ANALYSIS OF THE EFFECT OF HEALTH FUNCTION BUDGET ON LIFE EXPPECTATIONS

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ABSTRAK

Penelitian ini berfokus pada analisis pengaruh belanja fungsi kesehatan terhadap Angka Harapan Hidup di provinsi Jawa Tengah. Angka Harapan Hidup merupakan salah satu indikator indeks pembangunan manusia. Pemerintah Indonesia memberikan perhatian terhadap pembangunan sumber daya manusia melalui kebijakan anggaran kesehatan. Dengan menggunakan pendekatan deskriptif melalui analisis 4 kuadran tipologi Klassen, hasil penelitian menunjukkan bahwa kabupaten/kota di Jawa Tengah 8,33% berada pada kuadran I (Daerah dengan belanja fungsi kesehatan dan angka harapan hidup yang tinggi), 36,11% berada pada kuadran II (Daerah dengan belanja fungsi kesehatan yang tinggi tetapi angka harapan hidup rendah), 5,56% berada pada kuadran III (Daerah dengan belanja fungsi kesehatan yang rendah tetapi angka harapan hidup tinggi) dan 50% berada pada kuadran IV (Daerah dengan belanja fungsi kesehatan dan angka harapan hidup rendah). Hasil analisis melalui regresi linier sederhana menunjukkan bahwa anggaran fungsi kesehatan berpengaruh positif dan signifikan terhadap Angka Harapan Hidup di provinsi Jawa Tengah dengan nilai t-value sebesar 0,049 dan nilai r-squared sebesar 0,7742.

Kata Kunci*— Usia Harapan Hidup, Belanja Kesehatan, Regresi, Typology Klassen*

ABSTRACT

This study focuses on analyzing the effect of health function expenditure on Life Expectancy in Central Java province. Life Expectancy is one of the indicators of the human development index. The Indonesian government pays attention to human resource development through the health budget policy. By using a descriptive approach through the analysis of 4 quadrants of Klassen's typology, the research results show that the districts / cities in Central Java are 8.33% in quadrant I (Regions with high expenditure on health functions and life expectancy), 36.11% in quadrant II (Regions with high expenditure on health functions but low life expectancy), 5.56% in quadrant III (Regions with low expenditure on health functions but high life expectancy) and 50% in quadrant IV (Regions with low expenditure on health functions and life expectancy). The results of the analysis through simple linear regression showed that health function budget has a positive and significant effect on Life Expectancy in the Central Java province with a t-value of 0.049 and an r-squared value of 0.7742.

Keywords*— Life Expectancy, Budget Function of Health, Regression, Typology Klassen*

1. INTRODUCTION

1.1.Background

The state budget is prepared to be a guideline for state revenues and expenditures in carrying out state duties to increase production and employment opportunities, in order to increase economic growth and community prosperity. Prosperity can only be obtained if the economic development carried out by a country is successful. The success of economic development is determined by economic and non-economic factors. Economic factors are determined by 3 (three) factors, namely the rate of economic growth, Gross National Product (GNP) and Gross Domestic Product (GDP). The non-economic factors or known as social indicators include the Quality of Life Index and the Human Development Index. The Quality of Life Index is a composite index of three main indicators, including Life Expectancy at one year of age, mortality rate and illiteracy rate. Meanwhile, the Human Development Index as described in the book Kolaborasi Pembangunan Ekonomi di Negara Berkembang, (Muhammad Amsal

Sahban, 2018), is measured based on three aspects, including longevity as measured by Life Expectancy, knowledge as measured by the weighted average of the number of adults living can read and mean school level and income as measured by adjusted real income.

In relation to the preparation of the state budget, in the general review of Government Regulation Number 17 of 2017 concerning Synchronization of the National Development Planning and Budgeting Process, it is stated that the Government must be able to achieve the goals of the nation and state through development activities by implementing an effective and efficient government management process. The stages in the government management process include planning and budgeting which are regulated separately in Law Number 17 of 2003 concerning State Finances and Law Number 25 of 2004 concerning the National Development Planning System. This separate arrangement creates problems regardless of the link between planning and budgeting. The issuance of Government Regulation Number 17 of 2017 carries the mandate of synchronization between planning and budgeting at the central government and local government levels in order to realize national development goals. Synchronization or harmonization between central and regional expenditures is intended to make planning and budgeting more quality and effective, in the context of achieving the national development targets set out in the National Medium-Term Development Plan (RPJMN) and elaborated annually in the Government Work Plan (RKP).

The budget for health functions allocated in Central Java, both through the APBN and APBD, has an increasing trend from year to year. The increase in budget allocations from year to year, both in the form of central and regional government expenditures, certainly brings hope for an increase in community welfare as the objectives of the APBN and APBD themselves. One

measure of development success using the Human Development Index is longevity as measured by life expectancy.

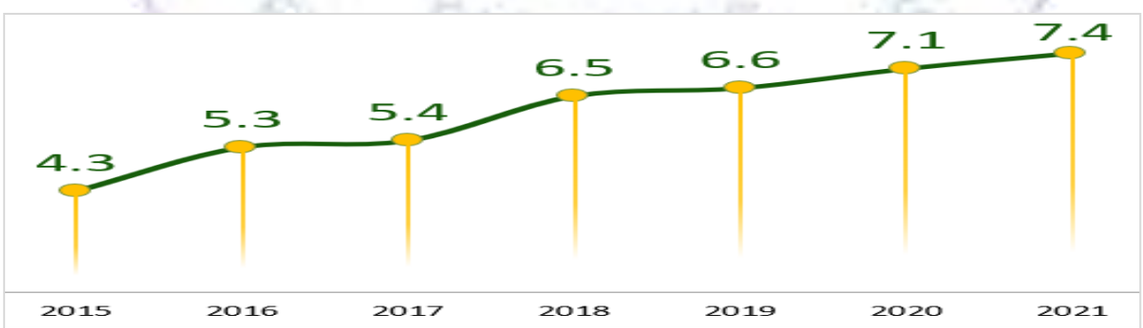

Figure 1 Development of Central Java Health Budget 2015-2022 (trillion rupiah)

1.2. Purpose and scope

In this regard, to find out the realization of harmonization in a more comprehensive national development framework, this study will conduct a review to evaluate the alignment

between central and local government spending, especially in health sector spending using health indicators on the Life Ecpectancy side both at the provincial and district levels. For this reason, it is necessary to study further whether the increase in government budget or spending has a positive effect on the quality of health.

