

Cost Analysis of Chronic Kidney Disease Patients in Indonesia

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Objective: The cost of treating chronic kidney disease requires large funds. Chronic kidney disease financing ranks 2nd in BPJS as the highest financing. All cost components in the treatment of chronic kidney disease are considered high, so adjustments and efficiency are needed. This study aims to perform a cost analysis in chronic kidney patients. In this article, we will discuss the cost components in treatment and see whether there are differences in the cost of treatment in each hospital.

Methods: The study used a cross-sectional design with a hospital perspective and was conducted in 6 hospitals selected based on class in different regions: Sardjito Central General Hospital (class A), Yogyakarta Regional General Hospital (class B) and PKU Muhammadiyah Hospital (private class) represent hospitals in regional 1. Meanwhile, Makassar Central General Hospital (class A), Labuang Hospital Baji (class B) and Faisal Islamic Hospital (private class) represent hospitals in regional 3. The study lasted for 14 months from October 2019-December 2020. The total sample involved in this study was 582 samples. The cost components analyzed include hemodialysis costs, serious procedures and operations, services, radiology, laboratories, blood transfusions, drugs, medical devices, hospitalization and supplies.

Results: Chronic kidney patient profile data, calculations and cost components are presented descriptively. The Mann-Whitney test was used to see whether there were differences in costs between hospitals in each region. The results showed that the total cost of treating chronic kidney disease was higher in class A hospitals compared to class B and private class hospitals.

Conclusion: The highest cost component is the cost of hemodialysis, followed by severe procedures and services. The highest total cost of hemodialysis reached Rp. Rp.840,132,546, heavy action Rp. 423,156,000 and services Rp. 792,155,000. The results of statistical tests showed that there were differences in the cost of treating chronic kidney disease in hospitals in regional 1 and regional 3 ($p < 0.05$).

Keywords: cost of illness, chronic kidney, hemodialysis

Introduction

Chronic kidney disease is one of the most expensive diseases in Indonesia. The high cost is due to the increasing number of chronic kidney patients from year to year. The community must understand that these high costs can burden the state, in this case, the BPJS as the agency in charge of administering health insurance for people in Indonesia. This disease is developing bad impact and generally cannot recover. Treatment for chronic kidney disease guaranteed by BPJS Health costs trillions of rupiah. In this case, treatment is related to dialysis (hemodialysis) in patients with kidney failure. BPJS Health data in 2017 recorded 3,657,691 dialysis procedures with a total cost of IDR 3.1 trillion. This funding is high in the category of non-communicable disease treatment. Data from the Ministry of Health in 2015 showed that at least until 2015 there were an addition of 2000 new cases per year for chronic kidney patients who were in the final stage and more than 10% of chronic kidney patients underwent hemodialysis. Hemodialysis for chronic kidney patients is routinely done because it is one of the symptomatic therapies. The survival rate of chronic kidney patients increases by undergoing hemodialysis

routinely.¹ Undergoing hemodialysis is said to give an average time preference of 5.1 years.² However, behind that, the high cost of hemodialysis is still a problem for patients. Several cost analysis studies write that the cost of treating chronic kidney disease in hospitals is high due to the high cost of hemodialysis. More than 1.5 trillion was spent by BPJS in 2014, where chronic kidney disease with hemodialysis cost components ranks 2nd as the largest cost.³ In addition to the cost of hemodialysis, the high cost of treating chronic kidney disease also comes from other components such as the cost of medicines, services and hospitalization costs.⁴ The cost of the treatment will increase if the patient has a history of disease and comorbidities.⁵ The high cost of chronic kidney care has an impact on hospitals. The negative difference between total real costs and INA-CBGs rates in hospitals often occurs so that losses are unavoidable. The difference in rates in each hospital class and region also affects this. In this article, the author will discuss the analysis of the cost of chronic kidney care in hospitals, and see the cost components.

