

Relationship of Hospital Expenses and Case Rate Package among Postpartum Women in a Level-1 Public Hospital

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Abstract: Every Filipino should be protected against out-of-pocket expenditures. A retrospective and cross-sectional study was conducted to determine the relationship of cost of hospitalization and all case rate (ACR) by reviewing their Statement of Account (SOA). Majority of 143 postpartum women were more than 25 years old, primigravida (50.4%), living in urban barangays (76.2%), PPIUD insertion (40.6%), experienced maternal complications (44.1%), 3-4 days of length of stay (46.1%), and delivered spontaneously (NSD01, 56.6%). The hospital's collection of professional fees was significantly lower than the national standard of 30% (z -test=1.00, SD =6.75). The result showed 95% confident that the mean difference between the cost of hospitalization and ACR was between 25.79% and 27.99%. (t -test=1.96, SD 6.75). While the cost of hospitalization was significantly higher than the PhilHealth All Case Rate (ACR) package (z -test =19.79, SD =2,458, α =0.05). Chi-square test analysis revealed that there was no correlation between age of postpartum women and type of residence (χ^2 =0.733), and between age and parity (χ^2 =1.25E-07). Moreover, the average days of LOS of postpartum women (first ACR, 3.882 ± 1.828 days) significantly longer than postpartum women (second ACR, 3.714 ± 2.082 days, z =7.21). The cost of hospitalization was consistently higher compared to the current PhilHealth ACR.

Keywords: No Balance Billing policy, All Case Rate, cost of hospitalization, out-of-pocket expenses

1. Introduction

In 2011, PhilHealth has implemented all case rate (ACR)-based payment scheme which offers a more predictable and equitable benefit payment based on patients' medical condition. Along with the introduction of case payment was the introduction of No Balance Billing (NBB) policy, which provides that no other fees or expenses shall be charged or be paid for by the indigent patients above and beyond the packaged rates during their confinement period¹. The government aimed to maximize the genuine "universal" health care insurance as government's responsibility towards the poorest of the poor against financial risk. Thus, health financing is one of the six instruments promoted by the Kalusugang Pangkalahatan² (KP) and the current Formula-One by the Department of Health (DOH).

Since then, government and private hospitals and other healthcare facilities implemented the case rate scheme and the NBB policy. Justiniano R. Borja General Hospital (JRBGH), being a PhilHealth-accredited facility, had been implementing both the PhilHealth case rate scheme and NBB policy as mandated by law. As of 2017, NBB policy in JRBGH was 97%. The case rates for NSD Package for Level 1 hospitals (Php 8,000) and Maternity Package (Php8,000) were based on PhilHealth Circular No.11-series 2011³; while cesarian section case (Php19,000) was based on PhilHealth Circular No.11-2011³ and PhilHealth Circular No. 11-B-series 2011⁴.

For almost two decades from its implementation of the DOH Administrative Order (AO No.2016-0035⁵), Statement of

Account (SOA) of postpartum women were evaluated during their exit interviews anchored on the case rates, the excess payment from the SOA, and its differences from ACR. A local study by Alcazar et al, (2015)⁶ assessed the NBB policy implementation in Northern Mindanao Medical Center (a tertiary hospital) but focused both on medical and surgical cases.

The assumption is that these pregnant women had their antenatal care visits, all are skilled-birth deliveries, and majority are PhilHealth members or are dependents of PhilHealth members. The facility is implementing the NBB policy upon their discharge. But in reality, "no balance billing" did not happen because actual funds were outsourced from other agencies to pay their excess bills. In JRBGH, if the cost of hospitalization exceeded the corresponding PhilHealth package, other sources of funds were utilized (PhilHealth members and non-PhilHealth members) such as, the following: (1) Department of Health-Medical Assistance Program (MAP), (2) Philippine Charity Sweepstakes Office (PCSO), (3) congressional funds, and (4) patient's out-of-pocket (OOP) expenses. The current study considered these four sources of fund as OOP expenses since they are sourced out from other agencies.

Similar studies of costing the maternal health during pregnancy were conducted using larger population data from the national demographic surveys (NDS) in other countries^{7,8,9}. Some studies documented the postpartum knowledge, awareness and perception of antenatal care with variable advantages and disadvantages of implementing the universal health care^{10,11,12}. Analyzing the cost of

hospitalization among hospitals is more difficult in private facility than in public or government facilities.

The persistence of OOP expenditures and the extent of payment relative to the case rate payments were examined in this study. And the current study used the hospital cost as an output measure of the level of care utilized during their hospital stay among postpartum women. Maternal and neonatal clinical outcomes were not considered in this study. Moreover, there was no study done on its relationship since the implementation of the case rate package and NBB policy in this facility.

1.1 Conceptual Framework

Outcome of pregnancy may be evaluated in terms of neonatal and maternal outcome, and improved antenatal care. But the current study focused on the cost of hospitalization and PhilHealth ACR. These ACR protected the pregnant women from extra hospital bills and provided the NBB especially the poorest population. The following are the independent variables: age, type of residence, presence of IUD insertion, complicated or non-complicated spontaneous delivery and length of hospital stay. The dependent variable are the cost of hospitalization, the case rate package, and the profile of maternal complications. The cost of hospitalization covers fees from the emergency room usage, medicines, central supply room, laboratory, room and board and the professional fees.

