



Cost-Saving Potential of Implementing Pharmaceutical Cost Containment for Cardiovascular Disease Outpatients at One of the Hospitals in Cimahi

Oskar Skarayadi¹ , Dwi Endarti² *
Ali Ghufron Mukti³ , Satibi Satibi²
Sjarifuddin Sjarifuddin¹ and Rudi Dwi Laksono⁴

¹ Universitas Jenderal Achmad Yani, Faculty of Pharmacy, Cimahi, Indonesia

² Universitas Gadjah Mada, Faculty of Pharmacy, Yogyakarta, Indonesia

³ Universitas Gadjah Mada, Faculty of Medicine, Public Health and Nursing, Yogyakarta, Indonesia

⁴ Dustira Hospital, Cimahi, Indonesia

endarti_apt@ugm.ac.id

Abstract. Cardiovascular disease (CVD) causes one-third of deaths in Indonesia. Utilisation of the Indonesian National Health Insurance Scheme (JKN) to cover CVD is increasing. Reducing CVD costs in hospitals requires appropriate interventions. This study aims to evaluate the potential cost savings for patients with the illness through various pharmaceutical cost containment measures. The research was conducted using a descriptive design with a retrospective approach. The sample used consisted of patients with cardiovascular disease in the outpatient unit who met the inclusion criteria for the period of September 11–15, 2023. Data were collected from medical records and patient financial summaries. This research involved 783 outpatients from a hospital in Cimahi during a five-day observation period. The most significant savings come from switching from branded to generic medications (28.74 %), followed by the cost of drugs must be less than the standard JKN INA-CBG code of Q-5-44-0 in B-class government hospitals in Region 1 (4.79 %) and conformity with The National Formulary (3.85 %). Additionally, selecting and implementing strategies for managing drug costs necessitates that pharmacists consider both patient safety and the quality of service. Therefore, it is necessary to manage pharmaceutical costs using information technology to reduce them.

Keywords: Cardiovascular Disease, Cost Reduction, Hospital, Outpatient, Pharmaceutical Cost Containment.

1 Introduction

Cardiovascular diseases (CVD) remain the primary contributors to health system costs and substantial contributors to morbidity and mortality on a global scale [1], [2]. In 2019, CVD accounted for 8.9 million deaths among women and 9.6 million deaths

among men, representing an estimated one-third of all deaths worldwide. A total of 6.1 million fatalities transpired among individuals aged 30 to 70 years [1].

With over 250 million people, Indonesia is the world's fourth most populous country. Moreover, this country has experienced a significant rise in economic development throughout the preceding decades. Due to the nation's economic growth improvements, Indonesia is undergoing a rapid epidemiological transition regarding its anticipated and existing disease burden [3]. The prevalence of CVD in Indonesia is on the rise [4]. CVD) contributes to approximately one-third of all fatalities in Indonesia. Stroke and coronary heart disease (CHD) are the primary causes of mortality in the nation [3], [5].

The Indonesian government is committed to developing comprehensive health insurance for Indonesian citizens through the Indonesian National Health Insurance Scheme (Jaminan Kesehatan Nasional, JKN) program. This program envisions that the health needs of Indonesian citizens and the continuous medication of coronary heart disease and heart failure patients are guaranteed [6]. The utilisation and expenditure on CVD under the JKN increased by \$125.4 million in 2019 compared to 2017, primarily attributable to hospitals (91 % in 2019), with the highest expenditures occurring among those aged 60 and older [4]. The annual cost of CVD continues to rise [4]. The high price of this drug is expected to continue increasing year after year, and it is necessary to implement appropriate interventions to reduce health expenditure costs, particularly drug costs [7].

Pharmacists' roles have undergone significant changes in recent decades. The profession traditionally focused on dispensing and supplying medications, with limited interaction with other healthcare professionals. Today, pharmacists ensure the rational and cost-effective use of medicine [8]. Pharmaceutical costs are another major hospital cost [9]. Pharmaceutical cost containment is a pharmaceutical cost management strategy, such as inventory management, purchasing, and waste reduction approaches, implemented solely and directly by the pharmacy department. This strategy can be a good solution because it offers more immediate advantages during implementation [10], [11].

