

Original Article

***The Influence of Non-Physical Special Allocation Funds in the Health Sector
in Improving the Implementation Calibration of Medical Devices
Public Health Centers in Indonesia***

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ABSTRACT

The quality of health services at the health center is greatly influenced by health equipment. Efforts to maintain health equipment so that it functions properly and is suitable for use include carrying out maintenance including calibration of medical devices. In 2022, the calibration achievement of health centers is still very low compared to the achievement of hospital calibration (health centers 34.1% and hospitals 70.2%). One of the factors causing the low calibration implementation is the lack of budget availability. In 2023, the government provided budget support for health center calibration through the Health Sector Nonphysical Special Allocation Fund. This study aims to determine the achievement of the implementation of medical device calibration at health centers in Indonesia in 2022 and 2023 and the effect of the Nonphysical Special Allocation Fund for the health sector in 2023 on improving the implementation of calibration at health centers. This study is a quantitative study with a cross-sectional design. Data collection used secondary data with a total sampling of 10,374 health centers. Data analysis techniques were carried out univariate and bivariate using SPSS. Univariate analysis showed an increase in the proportion of health centers that calibrated medical devices by 22.6% from 34.1% in 2022 to 56.7% in 2023. Similarly, the proportion of calibrated medical devices increased by 3.5% from 6.6% in 2022 to 11.6% in 2023. Bivariate analysis using the T-test obtained a p-value = 0.008 and the Chi-Square test obtained a p-value = 0.002, indicating an association between the Nonphysical Special Allocation Fund for the Health Sector and the increase in the calibration achievement of puskesmas in 2023.

Keywords : *Calibration, Medical Equipment, Public Health Center, Nonphysical Special Allocation Fund for the Health Sector*

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INTRODUCTION

Health Law number 17 of 2023 states that health administration consists of health efforts, health resources and health management. The safety and use of pharmaceutical preparations, medical devices and household supplies (PKRT) is one part of health efforts. The law also states that pharmaceutical preparations, medical devices and PKRT must be safe, efficacious/beneficial, of good quality and affordable.¹

Success in primary and referral services

must be supported by Health Service Facilities that meet quality, quality and safety standards including medical devices¹¹. Regulation of the Minister of Health Number 15 of 2023 states that medical devices are used to prevent, diagnose, cure, alleviate disease, treat the sick, restore health in humans, and/or form structures and improve body functions. Medical devices that are not fit for use and do not function properly can result in errors in diagnosing patients, which can hinder and even cause errors in the provision of health services that lead to health-related Unexpected Events (KTD).²⁻⁴

Currently, the delivery of health care through the use of diagnostic and treatment tools is a fundamental part of health care²⁶. However, it is estimated that 40-70% of medical devices in poor and developing countries are damaged, unusable or not used for their intended purpose, affecting the quality of health care.⁵⁻⁷

The use of unsafe and unreliable equipment can lead to fatal medical accidents⁷. Equipment has an important role in safeguarding the lives of patients, both directly and indirectly.⁸ If medical equipment does not function properly, precisely, and accurately, then the people who receive health services will be directly affected by the inaccuracy of the medical equipment, and one example occurred in 2014 where a baby was found dead in an incubator due to an error in the temperature listed on the incubator device.⁹

Puskesmas as a First Level Health Service Facility (FKTP) is a public service provider in the health sector that is closest to the community.^{10,11} Therefore, health centers should provide good, appropriate, affordable, safe services, and protect the community. One important aspect of protection and safety is avoiding the dangers of using inappropriate or inaccurate medical devices. Therefore, the function, accuracy, and accuracy of medical devices owned by health centers are important to note.⁹ The condition of the low number of calibrated health center medical devices causes the accuracy of the medical devices used to be doubtful, thus potentially threatening the safety of patients as recipients of health services who use them.¹²