Based on these expectations and theories, the analysis was carried out with the aim of: Mapping of health indicators in terms of life expectancy at the provincial and district/city levels; Knowing the overview of the role of spending on Health Functions in the APBN and APBD on life expectancy; Alignment of budget allocation in Central Java, both from the APBN and APBN, is intended to support the welfare of the community, especially in the health sector.

The scope of this study includes the allocation of APBN and APBD for Health functions in 2017 to 2021. The analysis is carried out by linking Health Function Expenditures, Expenditures of Ministries/Institutions and APBD with Life Expectancy indicators per district/city.

The types of data used are quantitative and qualitative data. Quantitative data obtained from the Monev Application for Budget Implementation, the SIMTRADA Application, the Regional Financial and Asset Management Agency (BPKAD) of Central Java Province, and the Central Java Province Statistics Agency. Qualitative data used is information to identify efforts made to increase Life Expectancy and interviews conducted through FGD forums.

2. ANALYSIS METHOD

The methods used in this research are: Descriptive analysis, in the form of a picture of the real condition of the development of government spending and the development of health indicators in Central Java Province. This method is also used for mapping health indicators in terms of Life Expectancy at the provincial and district/city levels; Qualitative analysis in the form of searching through FGD forums is used to identify the possibility of duplication of funding for the same activity as well as obstacles to health spending problems. The FGD was carried out by inviting the Central Java Provincial Health Office, Central Java BKKBN and the Food and Drug Supervisory Agency (BPOM) Semarang; Quantitative Analysis in the form of Correlation Analysis as a means to measure of associations. Measurement of association is a general term that refers to a group of techniques in bivariate statistics that are used to measure the strength of the relationship between two variables, government spending of health and Life Expectancy.

2.1 Literature Review

Health sector expenditure is a type of regional expenditure used to finance the implementation of government affairs which are the authority of the province or district/city in the health sector. Based on Law No. 36 of 2009 article 171 paragraph (2) states that the

government's health budget is allocated a minimum of 10 percent of the APBD excluding salaries. This provision is further strengthened by Aceh Qanun No. 2 of 2013 concerning amendments to Qanun number 2 of 2008 concerning the procedures for allocating Revenue Sharing Transfer of oil and gas funds and the use of special autonomy funds (Muliza et al., 2017). Expenditures on the health budget sector are government expenditures issued to fulfill one of the basic rights to obtain health services in the form of health services and facilities which are prerequisites for increasing community productivity (Todaro & Smith, 2012). Government spending in the health sector is the amount of government spending/expenditures in the health sector, for example spending for the construction of health facilities, community health insurance, and others (Royda & Melvani,2018).

According to the results of the technical analysis, government spending on the health sector has positive and significant relationship, which means that every one percent increase in the sector health will cause the development index to also increase by 0.012 percent with the exception of other circumstances is ceteris paribus (other circumstances are constant). When government spending on the health sector increases by 1% it will cause HDI in Indonesia increased by 1.07317259% ([0.01*0.12059] + 1.073052) (Putra, 2019). This positive relationship occurs due to government spending on the health sector in the form of health insurance assistance, health insurance for pregnant and lactating women can make an individual live a healthier and longer life in accordance with the dimensions of life deserves the first HDI so that the quality of human resources is represented by the value HDI will increase. In economics, the health sector has been believed to play a vital to development. The productivity of human resources is largely determined by the level of health that affects the success of education in implementing sustainable development. Therefore, health can also be seen as a vital component of growth and development, namely as an input to the production function aggregate. Its dual role as input and output causes health very much important in economic development (Todaro & Smith, 2003). Based on the explanation and the results of previous research, the hypothesis that is built is as follows.

3. DEVELOPMENT OF HEALTH INDICATORS LIFE EXPECTANCY OF THE POPULATION IN CENTRAL JAVA

The success of health programs and socio-economic development programs in general can be seen from the increase in the Life Expectancy of the population of a country. Increasing health care through Puskesmas, increasing people's purchasing power will increase access to health services, be able to meet nutritional and caloric needs, be able to have a better education so that they can get jobs with adequate income, which in turn will improve people's health status

and extend Life Expectancy his life. The increase in Life Expectancy is reflected in the increasing number of people who are classified as elderly.

3.1. Life Expectancy Development in Central Java Province

From the book of Analisis Profil Penduduk Provinsi Jawa Tengah that published by BPS Central Java Province on June 24, 2022, it is explained that the elderly population in Central Java based on the population census in 2020 is 5.04 million people (13.81% of the total population), more This is high when compared to the percentage of the elderly population as a whole in Indonesia which is only 9.92%. The increase in the number of elderly people in Central Java indicates that the Life Expectancy in Central Java is increasing as well.

The average Life Expectancy in Central Java tends to increase every year, this can be influenced by socio-economic status and lifestyle factors, because lifestyle also has a role in body metabolism (Rocha, 2016). The combination of healthy lifestyle choices has more impact than a single lifestyle factor (Tuckett, 2014).

