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Analysis of Public Health Centre Financing using the District Health Account (DHA) Model in Karangasem District, Bali, Indonesia

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ABSTRACT

Background and purpose: Health financing aspects of the public health centres (PHC) may influence the achievement of PHC's programs and its minimum service standards (SPM). The District Health Account (DHA) is a model used to describe and evaluate health financing at the PHC level. The purpose of this study was to analyze health financing mechanism from both the government and national health insurance in the Karangasem District using the DHA Model.

Methods: This study was an evaluation research with a case study approach using the DHA Model. Evaluations were carried out at two PHC, Manggis II PHC and Abang I PHC, between March and April 2018. Data were collected from the Karangasem District Health Office and the PHCs. These include PHC realization data, report on program achievements and SPM. The research instrument used for the data collection and analysis was the DHA extraction form and pivot table which includes information on cost sources, financing managers, service providers, functions, programs, types of activities, budget lines, levels of activities and beneficiaries.

Results: We found the source of budget in both PHCwas dominated by the district budget (APBD) and the national budget (APBN). The institutions which manage the budget and provide service were predominantly the Health Office and PHC. The most frequent financing functions was for governance and administration, while the largest types of activities covered was the indirect activities. Budget spending for operational costs was higher than for maintenance and investment. Realization of the activity for community program efforts (UKM) and prevention program (UKP) was lower than for the capacity building program.

Conclusion: The DHA model was able to identify patterns of health budget allocation by health agencies. The use of the DHA model to analyze health financing should be adopted routinely in order to provide evaluation reports for health agencies at the district level.

Keywords: Health financing, public health centre, district health account

INTRODUCTION

The Indonesia Health Law Number 36/2009 article 171 states that of the total government health budget, excluding salaries, a minimum of 5% should be allocated from the national expenditure budget (APBN), and for the sub-national governments at the provincial, district/city level, a minimum of 10% of the health budget should be allocated from regional expenditure budget (APBD).[1]

In 2016, health budget allocations from the state budget increased by 5.05% or as much as IDR 109 trillion, compared to the allocation in 2015 at IDR 75 trillion (3.45%). Bali Province, in 2016, received a total amount of Rp 44,521,542,000 for its health budget, of which IDR 27,552,529,406 (61.88%) was absorbed.[2] This health budget was subsequently distributed and implemented in the form of health programs and services by the implementing agencies, including public health center (PHC/ *puskesmas)*.

PHC is the frontline health service provider at the sub-district level, which also organize community health programs. Minimum service standards or *standar pelayanan minimum (SPM)* is one indicator of financial management effectiveness at PHC which is reflected in the achievement of the health programs. Throughout Indonesia, for the past three years, there are many PHCs which yet to meet the SPM performance target.[3] Karangasem District is one of the districts in Bali Province where coverage of promotive and preventive programs way below the national target.

Evaluation of health financing at the district/ city level can be conducted using various models, one of which is the District Health Account (DHA) Model. DHA can provide an overview and analysis of the allocation and utilization of health budget which can serve as essential evidence for advocacy to policy makers.[4]

There are several studies on the evaluation

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of budget utilization using DHA Model in several regions of Indonesia;[5-13] however, research on a more thorough health financing system for PHC using the DHA model has never been published. This study aims to analyze health financing, both sourced from the government and national health insurance at the PHC level in Karangasem District.

METHODS

This research was a case study to evaluate health financing using the DHA Model. The study was conducted at two PHCs in Karangasem District, Manggis II PHC and Abang I PHC over March-April 2018. Evaluations were conducted at these two PHCs with several considerations including ease of access and availability of data, as well as representation of the southern and western regions of Karangasem District. For the northern region, it was not included in the study area because at the time of the study, this region was a disaster-prone area due to the eruption of Mount Agung.