Efforts to ensure the availability of health center medical devices in accordance with service standards, quality requirements, security, benefits, safety, and usability, it is necessary to test and/or calibrate medical devices.¹³⁻¹⁵ This is in line with government regulations as one of the requirements in establishing a puskesmas, namely the provision of health equipment that must be tested and calibrated periodically by authorised calibration testing institutions.¹⁰

Calibration is an illumination activity to determine the correctness of the indicative value of measuring instruments and/or measuring materials, while testing is a whole action that includes physical examination and measurement to compare the measured device with the standard, or to determine the amount or

measurement error.³ Calibration is one part of preventive maintenance activities carried out on a scheduled basis to extend the life of equipment and prevent damage to medical devices.^{16,17} The level of accuracy, precision, and safety of a medical device can be known by conducting periodic testing and calibration.^{13,18} The calibration obligation is also contained in Permenkes No. 54/2015 concerning testing and calibration of medical devices that every medical device used in health care facilities must meet quality, security, safety and usability requirements, so it is necessary to conduct periodic testing and / or calibration at least once a year by the Health Facility Testing Center (BPFK) or Health Facility Testing Institution (IPFK) both public and private.³

The 2019 Health Facility Research (Rifaskes) conducted by the Ministry of Health shows that the proportion of referral hospitals that perform periodic maintenance of medical devices including calibration is 92.4% (133 out of 144 referral hospitals) and non-referral hospitals are 86.1% (278 out of 3,232 hospitals)¹⁵ Meanwhile, based on monitoring data from the Application of Medical Equipment Facilities (ASPAK) in 2022, health centers that calibrate medical devices in 2022 are still low at 34.1% (5,334 out of a total of 10,374 health centers), much lower than hospitals that calibrate 70.2% or 1288 out of a total of 3134 hospitals).¹⁹

Problems and constraints in the implementation of health center medical device calibration include the minimum number of medical device calibration testing institutions and technical personnel of calibration testing installations/laboratories, and work methods have not been used by all medical device calibration testing institutions, budget constraints, not all Puskesmas are Regional Public Service Bodies (BLUD), lack of knowledge of health workers and the public regarding medical device calibration, the absence of special supervision by the district/city and provincial health offices, as well as the ministry of health in order to ensure that medical devices have been calibrated, the absence of sanctions against health centers whose medical devices have not been calibrated, calibration of medical devices is not the main assessment instrument for accreditation of health centers and the difficulty of obtaining calibration implementers from the eletromedical technical academy.^{9,20} Endang

(2021) also said that budgeting and human resources are factors that influence compliance with the implementation of medical device calibration at Puskesmas.²¹

One of the government supports to increase the coverage of the implementation of health center calibration is through the Nonphysical Special Allocation Fund (DAK NF) for the Health Sector, which is a fund sourced from the state budget allocated to the regions to help fund operational activities in the health sector which are regional affairs in accordance with national priorities.^{18,22} These funds are used to fund operational expenditures for national priority programs for health offices and puskesmas as implementers of health program.^{23,24} In 2023, the locus of regions receiving DAK NF for health center calibration is 350 districts/cities in 34 provinces.²⁵

Seeing this, it is important to know the description and relationship of the implementation of medical device calibration at puskesmas from 2022 to 2023 after the intervention of the puskesmas calibration budget support policy from the central government to local governments through DAK NF for the Health Sector and the factors that influence it.

METHOD

This study is a quantitative study with a *cross-sectional* design. The data collection technique used secondary data sourced from the Ministry of Health's ASPAK for 2022 and 2023 dated January 26, 2023. The sample in this study used total sampling, namely all health centers in 514 districts / cities, 34 provinces totaling 10,374 public health centers.^{10,15}

Data analysis by univariate to see the frequency distribution of the number of health centers that calibrate and the number of health center medical devices that have been calibrated in 2022 and 2023. Furthermore, bivariate analysis using the T test and Chi-square test to see the relationship between puskesmas calibration achievements and DAK NF for the Health Sector, which is presented in the form of tables and graphs accompanied by explanations and analysis in the form of narratives. The

computer application used to analyze the data was *Statistical Package for the Social Sciences* (SPSS) version 24.