Research Methodology

This study covers an analysis of the cost of chronic kidney disease in hospitals with different regional class types. This research has received approval from the health research ethical commission at the Jogjakarta city regional general hospital with no.38/KEP/RSUD/VIII/2019. The study used a hospital perspective with a cross-sectional design. Researchers used secondary data. The data was obtained from the collection of patient medical records and data on the cost of treating chronic kidney patients who were hospitalized at several selected hospitals in the period October 2019-December 2020. The total sample involved in this study was 582 samples. The study sample was hospitalized patients in 6 hospitals from different classes and regions who met the inclusion and exclusion criteria. The study was conducted in class A, B and private hospitals. Regional 1 was represented by Sardjito Central General Hospital Yogyakarta (class A), Yogyakarta Regional General Hospital (class B) and PKU Muhammadiyah Yogyakarta Hospital (private class). Meanwhile, regional 3 is represented by the Makassar Central General Hospital (class A), Labuang Baji Hospital (class B), Faisal General Hospital (class Private). Sampling was carried out by purposive sampling from patient medical record data and medical cost data for chronic kidney patients receiving treatment. Characteristic data include patient age, gender, class of care, length of stay (LOS), history of comorbid and comorbid diseases, severity. Cost data in the form of costs for severe actions/operations, visits, services, radiology, laboratories, transfusions, drugs, medical devices, hospitalization, supplies and hemodialysis. Descriptive data analysis is used to describe the profile of chronic kidney patients, components of hospital care costs, total costs and average hospital treatment in regions 1 and 3. The Mann-Whitney test was used to see whether there was a difference in the total cost of chronic kidney care in each different region.

Results and Discussions

A total of 582 samples were involved in this study. The majority of chronic kidney patients in the 6 hospitals were men aged 30–60 years. The treatment class chosen varies from treatment class II to III. Chronic kidney patients have a severity that varies from severity I to III. Chronic kidney disease patients have mild to severe comorbidities with a mean length of stay (LOS) >5 days. Characteristics of chronic kidney disease patients in regional hospitals 1 and 3 are shown in Table 1.

Cost Analysis of Chronic Kidney Disease in Class A Hospitals in Regions 1 and 3

Cost analysis was carried out at regional 1 and 3 class A hospitals. The selected hospital will describe the cost components and the difference in total costs between the two hospitals. Patients at the Sardjito Central General Hospital and Makassar Central General Hospital were the samples for hospitals in regional 1 and 3. The results showed that the total cost of treating chronic kidney disease in a class A hospital was quite high. Based on the results of the analysis of the results of the total cost components accumulated in class A hospitals, the total cost of treating chronic kidney disease reaches Rp. 1,259,723,990 with an average of Rp. 14,150,552. The total cost is

Table I Characteristics of Chronic Kidney Patients in Regional Hospitals 1 and 3

No	Determinissan	Regional 1						Regional 3					
		Rumah Sakit Umum Pusat Sardjito Jogjakarta		Rumah Sakit Umum Kota Jogjakarta		Rumah Sakit PKU Muhammadiyah Jogjakarta		Rumah Sakit Umum Pusat Makassar		Rumah Sakut Umum Daerah Labuang Baji		Rumah Sakit Islam Faisal	
		n	%	n	%	n	%	n	%	n	%	n	%
1	Age												
	≤ 30 years old	4	4%	42	43%	6	6%	11	11%	9	9%	5	5%
	30–60 years old	60	62%	22	23%	54	56%	68	70%	60	62%	61	63%
	≥60	33	34%	33	34%	37	38%	18	19%	28	29%	31	32%
2	Sex												
	Male	48	49%	55	57%	54	56%	54	56%	44	45%	48	49%
	Female	49	51%	42	43%	43	44%	43	44%	53	55%	49	51%
3	Class Treatment												
	Class I	14	14%	21	22%	10	10%	8	8%	8	8%	29	30%
	Class II	54	56%	17	18%	25	26%	20	21%	9	9%	43	44%
	Class III	29	30%	59	61%	62	64%	69	71%	80	82%	25	26%
4	Length of Stay (LOS)												
	≤ 5 days	29	30%	83	86%	30	31%	29	30%	54	56%	35	36%
	≥ 5 days	68	70%	14	14%	56	58%	68	70%	43	44%	62	64%
5	Severity												
	I	30	31%	63	65%	11	11%	7	7%	55	57%	23	24%
	II	56	58%	18	19%	57	59%	53	55%	32	33%	22	23%
	III	11	11%	16	16%	40	41%	37	38%	10	10%	52	54%
6	JKN Status												
	PBI	36	37%	81	84%	53	55%	78	80%	68	70%	38	39%
	NON PBI	61	63%	16	16%	44	45%	19	20%	29	30%	59	61%
7	Comorbid CCL												
	Mild (≤3)	42	43%	61	63%	56	58%	68	70%	57	59%	25	26%
	Middle (4–5)	35	36%	26	27%	28	29%	21	22%	25	26%	23	24%
	Severe (≥ 6)	20	21%	10	10%	13	13%	8	8%	15	15%	49	51%
8	Number of comorbidities												
	No comorbid	4	4%	44	45%	47	48%	3	3%	37	38%	14	14%
	1 comorbid	14	14%	39	40%	29	30%	9	9%	31	32%	20	21%
	2 comorbid	29	30%	8	8%	11	11%	18	19%	19	20%	23	24%
	≥ 2comorbid	50	52%	6	6%	10	10%	67	69%	10	10%	40	41%

