

[ISSN 2597- 6052](https://doi.org/10.56338/mppki.v7i7.5269)DOI: <https://doi.org/10.56338/mppki.v7i7.5269>**MPPKI****Media Publikasi Promosi Kesehatan Indonesia**
*The Indonesian Journal of Health Promotion***Research Articles****Open Access****Analysis of the Availability of Medical Laboratory Technology Experts (ATLM)
Based on the Minimum Energy Standard of Permenkes No. 43 of 2019
in Indonesia Year 2023****Rosmalinda^{1*}, Dumilah Ayuningtyas²**¹Faculty of Public Health Sciences, University of Indonesia, Depok, Indonesia²Community Health Study Program, Master Program, University of Indonesia*Author Correspondence: rosmalinda@gmail.com**Abstract**

Introduction: Medical Laboratory Technology Experts (ATLM) as one type of health worker, are authorized to organize or practice in the health sector according to their expertise. The ideal ratio of Community Health Centers (Puskesmas) to districts is at least 1 Puskesmas per sub-district, and the minimum staffing standard based on Minister of Health Regulation No. 43 of 2019 for ATLM personnel in Puskesmas is 1 (one), both in Urban, Rural, Remote, and Very Remote Puskesmas.

Method: The purpose of this study is to analyze the suitability of ATLM personnel with minimum staffing standards based on the Minister of Health Regulation No. 43 of 2019 in Indonesia. The qualitative research method describes the availability of ATLM personnel at the district/city/provincial level in Indonesia, using secondary data from the Ministry of Health's Health Human Resources Information System (SISDMK) for 2022.

Result: The results showed that there is still a shortage of medical laboratory technologists in Puskesmas at the district/city/provincial level in Indonesia, with 1,486 Puskesmas experiencing a shortage out of a total of 10,436 Puskesmas in Indonesia.

Keyword: ATLM; Public Health Center; Standards of Minister of Health Regulation Number 43 of 2019

INTRODUCTION

Law Number 36 of 2014 concerning Health Workers says that health workers have an important role to improve the maximum quality of health services to the community so that the community is able to increase awareness, willingness, and ability to live a healthy life so that the highest degree of health will be realized as an investment for the development of socially and economically productive human resources and as an element of general welfare as referred to in the Preamble to the Constitution of the Republic of Indonesia Year 1945. (1)

In the effort to improve the degree of public health, the development of health service facilities is carried out. Since 2016-2021, the number of Puskesmas has increased from 9,767 to 10,292 puskesmas, with a ratio of Puskesmas to sub-districts of 1.4. In 2023, this number will increase again to 10,436 community health centers. The increase in the number of Puskesmas illustrates the government's increased efforts in fulfilling access to primary health services (2)" (3)

The increase in the number of Puskesmas illustrates the government's efforts in fulfilling access to primary health services. The fulfillment of primary health service needs can be seen in general from the ratio of Puskesmas to sub-districts. The ratio of Puskesmas to sub-districts in 2022 is 1.4. This illustrates that the ideal ratio of Puskesmas to sub-district, which is at least 1 Puskesmas in 1 sub-district, nationally has been met, but it is necessary to pay attention to the distribution of these Puskesmas in all sub-districts. Puskesmas must at least have personnel including doctors, dentists, nurses, midwives, health promotion and behavioral science personnel, environmental health workers, nutritionists, pharmacists and / or pharmaceutical technical personnel, medical laboratory technologists, and non-health personnel. Under certain conditions, Puskesmas can add other types of health workers including dental and oral therapists, health epidemiologists, health entomologists, medical recorders and health information, and other health workers as needed (4).

In the Regulation of the Minister of Health Number 33 of 2015, it is stated that the method of calculating human resources consists of the ratio method, minimum labor standards, and workload analysis. Although the ratio method has drawbacks, such as being prone to significant changes in socioeconomic conditions and technological advances that go unnoticed and focus on population growth, it also has advantages. One of them is simplicity in calculations, easier data needs, simple use of statistics, and requires relatively low costs and expertise. However, this method is unable to display time series data due to data gaps (5) (6).