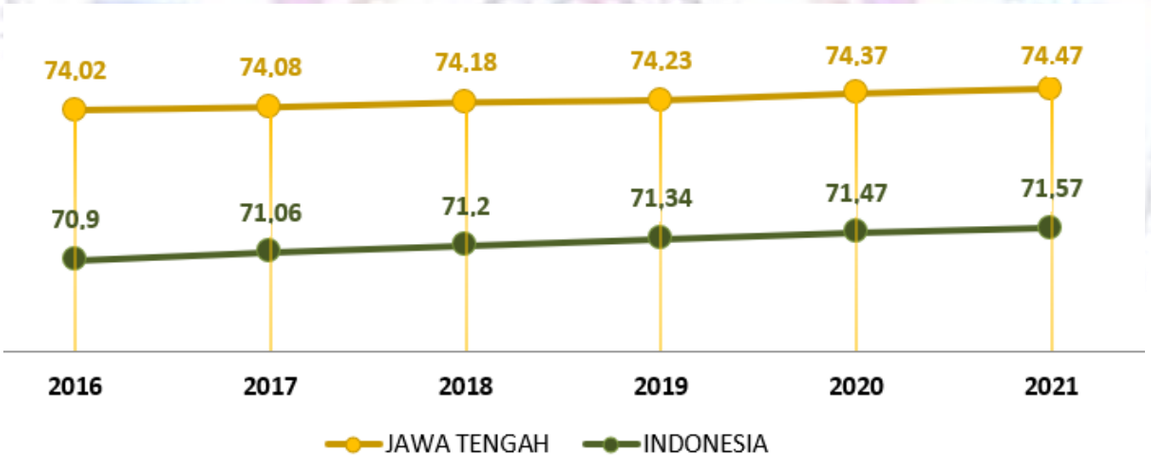

Figure 2. Central Java and National Life Expectancy

Life Expectancy can be influenced by various things such as GRDP per capita, average length of schooling, number of doctors, and clean and healthy living behavior. In general, the success of health programs and socio-economic development can be seen in the improvement of health services, Clean and Healthy Life Behavior (PHBS), gross regional domestic income (GRDP), education level described in the Average Years of Schooling (RLS), and description of health facilities from the number of doctors scattered.

Health is intrinsically linked to lifestyle choices and choosing a healthy lifestyle is an important part of health outcomes. In particular, healthy lifestyle behaviors have received more attention as the focus of public health shifts from treatment to disease prevention. According to

Henrik L. Blum's theory, it is known that an individual's health status is closely related to his behavior, the better the behavior related to health, the better his health status will be.

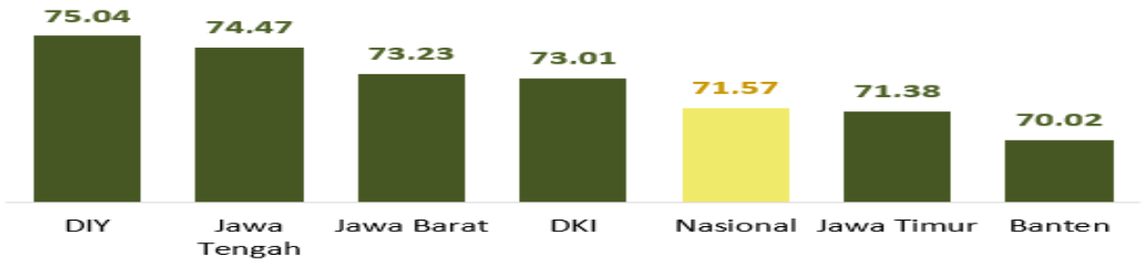

Figure 3. Java Province and National Life Expectancy

The trend of Life Expectancy at birth from 2015 – 2021 shows a good achievement. In 2015 as the base year, Life Expectancy at birth in Central Java Province is 73.96 years, while in 2021 the average newborn can survive to the age of 74.47 years. This figure is higher than the national figure. Where in 2015, the Life Expectancy of babies born in Indonesia was 70.78 years, while in 2021 the average newborn in Indonesia can survive to the age of 71.57 years.

Life Expectancy Central Java occupies the second highest position after DI Yogyakarta and compared to other provinces on the island of Java, even higher than Indonesia. Life Expectancy in Central Java is 0.57 years lower than DI Yogyakarta. This illustrates that if a newborn in Central Java has a Life Expectancy of up to 74.47 years, then a newborn in Yogyakarta has a longer Life Expectancy, reaching 75.04 years.

The continued increase in the value of Central Java's Life Expectancy until 2021 shows an indication of improvement in development in the health sector. Life Expectancy at birth is an indicator that can reflect the health status of an area, from infrastructure, access, to health quality.

3.2. Achievement of Regency/City Life Expectancy compared to Life Expectancy of Central Java Province

Regional autonomy is part of the Indonesian government system that aims to develop and develop for the welfare of the people in the regions. Regional autonomy is an obligation given to autonomous regions to regulate and manage their own government affairs and the interests of the local community in accordance with the law.

Likewise, in financial matters, local governments prepare APBD to be able to increase the efficiency and results of government administration in the context of providing services to the community. Specifically for improving services in the health sector, each local government

allocates its budget to be able to carry out health functions. One of the tools to measure the usefulness of the health budget allocation is to use the Life Expectancy Number.

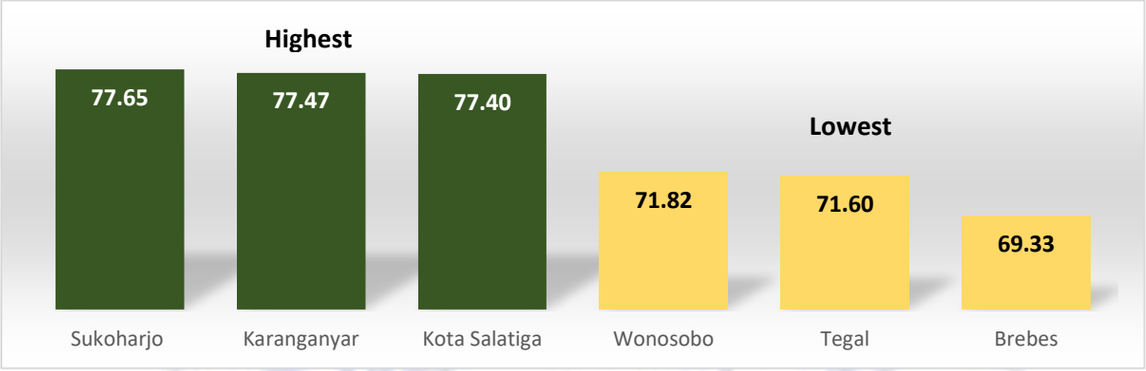

Figure 4. Three Regions with the Highest and Lowest Life Expectancy 2021

In Central Java, there are still 11 regions or 31% of regencies/cities whose Life Expectancy is below the provincial average of 74.19. The lowest Life Expectancy is in Brebes Regency at 69.54 in 2021, followed by Tegal and Wonosobo districts at 71.72 and 71.94 in 2021. This data is linear with poverty data in Central Java released by the Central Java BPS in March 2021.

In determining the poverty level of an area, Central Java BPS uses the basic needs approach or public expenditure to buy basic needs. This method is done by looking at the components of food and non-food, such as rice, eggs, clothing, electricity, transportation and house rent.