Several studies have previously been conducted on the implementation of health cost control strategies in Indonesia, including clinical pharmacist interventions [12], clinical pathways, formularies, and incentive structures [12]. The literature study has not found a control strategy for limiting pharmaceutical costs. Therefore, this research aims to calculate potential savings using several pharmaceutical cost control strategy scenarios for hospital CVD outpatients.

2 Materials and Methods

This research is a non-intervention study employing a retrospective descriptive research design. This research was conducted in the pharmacy department for outpatient services at a hospital in Cimahi, Indonesia. This research was carried out following ethical approval number Etik. R R.S.D./161/2023.

The inclusion criteria for this study were patients with cardiovascular disease in the outpatient unit from September 11 to September 15, 2023, who were covered by JKN financing. Based on medical record data, an analysis of the value of the drug package

was conducted using the name of the drug, the number of administrations, the cost of the drug, and the total cost of the treatment package as recorded in the medical record. The sampling method used in this study is total sampling. The standard JKN INA-CBG coding Q-5-44-0 at the B-class Government Hospital in Region 1 is Rp 190,100. Therefore, based on data obtained from medical records, an analysis was conducted to evaluate the value of the drug package in comparison to the standard package value, conformity with the national Formulary, and the potential for generic substitution. Potential savings are analysed by comparing the resulting data with permissible standards.

Table 1. Demographic Profile of Patients.

Age	Gender			
	Male		Female	
	n	%	n	%
<40	10	1.28%	12	1.53%
40-49	43	5.49%	46	5.87%
50-59	140	17.87%	90	11.49%
60-69	120	15.32%	120	15.32%
70<	95	12.12%	107	13.66%
Total	408	52.11%	375	47.86%

Table 2. The Most High Contribution of Drugs to The Package Cost

Drugs Name	Cost (Rupiah)	Freq	Drug Cost Vs Package
Angintiz MR Tab	754,970	1	397%
Coralan 5 mg Tab	172,211	2	91%
Clotaire 90 mg Tab	149,186	47	78%
Briclot 90 mg Tab	145,206	41	76%
Uperio 100 mg Tab	76,500	6	40%
Herbeser CD 200 mg	49,146	8	26%
Nevodio 5mg	45,352	6	24%
Zifagra 100 mg F.C.	40,611	8	21%
Arcerin MR 35mg	25,361	9	13%
Nitral 500 Mcg	17,409	36	9%

3 Results

This research involved obtaining 783 medical records for outpatients with CVD over five days. Information about the characteristics of CVD patients includes age group and gender (Table 1). The data indicate that the number of patients over the age of 40 exceeds that of patients under the age of 40. Cardiovascular risk is prevalent among adults aged 40 and older in Indonesia [5]. This research indicates that 97.14 % of patients were over 40 years of age. The ageing and older demographic exhibits heightened vulnerability to cardiovascular disease. The impact of age on CVD in adults is influenced by

several factors, such as frailty, obesity, and diabetes, which further exacerbate the associated risks. These characteristics have been identified as complicating and amplifying cardiac risk factors associated with ageing at 80 years [13].

Table 3. List of Drugs Outside The National Formulary and Substitution

Therapeutic Class	Drugs-Name	Qty	Total Cost (Rp)	Substitute	Total Cost (Rp)	Δ	%
Systemic antihypertensive	Angintiz Mr l	10	539,264	Verapamil	6,132	533,132	98.8 6%
	Vitamin and Mineral			Vitamin B Complex	40,849	162,143	79.8 8%
Vitamin and Mineral	Curcuma	329	202,992			132,134	78.4 96.2
	Mecobalamin 500	293	168,767	Cobalamin	36,379	388	4%
NSAID	Etoricoxi b 60 Mg	32	139,264	Celecoxib	5,161	103	9%
	Arcerin Mr 35mg	75	271,726			252,527	92.9 3%
Antianginal	Nevodio Tab 5 mg	94	609,010	Bisoprolol	19,199	584,947	96.0 5%
	Uperio 100 Mg	28	306,000	Bisoprolol	24,063	298,832	97.6 6%
Antianginal						305,305	84.8
	V-Bloc	213	360,158	Bisoprolol	7,168	632	6%

