

# Does It Still Show a Deficit? Arguing Post-COVID-19 Health Financing System in Bogor, Indonesia

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## Abstract

Before the COVID-19 pandemic, the Bogor City Government regulated to cover the health financing claim during the Indonesian National Health Insurance (NHI) integration period due to the lower amount of health care claim per episode in regional hospitals compared to ones that NHI paid. This study aimed to address post-COVID-19 health financing at two hospitals in Bogor City, West Java Province, Indonesia. Descriptive analysis using the aggregate statistical summaries was taken to explore the medical care episodes of the data series at two hospitals for the last two years. Of the 890 checked medical records data, the deficit occurred in 197 (22.1%) medical care episodes, while five (0.6%) exceeded the hospitals' tariffs. The remaining 688 (77.3%) medical care episodes had suits with the Indonesian-Case Based Groups. Almost a quarter of medical care episodes in aggregate experienced a deficit in the two years before the pandemic. This study is the first to provide new insight into the discussion on medical care financing in a developing country's post-pandemic era in a newly-implemented NHI system.

**Keywords:** health financing, health insurance, medical care financing, post-COVID-19

## Introduction

The Indonesian Government has confirmed to fully cover the health financing for Coronavirus Disease 2019 (COVID-19) medical care in all health care facilities during the COVID-19 pandemic.<sup>1,2</sup> The pandemic began in early 2020, and there remains uncertain indication when COVID-19 ends in Indonesia. In the end, the Indonesian Government enters the end of the present pandemic situation along with the revocation of COVID-19 health protocols, including permitting the Eid al-Fitr holiday exodus (*mudik*) and allowing people to take off their face masks in open spaces.

Before the pandemic, most of low- and middle-income countries were still facing the national issue of health financing, including Indonesia.<sup>3,4</sup> The previous situation of Indonesian health insurance system has led the government, coordinated by the Social Security Administrative Body/*Badan Penyelenggara Jaminan Sosial Kesehatan (BPJS Kesehatan)*, to define the consecutive fare for each medical care that health facilities deliver.<sup>5,6</sup> A tariff was set by the 10<sup>th</sup> International Code of Diagnosis (ICD-X), which includes all medical care into Indonesian-Case Based Groups (INA-CBG) payment sys-

tem.<sup>7</sup>

On the other hand, the Indonesian Government has forced all citizens to enroll in the National Health Insurance (NHI), either as a premium-aid or as an independent insurance policy-handed participant.<sup>8,9</sup> It means that all health facilities, including hospitals, must obey the insurance system under the Indonesian Government.<sup>7,9</sup> In addition, the Indonesian Act No. 44 of 2009 concerning hospitals also stipulates the practice of health information system mechanism, including its application toward the INA-CBG in these health care facilities.

The Indonesian Government, through *BPJS Kesehatan*, acknowledged that the establishment of INA-CBG aimed at covering each hospital's expenditure for a medical care delivery to the insurance policy-handed patients of *BPJS Kesehatan*.<sup>10,11</sup> However, the hospitals insisted that the INA-CBG is not applicable in all cases by ICD-10, which caused the requested claim, in particular medical care, to be less than the hospital's expenditure. Hospitals suffered a deficit in the last two years of the *BPJS Kesehatan* insurance implementation, which made several hospitals choose to refuse specific patients for their benefit. This study aimed to address post-COVID-

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19 health financing in hospitals by analyzing the reimbursement system that the local government of Bogor City, West Java Province, proposed to cover health financing costs before the pandemic situation.

**Method**

This study employed a secondary data analysis on the deviant of payment claims for two years at two hospitals in Bogor City. Descriptive analysis was taken to describe the summary statistics of the deviation claim per episode of medical care. As a pilot study, this type of study was meant to present rough calculations regarding these phenomena in aggregate.

This study was focused on two hospitals: one private hospital and one public hospital. While the private hospital is managed by the consortium, the state hospital is under the management of the Bogor City Government. Both hospitals are located in Bogor City, West Java Province, Indonesia. The dataset was derived from the hospitals' patient records from the last two years. There were 890 medical care episodes in this study. All patient records confirmed that the patients were Bogor City locals. There was no discrepancy within the demographics or related therapy calculation per medical claim.