Figure 5. Three Regions with Highest & Lowest Life Expectancy Growth (2015 – 2021)

At the district/city level, Life Expectancy in 2021 ranges from 69.54 years to 77.73 years. Sukoharjo Regency has the highest Life Expectancy. Meanwhile, the lowest Life Expectancy is in Brebes Regency. In 2021 the fastest growing Life Expectancy is Brebes Regency (0.30%). So, even though Brebes Regency is the area with the lowest Life Expectancy, its development is quite fast.

On the other hand, Life Expectancy grew the slowest in Pati Regency, Kendal Regency, Batang Regency and Pekalongan Regency which only grew 0.07%. Low Life Expectancy in an

area must be followed by health development programs, and other social programs including environmental health, nutritional and calorie adequacy, including poverty eradication programs.

3.3. Achievement of Regency/City Life Expectancy compared to Life Expectancy of National

The Central Statistics Agency (BPS) recorded Life Expectancy at birth in Indonesia at 71.47 years in 2020. This figure improved compared to the previous year which was 71.34 years. Nevertheless, the growth of Indonesia's Life Expectancy in 2020 is only 0.18%, slowing down compared to the previous year which was 0.20%. The slowdown in Indonesia's Life Expectancy this year was affected by the Covid-19 pandemic.

The average Life Expectancy in Indonesia is 71.19 and when compared nationally, the achievement of Life Expectancy in districts/cities in Central Java is quite good. There are only two regions that have Life Expectancy below the average Life Expectancy in Indonesia, namely Brebes Regency and Tegal Regency.

The average growth in Life Expectancy in Indonesia in that period was 0.19% per year. Meanwhile, the average Life Expectancy in Central Java Province is 0.12% per year. From the data, it is known that in the 2015-2021 period in Central Java, there are 6 regions or 17% of regions whose growth is higher than the average growth in Life Expectancy in Indonesia, namely the Regencies of Brebes, Wonosobo, Cilacap, Tegal, Purworejo and Kebumen.

Brebes and Wonosobo regencies which have the highest growth rates for Life Expectancy are areas based on statistical data as poor areas in Central Java (https://databoks.katadata.co.id/) in 2021. So that the two regions are trying to catch up with other districts in Central Java.

4. GOVERNMENT EXPENDITURE HEALTH FUNCTION

The government is committed to meeting the health budget allocation of 5% of state spending, as mandated in Law No. 9 of 2009 on Health. Utilization of the health budget includes increasing access and quality of health services, encouraging the supply side through synchronization of central and local governments, encouraging healthy lifestyles through Germas, increasing nutrition for pregnant women, breastfeeding and toddlers, as well as immunization, accelerating stunting reduction through the Program for Result (PforR) and equitable access to health services through the Special Physical Allocation Fund and the construction of hospitals in the regions.

Nationally, the health budget component in the range of 2015 to 2021 has a ratio that fluctuates and increases in 2020 and 2021. The decrease in the percentage of allocations for the

health budget decreased due to economic developments and the realization of taxes until the first quarter of 2017 which did not meet expectations, prompting the Government to adjust macroeconomic assumptions in budget preparation. The government changes the assumptions set out in the 2017 Revised State Budget. The government changes the assumptions set forth in the Revised APBN-P. These assumptions encourage the Government to adjust the fiscal posture as outlined in the APBN-P 2017 and continues until 2019. The significant increase in 2020 is related to the government's efforts in handling the Covid-19 pandemic. The health budget in 2021 has decreased slightly when compared to the previous year. However, there is an additional allocation in the form of a health reserve budget and an increase in the allocation for the Special Allocation Fund for Health and Family Planning.

The national health budget is implemented through 3 (three) components, namely through Central Government Expenditures (covering Ministries/Institusional and non-Ministry/Institutions), through Transfers to Regions and Village Funds and through Financing. The Central Government Health Budget implemented by the State Ministries/Institusional includes the Ministry of Health, BKKBN, BPOM, Ministry of Defense and the State Police.

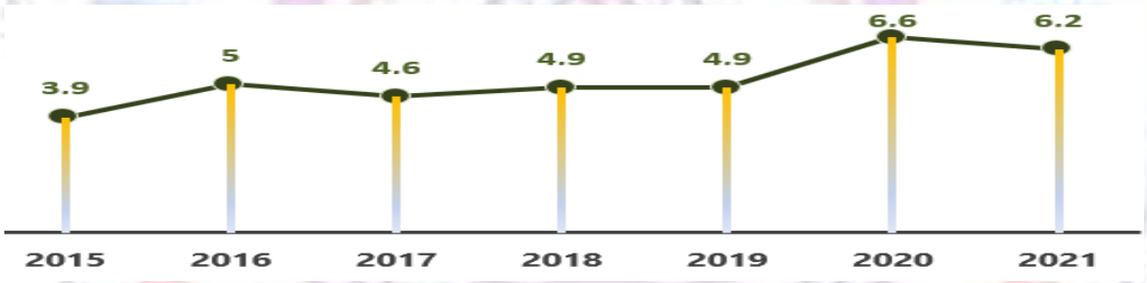

Figure 6. National Health Budget Ratio (percent)

4.1. Ministry/Institutional Spending by Health Function in Central Java

The Central Government Health Budget, through Ministries/Agencies for Central Java Province, is implemented by the Ministry of Health, BKKBN Central Java Representatives and BPOM Semarang. The central government spending ceiling for health functions distributed to Central Java Province in T.A. 2015 to 2021 is quite volatile. The budget absorption rate in 2015 and 2016 was less than 85% due to the large number of blocked budget allocations. The block in 2015 was in the activities of Research and Development of Medicinal Plants and Traditional Medicines and Guidance of Referral Health Efforts. Meanwhile, in 2016 the blocked budget reached 8% of the total budget for that year.

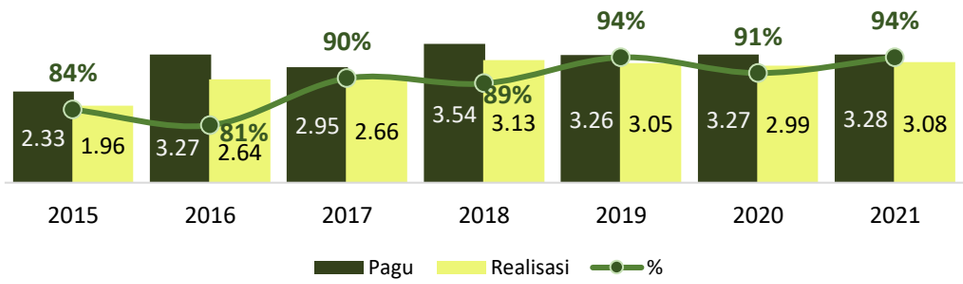

Figure 7. Central Java Health Budget (trillion)

This illustrates less mature planning so that the budget cannot be absorbed. The increase in the level of budget absorption began in 2017 and 2018 where the distribution mechanism of the Special Allocation Fund and Village Fund was carried out through the KPPN as the State General Treasurer.