Previous research, there are several factors that become obstacles in health workforce planning. According to research conducted by Putri (2018), challenges in planning the needs of public health workers include inappropriate job descriptions, lack of training and coaching, difficulty accessing software, and inadequate internet networks (7). Research conducted in Depok city also identified several influencing factors, such as communication, resources, disposition, bureaucratic structure, and standard operational procedures (8). In addition to the factors mentioned above, other previous studies stated that planning HR needs is influenced by factors such as perception, communication, coordination, availability of resources (HR, budgeting), data availability, planning methods, policies, and advocacy processes (9,10,11,12).

Although the current state of Human Resources (HR) in the health sector shows an increase in terms of its quantity, quality, and distribution, challenges still exist in meeting the needs of health services in all regions, especially in remote areas, borders, and islands. Uneven distribution of health workers and imbalances in the type of personnel are still problems in achieving health service standards at Community Health Centers (Puskesmas) in accordance with Minister of Health Regulation Number 43 of 2019. While there are nine types of health workers that comply with the standards, including doctors, dentists, nurses, midwives, pharmacy personnel, public health workers, environmental health workers, nutritionists, and medical laboratory technologists (13).

Table 1. of Minimum Power Standards

No	Jenis Tenaga Kesehatan	PKM perkotaan	PKM Perdesaan		Puskesmas kawasan Terpencil dan Sangat Terpencil	
		Non Rawat Inap	Non Rawat Inap	Rawat Inap	Non Rawat Inap	Rawat Inap
1	Dokter dan/atau dokterlayanan primer	1	1	2	1	2
2	Dokter gigi	1	1	1	1	1
3	Perawat	5	5	8	5	8
4	Bidan	4	4	7	4	7
5	Tenaga promosi kesehatan dan ilmu perilaku	2	1	1	1	1
6	Tenaga sanitasi lingkungan	1	1	1	1	1
7	Nutrisi	1	1	2	1	2
8	Tenaga apoteker dan/atau tenaga teknis kefarmasian	1	1	1	1	1
9	Ahli teknologi laboratorium medik	1	1	1	1	1

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Sumber: SISDMK diolah oleh Sekretariat Ditjen Tenaga Kesehatan, Kemenkes RI, 2023

Picture 1. Number of Health Workers in Puskesmas in Indonesia in 202

With the advancement of science, the role of Medical Laboratory Technologists (ATLM) has become increasingly important in various health service facilities. The experience of the Covid-19 pandemic provides valuable lessons that our national health system (SKN) still has weaknesses, especially in prevention capabilities such as testing,

tracing, and tracking as well as in handling the surge in cases in health facilities during the pandemic, including difficulties in mobilizing health resources such as health facilities, pharmaceuticals, medical devices, health workers, laboratories, and health financing. Learning from handling the Covid-19 pandemic is an important foundation for the need for strengthening efforts to prevent disease and improve the national health system. The Covid-19 pandemic is a crucial moment and the right momentum to carry out reforms in the national health system (Bappenas, 2021).

In addition, due to the COVID-19 pandemic, which has major implications for the demand for laboratory tests, it has also increased the need for ATLM in every health service facility. Laboratory examination is considered to be the most important component as a basis for consideration and comparison from other components in making medical decisions (Ngo, Gandhi, & Miller, 2016). In this case, special health workers are needed, namely ATLM who have the competence to operate laboratory equipment that has been well computerized (Bureau of Labor Statistics, 2018). Based on Law Number 36 of 2014 concerning Health Workers, ATLM is one type of health worker who is part of biomedical engineering. ATLM is further regulated in the Regulation of the Minister of Health Number 42 of 2015 concerning Licensing and Implementation of Medical Laboratory Technology Expert Practice. In the regulation, what ATLM means is every person who has graduated from Medical Laboratory Technology education or health analyst or medical analyst and has the competence to analyze human body fluids and tissues to produce information about individual and community health in accordance with the provisions of laws and regulations. ATLM is a very important type of health worker, but it is still less popular in the community (Astuti, et al, 2021).

