



COST OF ILLNES AS A BASIC FOR ADVOCACY EFFORTS TO PREVENT AN INCREASE IN THE PREVALENCE OF TYPE 2 DIABETES MELLITUS

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ABSTRACT

Diabetes mellitus is a long-term condition that calls for ongoing management. This may put a financial strain on those affected. Calculating the direct and indirect expenses of sufferers and program expenditures borne by the government is one way to analyze the economic burden caused to a sickness using the Cost of Illness technique. The researchers set out to determine how much it costs to take care of people who have type 2 diabetes mellitus. The methodology used in this study was cross-sectional and quantitatively descriptive. Using multistage random selection, 144 individuals with type 2 diabetes mellitus were selected from healthcare facilities in Bulungan Regency, North Kalimantan. The results of the analysis of the Cost of Illness for type 2 diabetes mellitus patients in Bulungan Regency amounted to Rp.7,350,237 per patient each year. The greater the prevalence, the higher the cost of disease. It can be concluded that the government needs to focus on preventive and promotive programs for controlling type 2 diabetes mellitus, considering the high costs of type 2 diabetes mellitus.

Keywords: Cost of illness, Diabetes Mellitus, promotive, preventive

ABSTRAK

Diabetes melitus (DM) merupakan penyakit kronis yang memerlukan pengobatan secara terus menerus. Hal tersebut dapat mengakibatkan beban ekonomi pada penderita. Salah satu metode dalam menganalisis beban ekonomi akibat suatu penyakit adalah Cost of Illness dengan menghitung biaya langsung dan tidak langsung pada penderita dan biaya program yang telah dikeluarkan oleh pemerintah. Tujuan dari penelitian ini adalah menganalisis Cost of Illness penderita DM tipe 2. Desain penelitian deskriptif kuantitatif yang dilakukan secara cross-sectional. Teknik pengambilan sampel menggunakan multistage random sampling dan didapatkan besar sampel 144 penderita DM tipe 2 dari rumah sakit dan puskesmas di wilayah Kabupaten Bulungan Kalimantan Utara. Hasil analisis Cost of Illness penderita DM tipe 2 di Kabupaten Bulungan adalah sebesar Rp.7.350.237,- per penderita per tahun. Semakin besar prevalensi maka semakin tinggi cost of Illness. Dengan demikian dapat disimpulkan bahwa Pemerintah perlu berfokus pada program preventif dan promotif dalam pengendalian penyakit DM tipe 2, mengingat tingginya biaya akibat sakit DM tipe 2 ini.

Kata kunci: Cost of illness, Diabetes Melitus, promotif, preventif

INTRODUCTION

Diabetes mellitus is one of the non-communicable diseases that is the highest cause of death in Indonesia. Diabetes mellitus is a disease or chronic metabolic disorder with various causes characterized by high blood sugar levels accompanied by metabolic disorders of carbohydrates, fats, and proteins as a result of impaired insulin function. Diabetes mellitus itself has several types. Type 1 diabetes mellitus is caused by no insulin production at all. Type 2 diabetes mellitus is caused by insufficient and ineffective insulin. In addition, there is also gestational diabetes mellitus, which occurs during pregnancy, as well as other diabetes mellitus caused by drug use and other diseases. Type 2 diabetes mellitus is the most prevalent diabetes, accounting for at least 90% of all diabetes mellitus cases (González, Johansson, Wallander, & Rodríguez, 2009).

The prevalence of diabetes mellitus continues to increase from year to year. Based on data from the International Diabetes Federation (IDF) also revealed that people with diabetes mellitus in the world in 2015 reached 5.6%. Indonesia currently ranks 7th in the world with 7.6 million people suffering from diabetes mellitus (Nurcahyani et al., 2018). The results of the Basic Health Research in 2018 showed an increase in the prevalence of diabetes mellitus in the population aged ≥ 15 years by 2% compared to 2013 which was 1.5%. Type 2 diabetes mellitus poses a considerable economic burden that directly affects patients in low- and lower-middle-income countries (Afroz et al., 2018). The increasing prevalence of diabetes mellitus in poor and developing countries can cause an economic burden on individuals and health systems. Health costs and disease burden that continue to increase from year to year can have a considerable negative impact on health development and national economic growth. Diabetes mellitus is one of the non-communicable diseases that require continuous

treatment. The economic burden of diabetes mellitus must be a concern in the era of National Health Insurance (JKN), especially in managing non-communicable disease problems.

