How protected are PhilHealth members and beneficiaries? The 2017 PhilHealth support value survey

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ABSTRACT

Support value is the percentage of costs covered by a health insurance program through reimbursements during a beneficiary's specific confinement or utilization of healthcare services. It is an important measurement of PhilHealth's role in promoting a healthy nation by extending financial protection to its members and beneficiaries. The main objective of the study was to measure the level of support value in terms of the patient's total hospitalization cost by membership category, facility type ownership, and facility classification. A comprehensive analysis of the 2017 PhilHealth claims database was done by disaggregating valid from invalid claims, and descriptively analyzing resulting valid claims. This was followed by an analysis of 1,422 primary data from patients and hospitals regarding out of pocket (OOP) expenses and external funding support, and a validation of patient billing records in hospitals. The average adjusted support values for patients' hospitalization in terms of membership categories were 54.67% (for informal economy), 46.28% (for formal economy), 42.00% (for lifetime members), 47.66% (for senior citizens), 61.44% (for sponsored individuals), and 61.99% (for indigent members), with a national average of 52.99%. In terms of facility ownership, support value for private facilities was at 47.27% while government facilities was at 61.93%. For Hospital Facility Classification Levels, Level 1 hospitals had support value of 58.42%, Level 2 hospitals had 45.03%, Level 3 hospitals had 47.03%, maternal care package facilities had 71.90%, and infirmary/dispensary units had 60.44%. Compared to an earlier study which used the same methodology, unadjusted support value increased from 33.8% in 2015 to 65.89% in 2017. However, if we apply adjustment factors to account for OOP, then the increase in support value was from 33.8% to 52.99%.

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INTRODUCTION

The adoption of the Sustainable Development Goals (UNDP 2015) envisioned that by 2025 all individuals and communities should receive needed health services without suffering financial difficulties. This global push towards universal health coverage (UHC) has prompted governments worldwide to improve health service delivery and rethink health policies and national healthcare programs. In the case of the Philippines, a

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need has been made apparent for the PhilHealth to evaluate the ability of its National Health Insurance Program to sufficiently support health care expenses, both among beneficiaries eligible for No Balance Billing (NBB) schemes (i.e., vetted by poverty reduction programs), and for those who are able to afford healthcare service charges. This also requires increasing PhilHealth's support value to its beneficiaries.

Support value (SV) is a measurement of the extent of financial protection accorded by an insurance company to its beneficiaries. In terms of health insurance in the Philippines, it is the percentage of costs covered by PhilHealth reimbursements during a specific confinement period incurred by an individual who sought care in a PhilHealth-accredited facility. Confinement in such facilities may entail expenses which can be broken down into laboratory procedures, drugs and medicines, medical/surgical procedures, medical/surgical supplies, professional fees, rooms, and others. Other hospital expenses may include out-of-hospital purchases, which are oftentimes not reported in PhilHealth Form 2 or in the hospital's Statement of Accounts. Furthermore, analyzing SVs offered by PhilHealth can be further characterized into the type of patients being covered, the health facilities in which healthcare services are obtained, and the type of services being availed of.

The Philippines has been in the active pursuit of UHC and its three main thrusts: providing financial risk protection to the poorest two quintiles of the population, strengthening of the public health system to meet the development goals, and massive infrastructure rehabilitation and construction. Since 2000, PhilHealth has become more aggressive in extending its coverage. This has been done particularly by employing more active strategies to extend membership enrollment to the poor and introducing new benefit packages. This also includes raising the benefit ceilings for drugs, x-ray and laboratory services (since 2002), and the introduction of benefit packages for tuberculosis, severe acute respiratory syndrome (SARS), and dialysis treatment (Capuno et al. 2009).

Given these efforts, interest in studying the SV offered by PhilHealth to its beneficiaries has increased. Upon review of the Family Income and Expenditure Surveys (FIES) from 2000 to 2012 (NSO 2002; NSO 2007; NSO 2009; NSO 2011; NSO 2014), even with such provisions, PhilHealth SV has remained relatively low, averaging around 40% (Ulep and Dela Cruz 2013). Between years 2012 and 2015, it was observed that the SV level hovered between 50% and 60% (Obermann et al. 2018). Most recently, in the PhilHealth support value study of Alcantara submitted in 2017 to the PhilHealth which examined claims from January 2015 to December 2015, it was found that the average SV provided across 1,044 patient records was at 33.8%.