Manggis II PHC is located at Pesedahan Village, Manggis Sub-District Karangasem District. The PHC cover most of the Manggis Sub-District area which is a mixed of tourism area and farming area, with a geographical scope of ± 28.99 Km². The catchment area of this PHC consists of six villages including Tenganan, Pesedahan, Nyuhtebel, Sengkidu, Ngis and Selumbung, with a total of 22 hamlets (*dusun*). It has 47 health workers who served a total of 17,643 people. In this PHC area, there are 25 integrated health care post (*posyandu*), 6 neighbourhood watch (*desa siaga*), 11 kindergartens, 16 elementary schools, 2 junior high schools and 1 high school/vocational school.

Abang I PHC is located at Abang Village, Abang Sub-District, Karangasem. It covers half the Abang District which is geographically stretched in the hilly areas below Mount Agung to Mount Lempuyang with a total area of ±5,452 Km². Administratively it consists of eight villages namely Ababi, Abang, Kesimpar, Nawakerti, Pidpid, Tista, Tiyingtali and Tribuana. The working area of Abang 1 PHC comprises of 52 hamlets *(dusun)*, 58 *posyandu*, 8 *desa siaga*, 10 kindergartens, 29 elementary schools, 2 junior high schools and 1 high school/vocational school. The total population in the working area is 28,498 people with 66 health workers.

The data used for this analysis were secondary data sourced from budget implementation document of Karangasem District Health Office, PHC realization data, program achievement reports and SPM indicators. The data obtained at the PHC were then validated by the Head of Finance Sub-Section of the Karangasem District Health Office and the Head of Finance Sub-Division of the Bali Provincial Health Office.

Data collection was conducted by extracting secondary data using an extraction form that includes nine dimensions of DHA including: budget sources, financing managers, service providers, functions, programs, types of activities, budget lines, levels of activities, and beneficiaries. The extracted data was then processed and analyzed using the Microsoft Excel Program which is equipped with a pivot table. Data analysis was performed descriptively and presented in tables and narration.

This study has received an Ethical Clearance from the Ethics Committee of Faculty of Medicine, Udayana University/Sanglah Hospital Denpasar with number 681/UN14.2.2/PD/KEP/2018 on March 23, 2018.

RESULTS

Sources of Funding

The programs carried out at the two PHCs are generally the same, however, the total amount of budget is different considering, different size of target populations. Manggis II PHC receives a higher amount of funding than Abang I PHC (Table 1). In 2016, the largest source of funding for Manggis II PHC was from the national budget at 49.8% of the total budget, while the majority of Abang I PHC's funding (61.2%) were sourced from the district budget (APBD-K). In contrast, in 2017,

Table 1. Funding Sources for Manggis II PHC and Abang I PHC

Source	Manggis II PHC				Abang I PHC			
	2016	%	2017	%	2016	%	2017	%
APBN	2,364,230,896	49.8	591,597,645	7.4	14,597,250	1.0	2,637,547,658	44.6
APBD-P	6,225,850	0.2	0	0	64,090,000	1.7	0	0
APBD-K	2,156,456,345	45.5	6,909,112,320	86.8	2,389,885	61.2	807,686,831	15.4
JKN	214,853,656	4.5	454,805,345	5.8	1,410,179,286	36.1	2,364,209,658	40.0
Total	4,741,766,747	100	7,955,515,310	100	3,905,751,559	199	5,909,444,147	100

APBD-P= Province APBD, APDB-K= District APBD, JKN=*Jaminan Kesehatan Nasional*

the majority of funding (86.8%) of Manggis II PHC came from the district APBD, while for Abang I PHC, 44.6% came from the state budget and 40% came from the national health insurance system (*JKN)*.

Distribution of budget lines, budget managers and service providers

Table 2 shows the distribution of budget lines, budget managers and service providers at both PHCs. In 2016 and 2017, the majority of budget for Abang I PHC was used for operational costs, respectively 85.4% and 82.5%. In 2016, there were 13.6% of the allocation for investment, which was followed by an allocation for maintenance at 17.4% in 2017. For Manggis II PHC, in 2016, 47.9% the budget was for investment and 50.8% for operations, then in the year 2017, half (53.4%) of the budget was used for maintenance.