Costs due to illness, hereinafter referred to as Cost of Illness, can be seen from 2 points of view, namely the point of view of the sufferer and the Government. The cost of illness to the patient is the cost incurred as a result of the disease. Costs due to illness to the Government are costs incurred in the context of handling the disease including promotive, preventive, curative and rehabilitative efforts both at health service providers (providers) and related organizations. The point of view used can affect the cost components to be analyzed (Setiani et al., 2021).

Cost of Illness analysis is a pharmacoeconomic analysis that presents data on the total cost of treating a disease without comparing the ratio with its effectiveness (Ramadhani et al., 2021). Cost of Illness analysis aims to evaluate the economic burden of a disease on society, including all health service resources consumed. Cost of Illness analysis from the point of view of the patient or community is preferred because it is the most comprehensive in analyzing all costs including direct costs and indirect costs, allowing for a complete analysis (Etika, 2020). Indirect costs reflect the value of resources lost because of a disease, whereas direct costs reflect the potential cost of resources spent to remedy that disease.

Disease costs may be broken down according to either prevalence or incidence. While incidence measures how many new instances emerge over a certain time frame, prevalence studies look at the overall number of cases throughout a specific time frame (often one year). The prevalence approach estimates the cost of a disease or group of diseases in all cases occurring in a one-year period, both direct costs and lost productivity. The incidence approach estimates the lifetime cost of new cases of a state or group of states in a given period. Cost of Illness analysis can be useful for measuring the potential savings from preventable conditions in a disease. It may also be used as a foundation for analyses of illness prevention, cost-effectiveness, and cost-benefit.

Data on non-communicable diseases in 2019 in Bulungan District, North Kalimantan Province showed that diabetes mellitus was ranked second after hypertension. The number of people diagnosed with type 2 diabetes mellitus in Bulungan District this year rose by 45% year over year, to 1,298. The impact of the increase in the prevalence of diabetes mellitus needs to be studied using Cost of Illness analysis so that efforts can be made to tackle the problem. As such, researchers in Bulungan Regency set out to calculate the true economic burden of caring for people with type 2 diabetes mellitus. The findings of this research are anticipated to be used as promotional materials in Bulungan Regency's preventative initiatives to reduce the incidence of type 2 diabetes mellitus.

METHOD

This study employs a cross-sectional approach and is quantitatively descriptive in nature. The participants in this trial received no treatment of any kind. The primary goal of this study is to quantify the monetary toll that diabetes has on Indonesian society. Patients in Bulungan Regency, North Kalimantan Province, who had been diagnosed with type 2 diabetes mellitus, with or without comorbidities, made up the study population.

Sampling was conducted by multistage random sampling. Sampling for stage 1 was at one hospital and 12 Puskesmas representing one Bulungan District. Furthermore, random sampling for stage 2 is patients with type 2 diabetes mellitus who meet the inclusion criteria in the hospital and the selected Puskesmas area in stage 1. The sample inclusion criteria were over 15 years old and a primary diagnosis of type 2 diabetes mellitus coded E11.x at RSUD dr. Soemarno Sosroadmodjo Bulungan District. The selected health centers in Bulungan Regency were Tanjung Selor Health Center, Tanjung Palas Health Center, and Bumi Rahayu Health Center.