BA	2015		2016		2017		2018		2019		2020		2021	
	PAGU	REAL	PAGU	REAL	PAGU	REAL	PAGU	REAL	PAGU	REAL	PAGU	REAL	PAGU	REAL
KEMENKES	2,111	1,774	3,044	2,467	2,762	2,483	2,928	2,642	2,836	2,644	2,889	2,636	2,903	2,705
BPOM	42	39	65	61	59	58	56	53	63	62	49	48	55	55
BKKBN	173	150	161	109	134	117	553	436	358	343	334	305	320	316
TOTAL	2,326	1,963	3,270	2,638	2,955	2,659	3,536	3,130	3,257	3,050	3,272	2,989	3,279	3,076

Table 1. Health Budget Allocation per Ministry/Agency in Central Java (billion)

Health budget allocation is dominated by the ministry of health which is carried out with the authority of regional offices, deconcentration and assistance tasks. Budget allocations with co-administration authority were only available in 2015 and were implemented by 36 Health Offices in provinces and districts/cities. The programs implemented are in the form of Nutrition and Maternal and Child Health Development Programs as well as Disease Control and Environmental Health Programs.

The authority for regional offices is carried out by 21 (twenty one) work units within the ministry of health, 3 (three) working units within the bpom and one bkkbn working unit. The programs implemented include management support, health human resources development and empowerment program (ppsdmk), health effort development program, disease control and environmental health, family development, population and family planning as well as health service program and national health insurance.

Type of Authority	Pagu 2015	Pagu 2016	Pagu 2017	Pagu 2018	Pagu 2019	Pagu 2020	Pagu 2021	Jumlah
Deconcentration	44	124	61	67	57	12	16	380
Regional Office	2.001	3.146	2.894	3.469	3.200	3.260	3.263	21.234
Assistance Task	281	-	-	-	-	-	-	281
Total	**2.326**	**3.270**	**2.955**	**3.536**	**3.257**	**3.272**	**3.279**	**21.895**

Table 2. Health Badget Allocation per Type of Authoity (billion)

Meanwhile, the type of deconcentration authority is carried out by the central java provincial health office. The programs implemented include Management Support, Health Human Resources Development and Empowerment Program (PPSDMK), Disease Control and Environmental Health, Pharmaceutical and Medical Devices Program and Program for Strengthening the Implementation of National Health Insurance.

4.2. Regional Expenditures by Health Function in Central Java

As a country that has succeeded in implementing the concept of regional autonomy, the health function is one of the programs that is not only a government affair, but is also a mandatory business for local governments based on the minimum service standards (SPM) that must be met. Based on Law Number 23 of 2014 concerning Regional Government, the division of health affairs includes health efforts, human resources in the health sector, provision of pharmaceuticals and medical devices, as well as community empowerment in supporting the improvement of health quality.

The provincial, district/city government health budget is allocated a minimum of 10% (ten percent) of the regional revenue and expenditure budget excluding salaries (Law No. 36 of 2009 concerning Health). Then, at least two thirds of the health budget should be allocated to public services.

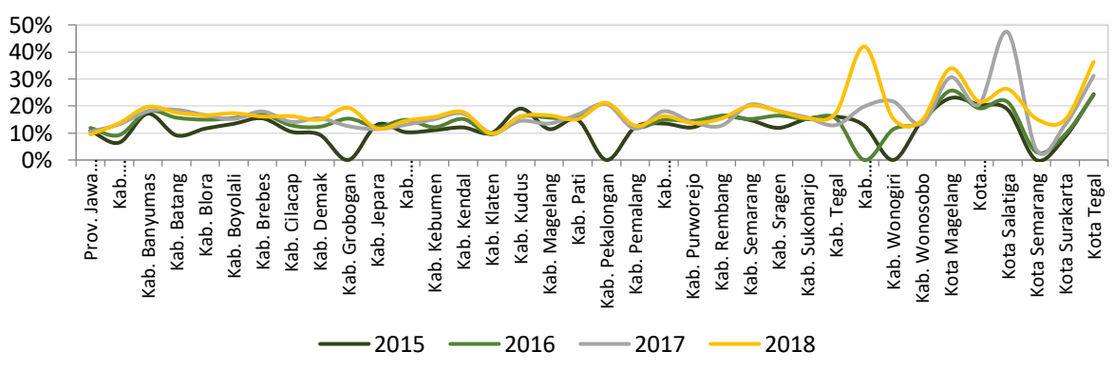

Figure 8. Health Function Expenditure Allocation in Central Java 2015-2018 (percent)

From Figure 8, it is known that in 2015 there were still local governments that had not allocated 10% of their APBD for health function expenditures. For Semarang City, Wonogiri Regency, Grobogan and Pekalongan Regency the data shows zero percent due to difficulties in obtaining data. Meanwhile, Banjarnegara Regency, Surakarta City, Batang Regency and Demak Regency have less than 10% of spending on health functions.

The districts/cities in Central Java that have the highest percentage of health function expenditure allocations in the 2015 – 2018 range are as follows: Figure 9