Support value has also been seen to vary among the different PhilHealth membership categories PhilHealth caters to, the facility types in which the patients were confined, and the facility classification each facility belongs to. In a study by Tobe et al. (2013), from 1 January 2007 to 31 December 2009, a total of 94,531 PhilHealth insurance claims were made in Baguio City and Benguet province for inpatient care. In this study, median SVs of 55%, 80%, 56%, and 48% were recorded to have been provided for employed members, sponsored indigents, individually paying/OFW members, and lifetime members, respectively. Overall, it resulted in a median SV of 57%. Private facilities had median SVs of 79%, 58%, and 40% in primary, secondary, and tertiary level facilities, respectively; while public facilities presented SVs of 88%, 93%, and 84% in primary, secondary, and tertiary levels, respectively. Within the same region in 2010, informal sector members had the largest benefits relative to contributions in 2010, receiving benefits 2.7 times their contributions. Their benefits increased further, reaching almost four times their contribution in 2012, and remaining close to this level in 2015 (Cabalfin 2016).

Increasing the efficiency of PhilHealth for universal health care requires determining appropriate and ideal reimbursement costs. However, reimbursements for specific diseases belonging to specific demographic characteristics are highly dependent on various factors, including socio-cultural, economic, and environmental contexts. It is therefore necessary to analyze current support values as provided by PhilHealth to calculate support values that balances insurance sustainability, health care provision, and other societal aspirations.

Rationale and significance of the study

This Support Value Survey of 2017 of PhilHealth provides an enhanced analysis of patient billing costs as categorized according to illness types, healthcare institution types, geographical location, and other pertinent patient-confinement related factors. It also presents trends of PhilHealth support values through the years as it is compared with earlier SV surveys. Most importantly, findings of the study provide an evidence-based approach that can be used by policymakers, public and private health professionals, health insurers as well as health care consumers and other stakeholders.

METHODS

Clearance to conduct interviews with patients and hospital administrators was given by the Department of Health (DOH) Single Joint Research Ethics Board (SJREB) as Protocol Number 2019-05. Three different phases of analysis were conducted in the study, namely, data cleaning, sampling, and support value computation. The first phase included a comprehensive analysis of official PhilHealth insurance claims database for the year 2017. The raw 2017 PhilHealth claims dataset had 10,004,488 claims, but after data cleaning, the number of clean claims went down to 3,683,803. The data inclusion criteria were as follows: hospitalization should have been discharged within the calendar year 2017, actual amount is non-negative and greater than zero, claim amount is non-negative and greater than zero, support value is less than or equal to 100%. Exclusions included: "unknown" regions and provinces, and primary healthcare facilities. The generated final dataset included 3,683,803 cases or 50.94% of the 2017 claims. The formula for the "Unadjusted SVs", as used in this paper, is shown in Figure 1.

$$Unadjusted\ SV = \frac{Reimbursement\ from\ PhilHealth}{Gross\ Bill}$$

Figure 1: Formula for the unadjusted SV

Using the cleaned dataset, a random sampling design was employed for the second phase of analysis. The sample size was determined to consider two independent samples with continuous outcome. Using the reported data of the Alcantara report submitted to PhilHealth, the study used a 95% level of confidence and 80% beta power to come up with a needed sample size of 123 for four data groups per healthcare type (procedural and medical) per facility type (government and private). These four data groups refer to the distribution of International Classification of Diseases version 10 (ICD-10) claim frequencies at 1%, 33%, 66%, and 99%. The equation yielded a total of 1,968 samples. However, due to administrative, spatial, weather, and transportation issues, only 1,742 hospital records were successfully accessed and only

1,422 patients were successfully interviewed. Further, 961 records from both hospitals and patients were successfully linked or cross-referenced with one another. To test whether this was still a valid sample, a two-sample t-test on the computed support values, with unequal variances was computed. Results showed no significant difference (p = 0.2864), suggesting that the entire 1,742 hospital records and 1,422 patient interview data maybe viable for statistical analysis as representative of the 1,968 needed samples.