The operational definition of the achievement of health centers that carry out calibration is the number of health centers that have carried out calibration without the minimum number of tools calibrated in the current year. While the operational definition of the achievement of calibration of medical devices is the number of medical devices that are required to be calibrated that have been calibrated in the current year.²⁶ The data on the results of the calibration of health centers is entered into the ASPAK monitoring application by BPFK or IPFK as the implementer or who has tested/calibrated the health centre equipment.

It is important to note the limitations of this study, first; this study is a cross-sectional study that only describes the two research variables, but does not establish a causal relationship, second: the study was limited to using secondary data, namely sourced from ASPAK monitoring data where this data is highly dependent on the active role of medical device calibration testing institutions (BPFK / IPFK) in reporting data on the results of the implementation of the calibration of public health center medical devices that have been carried out, Third; this research data was taken from the achievements of the 2023 health center calibration dated January 26, 2024 so there is a possibility that the 2023 achievement data has not been entered or updated if the BPFK / IPFK is late in reporting data on the ASPAK monitoring application.

The research has passed the ethical review of the research and community service ethics commission of the Faculty of Public Health, University of Indonesia with number Ket-813/UN2.F10.D11/PPM.00.02/2023.

RESULTS

Data processing shows the frequency of national achievements of health centers implementing medical device calibration in 2022-2023 and their progress (table 1).

Table 1. Progress and Performance of Public Health Centers Implementing Calibration in 2022 and 2023 in Indonesia

Provinces	Number Public Health Center	Calibration health center in 2022		Calibration health center in 2023		Progress of calibration implementation in 2022-2023	
		n	%	n	%	n	%
Sumatera Barat	280	46	16,4	243	86,8	197	70,4
Kalimantan Selatan	241	87	36,1	232	96,3	145	60,2
Bangka Belitung	64	17	26,6	55	85,9	38	59,4
Kalimantan Tengah	204	37	18,1	154	75,5	117	57,4
Kalimantan Barat	248	46	18,5	179	72,2	133	53,6
Gorontalo	93	11	0,0	60	64,5	49	52,7
Jambi	207	22	10,6	127	61,4	105	50,7
Maluku Utara	148	13	8,8	88	59,5	75	50,7
Nusa Tenggara Timur	429	92	21,4	297	69,2	205	47,8
Aceh	362	36	9,9	197	54,4	161	44,5
Bengkulu	179	21	11,7	96	53,6	75	41,9
Kepulauan Riau	93	18	19,4	54	58,1	36	38,7
Riau	238	41	17,2	121	50,8	80	33,6
Sulawesi Tengah	218	66	30,3	138	63,3	72	33,0
Maluku	228	12	5,3	77	33,8	65	28,5
Sumatera Selatan	348	70	20,1	165	47,4	95	27,3
Jawa Tengah	880	520	59,1	757	86,0	237	26,9
Kalimantan Utara	57	15	26,3	28	49,1	13	22,8
Sumatera Utara	615	109	17,7	248	40,3	139	22,6
Sulawesi Utara	199	8	0,0	43	21,6	35	17,6
Banten	247	129	52,2	180	72,9	51	20,6
Bali	120	74	61,7	97	80,8	23	19,2
Jawa Barat	1100	449	40,8	656	59,6	207	18,8
Sulawesi Barat	98	16	16,3	32	32,7	16	16,3
Lampung	318	81	25,5	122	38,4	41	12,9
Kalimantan Timur	188	119	63,3	142	75,5	23	12,2
Papua Barat	163	33	20,2	43	26,4	10	6,1
Sulawesi Tenggara	302	28	3,0	45	14,9	17	5,6
DI Yogyakarta	121	101	83,5	107	88,4	6	5,0
Papua	454	13	2,9	31	6,8	18	4,0
DKI Jakarta	315	281	89,2	281	89,2	0	0,0
Nusa Tenggara Barat	176	106	60,2	104	59,1	-2	-1,1
Sulawesi Selatan	472	59	12,5	41	8,7	-18	-3,8
Jawa Timur	969	758	78,2	641	66,2	-117	-12,1
Nasional	10374	3534	78,2	5881	56,7	2347	22,6

Table 1 shows that the average national achievement of health centers that calibrated in 2022 was 34.1% with the highest percentage of 89.2% (DKI Jakarta Province) and the lowest percentage of 2.9% (Papua Province). While in 2023, the average national achievement of health centers that calibrated was 56.7% with the highest percentage of 96.3% (South Kalimantan Province) and the lowest percentage of 6.8% (Papua Province).