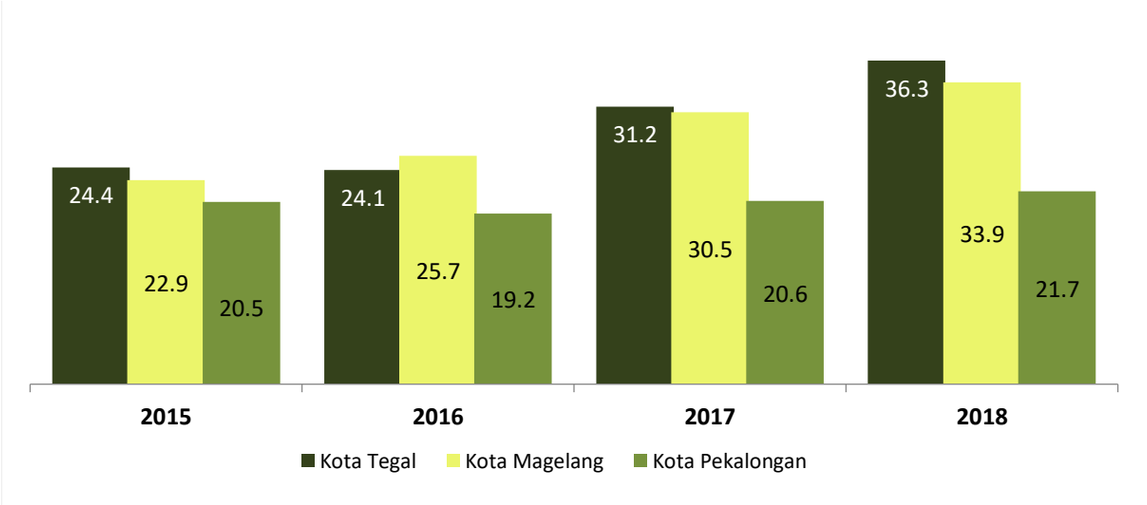

Figure 9. Highest Percentage of Health Expenditure Allocation in Central Java

At the Central Java Provincial Health Office, the allocation for health function expenditures comes from the APBD and APBN. The funds included in the APBD consist of:

1. APBD is used for employee salaries, social assistance, early detection of council aspirations, health promotion, pharmacy programs and HR programs;
2. Excise and Tobacco Product Sharing Funds (DBHCHT) are used for the contribution of the Beneficiaries of Health Insurance Contributions, the purchase of medical equipment, medicines and the construction/maintenance of buildings;
3. Physical and non-physical Special Allocation Funds are used for Community Health Efforts and Individual Health Efforts, promotional programs, Supplementary Food Provision for pregnant women and toddlers as well as maternal, child and nutrition programs;
4. Cigarette tax for the contribution of Health Insurance Contribution Assistance Recipients.

The implementation of the budget from the Special Physical Allocation Fund for Health in the form of Fulfillment of Medical Devices for Provincial Referral Hospitals, Provincial/Regency/City Hospitals, Fulfillment of Facilities and Infrastructure for Provincial/Regency/City Hospitals, Procurement of Distribution Facilities and Provision of Supporting Facilities for Provincial Pharmaceutical Installations (IFP) is carried out directly by each province/district/city.

Implementation of the budget from the Special Physical Allocation Fund for Health in the form of Fulfillment of Medical Devices for Provincial Referral Hospitals, RSUD Utilization of the health function budget in the form of Health Operational Assistance (BOK) is used to support the operations of Puskesmas sourced from the APBN.

The allocation of BOK funds is used for out-of-building activities, such as monitoring high-risk pregnant women, conducting maternal classes, as well as partnerships between

midwives and traditional birth attendants, which are expected to encourage the achievement of K4 coverage targets and deliveries in health facilities.

5. RESULT AND DISCUSSION

5.1. The Role of Government Spending to Encouraging Development Indicators

The main purpose of the APBN is to regulate state revenues and expenditures, so as to achieve increased production and employment opportunities as well as increased economic growth for the realization of public welfare. The HDI indicator in which there is a Life Expectancy component is one of the measuring tools to see economic growth in an area. The higher the Life Expectancy in an area, the higher the productivity level of the people in the area, followed by an increase in per capita income which increases purchasing power so as to spur economic growth in the area.

Success in carrying out development in the health sector is marked by people living with healthy behavior and in a healthy environment, having the ability to reach quality health services, fairly and equitably, and having a high degree of health. Dimensions of longevity and healthy life represented by the indicator of Life Expectancy. Living longer is everyone's dream because it gives a longer opportunity to enjoy life. To be able to live long requires better health. The proxy for longevity and health used in human development is an indicator of Life Expectancy at birth (e0). This indicator is one indicator of the public health.

5.2. Relationship Analysis of Health Function Expenditures Expenditures of Ministries/Agencies and APBD in 2015-2020 with Life Expectancy Age Indicators per Regency/City in 2016-2021

To find out the development of health expenditure and Life Expectancy in the Regency/City of Central Java Province, it is described through a scatter plot using Klassen Typology. Klassen typology is used to map districts and cities in Central Java Province based on Life Expectancy and expenditure on health functions. By determining the average Life Expectancy as the vertical axis and expenditure on health functions as the horizontal axis, the observed areas are divided into four classifications, namely:

a. Regions with high expenditure on health functions and Life Expectancy (quadrant I);

b. Regions with high health function spending but low Life Expectancy (quadrant II);

c. Regions with high Life Expectancy but low expenditure on health functions (quadrant III);

d. Regions low spending on health functions and Life Expectancy (quadrant IV).

From the analysis of the Klassen Typology method, for 36 regencies/cities in Central Java Province, it shows that there are 3 regencies/cities (8.33%) belonging to quadrant I, while for quadrant II there are 13 regencies/cities (36.11%). For quadrant III there are 2 regencies/cities (5.56%). While those who entered quadrant IV were 18 districts/cities (50.00%).