The discrepancy between the type, number, and distribution of Medical Laboratory Technology Experts (ATLM) with the Minimum Labor Standards of Puskesmas regulated in the Minister of Health Regulation Number 43 of 2019 in Indonesia in 2023 has the potential to cause serious problems. Without the right solution, this problem could have an impact on the transformation plan of the Ministry of Health which plans to provide health laboratories in every Puskesmas throughout Indonesia. The impact can hinder the improvement of the quality of health services for the community. Therefore, appropriate adjustments in the type, quantity, and distribution of ATLM need to be made immediately to ensure the implementation of the Minimum Personnel Standards of Puskesmas and the success of the Ministry of Health's transformation plan. (Permenkes No. 43 of 2019 concerning Community Health Center [JDIH BPK RI], T.T.)

METHOD

This study is qualitative research that aims to describe the availability of Medical Laboratory Technology Experts (ATLM) Puskesmas at the district / city / provincial level in Indonesia. The number of ATLM personnel is analyzed based on aspects of the minimum needs of ATLM Puskesmas personnel, with the aim of comparing the number of availability and shortage of ATLM personnel. This analysis aims to determine the extent of conformity of personnel with the minimum energy standards stipulated in the Minister of Health Regulation Number 43 of 2019. This study uses secondary data from the Health Human Resources Information System (SISDMK) of the Ministry of Health in 2022, which is then processed with Pivot Tables.

RESULT

The results of data analysis show the availability of ATLM puskesmas personnel in districts / cities / provinces in Indonesia, it can be concluded that with the number of puskesmas as many as 10,436 puskesmas, the existing ATLM personnel are 15,958 workers, the minimum energy needs are 10,436 workers and a difference in energy of 5,542 workers is found, when viewed globally the amount of energy availability is in accordance with the needs but what happens is that there are still many Puskesmas without ATLM personnel, This happens because there are some puskesmas filled with more than one energy, but on the other hand there are still many Puskesmas that do not have ATLM personnel.

Table 2. Number of Puskesmas per Province in Indonesia in 2023

NO	Province	NON-INPASTING	INPATIENT	Total
1	Aceh	189	176	365
2	Sumatera Utara	430	186	616
3	Sumatera Barat	168	112	280
4	Riau	121	117	238
5	Jambi	111	97	208

6	Sumatera Selatan	231	117	348
7	Bengkulu	127	52	179
8	Lampung	157	162	319
9	Kep. Bangka Belitung	38	26	64
10	Kepulauan Riau	62	32	94
11	DKI Jakarta	309	6	315
12	Jawa Barat	798	302	1.100
13	Jawa Tengah	506	374	880
14	DI Yogyakarta	74	47	121
15	Jawa Timur	348	624	982
16	Banten	179	72	251
17	Bali	83	37	130
18	Nusa Tenggara Barat	45	131	176
19	Nusa Tenggara Timur	260	173	433
20	Kalimantan Barat	99	150	249
21	Kalimantan Tengah	114	90	204
22	Kalimantan Selatan	190	51	241
23	Kalimantan Timur	89	99	188
24	Kalimantan Utara	36	22	58
25	Sulawesi Utara	103	96	199
26	Sulawesi Tengah	106	112	218
27	Sulawesi Selatan	200	274	474
28	Sulawesi Tenggara	212	94	306
29	Sulawesi Barat	53	45	98
30	Gorontalo	69	26	95
31	Maluku	136	92	228
32	Maluku Utara	97	52	149
33	Papua	77	42	119
34	Papua Barat	50	26	76
35	Papua Selatan	28	51	79
36	Papua Tengah	91	26	117
37	Papua Pegunungan	119	29	148
38	Papua Barat Daya	73	18	91
JUMLAH		6.178	4.238	10.436

*Data Kepmenkes HK.01.07/MENKES/2099/2023

Based on the table above, it is known that the number of puskesmas in districts/cities/provinces in Indonesia in 2023 is 10,436 puskesmas with a minimum need for ATLM puskesmas personnel based on Minister of Health Regulation 43 of 2019 is 1 energy for each type.(KMK_No._HK.01.07-MENKES-2099-2023.pdf, t.t.)