The total sample size was 144 patients with type 2 diabetes mellitus. The sample size was divided into 3 categories, namely 48 samples from the category of patients in the community, 48 samples from the category of inpatients at RSUD Dr. Soemarno Sosroadmodjo, and 48 samples from the category of patients at Puskesmas Tanjung Selor, Puskesmas Tanjung Palas, and Puskesmas Bumi Rahayu. Type 2 diabetes mellitus patients in Bulungan Regency are assumed to be represented by the sample distribution in these 3 groups.

Patients with type 2 diabetes mellitus were interviewed as the primary data source. A questionnaire served as the tool for this study. The interview began with an explanation of the benefits and risks of research involvement. Secondary data collection was conducted by documenting the budget for the diabetes mellitus prevention and control program in the 2019 budget implementation document of the Bulungan District Health Office. The program includes promotive, preventive, curative and rehabilitative programs.

Initial Information Processing Patients with type 2 diabetes mellitus have their sickness expenditures for the last year calculated by tabulating data from questionnaires they have filled out. Both direct and indirect expenses are included here. Furthermore, the direct costs and indirect costs were summed up as the total cost of the patient. Secondary data processing from the collected documents was carried out by compiling a recapitulation of each program and then looking for the nominal costs incurred as the total cost of the provider. After the cost data from sufferers and health providers have been obtained, they can then be summed up as the Cost of Illness of type 2 diabetes mellitus.

RESULTS AND DISCUSSION

The characteristics of patients with type 2 diabetes mellitus in Bulungan Regency can be seen based on age, gender, region of residence, occupation, total family income, health service facilities and type of health financing. The age of patients with type 2 diabetes mellitus in Bulungan Regency is mostly in the age group of 56-69 years (63%). The gender of patients with type 2 diabetes mellitus in Bulungan Regency was mostly female (55.6%). The area of residence of patients with type 2 diabetes mellitus in Bulungan Regency was mostly in the Tanjung Selor area (52%). The occupations of patients with type 2 diabetes mellitus in Bulungan Regency were mostly traders or self-employed (36%). The family income of patients with type 2 diabetes mellitus was mostly above the Regional Minimum Wage (UMR) of Bulungan Regency, which was Rp. 2,865,000 (53.5%). Most patients with type 2 diabetes mellitus chose health care facilities for outpatient care at the Puskesmas (56.3%), while for inpatient care at the hospital (55%). The type of health financing for patients with type 2 diabetes mellitus is mostly covered by BPJS (66%).

Table 1.
Direct Costs of Patients with Type 2 Diabetes Mellitus in Bulungan Regency

Direct Cost Component	Direct Costs (Rp)	
	Regular Patients	BPJS Patients
Direct Medical Costs:		
Outpatient Fee	72.687	66.055
Inpatient Costs	3.634.139	4.824.428
Non-Medical Direct Costs:		
Transportation Cost	58.932	53.792
Self-medication Expenses	81.633	41.368
Cost of Assistive Devices	103.000	
Total Direct Costs	3.950.391	4.985.643

Source: Original Data from Research in Bulungan District

Table 1 shows the total direct costs incurred by patients with type 2 diabetes mellitus per year, both with the status of general patients and BPJS patients in Bulungan Regency. From the direct costs in both types of patients, the average direct costs were obtained at Rp. 4,468,017 per year.

Indirect costs are identified as the cost of productivity loss of the patient and the patient's companion when getting outpatient and inpatient services. Using the average daily income of patients multiplied by the number of days away from work over the year utilized for outpatient treatment, the cost of productivity loss of patients is calculated. The cost of productivity loss of patients during hospitalization is obtained from the average income of patients per day multiplied by the average days of hospitalization. The productivity loss cost of the patient's companion during outpatient treatment is obtained from the average income of the patient's companion per day multiplied by the number of days absent from work during the year used to accompany the patient to do outpatient treatment. The productivity loss cost of the patient's companion during hospitalization is obtained from the average income of the patient's companion per day multiplied by the average day of the patient's hospitalization. The indirect costs on patients and companions with type 2 diabetes mellitus in Bulungan Regency can be seen in Table 2.