Results show an increase in the average national achievement of calibrated health centers from 2022 to 2023 by 22.6%. The data also shows that 30 out of 34 health centers experienced an increase in the achievement of health center calibration (88.2%) in 2023 where the highest percentage increase was in West Sumatra Province at 70.4%. Furthermore, one province experienced no change in achievement or remained fixed, namely DKI Jakarta Province and there were three provinces that experienced a decrease, namely West Nusa Tenggara, Sulawesi and East Java Provinces.

Furthermore, Table 2 shows an overview of the national achievements of the number of calibrated public health center

medical devices in 2022 and 2023 and their development progress.

Table 2. Progress and Performance of Health Center Medical Devices Calibrated in 2022 and 2023 in Indonesia

Province	Public health Medical Devices Required to be Calibrat	Calibrated Medical Devices in 2022		Calibrated Medical Devices in 2023		Progress of calibration implementation in 2022-2023	
		N	%	N	%	N	%
Sumatera Barat	36089	1099	3,0	7844	21,7	6745	18,7
Kalimantan Selatan	30581	1365	4,5	5839	19,1	4474	14,6
Kalimantan Tengah	22410	436	1,9	3540	15,8	3104	13,9
Gorontalo	10778	82	0,8	1475	13,7	1393	12,9
Kalimantan Utara	4814	758	15,7	1348	28,0	590	12,3
Nusa Tenggara Timur	45079	1587	3,5	6659	14,8	5072	11,3
Jambi	22685	291	1,3	2774	12,2	2483	10,9
Bangka Belitung	9152	562	6,1	1517	16,6	955	10,4
Maluku Utara	18417	204	1,1	2087	11,3	1883	10,2
Kalimantan Barat	29505	663	2,2	3341	11,3	2678	9,1
Kepulauan Riau	11990	355	3,0	1406	11,7	1051	8,8
Sulawesi Tengah	24281	1126	4,6	3017	12,4	1891	7,8
Maluku	20055	79	0,4	1545	7,7	1466	7,3
Sumatera Selatan	40715	753	1,8	3535	8,7	2782	6,8
Jawa Tengah	124901	8533	6,8	16935	13,6	8402	6,7
Sumatera Utara	66000	1811	2,7	6078	9,2	4267	6,5
Aceh	48167	369	0,8	3423	7,1	3054	6,3
Sulawesi Barat	12022	363	3,0	1026	8,5	663	5,5
Riau	28400	861	3,0	2344	8,3	1483	5,2
Bali	15239	2431	16,0	3221	21,1	790	5,2
Banten	31031	4086	13,2	5635	18,2	1549	5,0
Bengkulu	24175	288	1,2	1360	5,6	1072	4,4
DI Yogyakarta	19876	4391	22,1	5244	26,4	853	4,3
Sulawesi Tenggara	27865	610	2,2	1491	5,4	881	3,2
Sulawesi Utara	26059	104	0,4	808	3,1	704	2,7
Nusa Tenggara Barat	35092	1853	5,3	2755	7,9	902	2,6
Jawa Barat	121135	6706	5,5	9448	7,8	2742	2,3
Lampung	39694	1013	2,6	1577	4,0	564	1,4
Papua Barat	11105	699	6,3	852	7,7	153	1,4
Papua	39924	126	0,3	596	1,5	470	1,2
Kalimantan Timur	23268	3484	15,0	3638	15,6	154	0,7
Jawa Timur	156977	18432	11,7	18339	11,7	-93	-0,1
Sulawesi Selatan	75345	2070	2,7	1419	1,9	-651	-0,9
DKI Jakarta	23781	16756	70,5	16330	68,7	-426	-1,8
Total Nasional	1276607	84346	6,6	148446	11,6	64100	5,0