The institution as the manager of the largest amount of budget at the two PHCs is the health office, 94.30% for Manggis II and 74.49% for Abang I. Other regional work units that manage health-related budgets are the village community empowerment service (*PMD*), in Manggis II only 0.30% of the budget was from this unit, while in Abang I, none was executed from this unit. The health office is the dominant budget manager because PHC is a technical implementation unit (*UPTD*) of health office, thus most of the budget was managed by the health office. While health office manages 55.37% of the budget at Abang I PHC in 2017, the largest budget manager in Manggis II PHC was the PHC itself (57.33%) because it became a place of refuge for residents who came from areas prone to the eruption of Mount Agung. The budget was allocated for officers' activities in counseling, first aid activities and food and beverage supplies.

The largest service provider at the PHC is the health office while the lowest is the integrated health post (*posyandu).* Services provided by the health office are in the form of building construction, procurement of medicines and medical devices, salaries, additional workload income, telephone payments, electricity, water, printing, office furniture shopping, maintenance of equipment and machinery as well as for personnel education and training activities. In 2017, service providers were dominated by the health office for similar reason to the budget manager.

Distribution of activities, programs and beneficiaries

The description of the distribution of the five DHA dimensions covering the function of activities, types of activities, level of activities, programs and beneficiaries can be seen in Table 3. At Manggis II PHC, in 2016, the highest proportion of financing functions was for administrative governance, which was accounted for 48.8% while the lowest was for other public health prevention functions. Similarly, for Abang I PHC, the biggest function was for health administration at 83.5% and the lowest was for other community health prevention functions. For Abang I PHC, the function of infectious diseases early detection and surveillance of was

Table 2. Distribution of budget lines, budget managers and service providers

Dimension	Manggis II PHC				Abang I PHC			
	2016	%	2017	%	2016	%	2017	%
Budget Line								
Investment	2,272,692,500	47.9	193,713,500	2.5	530,469,875	13.6	5,049,000	0.1
Operational	2,407,316,247	50.8	3,509,261,810	44.1	3,336,673,434	85.4	4,850,760,097	82.5
Management	61,758,000	1.4	4,252,540,000	53.4	38,608,250	1.0	1,023,549,000	17.4
Budget Managers								
Health Office	4,257,321,600	94.3	3,388,643,315	42.6	2,888,290,471	74.5	3,271,896,489	55.4
PHC	471,320,147	9.9	4,561,246,995	57.3	1,017,461,088	25.5	2,637,547,658	44.6
PMD	13,125,500	0.3	5,625,000	0.07	0	0	0	0
Service Provision								
Health Office	4,473,489,347	94.8	6,918,479,965	86.9	2,626,598,934	67.7	3,285,060,889	55.6
PHC	225,152,400	5.4	1,031,410,345	12.9	1,279,152,625	32.3	2,624,383,258	44.4
Posyandu	13,125,000	0.3	5,625,000	0.07	0	0		0

PMD=village financing, *posyandu*=integrated health post

not executed, which is an indication that the PHC has not been optimally carrying out its functions as the front guard in disease prevention and health promotion in the sub-district. Whereas, in 2017, the largest financing function was also for health administration, 48.1% at Manggis II PHC and 75.3% at Abang I PHC, while the lowest function was for early disease detection, 0.1% at Manggis II PHC and 1.8% for the administrative governance function at Abang I PHC.

Based on the dimensions of activity types, there are more allocations for indirect activities than direct activities. Allocation for indirect activities at Manggis II PHC was 96.9% in 2016 and 82.17%, in 2017, while allocations for indirect activities at Abang I PHC were 97.2% in 2016 and 99.1% in 2017.