Table 2.
Indirect Costs of Patients with Type 2 Diabetes Mellitus in Bulungan Regency

Indirect Cost Components	Indirect Costs (Rp)	
	Regular Patients	Regular Patients
Patients Cost of Productivity Loss:		
Outpatient	483.965	209.952
Hospitalization	255.765	665.629
Companion Productivity Loss Cost:		
Outpatient	715.686	285.107
Hospitalization	344.422	770.908
Total Indirect Cost	1.799.838	1.931.596

Source: Original Data from Research in Bulungan District

Table 2 shows the total indirect costs incurred by patients and companions with type 2 diabetes mellitus per year, both with the status of general patients and BPJS patients in Bulungan Regency. From the indirect costs of the two types of patients, the average indirect cost was Rp. 1,865,717 per year.

The burden of government expenditure for spending on programs to treat type 2 diabetes mellitus has been realized quite large. The budget is prepared for the implementation of public health efforts including promotive, preventive, curative and rehabilitative efforts. The budget used in this case is the budget sourced from the State Budget, Regional Budget, Village Fund and Health Operational Assistance. The programs carried out include counseling, information communication and education, integrated elderly coaching posts, and rehabilitation of patients to improve the quality of life of patients. The amount of budget that has been realized for 1,298 patients with type 2 diabetes mellitus in 2019 in Bulungan District with a cost per patient of Rp. 1,016,503, - (Table 3).

Table 3.
Programs and Costs Expended by the Government for Services to Patients with Type 2 Diabetes Mellitus in Bulungan District

Program Category	Realized Budget (IDR)	Cost per Patient (IDR)
Promotive:		
Health Office	80.672.048	69.604
Hospital	12.727.952	91.568
Preventive:		
Health Office	58.733.287	50.675
Hospital	9.266.713	66.667
Curative:		
Health Office	57.330.700	49.465

Program Category	Realized Budget (IDR)	Cost per Patient (IDR)
Rehabilitative:		
Health Office	344.626.536	297.348
Hospital	54.373.646	391.176
Total Program Cost per Patient		1.016.503

Source: Bulungan District Health Office

Total Cost of Illness is the sum of the average direct costs and average indirect costs per patient and program costs per patient that have been incurred by the Government in efforts to manage type 2 diabetes mellitus. The Total Cost of Illness for type 2 diabetes mellitus patients in Bulungan Regency is Rp.7,350,237 per patient each year. According to a 2010 survey by Diabetes UK, the average lifespan of a person diagnosed with type 2 diabetes is 10 years. This suggests that the total cost of care for a person with type 2 diabetes mellitus may be as high as Rp.73,502,370 during the course of their disease.

Type 2 diabetes mellitus is a disease that must receive continuous treatment which forces sufferers to access health services at primary, secondary and tertiary health facilities. The characteristics of the sufferers also have their own implications for the course of type 2 diabetes mellitus. Patients with type 2 diabetes mellitus are mostly over 55 years old. This is in line with the research of Nurcahyani et al., (2018) and Arania et al., (2021) that the age of people with diabetes mellitus is > 50 years. For formal workers, at that age it is usually close to or has entered retirement age. The patient's condition is no longer as productive as when he was less than 50 years old. A decline in the pancreas' endocrine ability to make insulin may arise as a consequence of the patient's advanced age and the onset of the degenerative changes that accompany it. Type 1 diabetes mellitus is more common in those under the age of 40, whereas type 2 diabetes mellitus is more common in people over the age of 40. (Abror et al., 2019). Most patients were diagnosed with type 2 diabetes mellitus for the first time 1-5 years ago. This indicates that most patients have had this disease for a long time and the burden and costs incurred are likely to be quite large. When viewed from the current age, patients are generally diagnosed for the first time at the age of 54 years.