Each medical care episode claim was calculated; it was either matched or mismatched with the INA-CBG system (Figure 1). All the mismatches were classified as deviation claims and analyzed with two statistical evaluations. The descriptive statistics identified the mean first and evaluated the standard deviation. Most disease records with a total claim had been distributed using deviant approved graphics.

Since the study was done in aggregate, the parameters of this study could not be applied to the whole population of Bogor City (internal validity). This study bias also had implications for the non-adjustment calculations on specific issues, including the effectiveness and efficiency of health financing in the study setting. However, these pilot

findings could be the way to examine the calculation results before the COVID-19 phase, which can be more generally estimated for the post-COVID-19 era.

This study applied general descriptive statistics, such as frequency distributions. The two years of two different hospitals' insurance claims were identified by their distribution percentages according to the INA-CBG diagnoses. Additionally, the deviance between the hospitals' insurance fares on the INA-CBG claims was inspected and summarized by its rate per medical care episode.

**Result**

In Table 1, the highest 12 medical care cases are briefly described. Although other medical care cases had a higher percentage than these 12, the group's tariffs reflected the magnitude of the rest of the organizations' problems (Table 1).

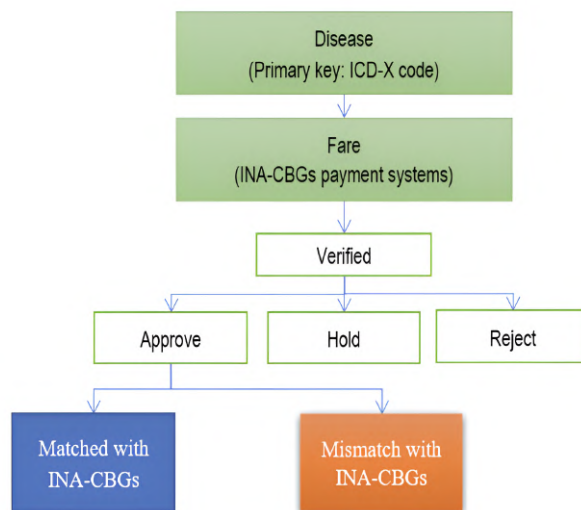


Figure 1. The Framework of Medical Care Financing in Bogor City

Table 1. The Highest 12 Medical Care Cases at Two Hospitals in Bogor City

INA-CBG Code	Description of INA-CBG Code	INA-CBG Tariffs Paid (IDR)	% (n = 890)
A-413-I	Light, nonbacterial infections	2,517,800	7.1
K-417-I	Abdominal pain & other gastroenteritis (light)	2,771,255	3.9
K-417-II	Abdominal pain & other gastroenteritis (medium)	3,561,900	3.0
L-140-III	Procedure on the skin, under the skin tissue, or on the breast	14,733,629	2.8
J-120-III	Procedure on the heavy, non-complex breathing system	24,301,700	2.5
A-413-II	Moderate nonbacterial infection	2,989,100	2.1
J-416-II	Simple pneumonia & medium whooping cough	5,371,700	1.5
K-111-III	Weight peritoneal adhesiolysis procedure	20,272,900	1.3
M-150-I	Lightweight tissue procedure	5,358,400	1.2
A-414-I	Bacterial and other parasites infectious disease	3,051,914	1.1
L-411-II	Moderate breast tumor	4,184,205	1.1
O-610-I	Lightweight cesarian surgery operating procedure	4,424,300	1.1
Others	-	5,177,321,242	71.3

Note: INA-CBG = Indonesian-Case Based Groups

Table 2 shows that 688 (77.3%) medical care episodes suit the INA-CBG system correctly, while five (0.6%) have a lower fare than the INA-CBG system. It found that 793 medical care episodes (89.1%) taken by the hospitals were accorded properly. However, the remaining 197 (22.1%) medical care episodes had a higher fare than the INA-CBG systems. Of the 197 medical care episodes of deviant, univariate analysis was carried out on the deviant amount of IDR 1.00 to 32,898,060.00.