Table 2 shows that the average national achievement of calibrated health center medical devices in 2022 was 6.6% or 84,346 out of 1,276,607 mandatory calibration medical devices with the highest percentage of 70.5% in DKI Jakarta Province and the lowest percentage of 0.3% in Papua Province. The data also shows an increase in national achievement in 2023 with an average calibrated health center medical devices of 11.6% or 148,446 out of

1,276,607 mandatory calibration medical devices with the highest percentage of 68.7% in DKI Jakarta Province and the lowest percentage of 1.5% in Papua Province.

The results showed an increase in the average national achievement of calibrated community health equipment from 2022 to 2023 by 5%. Most of the 31 out of 34 provinces or 91% experienced an increase in the percentage of calibrated medical devices. West

Sumatra Province is the province with the highest achievement of 18.7%, but there are three provinces experiencing a decrease in achievement, namely East Java Province, South Sulawesi and DKI Jakarta.

The results of the bivariate analysis between the calibration achievement variable in 2023 and districts/cities that received and did not receive DAK NF 2023 are shown in Table 3.

Table 3. Correlation between DAK NF and Calibration Outcomes of Health Centers by District/City in Indonesia in 2023 (N=514)

DAK NF	Implementation of Calibration						Total (n)	P-value
	Decrease		Constant		Increase			
	n	%	n	%	n	%		
Yes	37	10,6	137	39,1	176	50,3	350	0,002
No	35	21,3	47	28,7	82	50,0	164	

Table 3 shows that most districts/ municipalities received DAK NF, which amounted to 350 districts/municipalities (68.1%). The results show that the average achievement of health centers that calibrate by district in 2023 is higher in the group that does not have DAK NF, namely 64.3% with a variation of 39.7% compared to districts that get DAK NF funds, namely 53.6% with a variation of 46.1%. The results of the independent T test obtained a p-value = 0.008, meaning that there is a difference in the average percentage of achievements of

health centers that calibrate between groups that get DAK NF and groups that do not get DAK NF or it is concluded that there is a relationship between DAK NF and the calibration achievements of health centers by district / city in Indonesia in 2023.

The results of the bivariate analysis between the variable of increased calibration achievements from 2022 to 2023 with districts receiving and not receiving DAK NF 2023 are shown in Table 4.

Table 4. Correlation between DAK NF and Increased Achievement of Calibration of Health Centers by District/City in Indonesia in 2022-2023 (N=514)

DAK NF	N Districts/Cities	Mean	SD	P-Value
No	164	64,3	39,7	0,008
Yes	350	53,6	46,1	

Based on Table 4, the percentage increase in calibration achievements from 2022 to 2023 was greater in districts that received DAK NF (50.3%) compared to districts that did not receive DAK NF (50%). Districts/cities that experienced a decrease in calibration from 2022 to 2023 were also less in districts/cities that received DAK NF at 10.6% compared to districts/cities that did not receive DAK NF at 21.3%. The results of the Chi-Square test obtained a p-value = 0.002, meaning that there is an association between DAK NF and the increase in calibration achievements of health centers by district /city in Indonesia from 2022-2023

still quite low (table 1) when compared to the achievements of hospital calibration and maintenance.²¹ However, there has been an increase in the number of health centers carrying out calibration from 2022 to 2023 (table 1). This achievement still does not meet the target when using the national target set by the government based on Permenkes No. 13 of 2022, which is the percentage of referral health service facilities that conduct testing and calibration of medical devices at 60%.⁹ Meanwhile, the calibration of community health centers is not included in the national target set by the government.