Table 4. List of Drug Substitutions

Drugs Name	Total Cost (Rp)	Substitute	Total Cost (Rp)	Δ	%
Adalat Oros	429,253	Nifedipin	11,781	417,472	97.26%
Coditam	40,777	Codein Paracetamol	38,500	2,277	5.58%
Concor	318,880	Bisoprolol	20,570	298,310	93.55%
Coralan	1,107,072	Ivabradine	864,900	242,172	21.88%
Herbesser	278,449	Diltiazem	55,755	222,694	79.98%
Nitral	746,110	Nitroglicerine	496,497	249,613	33.46%
Briclot	5,984,558	Ticagrelor	4,536,000	1,448,558	24.20%
Clotaire	6,732,381	Ticagrelor	5,144,000	1,588,381	23.59%
V-Bloc	387,213	Carvedilol	251,900	135,313	34.95%
Total	16,024,693		11,419,904	4,604,789	28.74%

4 Discussion

The research, as shown in Table 1, found that men (52.11 %) had a higher risk than women (47.89 %). This result is consistent with prominent CVD risk factors in Indo-

nesia, with particular emphasis on the prevalence of smoking in men and blood pressure and total cholesterol levels. Smoking emerged as the most common risk factor among the variables examined in this analysis, affecting 64.9 % of the male population. Increased total cholesterol, hypertension, obesity, and diabetes follow in prevalence. The prevalence of smoking among women was found to be low at 2.1 %. The most common risk factor identified was an increase in total cholesterol of 39.6 %, with obesity, hypertension, and diabetes following in order of prevalence [3]. Gender is a potential additional risk factor for older people, as older women are reported to be more susceptible to CVD than men of the same age. Nevertheless, the risk of CVD increases with age in both men and women, and this coincides with a general decline in sex hormones, especially testosterone and estrogen [13].

Table 2 shows the highest number of medicines in this research. The standard JKN INA-CBG coding Q-5-44-0 in the B class Government Hospital in Region 1 is Rp190,100 [14]. The research results show that the average expenditure on medicines was Rp144,820. However, 55 patients (7.33 %) had health packages above Rp190,100. A cost-limiting strategy that regulates package costs can be implemented to reduce the overall cost of packages. These restrictions will directly regulate or reduce existing cost schedules. Implementing cost and budget constraints in hospitals can potentially serve as a practical approach to control overall payment expenditures [9], [15], [16]. Setting reference costs or cost limits is a strategy that doctors use to recommend the most cost-effective drug within a therapeutic class with multiple options [17]. Reference costing limits the payments of employers or insurance companies. In the two years after its introduction, the share of prescriptions for lower-cost drugs increased by 6.3 percentage points (an 8.9 % relative increase), the average cost of prescription drugs decreased by \$9.50 (a 12.1 % relative decrease), and the average patient cost-sharing decreased by \$1.80. (relative reduction of 4.3 % [18]. Potential savings of Rp5,380,967 (4.79 %) can be achieved by implementing cost control strategies with package values below Rp190,100.

In Table 3, the research identified 63 drug items, of which only 10 were not included in the national formulary 2023 (85.71 %), and the average prescription conformance with Fornas was higher than the average in Indonesia (71.02 %) [19]. Drugs outside the National Formulary are Etoricoxib, Dexketo-profen, Nebivolol, curcuma, and the combination of sacubitril and valsartan. Calculating potential savings by replacing a non-formulary drug with a formulary drug in the same therapeutic class [20] in the national Formulary. If physicians were to use medications listed in the national Formulary exclusively, the hospital could save Rp. 2,403,705 (3.85 %) of the total drug cost, Rp. 62,405,192. Physicians prescribe drugs not yet included in the national Formulary and hospitals [21] – [24]. Depending on the therapy guidelines, physicians prescribe various medications, which results in non-conformity with the national Formulary [25] – [27]. Conditions of non-conformity may also arise from the selection of the first-line drug [28]. Other reasons for non-conformity include emergencies involving patients, cases where patients cannot receive medications as per the national Formulary, and patient requests to prescribe specific medications. Another reason doctors prescribe medicines that aren't included in the hospital's Formulary is that they believe these alternatives are more effective for patients than those within the Formulary. This non-conformity is

particularly evident for patients with a history of certain diseases that are only treatable with these specific drugs [29].