Notes: Regional I Class A; RSUP Sardjito, Class B; RS Kota Yogyakarta, Private; RS PKU Muhammadiyah Regional III Class A; RSUP Makassar, class B; RSUD Labuang Baji, Private; RSI Faisal.

lower when compared to chronic kidney care in class A hospitals in regional III. The total cost reached Rp. 3,198,367,914 with an average of Rp. 36,889,400. These results provide a significant value of 0.000 which indicates there is a difference in the total cost of treating chronic kidney disease in class A hospitals in regions 1 and III. The results showed that the total cost of chronic kidney care in class A hospitals was quite high. The total cost in each region shows a varying value. Class A hospitals in regional 1 showed that the cost of hemodialysis, severe surgery/operation and laboratory costs were the 3 highest cost components. The total cost of hemodialysis in a class A hospital reached Rp. 246,589,540, with an average of Rp. 2,542,160 \pm Rp. 2,067,865 per patient/year. This value is the highest cost component in a class A hospital in regional 1. The same thing happened in a class A hospital in regional 3. The cost of hemodialysis is the highest cost component with a total cost of Rp. 840,132,546 average cost Rp. 8,661,160 \pm Rp. 6,653,226 per patient/year. The results of statistical tests showed that there was a difference in the cost of hemodialysis for class A hospitals in regional 1 and regional 3 ($p = 0.000$). The total difference in average costs incurred between hospitals in regional 1 and 3 reached Rp. 6,119,000. The high cost of hemodialysis in hospitals is because class A hospitals are referral hospitals for other regions,⁶ where chronic kidney patients undergoing treatment have been in a high level of severity so that they require hemodialysis with a more frequent frequency and sometimes require surgery/severe action to improve the patient's health. The results of this study are in line with research⁷ where the cost of hemodialysis in a class A hospital provides a fairly high total cost, it is influenced by the frequency of patients doing hemodialysis. The results of the Azalea 2016 study suggest that chronic kidney patients with a frequency of >3 times per inpatient perform hemodialysis, the total costs incurred are higher than patients with hemodialysis frequency <3 times per inpatient ($p = 0.000$). Overall, the cost components that show high costs in class A hospitals are the costs of hemodialysis, laboratory, services and severe/surgery procedures and have a significant difference between class A hospitals in both regions 1 and 3. The difference in the cost of chronic kidney disease therapy in Class A hospitals in regions 1 and 3 is shown in [Table 2](#).

Cost Analysis of Chronic Kidney Disease in Class B Hospitals in Regions I and 3

The cost analysis of chronic kidney disease in a class B hospital was carried out at the Yogyakarta Regional General Hospital for regional 1 and the Labuang Baji Hospital in Makassar for regional 3. From the results obtained, the cost analysis in class B hospitals was quite varied. In contrast to the results in a class A hospital, in this study hemodialysis was not the highest cost component in a class B hospital. In several studies, the cost analysis of chronic kidney disease conducted in a class B hospital showed that the cost of hemodialysis was still the cost component that caused the highest cost. As in research of Tandah⁸ and Roggeri,⁹ it was stated that class B hospitals often experience losses and negative differences due to the high cost of hemodialysis in these hospitals. For hospitals in regional 1, the highest cost components are supplies, services and heavy treatment/operations. As for regional 3, the highest cost components are services, medicines and hospitalization costs. From the results of statistical tests, it can be seen that there is a difference between the total cost of services in regional 1 and regional 3 class B hospitals ($p = 0.008$). The resulting difference for the total cost of class B hospital services in regions 1 and 3 reached Rp. 24,276,025, a fairly high figure for the difference in rates in the two regions. It can be seen in [Table 3](#) that the average cost of services at a class B hospital in regional 3 is higher than the average cost at a regional 1 hospital. The results of this study indicate that the regional location of the hospital affects the cost of a disease. The second highest cost component in a class B hospital is the cost of supplies, followed by the cost of hospitalization and medicines. The results of this study are in line with several similar studies.¹⁰ In his research, it was stated that pharmaceutical supplies in class B hospitals were components that cost quite a lot. Medical and severe measures performed by chronic kidney patients on hemodialysis cause the cost of supplies to increase. High hospitalization costs¹¹ and medicine¹² and¹³ In class B, the increase is influenced by the clinical condition of chronic kidney patients who are at a high level of severity so that it affects the length of hospitalization, as well as for the use of drugs. The clinical condition of patients with