For program dimension, the realization of community health programs (*UKM*) and individual health program (*UKP*) in 2016 was less than the capacity building program which had a proportion of 97.8% at Manggis II PHC and 98.9% at Abang I PHC. The UKP program in Abang I PHC had not been executed, while at Manggis II PHC was only accounted for 0.03%. In 2017, the realization of the UKM and UKP were also lower than the capacity building program which had a proportion of 94.3% at Manggis II PHC and 95.0% at Abang I PHC.

Table 3. Distribution of activities, programs and beneficiaries

Dimension	Manggis II PHC				Abang I PHC			
	2016	%	2017	%	2016	%	2017	%
Activity Function								
Early disease detection	4,085,000	0.008	1,800,000	0.1	0	0	0	0
Infectious disease surveillance	9,640,000	1.1	7,350,000	0.2	0	0	0	0
Curative medicine	2,095,000	0.01	12,570,000	0.3	33,987,250	1.1	140,187,000	2.5
Administration	2,313,577,336	48.8	977,858,900	22.6	64,019,500	1.3	113,116,575	1.8
Health administration	2,254,659,625	47.5	2,067,493,065	48.1	3,262,267,100	83.5	4,448,005,658	75.3
Support Services	134,526,330	1.4	1,242,620,295	28.7	274,548,923	7.1	1,208,134,914	20.4
Pharmacy and disposals	31,353,456	1.2	0	0	270,928,786	7.0	0	0
Activity type								
Direct activity	145,563,352	3.1	1,153,009,550	14.5	107,730,000	2.8	47,887,500	0.9
Indirect activity	4,596,203,395	96.9	6,802,505,760	85.5	3,769,906,559	97.2	5,861,556,647	99.1
Program								
UKM	100,353,000	2.2	242,623,200	3.0	43,917,250	1,1	293,355,889	5.0
UKP	1,619,800	0.03	420,000	0.01	0	0	0	0
Capacity building	4,639,793,947	97.8	7,712,882,110	97.0	3,861,834,309	98.9	5,616,088,258	95.0
Activity scope								
District	2,093,553,145	44,2	6,727,336,115	84.56	2,367,027,100	60.6	3,108,050,000	52.6
Sub-District/ PHC	2,630,480,602	55.5	856,009,195	10.76	1,532,454,459	39.2	2,560,045,922	43.3
Village	17,733,000	0.37	327,170,000	4.68	6,270,000	0.2	241,348,225	4.1
Beneficiary								
0-<1year	0	0	0	0	0	0	0	0
1-5 years	5,520,000	0.12	0	0	945,000	0.02	0	0
6-12 years (school age)	2,130,000	0.04	2,860,000	0.04	6,740,000	0.2	7,000,000	0.1
13-18 years (youth)	3,195,000	0.07	0	0	0	0	0	0
19-64 years (productive age)	2,395,250,291	50.5	6,602,799,410	83.00	3,566,250,675	91.3	4,900,512,104	82.9
65+ years (elderly)	540,000	0.01	0	0	0	0	0	0
All age groups	2,335,131,456	49.25	1,349,844,900	16.97	331,815,884	8.5	1,001,933,043	17.0

In 2016, the greatest level of activity at Manggis II PHC was carried out at the sub-district level with a proportion of 55.47% while at Abang I PHC was at the district level with a proportion of 60.61%. Whereas in 2017, the greatest level of activity was at the district level for both PHCs, namely 84.5% at Manggis II PHC and 52.59% at Abang I PHC.

In 2016, the largest group of beneficiaries was in the productive age group, 50.51% at Manggis II PHC and 91.3% at Abang I PHC, while the lowest group of beneficiaries were the elderly at 0.01% at Manggis II PHC and the toddler age group at 0.02% at Abang I PHC. Similarly, in 2017, the majority of beneficiaries were of productive age (97.9%) at Manggis II PHC and 82.93% at Abang I PHC. The lowest beneficiaries in 2017 were the elderly at 0.02% at Manggis II PHC and school age children at 0.12% at Abang I PHC. The age groups underserved at Abang I PHC were infants, toddlers, youth and the elderly. All age groups should be covered by the programs because it influences the achievement of SPM.