DISCUSSION

Number of ATLM graduates from 2018 to 2021

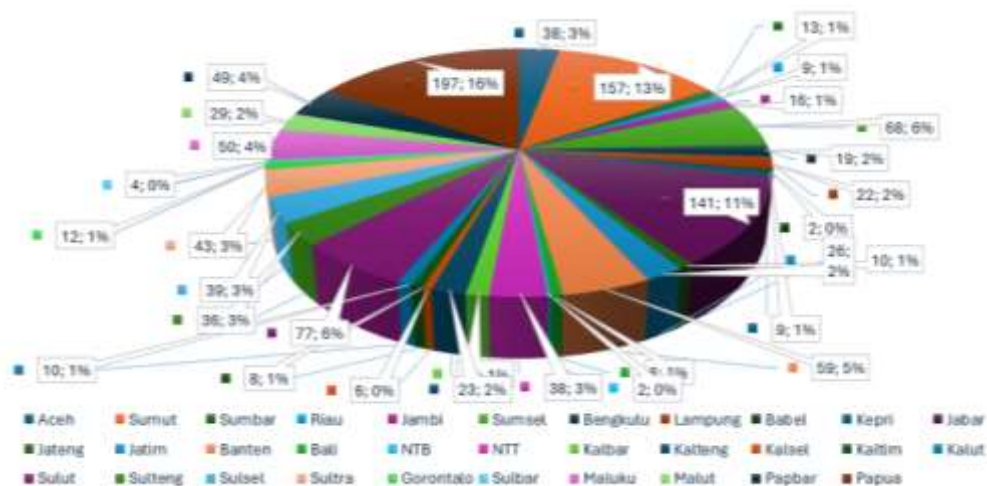
When viewed from the supply aspect, the government has made efforts to provide D3 ATLM study programs in provinces throughout Indonesia. However, the number of D3 ATLM graduates is not yet able to meet the minimum need for ATLM personnel in several districts/cities in Indonesia. Data on ATLM graduates in 2018 was 5,774 ATLM workers, in 2019 the number of graduates was 6,579 ATLM workers, in 2020 the number of ATLM graduates was 7,010, and in 2021 the number of TLM graduates was 4,669, compared to the current number of health centers as many as 10,436 community health centers, of course this is still enough if distributed evenly, but the problem is that the distribution of health workers only relies on certain areas, especially if health workers prioritize working in locations closer to home/family. (SISDMK - Sistem Informasi Sumber Daya Manusia Kesehatan, t.t.)

Table 3. Number of graduates

Years	Number of graduates
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2018	5774
2019	6579
2020	7010
2021	4669

2022 SISDMK data



Picture 2. Province without ATLM Health Center Personnel in 2022

The provinces that do not have the most ATLM personnel are West Java Province, North Sumatra Province, Banten Province, South Sumatra Province, South Sulawesi Province, Maluku Province and also Papua. In DKI Jakarta Province, Puskesmas that do not have ATLM personnel are only Puskesmas Kelurahan. Almost all provinces experience a shortage of ATLM Puskesmas personnel, namely North Sumatra Province 157 Puskesmas without ATLM personnel, South Sumatra Province 68 Puskesmas without ATLM personnel, West Java Province 141 Puskesmas without ATLM personnel, East Java Province 26 Puskesmas without ATLM personnel, Papua Province 197 Puskesmas without ATLM personnel, while Aceh and South Sulawesi Provinces each 2 14 districts do not have ATLM personnel, as well as the provinces of NTT and North Sulawesi each 2 13 districts that do not have ATLM personnel

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