Table 2 Differences in Cost of Treatment for Chronic Kidney Disease Class A Hospitals in Regions I and 3

Cost Component	Regional I					Regional III					sp
	n	Total Cost (Rp)	Average (Rp)	SD	%	n	Total Cost (Rp)	Average (Rp)	SD	%	
Heavy action and surgery	76	Rp 229.946.650	Rp 3.025.614	Rp 3.951.208	18.3%	63	Rp 423.156.000	Rp 6.716.762	Rp 6.568.445	13.2%	0.904
Visit	97	Rp 140.184.226	Rp 1.445.198	Rp 1.338.664	11.1%	97	Rp 199.454.200	Rp 2.056.229	Rp 1.541.517	6.2%	0.000
Services	97	Rp 85.709.293	Rp 883.601	Rp 784.496	6.8%	97	Rp 469.201.965	Rp 4.837.134	Rp 4.346.929	14.6%	0.000
Radiology	81	Rp 38.789.012	Rp 478.877	Rp 361.053	3.1%	71	Rp 52.415.000	Rp 738.239	Rp 716.515	1.6%	0.397
Laboratory	97	Rp 191.046.717	Rp 1.969.554	Rp 1.667.580	15.2%	97	Rp 274.671.900	Rp 2.831.669	Rp 2.434.330	8.6%	0.022
Transfusion	44	Rp 2.951.500	Rp 67.080	Rp 39.774	0.2%	75	Rp 123.440.000	Rp 1.645.867	Rp 1.888.031	3.8%	0.000
Drugs	97	Rp 71.186.089	Rp 733.877	Rp 1.182.051	5.7%	97	Rp 226.535.860	Rp 2.335.421	Rp 3.430.737	7.1%	0.000
Medical Equipment	97	Rp 97.301.069	Rp 1.003.104	Rp 2.391.193	7.7%	91	Rp 108.166.437	Rp 1.188.642	Rp 1.264.089	3.4%	0.407
Inpatient	71	Rp 83.623.000	Rp 1.177.789	Rp 830.455	6.6%	97	Rp 299.820.000	Rp 3.090.928	Rp 2.264.356	9.3%	0.000
Supplies	94	Rp 72.396.894	Rp 770.180	Rp 1.289.231	5.7%	86	Rp 190.474.006	Rp 2.214.814	Rp 3.582.846	5.9%	0.000
Hemodialysis	95	Rp 246.589.540	Rp 2.595.679	Rp 2.067.865	19.6%	90	Rp 831.032.546	Rp 9.233.695	Rp 6.433.347	26.4%	0.000
Average total cost	97	Rp 1.259.723.990	Rp 14.150.552	Rp 15.903.571	100%	97	Rp 3.198.367.914	Rp 36.889.400	Rp 34.471.143	100%	0.000

Abbreviations: Regional I, RSUP Sardjito; Regional III, RSUD Makassar.

Table 3 Differences in Cost of Treatment for Chronic Kidney Disease Class B Hospitals in Regions I and 3