The prevalence of type 2 diabetes mellitus is highest in Tanjung Selor, Bulungan Regency. This condition may be due to the fact that Tanjung Selor is a city center with rapid development. This can affect the lifestyle of its residents who are increasingly busy, with high stress levels, plus a lack of physical activity, diet and behavior that is at risk of increasing non-communicable diseases. The same goes for diabetes mellitus, where one of the risk factors is stress levels. This is also in line with the results of the 2018 Basic Health Research which shows that the prevalence of diabetes mellitus based on doctor's diagnosis in the population aged ≥ 15 years according to characteristics based on the place of residence is the highest in urban areas at 2.6% (Ministry of Health RI, 2018). However, the Tanjung Selor area has the most health facilities that allow people to carry out early detection and examination and treatment. This condition allows more new cases to be found and recorded in this area. This is in line with a Health-Related Quality of Life (HRQOL) study conducted by Aschalew et al., (2020), which showed that patients living in urban areas had higher HRQOL scores when compared to patients in rural areas. This is related to access to health services and ease of obtaining information.

Most people with type 2 diabetes mellitus in Bulungan Regency work as traders or self-employed. This is in line with research by Sari (2017) which shows that one of the factors affecting costs due to the disease is the type of work. Type of work has a significant influence on the costs of suffering from type 2 diabetes mellitus. Patients who have jobs as self-employed have a risk of total costs 3.9 times greater than other types of jobs. However, if studied further, it is possible that this disease can attack any job. The low awareness of the trader or self-employed group to take care of their health is due to the absence of a day off to check themselves at a health facility. Traders or self-employed people are a group with uncertain income. This has the potential to affect the patient's loss of productivity due to their illness. Examination and treatment should be accessed outside working hours so that

productivity is not lost. The government is trying to develop services outside of working hours through the existence of Integrated Development Posts and Occupational Health Effort Posts in the workplace, so that workers' productivity is not disrupted due to their illness. The type of work is closely related to the incidence of morbidity. The onset of a disease can be caused by work environment factors that can directly cause illness, such as stressful work situations and lack of movement at work. These situations increase the likelihood of various diseases.

The majority of family income of patients with type 2 diabetes mellitus is above the minimum wage in Bulungan Regency. The high and low standard of living of a person is very dependent on the high and low income of a person. The more income a person has, the higher their standard of living. This also makes groups with high income more vulnerable to type 2 diabetes mellitus (Mongisidi. 2014). This is due to socioeconomic changes, especially changes in people's diets that tend to move away from the concept of balanced nutrition, which has a negative impact on health. But on the other hand, an adequate level of income will provide a greater possibility to come to the health service, check themselves, and take medicine. A person's economic status will greatly affect their ability to care for diabetes mellitus, the higher a person's economic status, the better diabetes mellitus care will be achieved and vice versa (Manuntung, 2018).

Based on the type of financing, patients with type 2 diabetes mellitus are mostly patients with JKN program membership. This means that to get health services, both outpatient and inpatient, the community has taken advantage of their rights as BPJS patients. This is because the cost of health services, especially hospitalization, requires a lot of money. A study by Islam et al (2017) and Megawati et al., (2020), showed a significant difference between the BPJS patient group and general patients. The costs incurred by general patients are greater than costs by BPJS patients. This means that BPJS patients do not require large costs to get the same therapy when compared to general patients. However, it should also be noted that some people in Bulungan Regency have not fully utilized their rights as JKN participants. Based on the results of the study, there are several reasons why people do not utilize their JKN membership status. The first reason is that people still do not know the functions and benefits of the participant card. The second reason is that people prefer to go to a provider that has not cooperated with BPJS because it relates to the effectiveness of the examination and treatment from the provider. The third reason is that people have a paradigm that the quality of service and treatment for general patients is better than BPJS patients. The fourth reason is that people often feel reluctant to pay providers if they come for treatment but there is no charge for the services that have been provided.