Table 3 shows hospital claims which are higher than how much *BPJS Kesehatan* can fulfill. This table shows the difference between rates per episode of medical services determined by *BPJS Kesehatan* through the INA-CBG system and rates per episode of medical services in hospitals, where the average (mean) difference is IDR 6,068,355.99. However, the standard deviation of IDR 6,483,870.71 informed the probability of error as the range falls too far.

## Discussion

Although the Indonesian Government has provided the COVID-19 financing due to the National Economic Recovery Plan/*Pemulihan Ekonomi Nasional* (PEN),<sup>12</sup> this does not change the fact that medical care episodes during the pandemic were considered huge expensive. During the COVID-19 situation, it is undoubtedly the case that this country is not only losing its economic advantage, but also changing in sociocultural aspects,<sup>13</sup> and people's lives have been in danger during this period of disruption. This study argued that the level of health care in the upcoming post-COVID-19 era could offer the same potent deprivation if the stakeholders at all levels, including people, central and local governments, and health care facilities, assume it to be business as usual.

Statistically, this study showed that the deviance in the values of INA-CBG in the hospitals' fares varied in each medical episode. This deficit indicated that most of the deviance might be dynamically estimated. This situation raised the issue of how much the hospitals could lose and how to present a viable platform for the local government to provide a maximum subsidy for the citizens. Statistical analysis had been generally performed to measure the gap in health financing in the developing countries health care setting over time.<sup>14</sup> As a demographically large country, Indonesia has also initiated the evidence-based approach to solving this issue, particularly in vulnerable communities, such as the poor in Bogor City.<sup>15</sup> Initially, Bogor City implemented prior regional health insurance called Regional Health Insurance/*Jaminan Kesehatan Daerah* (*Jamkesda*). At the same time, in several regions of Indonesia, it has been integrated with *BPJS Kesehatan* insurance gradually, which started in 2014.<sup>16,17</sup> On the other hand, *Jamkesda* in Bogor City runs differently from the others, which influenced

**Table 2. Deviant per Episode of Medical Care at Two Hospitals in Bogor City (n = 890)**

Deviant groups (IDR)	Frequency (n)	Percentage (%)
-4,708,500.00 to -255.00	5	0.6
-1.00 to 0.00	688	77.3
1.00 to 32,898,060.00	197	22.1

**Table 3. Summary Statistics of the Deviant (197 Medical Care Episodes) at Two Hospitals in Bogor City (n = 890)**

	INA-CBG Tariff Paid (IDR)	Deviant between the INA-CBG with the Hospitals' Fare (IDR)
Mean	7,896,767.40	6,068,355.99
Median	5,384,300.00	4,159,155.00
Modus	24,301,700.00	1,327,290.00
Standard deviation	5,758,627.12	6,483,870.71

the fiscal capacity of the region.<sup>18</sup> The central government realized that there should be no region that cannot afford their citizens' medical care comprehensively to prevent the societal inequity issue and welcome the demographic bonus in the future.

While the INA-CBG fares have been set by the central government, which is led by the National Social Security Council/*Dewan Jaminan Sosial Nasional* (DJSN), the medical care in each health care facility, including the hospitals, is formed independently and depends on the hospital's ownership.<sup>9-10</sup> This issue emerged when the payments in these domains were determined as being under the INA-CBG rates. Most of the medical care costs were higher than the INA-CBG rates.<sup>4</sup> The autonomy and decentralization of the local government may lead it to develop its policies, including those related to health financing for the citizens. Thus, this study presented the platform for determining such according to the mean value of the calculated deviance to assist the local government in briefly setting a maximum value that can address the mismatch between INA-CBG rates and hospital fees.

Furthermore, *BPJS Kesehatan* was formed with the intention of anticipating fraud problems.<sup>19</sup> This problem occurs at all levels of the health insurance process, resulting in misuse of funds and manipulation in the procurement process. The Audit Board of the Republic of Indonesia/*Badan Pemeriksa Keuangan* (BPK) noticed several common fraud activities, including procurement of goods and services, licensing, local elections, personnel, maintenance of public facilities, receipt of revenues, oversight, and accountability of regional heads.<sup>20</sup> These kinds of frauds were considered sensitive and got the government's attention. Because of this, it allowed *BPJS Kesehatan* to eliminate the exposure of fraud cases that can harm the excellent governance system, including in

the regions.