For the third phase, findings from the analysis of 2017 PhilHealth Claims database were analyzed together with patient and hospital interviews to come up with "Adjusted SV with other supports". These SVs were computed so that OOP expenses, as well as financial support provided by various agencies (Philippine Charity Sweepstakes Office or PCSO, local government units, and other agencies) were considered in the computation of SVs, as shown in the Figure 2:

$$\textit{Adjusted SV with other support} = \frac{\textit{Reimbursement from PhilHealth}}{(\textit{Gross Bill} - \textit{Discounts}) + \textit{essential OOP Expenses}}$$

Figure 2: Formula for the adjusted SV with other support

A support value which only considered reimbursements (or "Claims Amount") and gross bill ("Actual Amount"), as indicated in the 2017 PhilHealth Claims database, and essential OOP expenses gathered through household questionnaires was calculated and labelled as "Adjusted SV without other support" in this study. This Adjusted SV without other support (using the formula in Figure 3), as used in this study, is of special use for PhilHealth since it focuses on the actual financial support given by PhilHealth alone, without regard to other support-granting entities. Therefore, this study computed three SVs: (1) Unadjusted, (2) Adjusted with other support, which includes OOP and support from other sources, and (3) Adjusted without other support, which includes OOP but not including support from other sources.

$$\textit{Adjusted SV without other support} = \frac{\textit{Reimbursement from PhilHealth}}{\textit{Gross Bill} + \textit{essential OOP Expenses}}$$

Figure 3: Formula for the adjusted SV without other support

RESULTS AND DISCUSSION

Having considered the impact of OOP expenses vis-à-vis actual hospitalization costs, adjustment factors were made to the unadjusted SVs. The adjustment factor, calculated to consider the influence of OOP expenses in the actual hospital bill, lowered raw SVs since hospitalization costs were higher than what was reflected in a patient's billing records.

Additionally, claims amounts were positively skewed, as shown in Figure 4. This means that claims are not evenly distributed. This is reflected in Table 1, which shows an inverse relationship between hospitalization costs, proxied by claims amount categories, and support values, with most claims (69.03%) at less than or equal to 10,000 pesos, which become fewer the more expensive the claims. Claims that were larger than 55,000 pesos took up only 46.02% of all claims. The support value claims equal to or less than 10,000 pesos was 69.03% unadjusted, 54.93% when adjusted to include OOP but without other support, and 55.87% when adjusted to include OOP and other supports. In general, the computed support values decreased the higher the peso value of the claims, with claims more than 55,000 pesos having support values of only 46.42% unadjusted, 35.74% when adjusted without other support, and 36.07% when adjusted with other support.

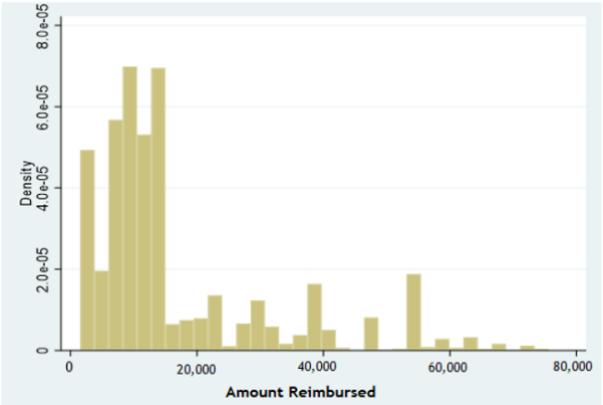

Figure 4: Claims amount distribution

Table 2 shows that the most number of claims were attributed to members and beneficiaries of the Formal Economy Members category, Informal Economy Members category came next, with Indigent category being third. The member category with the fewest number of claims was the Lifetime Members category. As expected, unadjusted support values decreased when adjusted to include OOP. Support values went from 65.89% to 53.74% when adjusted to include OOP and other supports, and to 52.99% when adjusted to include OOP but not support from other sources. Figure 5 shows that the biggest drop (from unadjusted to adjusted) in SV was in the Sponsored Members and the Indigent Members categories, with the smallest drop within the Lifetime Members and Formal Economy Members categories. Nevertheless, the support values enjoyed by Sponsored, Indigent, and Informal Economy Members categories were still above the national average. The calculated support values may be related to the recent national push of PhilHealth to be more socialized by providing more support to poorer members in the form of No Balance Billing (NBB) and easier access to submembership types as detailed in PhilHealth Circular No. 2017-0017.

PhilHealth members and beneficiaries who were admitted to government Maternal Care Package provider facilities (MCP) enjoyed the highest support value at 98.81% (72.90% when adjusted to include OOP and other supports, 71.89% when adjusted to include OOP but without support from other sources). Patients who were admitted to government infirmary or dispensary facilities enjoyed the second highest support value at 85.30% (68.04% when adjusted to include OOP and other supports, and 66.90% when adjusted to include OOP but without other support). The lowest SV was at 71.23% in Level 3 hospitals (57.04% when adjusted to include OOP and other supports, and 56.23% when adjusted to include OOP but without other support). It is interesting to note that the higher the level of the hospital, the smaller the support value becomes. (Table 3).