Reviewing the financial cost will provide first look at the effectiveness of any health services¹³. Thus, the PhilHealth case rates and NBB policy were reviewed in this study by understanding the current cost of hospitalization among postpartum women.

1.2 Statement of the Problem

This study aimed to determine the relationship of the cost of hospitalization and the case rate package in level-1 public hospital. Specifically, it deals with the following:

- 1) What are the mean cost of hospitalization of these postpartum women, in terms of:
 - Emergency room
 - Medicines
 - Central supply room
 - Laboratory
 - Room and board
 - Professional fees
- 2) What are the demographic and clinical profiles of the respondents?
 - Age
 - Residence
 - Presence of IUD insertion
 - Presence of complications
 - Length of (hospital) stay (LOS)
 - All Case Rate (ACR)
- 3) Is the professional fee in the hospital bill follows the PhilHealth standard?
- 4) What is the interval estimate of mean difference between the cost of hospitalization and care rate package?

- 5) Is there a relationship between the type of residence and maternal age?
- 6) Is there a relationship between maternal parity and maternal age?
- 7) Is the costs of non-complicated normal vaginal delivery (NSD) covered by the ACR?

Hypotheses

- 1) H_{01} : The mean Professional fee is equal to the national standard at 30%.
- 2) H_{02} : There is no significant relationship between the type of residence and age.
- 3) H_{03} : There is no significant relationship between the parity and age.
- 4) H_{04} : The mean cost of non-complicated NSD cases is equal to mean ACR of Php= 5,000.
- 5) H_{05} : The LOS and the mean difference of cost of hospitalization and the ACR is equal between postpartum women with first ACR and second ACR.

1.3 Scope and Limitation

The study population was limited to the admitted postpartum women of the hospital. They were discharged as eligible for the NBB policy. Postpartum women seen at the OB-Emergency Room, Emergency room, Out-patient Department, and transferred to other health facilities were excluded from the study.

The cost of hospitalization was based on the SOA documents upon discharge. Moreover, the demographic data were limited to the printed SOA. Procedures and services done during prenatal check-ups but were not attached or documented during discharge were not considered.

2. Materials and Methods

2.1 Research Design

This is a retrospective and cross-sectional study using simple random sampling conducted in a level-1 public hospital.

2.2 Research Environment

The study was conducted in a level-1 LGU-owned city hospital which handled approximately 20-30 maternal deliveries per day with an estimated 600 deliveries per month based on 2018 census. It is a PhilHealth-accredited facility and mandated to implement the NBB policy and the PhilHealth case rate package.

2.3 Respondents and Sampling Procedure

The respondents of the study were those with normal spontaneous delivery who were eligible for the NBB policy. The retrieved SOA for these women covering two months period were chronologically arranged according to the date of admission. Simple random sampling was used to identify the sample population by selecting SOA every three counts.

2.4 Data Gathering Instruments and Procedure

Data from the Statement of Account were tabulated in a spreadsheet. The costs of hospitalization of postpartum women were determined, in terms of: emergency room use, room and board, medicine, supplies from CSR, laboratory, and professional fees. Still from the SOA, other identified data were: age of postpartum women, address, primary and secondary diagnoses, ICD-coding, presence of IUD insertion, data of admission and date of discharge, length of stay, gravidity and delivery complications.

2.5 Statistical Instrument

The research data were processed using analytical statistics such as z-test, interval estimate, chi-square of association; while descriptive statistics used were frequency, percentage and mean. Data presentation were done with tables and figures.

3. Results and Discussion

Table 1 showed the Statement of Account (SOA) with cost and the mean cost of hospitalization presented among 143 postpartum women. These summaries of fees were the following in decreasing order of amount, namely; professional fees (26.09%), delivery room fees (18.89%), central supply room fees (16.63%), room and board (15.40%), medicines (10.20%), laboratories (7.36%), and lastly, emergency room fees (5.43%).

Table 1: The cost and the mean cost of hospitalization among postpartum women

Particulars	Amount (Php)	Mean (Php)	Percentage (%)
Emergency Room	75,525	576.53	5.43
Medicines	141,948	992.64	10.2
Central Supply	231,429	1,618.39	16.63
Laboratory	102,385	726.13	7.36
Room and Board	214,260	1,498.32	15.4
Delivery Room	262,759	1,837.48	18.89
Professional Fee	363,000	2,538.46	26.09
Total	1,391,306	9,787.95	100

The profile of postpartum women who delivered NSD from January 1 to February 28, 2019 at this facility are presented in Table 2. There were 60 postpartum women age more than 25 years old, followed by 51 19-24 years old, and 32 less than 18 years old. The youngest postpartum woman was 16 years old while the oldest was 42 years old.