Table 4, illustrates that the strategy of substituting branded medications with generics stems from the obligation to utilise generic drugs in Indonesian government healthcare institutions, as stipulated by Permenkes Number HK.02.02/MENKES/068/1/2010. The research findings indicate savings in rupiah. Potential cost reductions were assessed by calculating the unit price (e.g., pill, milliliter) for each medication and dosage within each general practice [30]. In this study, potential savings from substituting branded for generic drugs (28.74 %). Possible savings in this type of strategy are typically 30 % – 60 % more costly than their generic equivalents [31] and can be up to 10 times more expensive [32]. Research in Indonesia indicates that the price of generic drugs compared to the cost of branded medicines in Indonesia can range from 1.37 to 22.34 times [33] and, in another study, from 0.86 times to 2.22 times [34].

This study has a limitation: the absence of guidelines for calculating drug cost savings in implementing pharmaceutical cost containment strategies. The study also focuses on a single disease within an outpatient unit and is conducted at a single hospital, which limits its scope and generalizability. Further research should be conducted in several hospitals utilising information technology-based pharmaceutical cost-containment strategies to facilitate the implementation of cost-control measures.

5 Conclusion

The pharmaceutical cost management technique yielding the most substantial potential in this analysis is generic medicine replacement, with a savings potential of 28.74 %, followed by package price cap, which amounts to 4.79 %. The JKN INA-CBG code is Q-5-44-0 for B-class government hospitals in Region 1, with adherence to the national Formulary at 3.85 %. Moreover, the selection and implementation of medication cost-control techniques require pharmacists to prioritise patient safety and service quality. Consequently, it is essential to utilise information technology to manage pharmaceutical expenses and achieve reductions. When deciding on and implementing drug cost management strategies, pharmacists must consider patient safety and quality of patient care. Pharmaceutical cost control strategies require the application of information technology to optimise efficiency and effectiveness.

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References

1. G. A. Roth, G. A. Mensah, and V. Fuster, "The Global Burden of Cardiovascular Diseases and Risks: A Compass for Global Action," *J. Am. Coll. Cardiol.*, vol. 76, no. 25, pp. 2980–2981, 2020, doi: 10.1016/j.jacc.2020.11.021.
2. M. Vaduganathan, G. A. Mensah, J. V. Turco, V. Fuster, and G. A. Roth, "The Global Burden of Cardiovascular Diseases and Risk: A Compass for Future Health," *J. Am. Coll. Cardiol.*, vol. 80, no. 25, pp. 2361–2371, 2022, doi: 10.1016/j.jacc.2022.11.005.