Cost Component	Regional I					Regional III					p
	n	Total Cost (Rp)	Average (Rp)	SD	%	n	Total Cost (Rp)	Average (Rp)	SD	%	
Heavy action and surgery	55	Rp 74.508.000	Rp 1.354.691	Rp 1.002.827	13.6%	51	Rp 24.402.500	Rp 478.480	Rp 651.565	4.5%	0.004
Visit	97	Rp 31.771.500	Rp 327.541	Rp 203.570	5.8%	75	Rp 7.974.000	Rp 106.320	Rp 69.035	1.5%	0.000
Services	97	Rp 87.453.500	Rp 901.582	Rp 1.153.433	15.9%	26	Rp 111.729.525	Rp 4.297.289	Rp 1.302.212	20.6%	0.008
Radiology	91	Rp 24.060.000	Rp 264.396	Rp 323.934	4.4%	90	Rp 7.120.000	Rp 79.111	Rp 156.017	1.3%	0.000
Laboratory	97	Rp 58.646.250	Rp 604.601	Rp 426.584	10.7%	32	Rp 63.151.800	Rp 1.973.494	Rp 571.695	11.7%	0.709
Transfusion	14	Rp 11.030.000	Rp 787.857	Rp 287.693	2.0%	43	Rp 30.958.400	Rp 719.963	Rp 403.523	5.7%	0.000
Drugs	97	Rp 48.837.370	Rp 503.478	Rp 604.501	8.9%	94	Rp 81.992.096	Rp 872.256	Rp 1.193.164	15.1%	0.027
Medical Equipment	50	Rp 2.384.684	Rp 47.694	Rp 64.977	0.4%	97	Rp 35.566.854	Rp 366.669	Rp 472.319	6.6%	0.000
Inpatient	97	Rp 60.765.000	Rp 626.443	Rp 514.278	11.1%	97	Rp 97.315.700	Rp 1.003.255	Rp 1.246.244	18.0%	0.003
Supplies	97	Rp 110.376.334	Rp 1.137.900	Rp 1.173.532	20.1%	93	Rp 40.790.655	Rp 438.609	Rp 768.156	7.5%	0.000
Hemodialysis	35	Rp 38.665.000	Rp 1.104.714	Rp 576.319	7.0%	35	Rp 40.460.000	Rp 1.156.000	Rp 595.112	7.5%	0.899
Average total cost	97	Rp 548.497.638	Rp 7.660.898	Rp 6.331.647	100%	97	Rp 541.461.530	Rp 11.491.446	Rp 7.429.043	100%	0.000

Abbreviations: Regional I, RSUD Yogyakarta; Regional III, RS Labuang Baji.

complex comorbidities and comorbidities makes the cost of medicines increase. The three cost components showed significant statistical test results ($p < 0.05$). Overall, the results of the study show that the total cost of treating chronic kidney disease in a class B hospital reaches Rp. 548,497,638 with an average of Rp. 7,660,898. The total cost is lower when compared to chronic kidney care in class A hospitals. The total cost of chronic kidney care in regional III class B hospitals is IDR 541,461,530 with an average of IDR 11,491,446. These results provide a significant value of 0.000. This shows that there is a significant difference in the total cost of class B hospitals in region 1 and region 3. This shows that there is a significant difference in the total cost of class B hospitals in regional 1 and regional 3. The difference in the cost of chronic kidney disease therapy in class B hospitals in regions 1 and 3 is shown in [Table 3](#).

Cost Analysis of Chronic Kidney Disease in Private Class Hospitals in Regions 1 and 3

The cost of treating chronic kidney patients in private class hospitals in both regions shows varying costs. The total cost of treating chronic kidney disease in private hospitals is quite high. The results showed that the total cost of treatment in private class hospitals in region 3 was much higher than the private class hospitals in region 1. This was due to the difference in rates in the two regions. From the results, the total cost component accumulated in regional III private hospitals reached Rp. 2,158,646,616 with an average of Rp.23,516,473. The total cost is quite high when compared to chronic kidney care in class A and B hospitals. These results provide a significant value of 0.000 which indicates there is a difference in the total cost of chronic kidney care in private hospitals in the region 1 and 3. Hemodialysis, laboratory costs and inpatient costs are the highest cost components in regional private class hospitals 1. Laboratory costs are high due to variations between one patient and another, especially for patients with comorbidities and various comorbidities.¹⁴ For regional 3, services, hospitalization and serious treatment are the highest cost components. The highest total cost in the two regions is the cost of services at regional 3 hospitals with a total value of Rp.792,155,000. This value is much different from the total cost for services at regional 1 hospital which is only Rp.19,540,220 ($p = 0.000$). This shows that there is a considerable difference between the cost of services at regional 1 and 3 private hospitals. The service rates at regional 3 private hospitals may be due to the different tariff bases in the two regions. This significant difference also occurs in other cost components such as the cost of visits, medicines, medical devices and hospitalization. Several previous studies have written that often the total cost in private class hospitals is higher than government-owned hospitals. Private class hospitals are said to have a different tariff range from government-owned hospitals. Tabrani's 2016 research suggests that there is no difference between government-owned and private hospitals in setting rates. There is no difference in operating costs incurred by class A, B or private hospitals for chronic kidney disease. The difference is often the investment costs where private hospitals do not get the same funding as government-owned hospitals. Privately owned hospitals fund themselves in terms of hospital operations.¹⁵ The high cost of treatment in private class hospitals and the differences in each region should be an evaluation material for the government and the hospital to set rates according to the actual unit cost calculation.¹⁶ The hospital was asked to be even better in managing funds and making adjustments in accordance with a clinical pathway that was based. The difference in the cost of therapy for chronic kidney disease in the private class in regions 1 and 3 is shown in [Table 4](#).