Regardless of the good intention of the Indonesian Government concerning equity in health care,<sup>21</sup> *Jamkesda* of Bogor City has gained positive feedback from citizens, which is ensuring that all citizens acquire standard medical care, specifically in hospitals, free of charges.<sup>4</sup> Bogor City has been awarded as one of the cities that can manage their health financing issues, including *Jamkesda*, in Indonesia.<sup>22</sup> This achievement is basically because of its powerful resources as the nearest city to Jakarta, the capital of Indonesia. Bogor City has long been recognized as the leading vacation destination by not only domestic tourists but also tourists from all over the world.<sup>23</sup>

During the integration period of *Jamkesda* into *BPJS Kesehatan*, Bogor City transformed to integrate the citizen database by social offices into health in enrolling as insurance-policy handed.<sup>24</sup> However, data redundancy emerged, which needs more time to decompose the database.<sup>4</sup> Inadequate information systems and the lack of regulation indicated that the prior and current integration process should be done slowly but surely.<sup>19,25</sup> In this case, patients would be affected by consequences of the integration process.

Bogor City develops public trust to ensure excellent governance by focusing on humankind's prosperity, including managing the prominent health issue that arises from the unestablished health financing caused by the *BPJS Kesehatan* integration period. The city is making the necessary policies to cover the citizens' health financing by integrating the *Jamkesda* financing system into *BPJS Kesehatan*. This policy enables a certain amount of fare to be contributed to support the current health financing system.

Since Indonesia has not yet officially confirmed the country as having entered a post-COVID-19 pandemic period, the two years of the aggregate data analysis used in this account were obtained based on the aggregate dispersion of data, and the structure of the data used was only analyzed in terms of the value of the average reimbursements. Thus, this study's findings cannot be used to compare the two hospitals. The study also cannot explain the disaggregated values, and the means and the standard errors were calculated for each case of mixed groups or differently mixed groups. Thus, this study presented the rationale of a value structure of the system of payments (INA-CBG) that seems to be defined in absolute amounts of money instead of in percentages concerning the reimbursement fee.

## Conclusion

Almost one-quarter of medical care episodes in the hospital in the Bogor City of Indonesia demonstrated a deficit. This study recommends that further studies be

done to calculate the mean differences between the before- and post-COVID-19 situation once the Indonesian government has judged the COVID-19 pandemic to have passed. It is essential also to look closely at the hospital claims calculations from reimbursement fees set by the INA CBGs managed by *BPJS Kesehatan*, which would need to be paid by the Bogor City Government to cover the per medical care costs of each episode of hospital expenditures, which can be generated in light of the policies of Bogor City itself.

## Abbreviations

NHI: National Health Insurance, COVID-19: Coronavirus Disease 2019; INA-CBG: Indonesian-Case Based Groups; *BPJS Kesehatan*: *Badan Penyelenggara Jaminan Sosial Kesehatan* (Social Security Administrative Body); ICD-10: The 10th revision of the International Statistical Classification of Diseases and Related Health Problems; IDR: Indonesian Rupiah; PEN: *Pemulihan Ekonomi Nasional* (National Economic Recovery Plan); *Jamkesda*: *Jaminan Kesehatan Daerah* (Regional Health Insurance); DJSN: *Dewan Jaminan Sosial Nasional* (National Social Security Council); BPK: *Badan Pemeriksa Keuangan* (The Audit Board of the Republic of Indonesia).

## Ethics Approval and Consent to Participate

The study was approved by the local government Research Committee of the Bogor City Government (Ref. Nr. 2022-01).

## Competing Interest

The authors declare that there are no significant competing financial, professional, or personal interests that might have affected the performance or presentation of the work described in this manuscript.

## Availability of Data and Materials

The datasets generated and/or analyzed during this study are not publicly available due to confidentiality but are available from the Bogor City Government upon reasonable request.

## Authors' Contribution

AA was the project leader and was responsible for study and project design. Both MV and AA performed the data analysis to make conceptual contributions and prepare the first manuscript. RDA and LOHSS performed the data collection and calculated the study results. G and MHH were co-writing and involved in the revision of the manuscript. All authors approved the final manuscript.

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