3. M. A. Hussain, A. Al Mamun, S. A. E. Peters, M. Woodward, and R. R. Huxley, "The Burden Of Cardiovascular Disease Attributable To Major Modifiable Risk Factors In Indonesia," *J. Epidemiol.*, vol. 26, no. 10, pp. 515–521, 2016, doi: 10.2188/jea.JE20150178.
4. A. Nurwahyuni et al., "Health Care Spending for Cardiovascular Disease under National Health Insurance Scheme in Indonesia Before and During COVID-19: Descriptive Analysis and Policy Recommendations," *J. Indones. Heal. Policy Adm.*, vol. 8, no. 2, pp. 79–88, 2023, doi: <https://doi.org/10.7454/ihpa.v8i2.6851>.
5. A. Maharani, Sujarwoto, D. Praveen, D. Oceandy, G. Tampubolon, and A. Patel, "Cardiovascular disease risk factor prevalence and estimated 10-year cardiovascular risk scores in Indonesia: The SMARThealth Extend study," *PLoS One*, vol. 14, no. 4, pp. 1–13, 2019, doi: 10.1371/journal.pone.0215219.
6. N. D. Kumalasari, A. Rahem, B. Presley, and E. Setiawan, "Direct Medical Cost Analysis Among Coronary Heart Disease and Heart Failure Outpatients at One Hospital," *J. Manaj. DAN PELAYANAN Farm. (Journal Manag. Pharm. Pract.)*, vol. 9, no. 2, pp. 55–64, 2019, doi: 10.22146/jmpf.38170.
7. M. Syaripuddin, A. S. Susyanty Leny, and I. Diana, "Potensi Penghematan Biaya Obat di Lima Rumah Sakit Umum Daerah (RSUD) DKI Jakarta," *Bul. Penelit. Sist. Kesehat.*, vol. 17, no. 1, pp. 27–33, 2014.
8. K. Dalton and S. Byrne, "Role Of The Pharmacist In Reducing Healthcare Costs: Current Insights," *Integr. Pharm. Res. Pract.*, vol. Volume 6, pp. 37–46, 2017, doi: 10.2147/iprp.s108047.
9. M.-S. S. Koushki, R. Goudarzi, M. Amiresmaili, M. Nekooei Moghaddam, V. Yazdi-Feyzabadi, and A. Talebian, "Strategies Of Drugs Cost Containment In Hospitals: A Systematic Literature Review," *Int. J. Health Plann. Manage.*, vol. 38, no. 1, pp. 7–21, Jan. 2023, doi: 10.1002/hpm.3542.
10. M. M. Nour El-Din and A. Youssef, "Identification of Drug Cost Reduction Opportunities in A University Hospital in Saudi Arabia," *J. High Inst. Public Heal.*, vol. 38, no. 2, pp. 273–289, 2008, doi: 10.21608/jhiph..2008.20887.
11. R. G. Swendrzynski, "ASHP Guidelines On Medication Cost Management Strategies For Hospitals And Health Systems," *Am. J. Heal. Pharm.*, vol. 65, no. 16, p. 1491, 2008, doi: 10.2146/cor080011.
12. N. Istanisa and P. Oktamianti, "Analisis Penerapan Cost Containment pada Kasus Sectio Caesarea dengan Jaminan BPJS di RS Pemerintah XY di Kota Bogor Tahun 2016," *J. Ekon. Kesehat. Indones.*, vol. 1, no. 4, pp. 185–190, 2017, doi: 10.7454/eki.v1i4.1800.
13. J. L. Rodgers et al., "Cardiovascular Risks Associated With Gender And Aging," *J. Cardio-vasc. Dev. Dis.*, vol. 6, no. 2, 2019, doi: 10.3390/jcdd6020019.
14. Kemenkes RI, "Peraturan Menteri Kesehatan Republik Indonesia No. 3 Tahun 2023 Tentang Standar Tarif Pelayanan Kesehatan Dalam Penyelenggaraan Program Jaminan Kesehatan," Menteri Kesehat. RI, pp. 1–721, 2023.