Conclusion

Based on the results of the study, it can be concluded that the total cost of chronic kidney disease in class A hospitals is higher than class B and private hospitals. The highest component of treatment costs was in a class A hospital. Hemodialysis, severe surgery and services were the components with the highest cost compared to other cost components. The highest total cost of hemodialysis reached Rp.840,132,546, severe treatment Rp. 423,156,000 and services Rp. 792,155,000. The results of statistical tests for the three components showed significant results. It can be concluded that there are differences in the total cost of chronic kidney care for the three components in regions 1 and 3 ($p < 0.05$).

Table 4 Differences in the Cost of Chronic Kidney Disease Therapy for Private Class Hospitals in Regions I and 3

Cost Component	Regional I					Regional III					p
	n	Total Cost (Rp)	Average (Rp)	SD	%	n	Total Cost (Rp)	Average (Rp)	SD	%	
Heavy action and surgery	45	Rp 18.489.300	Rp 190.611	Rp 615.294	3.5%	41	Rp 241.868.300	Rp 2.493.488	Rp 4.162.617	11.2%	0.053
Visit	94	Rp 35.847.500	Rp 369.562	Rp 239.251	6.8%	96	Rp 92.880.000	Rp 957.526	Rp 708.584	4.3%	0.000
Services	97	Rp 19.540.220	Rp 201.446	Rp 197.282	3.7%	97	Rp 792.155.000	Rp 8.166.546	Rp 6.812.752	36.7%	0.000
Radiology	71	Rp 14.692.200	Rp 151.466	Rp 149.590	2.8%	52	Rp 15.785.000	Rp 162.732	Rp 267.835	0.7%	0.631
Laboratory	97	Rp 88.960.660	Rp 917.120	Rp 628.253	16.9%	96	Rp 75.617.000	Rp 779.557	Rp 586.667	3.5%	0.118
Transfusion	44	Rp 44.898.000	Rp 462.866	Rp 783.494	8.5%	48	Rp 37.825.000	Rp 389.948	Rp 470.741	1.8%	0.390
Drugs	97	Rp 46.663.662	Rp 481.069	Rp 392.810	8.9%	97	Rp 143.769.804	Rp 1.482.163	Rp 1.168.151	6.7%	0.000
Medical Equipment	96	Rp 21.433.822	Rp 220.967	Rp 342.842	4.1%	93	Rp 105.267.499	Rp 1.085.232	Rp 1.030.157	4.9%	0.000
Inpatient	96	Rp 70.908.600	Rp 731.016	Rp 541.043	13.4%	97	Rp 422.541.250	Rp 4.356.095	Rp 3.501.095	19.6%	0.000
Supplies	95	Rp 32.515.742	Rp 335.214	Rp 386.494	6.2%	94	Rp 32.924.314	Rp 342.962	Rp 271.113	1.5%	0.170
Hemodialysis	88	Rp 133.292.400	Rp 1.514.686	Rp 758.772	25.3%	60	Rp 198.013.450	Rp 3.300.224	Rp 2.123.026	9.2%	0.000
Average total cost	97	Rp 527.242.105	Rp 5.576.024	Rp 5.035.126	100%	97	Rp 2.158.646.616	Rp 23.516.473	Rp 21.102.737	100%	0.000

Abbreviations: Regional I, RS PKU Muhammadiyah; Regional III, Rumah Sakit Islam Faisal.

Disclosure

The authors report no conflicts of interest in this work.

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