DISCUSSION

This study aims to evaluate health financing at PHC through the DHA model. From our finding, it was evident that in 2016 and 2017 the funding allocation sourced from the district budget was higher than the state budget, provincial budget and JKN. This data indicates that the role of district governments in providing health budget to improve community health status is more prominent in the era of regional autonomy. This is in line with a study conducted in Serang City which concluded that the increase of the Serang City Regional Budget was accompanied by the increase in the health budget of 6.02% (2014), 6.99% (2015) and 7.79% (2016).[14]

The budget manager and service provider who manage the largest budget was the health office, because the PHC is a technical implementation unit under the health office, so some budget components must indeed be spent by the health office as the technical implementing official. Besides funding allocations through the health office, regional units other than the health office also contribute to the health budget at the PHC's level, namely the Village Community Empowerment Office, which allocates funds accounted for 0.30% (2016) and 0.07% (2017) of the total health budget at the PHCs. Even though the allocation of funds from non-health institutions remains low, it shows that there is an increase in participation to the efforts to improve public health. A study in East Lombok shows that the allocation of health costs from non-health agencies was quite large from 2006 to 2008 with an average proportion of 12.22%.[15]

The largest function and type of activity were indirect activities, which indicate that PHCs are not comprehensively functioning as the frontline in health prevention and promotion activities in the sub-district.[16] The dimensions of the budget line are dominated for operational costs rather than investment and maintenance costs. While the program dimensions are more dominant for capacity building programs rather than UKM and UKP programs. Adequacy of direct and operational costs is a condition for the implementation of effective and efficient health programs.[17]

The levels of activity are mostly carried out at the district level compared to the sub-districts and villages. Priority programs at the PHC of the two PHCs being studied were generally notfully executed based on available funding sources. Whereas the biggest beneficiary was in the productive age. This is contrary to minimum service standards, which state that every Indonesian citizen should receive health services regardless of their status and age.[5]

The use of a district health account helps to identify patterns of allocation of health budget by the government. The determinants of the adequacy of the allocation of health financing in the district include information on the sources of funds and utilization of these funds towards the achievement of health programs, the ability of the health office in preparing a good budget plan and the quality of advocacy activities with policy holders.[18] The use of the DHA model to analyze health financing should be routinely adopted so that it can become an evaluation method for health agencies at the district level.

This study has several limitations. Data collection was only carried out in two PHCs and did not cover all health funding allocated by non-health agencies, so it may not to be able to describe the overall health financing situation in Karangasem District. This study used secondary data wherein sometimes are not well archived, however researchers have made all attempts to gather information systematically.

CONCLUSION

The results of the analysis with the DHA model in the two PHCs in Karangasem show that the source of budget at the PHC is predominately from the district APBD compared to the APBN, provincial APBD and JKN. Budget managers and service providers are more likely the health office because PHC is a technical implementing unit under the health office. The function and type of activity are more for indirect activities and distribution of most budget items for operational costs. Realization of UKM and UKP programs is lower than capacity building, while activity levels are more dominant at

the district level with the majority of beneficiaries being of productive age.

The use of the DHA model for the health sector in the district helps to identify patterns of allocation of the health budget by the government. Therefore, the use of the DHA model to analyze health financing should be adopted routinely in order to provide evaluation reports for health agencies at the district level.

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AUTHOR CONTRIBUTION

NNM designed the study, collected and analysed the data, wrote the first draft of the manuscript and edited the manuscript. **PPJ** was involved in provided feedback on manuscripts' writing and edited the manuscript. **PAI** provided feedback to the manuscript and provided input on data analysis and discussion of manuscript.

CONFLICT OF INTEREST

All authors declare no conflict interest

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