Cost of Illness for Patients with Type 2 Diabetes Mellitus

Cost of Illness is an important element in the decision-making process of chronic diseases such as diabetes mellitus (Akari, Mateti & Kunduru, 2013). For chronic diseases where costs may exceed one year, a cost of illness analysis based on incidence provides more information on the costs of preventable cases. For acute illnesses where only costs in one year are calculated, approaches based on prevalence and incidence will give the same results. For chronic disorders, a cost-of-illness analysis may be performed based on prevalence; however, the results should be seen as a snapshot of expenses in a single year, and not as the savings that would be possible if all occurrences of the condition were averted.

Diabetes mellitus has both direct and indirect expenses associated with it. All expenses incurred for managing diabetes mellitus, whether for medication, medical visits, or complications, are considered direct costs. Two types of direct expenses are the direct medical expenses and the direct non-medical expenses (Mursalin and Soewondo, 2017). Direct medical costs include health service expenditures for diagnosis, therapy and rehabilitation. The costs incurred by the patient are used to pay for services and medicines obtained during outpatient or inpatient care. Some patients still incur costs when

conducting routine examinations because they do not take advantage of and do not have membership status in the JKN program. This expense is experienced by patients who undergo hospitalization at the hospital as general patients. The high cost of hospitalization is also due to complications from the disease, which requires several actions during hospitalization. Meanwhile, patients with JKN program membership status will be covered by BPJS Kesehatan.

Direct medical costs are the largest cost component incurred by patients. Direct medical costs are costs incurred for medical service products for healing and detection for prevention (Warnaya et al., 2020). The cost of treatment, especially hospitalization, is the biggest cost for people with diabetes mellitus. The results of research by Sari (2017) show that the factor that affects the costs due to the disease is the length of hospitalization days. There is a significant relationship between length of stay and total costs due to illness and it can be concluded that patients who have been hospitalized have a risk of having a high total cost 9.9 times greater than patients who have never been hospitalized.

Non-medical direct costs are resources that are not directly related to health services, such as transportation to or from health services, expenses for family, and time from family members to care for patients. The type of non-medical direct costs that are mostly incurred by patients with diabetes mellitus is transportation costs. These costs are transportation to and from health care facilities and additional trips to the emergency room (Pratiwi and Sukmawati, 2019; Warnaya et al., 2020). Transportation required by patients to carry out care and treatment of their illness creates a direct cost burden for patients even though it is not related to medical costs. Transportation costs are influenced by distance, frequency and mode of transportation used for patient transportation. Self-medication is more common among those with type 2 diabetes mellitus, and the findings indicated that these individuals had the greatest average transportation expenditures.

Indirect costs are defined as productivity or production losses associated with premature morbidity and mortality (Kattel et al., 2019). A person who suffers from illness and is undergoing care and treatment will experience several losses, such as loss of productivity. When someone is sick, time for work or activities is lost. This is felt by both the sufferer and the sufferer's companion. A study by Hidayati et al. (2022) showed that indirect costs can be significantly greater than direct costs. This is very likely to happen to BPJS patients. The direct costs of obtaining treatment have been covered by BPJS Health. Meanwhile, indirect costs, namely loss of income and losses of patients and patient companions, will increase in line with the frequency of visiting health services.

The results showed that the total Cost of Illness of type 2 diabetes mellitus sufferers in Bulungan Regency was Rp.7,350,237, per patient each year with an average life expectancy of 10 years. This value is strongly influenced by the number of comorbidities. The more comorbidities in patients with type 2 diabetes mellitus, it will affect the length of the patient's hospitalization days and the frequency of patients in carrying out care and treatment, the longer the hospitalization days and the more patients check themselves at health facilities, the greater the costs due to type 2 diabetes mellitus that must be incurred by patients.