Users of Maternal Care Package (MCP) facilities enjoyed a 71.90% support value, followed by Infirmary/Dispensary confinements at 60.44%. The worst performing support value was for Level 2 hospitals at only 45.03%, the second worst was for Level 3 hospitals at 47.03% (Tables 4 and 5).

For PhilHealth members and beneficiairies who were admitted in private facilities, a similar picture was seen. Those who were admitted to government Maternal Care Package provider facilities (MCP) enjoyed the highest support value at 98.97% (72.92% when adjusted to include OOP and other supports, 71.91% when adjusted to include OOP but without support from other sources). Patients who were admitted to private infirmary or dispensary facilities enjoyed the second highest support value at 70.78% (57.83% when adjusted to include OOP and other supports, and 56.98% when adjusted to include OOP but without

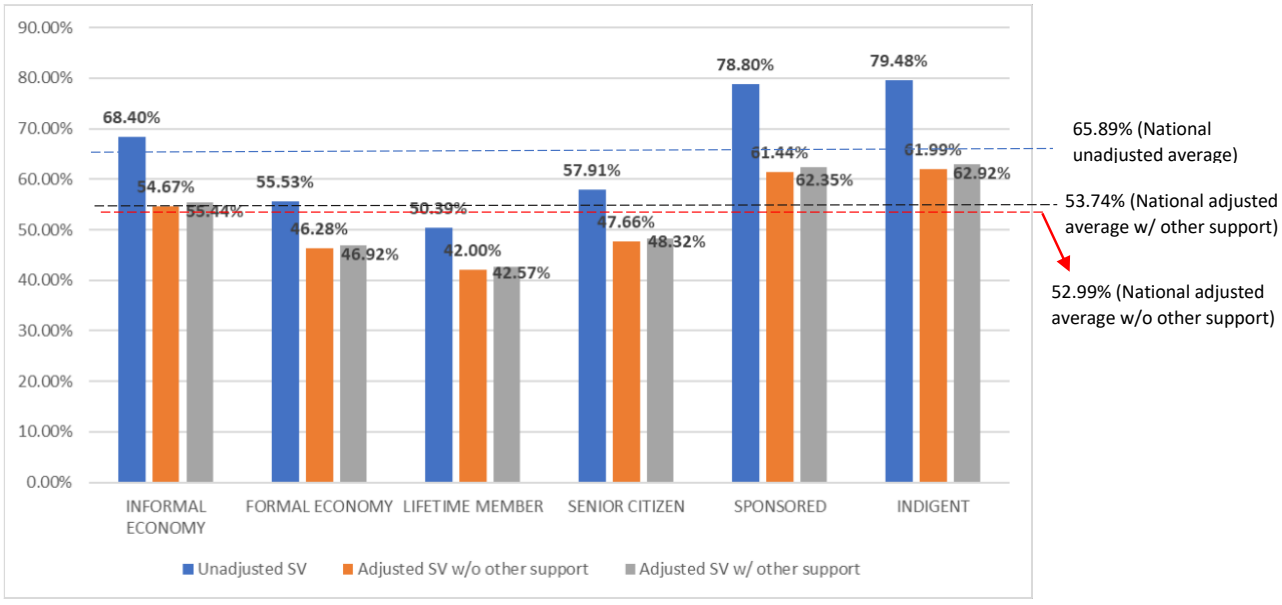

Figure 5: Unadjusted and adjusted SV according to membership type

Table 1: SVs per claim category

Claim amount category	Number of observations	Unadjusted SV	Adjusted SV w/o other support	Adjusted SV w/ other supports
>0 to ≤ 10,000	2,289,026	69.03%	54.93%	55.87%
>10,000 to ≤ 30,300	1,207,452	61.70%	50.85%	51.28%
>30,300 to ≤ 37,800	133,872	56.01%	44.22%	44.96%
>37,800 to ≤ 55,000	42,427	52.33%	40.93%	41.51%
>55,000	11,026	46.42%	35.74%	36.07%
National	**3,683,803**	**65.89%**	**52.99%**	**53.74%**