Table 1 shows that in 2023 there has been an increase in the number of health centers that carry out calibration. This is possible due to several things, including the support of the central government budget through DAK NF for the calibration of health centers in 2023 which is given to 350 districts/cities in 34

DISCUSSION

The results of the study show that nationally, the achievements of health centers that carry out calibration of medical devices are

provinces.²³ This is in line with the results of a study by Arab Zozani et al (2021) who emphasized that the allocation of budget and financial resources according to plans, priorities, and instructions is the most optimal thing. Financial resources and constraints are decisive factors for health equipment experts.⁴ Lack of adequate budget causes problems in providing the necessary services for troubleshooting, repairs, provision of spare parts and others.^{14,27} Medical equipment planning and budgeting enables healthcare institutions to use funds appropriately, acquire quality and efficient medical equipment, and improve healthcare delivery.^{10,13,21}

In line with the results of Endang's research (2021) in Gunung Kidul Regency which shows that there is a positive and significant effect of budgeting on compliance with calibration implementation, meaning that an increase in budgeting will increase compliance with calibration implementation. This shows that providing a budget for calibration requires more flexible planning to increase the number of medical devices to be calibrated and even provides an opportunity for all medical devices used in health services that are required to be calibrated to be proposed for calibration and carried out according to schedule.²¹

Another factor is the increased support and commitment of the local government in terms of health center medical device management with the establishment of the Medical Device Maintenance Unit (UPAK). UPAK owned by the Regional Government, is a regional technical implementation unit in the health sector or a functional unit in the regional work unit of the health office that carries out Medical Device Maintenance at Puskesmas and other Health Service Facilities. UPAK can function optimally to carry out the management of medical devices, including the functions of maintenance, testing and/or internal calibration of medical devices.² Based on the performance report of the directorate of health service facilities in 2023 trimester II, there were 75 UPAK spread across provincial health offices and district / city health offices, indicating an increase of 87% from 2022 which amounted to 40 UPAK.²⁸

However, there are still areas that have not shown any improvement or very low achievements in the implementation of

calibration, namely Papua province. Factors that may influence this include the geographical location of very difficult access to health centers, the absence of UPAK at the district / city or provincial health office level in²⁸, and the limited number of testing and calibration institutions in the Papua province. Based on data from the Ministry of Health in 2023, there are only 2 providers of calibration testing institutions in the Papua province and the rest must use the services of calibration providers outside the Papua province, this certainly causes difficulties and limited access to the implementation of calibration of health center medical devices.

The increase in the number of health centers carrying out this calibration has not been proportional to the number of medical devices that have been calibrated. Judging from the 56.7% of health centers that have carried out calibration in 2023, only 11.6% of medical devices have been calibrated (table 1 and table 2). This must certainly be a common concern and evaluation both by the central government, regions and health facilities to increase the coverage of the implementation of calibration of health center medical devices that must be calibrated. One of the causes is the lack of testing and calibration institutions, including technical personnel, compared to the number of medical devices in health facilities such as health centers, hospitals, clinics and laboratories in Indonesia today.⁹

Based on data from the Ministry of Health in 2023, the number of public and private medical device calibration service providers in Indonesia is 107 institutions consisting of four BPFK (Jakarta, Surabaya, Medan and Makassar), two LPFK (Surakarta and Banjarbaru), two UPFK (Palembang and Jayapura), and 98 IPFK or other private testing institutions mostly located in Java. The limited number and uneven distribution of qualified calibration institutions in Indonesia requires the government to review the need for medical device testing and calibration institutions. Ombusman (2018) said that in order for all medical devices to be calibrated efficiently, at least 128 calibration testing institutions are needed.⁹ The limited number of calibration testing institutions and calibrator personnel means that the calibration process cannot be carried out periodically, especially in health service units at the district, city or sub-district level 2.