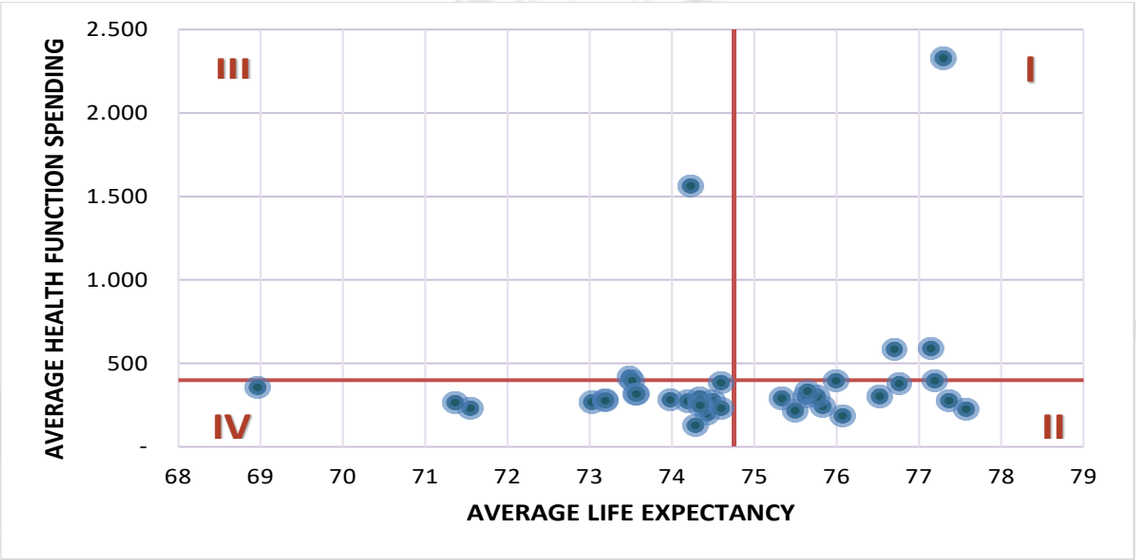

Figure 10. Classification of Typology Klassen

Based on analysis through scatter plots using Klassen typology, districts/cities in Central Java Province can be mapped according to the quadrants as shown in the table 3.

Quadrant 1 Kab. Klaten; Kota Surakarta; Kota Semaranag	**Quadrant III** Prov. Jawa Tengah; Kab. Cilacap
Quadrant II Kab. Boyolali; Sukoharjo; Wonogiri; Karanganyar; Sragen; Pati; Kudus; Jepara; Demak; Semarang; Temanggung; Kota Magelang; Kota Salatiga	**Quadrant IV** Kab. Banyumas; Purbalingga; Banjarnegara; Kebumen; Purworejo; Wonosobo; Magelang; Grobogan; Blora; Rembang; Kendal; Batang; Pekalongan; Pemalang; Tegal; Brebes; Kota Pekalongan; Kota Tegal

Table 3. Classification Quadrant Klassen Typology

Meanwhile, the effect of Health Function Expenditure on Life Expectancy in Central Java Province during the period 200116-2021 was analyzed using the STATA 64 program. Based on the test results using a simple linear regression analysis tool, the results obtained in table 4

Source	SS	df	MS	Number of obs	=	5
				F(1, 3)	=	10.29
Model	.058467683	1	.058467683	Prob > F	=	0.0491
Residual	.017052417	3	.005684139	R-squared	=	0.7742
				Adj R-squared	=	0.6989
Total	.0755201	4	.018880025	Root MSE	=	.07539

y	Coef.	Std. Err.	t	P>|t|	[95% Conf.	Interval]
x	.0000205	6.38e-06	3.21	0.049	1.58e-07	.0000408
_cons	74.41305	.0967827	768.87	0.000	74.10504	74.72105

Table 4. The Effect of Health Function Expenditure on Life Expectancy in Central Java

Based on table 4, it can be seen that;

a. The constant value obtained is 74,413. This means that if the independent variable (health function expenditure) is considered constant (ceteris paribus), then Life Expectancy in Central Java is 74,413;

b. The regression coefficient for the health function expenditure variable is 0.00022. This figure shows that if the expenditure on health function expenditure increases by Rp. 1 billion, it will result in an increase in Life Expectancy in Central Java Province by 0.000002 points;

c. F Test Value 0.049. If the value is < 0.05 then the F test accepts H1 at a significance level of 5% or which means that the independent variable (health function expenditure) simultaneously has a significant effect on the dependent variable (Life Expectancy);

d. The t-test value is said to be significant at the 5% level if the column to the right is P>[t] or also called p value/significance <0.05. The results of the analysis show the P>[t] value of 0.049 so it is significant;

e. The R-Squared value shows the number 0.7742 which means that the health function expenditure variable can explain the Life Expectancy variable by 77.42%, while the remaining 2.58% is influenced by other variables outside the regression model, such as education, income level, social and economic behavior.

Based on the results of the analysis, it can be concluded that health function expenditure has a significant effect on Life Expectancy in Central Java.

5.3. Analysis of Health Function Expenditures Based on Programs and Trends in omposition of Management Support Programs and Technical Programs on Health Function xpenditures in the 2015-2020 State Budget.

Health function expenditures for the APBN in Central Java, spread across 3 Ministries/Institusions, the Ministry of Health, BKKN and BPOM. Based on the type of program, expenditure on health functions is divided into two programs, namely the Management Support Program and the Technical Program. The composition of expenditure on health functions per program in the APBN has changed in line with the policies set by the government.

Expenditure allocation for Management Support Program from year to year continues to increase, initially in 2015 there was no allocation for Management Support Program, since 2016 it has been allocated. If we look at the trend in the allocation of Management Support Programs during the period 2015 – 2020, there is an increase, the largest in 2018 which reached 9.48% of the total allocation of health function expenditures. This shows that expenditure on management support programs is very much needed to support the implementation of technical programs.

The expenditure on health functions in the APBN, since 2016 has been allocated to finance 13 programs, consisting of 2 Management Support Programs located at the Ministry of Health and BKKBN, and 11 Technical Programs at the Ministry of Health, BKKBN and BPOM. Technical Programs on health function spending, including the Health Research and Development Program; Pharmaceuticals and Medical Devices; Nutrition and Maternal and Child Health Development. The total allocation of expenditure on health functions, the largest of which is allocated to the Health Service Development Program with an increasing trend from year to year.

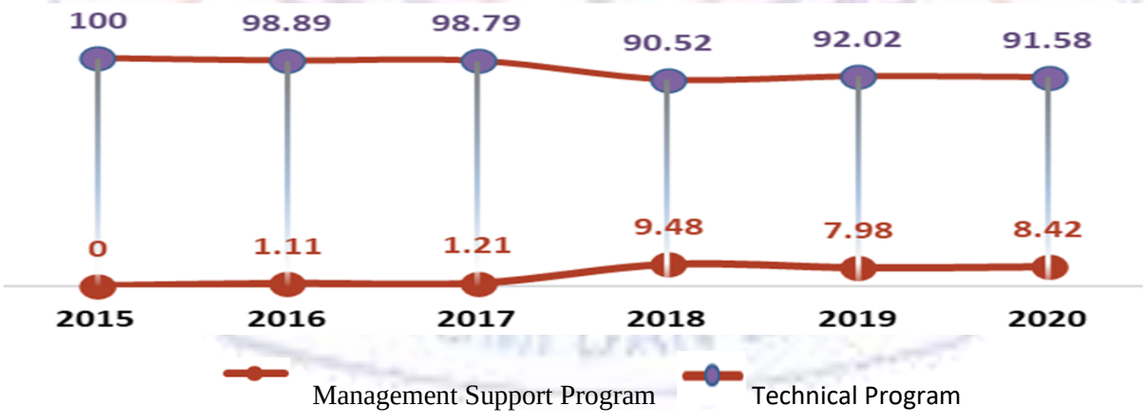

Figure 11. Trends in the Composition of Management Support Programs and Technical Programs on Health Function spending in the 2015-2020