Table 2: SVs per member category

Member category	Description	No. of observations	Unadjusted SV	Adjusted SV w/o other support	Adjusted SV w/ other supports
Informal Economy	All unemployed or self-employed employees (professional, business owners, retirees, and farmers.)	818,919	68.40%	54.67%	55.44%
Formal Economy	All employees with offices in the Philippines, including seafarers and household helpers (since their agencies are based in the country).	985,637	55.53%	46.28%	46.92%
Lifetime Member	Members who were able to pay at least 120 monthly premiums. Membership becomes free as soon as they reach 60 years old.	158,914	50.39%	42.00%	42.57%
Senior Citizen	Filipino citizens who are already 60 years old or above but have never been a PhilHealth member.	579,613	57.91%	47.66%	48.32%
Sponsored	All members working for a non-profit organization.	381,533	78.80%	61.44%	62.35%
Indigent	All members with no source of income, or those without a stable household income.	759,187	79.48%	61.99%	62.92%
	National	**3,683,803**	**65.89%**	**52.99%**	**53.74%**

other support). The lowest SV was at 39.61% in Level 3 hospitals (35.50% when adjusted to include OOP and other supports, and 35.08% when adjusted to include OOP but without other support). Similarly, the higher the level of the hospital, the smaller the support value becomes. (Table 4). It is noted that while the trends were similar, the support values were on the average 14.47% lower when admitted to private facilities as compared to government facilities.

Table 3: SVs per facility class

Facility class	Number of observations	Unadjusted SV	Adjusted SV w/o other support	Adjusted SV w/ other supports
Level 1 Hospital	1,162,424	73.03%	58.42%	59.29%
Level 2 Hospital	1,135,623	53.61%	45.03%	45.66%
Level 3 Hospital	833,479	57.48%	47.03%	47.67%
MCP Provider	310,467	98.92%	71.90%	72.91%
Infirmary/ Dispensary	241,810	75.85%	60.44%	61.39%
National	**3,683,803**	**65.89%**	**52.99%**	**53.74%**

Table 4: Support values according to member category and facility type (government) in percentages

Government facility															
Member category	Level 1			Level 2			Level 3			MCP provider			Infirmary/ Dispensary		
	USV	ASV*	ASV**	USV	ASV*	ASV**	USV	ASV*	ASV**	USV	ASV*	ASV**	USV	ASV*	ASV**
Informal Economy	83.27	65.04	66.00	73.46	58.83	59.67	70.07	55.59	56.37	99.01	71.98	73.00	86.06	66.79	67.95
Formal Economy	82.82	64.83	65.82	74.27	59.45	60.33	67.28	53.67	54.43	98.98	71.95	72.96	86.22	67.72	68.91
Lifetime Member	80.72	63.57	64.53	66.90	53.71	54.50	57.83	46.56	47.20	97.50	73.83	74.64	83.79	66.02	67.12
Senior Citizen	82.95	64.98	65.94	68.64	54.99	55.79	63.26	50.86	51.57	100.00	74.76	75.65	83.18	65.57	66.60
Sponsored	84.99	66.20	67.21	76.21	60.05	60.95	76.61	59.76	60.62	98.22	71.80	72.81	85.13	66.66	67.83
Indigent	85.15	66.44	67.46	75.18	59.15	60.05	75.54	59.15	60.01	98.88	71.84	72.86	85.74	67.24	68.40
National	**84.11**	**65.69**	**66.68**	**74.07**	**58.76**	**59.63**	**71.23**	**56.23**	**57.04**	**98.81**	**71.89**	**72.90**	**85.30**	**66.90**	**68.04**

USV: Unadjusted Support Value
ASV: Adjusted Support Value
** : without other support*
***: with other supports*

Table 5: Support values according to member category and facility type (private) in percentages

Private facility															
Member category	Level 1			Level 2			Level 3			MCP provider			Infirmary/ Dispensary		
	USV	ASV*	ASV**	USV	ASV*	ASV**	USV	ASV*	ASV**	USV	ASV*	ASV**	USV	ASV*	ASV**
Informal Economy	60.37	50.54	51.27	50.10	43.35	43.95	44.43	39.14	39.61	99.03	71.97	72.98	69.97	56.19	57.01
Formal Economy	57.61	48.32	49.02	44.78	39.30	39.83	36.16	33.11	33.51	98.76	71.75	72.76	66.95	54.16	54.94
Lifetime Member	58.17	48.03	48.99	46.11	39.00	39.52	39.44	33.68	34.06	100.00	72.57	73.56	63.12	52.25	53.00
Senior Citizen	61.37	50.75	51.45	47.49	40.30	40.84	39.82	34.31	34.70	100.00	74.31	75.21	64.30	53.28	54.02
Sponsored	68.45	54.99	55.79	54.40	44.94	45.53	51.10	42.51	43.00	99.11	71.85	72.86	72.93	58.13	59.01
Indigent	75.97	60.15	61.05	61.93	50.42	51.14	50.47	42.32	42.82	99.02	71.92	72.93	77.14	61.22	62.17
National	**63.25**	**52.02**	**52.77**	**48.18**	**41.39**	**41.95**	**39.61**	**35.08**	**35.50**	**98.97**	**71.91**	**72.92**	**70.78**	**57.98**	**57.83**