Table 2: Frequencies and percentages of postpartum women's profile based on their Statement of Account. (n=143)

Variables	Particulars	Frequency	Percentage (%)
Age (years) (n=143)	<18, 16 youngest	32	22.4
	19-24	51	35.66
	>25 (42, highest)	60	41.94
Parity (n=125)	1	63	50.4
	2-3	37	29.6
	4-5	19	15.2
	>6 (10 highest)	6	4.8
Residence	Rural	34	23.8

(n=143)	Urban	109	76.2
IUD insertion (n=143)	with	58	40.6
	without	85	59.4
Complicated (n=143)	with	63	44.1
	without	80	55.9
Length of Hospital Stay (LOS) (n=143)	<2	38	26.6
	3-4	66	46.1
	>5 (11 highest)	39	27.3
Acute Case Rate (ACR) (n=143)	First rate (NSD01)	81	56.6
	Second rate (eg. IUD)	62	43.4

Most of these postpartum women had their first delivery (50.4%) followed by 37 women (29.6%) with 2-3 deliveries, 19 women with 4-5 deliveries (15.2%) and 6 women had more than 6 deliveries (4.8%). One multigravida woman had 10 deliveries.

Majority of the postpartum women live in the urban areas (109), while 34 (23.8%) were living in the rural areas. Among these postpartum women, only 58 (40.6%) had postpartum IUD (PPIUD) insertion done while 85 (59.4%) did not avail of the PPIUD. Varied maternal complications were noted among the 143-sample population with 63 or 44.1% had experienced maternal complications.

As shown in Table 2, most of these postpartum women had 3-4 days of length of stay (LOS) (46.1%), followed by 39 women with LOS more than 5 days (27.3%), then 38 women who stayed less than 2 days (26.6%). Majority of these postpartum women had normal spontaneous deliveries 56.6% with NSD01 as the first case rate. There were 62 postpartum women with second rate diagnosis (43.4%).

This study showed that the mean Professional Fee (PF) was 26.89% ± 6.75 while the law mandated mean PF was 30% for every case rate. The facility's collection of PF was significantly lower than the national standard of 30% (z-test=1.00, alpha 0.05, SD=6.75). Therefore, JRBGH follows the mandated national standard of not exceeding the 30% (Table 3).

Table 3: Quantitative statistics of the cost of hospitalization and ACR amount among postpartum women (n=143)

Variables	Z-test	SD
Professional fee	30%	1.00* ±6.75
Interval estimate of mean difference between the cost of hospitalization and ACR amount	25.79% & 27.99%	1.96 ±6.75q
PHilHealth for NSD01	Php=5,000	19.79* ±2,458
* = statistically significant		

Moreover, Table 3 presented that this study was 95% confident that the mean difference between the cost of hospitalization and the ACR amount was between 25.79% and 27.99%. (t-test=1.96, SD 6.75, alpha 0.05). The Philhealth case rate package for non-complicated normal spontaneous delivery (NSD01) was Php 5,000 as mandated by law. The current study showed that the cost of hospitalization is not equal to Php 5,000 but rather the cost was significantly higher than the PhilHealth case rate package at Php=8,204 (z-test =19.79, SD=2,458, alpha 0.05).

Table 4: Relationship between age of postpartum women and type of residence and parity., (n=143)

Variables	Age	
	Chi-square	p
Type of Residence	0.733 ^{ns}	0.05
Parity	1.25E-07 ^{ns}	0.05

^{ns} = not statistically significant

The relationship among postpartum women's profile were determined statistically in Table 4. Chi-square test analysis revealed that correlation between age of postpartum women and type of residence either rural or urban residence was found to have no significant relationship ($\chi^2=0.733$, alpha 0.05); and between age and parity ($\chi^2=1.25E-07$, alpha 0.05).

Table 5: Length of Stay (LOS) and Mean Difference of Cost of Hospitalization Comparison of First ACR and Second ACR among Postpartum Women (n=143)

Variables	ACR			Z-test
		1st case	2nd case	
LOS	Mean	3.882	3.714	7.21*
	SD	±1.828	±2.082	
Mean difference of cost of hospitalization and ACR	Mean	4,227.33	2,327.29	49.99*
	SD	±2,642.317	±1,89.966	

Based on Table 5, the average days of LOS of postpartum women with first ACR is 3.882 ± 1.828 days significantly different from postpartum women with second ACR with 3.714 ± 2.082 days ($z=7.21$, $\alpha=0.05$). Postpartum women with second ACR stayed shorter days in the hospital since procedures (as second ACR) were performed in the recommended time interval after delivery at the Delivery Room. The LOS of postpartum women ranges from 3 to 4 days which probably affected by majority of these women had 3-4 days LOS (46.1), as shown in Table 2.

Mean difference of cost of hospitalization and ACR among postpartum women were compared those with first ACR and second ACR (Table 5). The mean difference of postpartum women between first ACR amount (Php=4,227.33) and second ACR amount (Php=2,327.29) was found to be highly significant different ($z=49.99$, $\alpha=0.05$). Therefore, a larger amount would be needed as an OOP among postpartum women with first ACR in addition to the PhilHealth case rate package of Php=5,000. While postpartum women with second ACR amount needed only almost half of the amount as an OOP compared to the women with first ACR. PhilHealth case rate package of Php=5,000 may be reviewed for possible adjustment for the current actual expenses in the country.

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