5.4. Analysis of Activity/Output Relationship in Health Sector Expenditure with Life Expectancy Indicators

The dimensions of longevity and healthy life are represented by the Life Expectancy Age indicator at birth. Life Expectancy at birth is an indicator that can reflect the health status of an

area, both from infrastructure, access, to health quality. One indicator that can describe the health status of an area is the number of health complaints of the population. Health complaints show symptoms of illness or an unhealthy body condition. Poor health conditions will have an impact on Life Expectancy and mortality rates. Another indicator that reflects the level of health is housing facilities. One of the many housing facilities that can reflect household welfare is the quality of materials such as the widest type of roof, walls and floors used, as well as other supporting facilities which include residential floor area, drinking water sources, defecation facilities, and water sources. lighting. Good quality housing and the use of adequate housing facilities will provide comfort for its residents.

When viewed by age, the group most vulnerable to health problems is toddlers, especially in the age group under 1 year (infant) because their immune system is still not perfect. Breast milk is a source of nutritional intake for newborns, where the nature of breast milk is exclusive because it is given to infants aged 0 months to 6 months. n this phase, care must be taken regarding the provision and quality of breast milk, so as not to interfere with the developmental stage of the little one during the first six months from the first day of birth, considering that this period destroys the golden period of child development until the age of 2 years. The increasing percentage of infants aged less than 6 months who are exclusively breastfed is the impact of increasing public awareness regarding breastfeeding.

In addition to breastfeeding, toddlers' immune system needs to be supported by immunization. If toddlers have not received complete immunizations and have never even received immunizations from birth, it will cause them to easily contract dangerous diseases because there is no immunity to these diseases. Delivery by health workers is also an important factor in the protection of vulnerable groups. According to the Ministry of Health, the low percentage of deliveries assisted by health workers is one of the biggest causes of maternal death due to bleeding and infection. The help of health workers during childbirth will speed up handling when bleeding or infection occurs, so as to reduce the risk of death for the mother.

The expenditure on health functions in the APBN in Central Java in 2021 received a budget allocation of Rp. 3.27 trillion. From the total budget allocation, it is expected to produce 95 outputs, including Medicines and Medical Consumables, Medical Devices, and Infrastructure.

When viewed from the indicators that affect Life Expectancy, there is a relationship with activities/outputs in health function spending, including Medical Devices, Trained Health Workers in Maternal and Neonatal Emergency Management and Immunization Services.

6. CONCLUSIONS

6.1. Conclusions

Based on the results of research and discussion, it can be concluded that:

1. From the results of mapping health indicators in terms of Life Expectancy at the Provincial and District / City levels, it is known that:
   a) The Life Expectancy of Central Java residents is higher when compared to the Life Expectancy of the Indonesian population. Of the 35 districts/cities in Central Java, there are 14 regions or 37.14% whose Life Expectancy is below the average Life Expectancy of Central Java Province. And 5.6% are lower than the Life Expectancy of Indonesia.
   b) Based on Klassen's typology classification, 50% of districts/cities in Central Java fall into quadrant IV (Low Health Function Expenditure, Low Life Expectancy). It is also known that there are 5.6% of regions that fall into quadrant III (High Health Function Expenditure, Low Life Expectancy).
2. The results of the analysis show that health function expenditure has a significant effect on increasing Life Expectancy in Central Java. In addition, health function expenditure in the state budget, since 2015, has been allocated to finance programmes and outputs related to indicators that affect Life Expectancy. The results showed that in the base year the average Life Expectancy of the Central Java population was 74.02 years. When the government began to realise spending to improve the quality of health services, Life Expectancy increased by an average of 0.12% in the following years.
3. The increase in Life Expectancy increases the elderly population, which if not managed properly can become a burden for productive-age citizens.
4. There is harmony between budget allocations in Central Java from both the APBN and APBD to support community welfare, especially in the health sector, especially those that have an impact on Life Expectancy. Based on *in-depth interviews* with work units that receive health function expenditure allocations, there is no duplication of funding. In the context of stunting prevention and education on stable contraception in Central Java, the Central Java Provincial Health Office conducts informal *burden sharing*.
5. There are constraints in the implementation of TKDD:
   a) The obstacle of choosing items during planning that meet the needs due to limited references in the system so that hospitals cannot choose medical equipment that suits their needs.
   b) There are differences in policies between districts/cities in the implementation of Input Cost Standards related to honoraria, travel transport and others, causing planning to be inconsistent with implementation in the field. This caused the Health and Family Planning Operational Expenditure to not be optimally absorbed.

6. The Village Fund allocation has the potential to support improvements in the quality of health of village communities. This potential requires coordination by relevant parties including the District Government, Villages, City/District Health Office and BKKBN.

6.1. Recommendation

From the results of the study, the following recommendations can be made:

1. From the results of the analysis, it is known that if health function expenditure increases by Rp 1 billion, it will result in an increase in Life Expectancy in Central Java Province by 0.00002 points. For this reason, regions that are included in quadrant IV (Low Health Function Expenditure, Low Life Expectancy) need to prioritise the budget for the health function;
2. The increase in Life Expectancy rates must still be followed by various government policies that are able to support the survival of senior citizens. The elderly can maintain their performance by conducting empowerment programmes that are in accordance with the potential of the community in the area. The government also continues to provide protection, especially for the bottom 40 per cent of society, from the womb to the elderly;
3. In the DAK Fisik proposal process, medical device references in the system can be selected to be more complete and detailed for various types of hospitals or referral centres so that they match the needs based on the typical health facilities;
4. The Village Fund should also be used to improve the quality of health of villagers by utilising existing health facilities. There is a need for coordination between the Ministry of Villages and the Ministry of Health to formulate the utilisation of Village Funds to prevent *stunting*, reduce maternal and child mortality, and other activities that support the increase in Life Expectancy, especially for selected areas as an effort to eradicate poverty.

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