In addition, the current implementation of testing and/or calibration of medical devices to testing and calibration institutions is still passive, meaning that testing and/or calibration of medical devices is only based on requests from puskesmas managers. Maintenance and calibration of equipment is generally carried out when facing the accreditation of health centers, this activity has not been carried out in a planned and continuous manner.^{9,29} The low attention of health centers to carry out calibration of medical devices is also due to the lack of support from the district health office as the supervisor of health centers.⁹

The low attention of health centers to carry out calibration of medical devices is also due to the lack of support from the district health office as the supervisor of health centers.⁹ Awareness to propose the implementation of calibration is also still low due to a mindset that prioritizes the procurement of new medical devices rather than maintaining and maintaining the functionality, accuracy and accuracy of medical devices through calibration. In addition, the absence of sanctions imposed on health centers whose medical devices have not been calibrated makes the motivation for calibration very low.⁹ Monitoring of health equipment maintenance and documentation of timely calibration or validation of instruments/ measuring instruments by competent parties according to procedures is also one of the factors that ensure the quality of equipment in health centers.³⁰

Based on data from the Ministry of Health's Budget Planning Bureau report in 2023 (data January 24, 2024) the realization of the DAK NF for the puskesmas calibration menu was 69.03%, so there is still 30.97% of the budget that has not been realized⁹. There are approximately 120 out of 350 locus districts / cities receiving DAK NF for calibration of puskesmas in 2023 or 34% that are less optimal in using DAK NF funds in 2023. This should be a concern and evaluation for the use of DAK NF the following year.

The less than optimal use of DAK NF for calibration of health centers can be influenced by several factors, including the process of supervision and guidance that is still not optimal due to changes in the person in charge of the medical device testing and calibration program at the central level according to the organizational structure at the ministry of health, which originally in 2022 was

in the directorate general of health services during the DAK NF budget planning process in 2023, This was conveyed by the Head of the Medical Device Calibration Testing Team of the Directorate General of Health Services of the Ministry of Health at the 2024 monitoring and evaluation meeting for the implementation of testing and calibration of health facility services. In addition, it is important to conduct a more in-depth evaluation and study to obtain information related to the obstacles and constraints faced by puskesmas and districts/cities in using the DAK NF budget for puskesmas calibration.

DAK NF support for health center calibration from the central government is then still needed in the context of the continuation of the implementation of health center medical device calibration in the following year, especially for regions with good commitment but limited budgetary resources. But of course it is accompanied by various adjustments to the results of the evaluation of the implementation in 2023 so that it is more optimal, including strengthening guidance in stages from the central government, provincial health offices, district / city health offices and health centers. In addition, the importance of cooperation with calibration provider institutions, both public and private, in improving the orderly reporting of calibration implementation results into the ASPAK monitoring report.

CONCLUSION

The number of health centers that carried out calibration in 2023 reached 56.7% (5,881) or an increase of 22.6% from the previous year. The increase in the number of health centers carrying out calibration is accompanied by an increase in the number of calibrated medical devices, which is 11.6% (up 5% from 2022) or 148,326 out of 1,276,607 health center medical devices that must be calibrated. This increase in achievement is statistically due, among others, to the DAK NF for calibration of health centers.

This study suggests the importance of, among others:

1. Improving guidance and monitoring evaluation in the implementation of calibration of health equipment at health centers in stages, starting from the district / city health office, provincial health office and the ministry of health.

2. The need for local governments to form UPAK in the health office which will be responsible for managing maintenance including calibration of health center medical devices, optimizing the use of DAK NF for health center calibration with assistance and guidance from the district / city health office.
3. Continued central support for the budget for the implementation of calibration of medical devices at puskesmas through DAK NF or others, but also supported by local governments through other budget sources.
4. Increase the number and capacity of institutions providing testing and calibration of medical devices including their labor resources as needed.
5. The Ministry of Health needs to develop or expand the national target setting of the calibration indicator from only referral health service facilities to all health service facilities including health centers because basically the implementation of calibration and maintenance of medical devices applies equally in all health service facilities.
6. Given the limitations in this study, it is necessary to conduct other related research, especially qualitative research to further explore the factors that can support and hinder the implementation of the calibration of Puskesmas medical devices, including the use of the DAK NF budget for the calibration of puskesmas medical devices.

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