USV: Unadjusted Support Value
ASV: Adjusted Support Value
** : without other support*
***: with other supports*

CONCLUSION

Majority of the PhilHealth reimbursed patients incurred hospital and other essential costs at approximately 32.21% of their annual household income. The fact that PhilHealth can support an average of 52.99% of this cost means that these patients' health expenditure takes up approximately 14.20% of their total household income. By World Health Organization standards, this is less than the 40% threshold to be considered as catastrophic household healthcare expenditure (WHO 2010). However, it should be noted that the World Bank uses a lower threshold of 10% (WB 2011) to account for the possibility that the household has no savings, so that even a 14.2% expenditure on healthcare services can lead to impoverishment of the household.

PhilHealth's unadjusted SV that is reported in this paper, increased from 35.00% in 2015 to 65.89%. However, adjusted factors (without the other financial support from LGUs and other institutions) when applied to account for OOP, resulted to lower improvement in SV from 35.00% to 52.99%. Considering other financial support from other public and private entities (apart from PhilHealth) showed an adjusted SV of 53.74%.

RECOMMENDATIONS

First, communicating services provided by PhilHealth should be improved using various media. It has been noted that several patients were still not aware of the reimbursement benefits that PhilHealth offers to its members and beneficiaries. It is thus recommended that PhilHealth explore strategies to efficiently relay how benefit packages work for members, apart from standard posters, guidelines, and itemized reimbursements contained in hospital billing statements.

Second, online monitoring systems are needed to track transparency of billings, review compliance of healthcare facilities to PhilHealth procedures, and resolve member queries. Monitoring and evaluation systems would not just help monitor SVs but also increase appreciation among members that

PhilHealth actively strives to make healthcare expenditures more affordable for them.

Third, there is a need to minimize errors in records encoding. This may entail the need to harmonize training among hospitals and other healthcare facilities with PhilHealth personnel to minimize errors in claims filing and encoding. This may include capacity building for encoding and relaying claims from a healthcare facility to PhilHealth, understanding the entire claims process, and implementing fail-safe systems to minimize erroneous entries in the database. Building capacity for research is also important among key personnel involved in processing reimbursement claims in PhilHealth and healthcare facilities to conduct simple data analytics.

The true value of computing for SV statistics is not only to comply with the PhilHealth policies, but also as a very useful benchmark. For example, if ICD-10 code XYZ has a support value of 95%, how come ICD-10 code ABC only has 57%? By learning internally how specific regions and hospitals are able to achieve higher SVs, PhilHealth can improve its overall impact on making health care more affordable to Filipinos. PhilHealth can also incentivize LGUs to provide logistical and other applicable support to hospital and healthcare facilities so that there is a lesser need for healthcare facilities to pass on unreimbursed costs to patients. These concerns may require further research to theoretically discuss their nature, application, and implementation.

Due to the limitation of this study in attaining only 1,742 of the needed 1,968 sample population, as a result of time constraints, it is recommended that the next round of update be allowed ample time to achieve the needed sample size.

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CONFLICT OF INTEREST

All authors have no conflict of interest.

CONTRIBUTIONS OF INDIVIDUAL AUTHORS

HA Valverde is the principal author and contributed to the conceptualization of the study, conducted the sampling, data analysis, interpretation, and the drafting and revising of the manuscript. DB Anacio and HY Lam contributed to the conceptualization of the study and design, data analysis and interpretation, as well as review of manuscript. The latter is also the overall advisor of the study. AL Garcia contributed in the acquisition of data, and drafting and revising of the manuscript. All authors contributed to the final approval of the version to be published, and agree to be accountable for all aspects of the work. All authors declare that the manuscript's data, figures, graphs, calculations, etc. are authentic.

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