15. N. Stadhouers, F. Kruse, M. Tanke, X. Koolman, and P. Jeurissen, "Effective healthcare cost-containment policies: a systematic review," *Health Policy (New York)*, vol. 123, no. 1, pp. 71–79, 2019, doi: 10.1016/j.healthpol.2018.10.015.
16. P. J. Huckfeldt, N. Sood, J. J. Escarce, D. C. Grabowski, and J. P. Newhouse, "Effects of Medicare Payment Reform: Evidence from the Home Health Interim and Prospective Payment System," *J Heal. Econ.*, vol. 34, pp. 1–18, 2014, doi: 10.1016/j.jhealeco.2013.11.005.
17. J. C. Robinson, D. Pantelli, and P. Ex, "Reference Pricing in Germany: Implications for U.S. Pharmaceutical Purchasing," *Commonw. Fund Issue Br.*, no. February 2019.
18. J. C. Robinson, C. Whaley, T. T. Brown, and S. S. Dhruva, "Physician and Patient Adjustment to Reference Pricing for Drugs," *JAMA Netw. Open*, vol. 3, no. 2, pp. 1–9, 2020, doi: 10.1001/jamanetworkopen..2019.20544.
19. O. Skarayadi, D. Endarti, A. Ghufri Mukti, and Satibi, "Prescriptions Conformity with National Formulary: A Literature Review to Explore the Need for Pharmaceutical Cost Containment," *BIO Web Conf.*, vol. 75, p. 05014, 2023, doi: 10.1051/bioconf/20237505014.
20. A. L. Kjos, J. C. Schommer, and Y. Yuan, "A comparison of drug formularies and the potential for cost-savings," *Am. Heal. Drug Benefits*, vol. 3, no. 5, pp. 321–330, 2010.
21. Y. M. Indriana, E. S. Darmawan, and A. C. Sjaaf, "Analisis Pengelolaan Obat di Instalasi Farmasi RSUD Tahun 2020," *J. Kesehat. Masy.*, vol. 11, 2021, doi: <https://doi.org/10.56338/pjkm.v11i1.1512>.
22. A. Patantan, Satibi, and G. P. Widodo, "Evaluation Of Drug Supply Management In Drug Storage Health Department X In The JKN Era," *CHMK Pharm. Sci. J.*, vol. 2, no. April, pp. 254–259, 2019.
23. Rintanantasari, A. Fudholi, and Satibi, "Evaluasi Perencanaan dan Pengendalian Obat di Puskesmas Wilayah Kabupaten Tulungagung dan Kota Kupang," vol. 17, no. 3, pp. 296–302, 2021, doi: 10.22146/farmaseutik.v1i1.54063.
24. Y. Sukowati, D. R. Laksmitawati, Y. Anggraini, and M. Restina, "Pengaruh Penerapan Jaminan Kesehatan Nasional Terhadap Profil Obat Pasien Hipertensi di Puskesmas Kecamatan Pulogadung," *Maj. Farm.*, vol. 17, no. 1, p. 97, 2021, doi: 10.22146/farmaseutik.v17i1.55194.
25. R. Fitriah, "Kesesuaian Peresepan Obat Bpjs Berdasarkan Formularium Nasional Dan Formularium Rumah Sakit Di RSD Idaman Banjarbaru," *Media Inf.*, vol. 16, no. 1, pp. 32–37, 2021, doi: 10.37160/bmi.v16i1.397.
26. E. N. Indarto et al., "Profil Penggunaan Obat Rasional di Puskesmas Kabupaten Sidoarjo Provinsi Jawa Timur Tahun 2017," *Calyptra*, vol. 9, no. September 2020.
27. K. A. Susanto, M. L. Sitanggang, D. Hassan, and I. Chorida, "Analysis of Prescription of National Formularium Medicines Based on The Adjustment of Restriction in Public Hospitals of Sawah Besar 2018," *J. Ilmu Kefarmasian Indones.*, vol. 19, no. 1, pp. 68–72, 2021, [Online]. Available: <http://jifi.farmasi.univpancasila.ac.id/index.php/jifi/article/view/1056>
28. K. Khusna and R. Septiana, "Kesesuaian Obat Hipoglikemik Oral pada Pasien Diabetes Mellitus Tipe 2 di Fasilitas Kesehatan Tingkat Pertama X di Surakarta," *Indones. J. Pharm. Nat. Prod.*, vol. 2, no. 2, pp. 65–70, 2019, doi: 10.35473/ijpnp.v2i2.261.
29. K. S. Yunarti, "Analisis Ketersediaan Dan Peresepan Obat Dengan Formularium Di Rumah Sakit X Kabupaten Karanganyer," *J. Bina Cipta Husada*, vol. XVIII, 2022.
30. R. Croker, A. J. Walker, S. Bacon, H. J. Curtis, and L. French, "New mechanism to identify cost savings in English NHS prescribing : minimising ' price per unit ', a cross-sectional study," pp. 1–8, 2018, doi: 10.1136/bmjopen-2017-019643.

31. R. J. Straka, D. J. Keohane, and L. Z. Liu, "Potential Clinical And Economic Impact Of Switching Branded Medications To Generics," *Am. J. Ther.*, vol. 24, no. 3, pp. e278-e289, 2017, doi: 10.1097/MJT.0000000000000282.
32. A. Cameron, A. K. Mantel-Teeuwisse, H. G. M. Leufkens, and R. O. Laing, "Switching From Originator Brand Medicines To Generic Equivalents In Selected Developing Countries: How Much Could Be Saved? " *Value Heal.*, vol. 15, no. 5, pp. 664–673, 2012, doi: 10.1016/j.jval.2012.04.004.
33. H. M. Azis S, Sasanti RH, "Analisis Komponen Harga Obat," *Bul. Penelit. Kesehatan*, vol. 28(1), no. 1, pp. 399–408, 2000.
34. Suharmiati, L. Handayani, and B. Roosihermatie, "Cost Analysis of Drugs in Outpatient Department at Public Service Agency District/Province Hospitals in Indonesia," *J. Kefarmasian Indones.*, vol. 9, no. 2, pp. 126–139, 2019, doi: DOI :10.22435/jki.v9i2.1369.

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