The results of this study were raised as a strategic issue in a Focus Group Discussion (FGD) with the coconut of the Bulungan District Health Office, the Head of BPJS Bulungan District, the Head of BAPEDA Bulungan District, the Director of RSUD dr. Soemarno Sosroadmodjo Bulungan District and several Health Office staff. The results of the FGD were that to reduce direct and indirect costs, promotive and preventive efforts need to be developed so that diseases do not become more severe. The health system needs to be prepared to handle the prevalence of diabetes mellitus cases so that it does not get higher. Diabetes mellitus requires long-term chronic care so collaborative efforts from various sectors are needed to control prevalence such as promotive efforts. At the same time, it is necessary to accelerate early detection of diabetes mellitus as a preventive effort. This can be an

opportunity for integrated public health efforts (UKM) and individual health efforts (UKP) for disease prevention and diabetes mellitus disease risk (Pandey et al., 2022).

The form of this effort is the prediabetes trial program in an effort to prevent an increase in the prevalence of patients with type 2 diabetes mellitus. The sooner the program is implemented, the sooner patients at risk of type 2 diabetes mellitus will be detected so that the risk of disease severity can be prevented. So far, there are still many people who have insufficient knowledge and misconceptions about diabetes mellitus. The rapid development of information media today allows information to be more easily received by the public. Public understanding is still the key to controlling disease prevalence (Olokoba et al., 2012). Community education on risk factors for diabetes mellitus and strategies for managing blood sugar in those who already have the disease are crucial components of the prediabetes trial program (Setyaningrum et al., 2022). Patients with type 2 diabetes mellitus may have a lower Cost of Illness value due to preventable illness severity.

In order to provide the best possible standard of public health, Puskesmas prioritizes preventative and promotional measures in its primary healthcare delivery. The implementation of health services at Puskesmas in the JKN era has a large enough budget from BPJS Health. The budget consists of capitation and non-capitation. Based on Permenkes No. 21/2016, preventive and promotive efforts are included in the 40% capitation operational cost support (Wardani et al., 2018). In order to reduce the economic burden borne by patients due to the care and treatment of type 2 diabetes mellitus, it is necessary to improve the quality and quality of primary health facilities and optimize the implementation of down-referral services. The purpose of this effort is so that patients can choose primary health facilities that have the ability to handle disease cases according to their authority. In addition, patients with stable conditions after receiving treatment at secondary or tertiary health facilities can continue their treatment at primary health facilities. The implementation of this back-referral can save patients' expenses because the costs at primary health facilities are lower and the primary health facilities are not too far from home. In addition, infrastructure provided by the government such as village ambulances can be utilized to reduce transportation costs.

CONCLUSIONS

Longer periods of sickness and more frequent treatment sessions contribute significantly to the high Cost Of sickness for patients with type 2 diabetes mellitus. There are both direct and indirect expenses associated with treating a patient more often. Efforts Direct and indirect expense, it is necessary to develop promotive and preventive efforts so that the prevalence of the disease is not getting higher. The budget spent by the government on promotive and preventive efforts aims to prevent an increase in disease prevalence, while curative and rehabilitative efforts aim to prevent disease severity and premature death. The more optimal the utilization of the Government budget in disease prevention and control efforts, it is expected that the prevalence of disease will not increase more. In conditions of low and controllable disease prevalence, population productivity will be high and economic growth will be better. It can be concluded that the government needs to focus on preventive and promotive programs for controlling type 2 diabetes mellitus, considering the high costs of type 2 diabetes mellitus..

SUGGESTIONS

Based on these conclusions, efforts to prevent an increase in the prevalence of type 2 diabetes mellitus are directed at promotive and preventive efforts and optimization of primary health facilities with the following activities. The prediabetes trial program will be conducted in at-risk community groups as an initial screening for type 2 diabetes mellitus. Optimization of drug stocks and infrastructure

facilities at primary health facilities so that the referral program can be carried out optimally. Optimization of village ambulance services that have been provided as a means of transportation. Coordination and counseling with community leaders regarding participation in the JKN program so that the burden of costs borne by patients is not getting heavier.

Acknowledgements:

This article has been derived from a thesis research project.

ETHICAL CONSIDERATIONS

Funding Statement.

This research received no specific grant from any funding agency in the public, commercial or not-for-profit sector.

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