunegara AAAP. Manajemen Sumber Daya Manusia Perusahaan. Bandung : Remaja Rosdakarya. 2013.
2. Wijono, Sutarto. Kepemimpinan Dalam Prespektif Organisasi. Jakarta: Prenadamedia Group. 2018.
3. Sinambela LP. Manajemen Sumber Daya Manusia. 1st edn. Jakarta: PT Bumi Aksara. 2016.
4. Indrasari DM. Kepuasan Kerja dan Kinerja Karyawan Tinjauan dari Dimensi Iklim Organisasi , Kreatifitas Individu, dan Karakteristik Pekerjaan. 1st edn. Yogyakarta:Indomedia Pustaka. 2017.
5. Fillol A. Original Article The Importance of Leadership and Organizational Capacity in Shaping Health Workers 'Motivational Reactions to Performance-Based Financing . A Multiple Case Study in Burkina Faso. 2019;8(5):272-9.
6. John A, Lewis N, dan Srinivasan ST. Means , Motives and Opportunity : determinants of community health worker performance. BMJ. 2019;4(5):1-5.
7. Anggun, dan Wahyono I. Determinan Kinerja Tenaga Kesehatan di Puskesmas Ira. 2020;4(4):835-45.
8. Rubandiyah HI. Faktor Kinerja Puskesmas di Kota Semarang. 2019;3(1):87-98.
9. Sedarmayanti. Pengaruh Lingkungan Kerja Fisik Dan Non Fisik Terhadap Kinerja Karyawan Pada KPPN Bandung. 2011.
10. Kemenkes RI. Kinerja Program Kefarmasian dan Alat Kesehatan. 2013.
11. Muhith A, Winarti E, Perdana SSI, Haryuni S, Rahayu KIN, Mallongi A. Internal Locus of Control as a Driving Factor of Early Detection Behavior of Cervical Cancer by Inspection Visual of Acetic Acid Method. Open Access Maced J Med Sci. 2020;8(E):113-6.
12. Mallongi A, Daud A, Ishak H, La Ane R, Birawida AB, Ibrahim E, *et al.* Clean water treatment technology with an up-flow slow sand filtration system from a well water source in the tallo district of makassar. J Env Sci Technol. 2016;10(1):44-8.
13. Mallongi A, Ernyasih. Assessment of low-cost mercury absorbent to minimize the mercury environmental and health effects in Makassar coastal areas. J Adv Pharm Edu Res. 2022;12(4):32-8.
14. Parasuraman, Zeithaml, dan Berry. SERVQUAL: A Multiple-Item Scale For Measuring Consumer Perceptions Of Service Quality. Am Physic Assoc. 1988;64(1):12-40.

15. Maryati M. Faktor-Faktor Yang Berhubungan Dengan Kinerja Petugas Tuberkulosis Paru Di Puskesmas (Studi di Wilayah Kerja Dinas Kesehatan Kota Semarang). 2012.
16. Harmiyati L, Kurdi FN, dan Sulastri. Pengaruh Karakteristik dan Kapabilitas Individu Serta Karakteristik Organisasi terhadap Persepsi Kinerja Perawat Perkesmas di Puskesmas Kota Palembang Program Perkesmas di Kota Palembang. *J Kedokteran Dan Kesehatan*. 2016;3(1):341-9.
17. Pahlevi MR. Analisa Beban Kerja Tenaga Kesehatan. 2012.
18. Uly J. Faktor-Faktor Beban Kerja Petugas Kesehatan. 2020.
19. Amran, Stang, Mallongi A. Analysis of dengue fever risk using geostatistics model in bone regency. *AIP Conf Proceed*. 2017;1825(1):20002.
20. Amaliah R, Leida I, dan Maidin A. Kinerja Petugas Pelaksana Surveilans Kusta di Seluruh Puskesmas Kabupaten Jeneponto. *J Forum Kesehatan*. 2016;1-7.
21. Diamantidis AD, dan Chatzoglou P. Factors Affecting Employee Performance: An Empirical Approach. *Int J Prod Perf Manag*. 2019;68(1):171-93.
22. Hasmi, Mallongi A. Health Risk Analysis of Lead Exposure from Fish Consumption among Communities along Youtefa Gulf, Jayapura. *Pak J Nutr*. 2016;15(1):929-35.
23. Kementerian Pendayaan Aparatur Negara Dan Reformasi Birokrasi. 'Pedoman Perhitungan Kebutuhan Pegawai Berdasarkan Beban Kerja Dalam Rangka Penyusunan Formasi Pegawai Negeri Sipil'. 2004;43.
24. Keputusan Menteri Kesehatan Republik Indonesia Nomor 282/MENKES/SK/IX/2008 Tentang Petunjuk Teknis Standar Pelayanan Minimal Bidang Kesehatan di Kabupaten/Kota. 2008.
25. Zhao H, Peng Z, Sheard G. Workplace ostracism and hospitality employees' counterproductive work behaviors: The joint moderating effects of proactive personality and political skill. *Int J Hosp Manag*. 2013;33(1):219-27.

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