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Comparison of PhilHealth Case Rate and Actual Charge of Hospitalization for Common In-Patient Surgical Procedures from 2017-2019 in a Level 3 Hospital

Liza Margarita B. Ilagan, MD; Ramoncito C. Magnaye, MD, MHA, FPCS, FPSGS; Clarence Pio Rey C. Yacapin, MD, FPCS, FPSGS; Aldrin B. Cuasay, MD, FPCS, FPSGS and Amabelle A. Moreno, MD, FPCS, FPSPS

Department of Surgery, Batangas Medical Center, Batangas City

Objective: To compare PhilHealth case rate versus actual charge of hospitalization of common general surgery procedures in a Level 3 government hospital from 2017-2019.

Methods: The five most common procedures were determined and records were reviewed. Hospital bills and professional fees (PF) were compared to the PhilHealth rates using t-test. The range of perceived acceptable PF was determined by an online survey.

Results: The most common procedures were open appendectomy, open cholecystectomy, initial repair of inguinal hernia, total thyroidectomy and modified radical mastectomy. The study included 1934 charts. For service cases, the hospital bill for appendectomy was significantly lower than the PhilHealth institutional fee, while the rest were significantly higher. For private cases, hospital bills for open cholecystectomy and modified radical mastectomy were significantly higher, while that of open appendectomy was lower. The average PF of private patients in all procedures were significantly higher than the PhilHealth rate, also reflected on the survey.

Conclusion: The significant discrepancies between the actual charges and the PhilHealth case rates showed that the PhilHealth rates were insufficient for the five most common general surgery procedures in a Level 3 government hospital.

Key words: Universal Health Care Act, PhilHealth case rate, Philippines, insurance

Batangas Medical Center is a level 3 hospital under the Department of Health, which serves as an apex referral center, providing services for both private and charity patients in Region IV-A. As part of its mission, it aimed to provide quality, advanced and equitable healthcare while being a socially accountable and financially sustainable institution.

The National Health Insurance Act of 1995, or Republic Act No. 7875, created the National Health Insurance Program (NHIP) to give the Filipinos health insurance coverage and help them access and afford quality health care services, both inpatient and outpatient, as well as emergency services.[1] The Philippine Health Insurance Corporation (PhilHealth) served as the administering body both in the central and local level.[1] Under the Universal Health Care (UHC) Act, or Republic Act No. 11223, with its goal to provide accessible, affordable and quality health care goods and services to all Filipinos[1], membership to PhilHealth became automatic for every Filipino.[2] This is in line with UHC's main strategic thrusts, which are financial risk protection for Filipinos through expansion in enrollment of the NHIP, improved access to quality healthcare facilities, and attainment of health related Sustainable Developmental Goals.[3]

This aim of the study was to determine if there was a significant difference between the PhilHealth case rates with the actual charge of hospitalization and professional fees of patients who underwent common general surgery procedures in a Level 3 hospital. The data gathered could be used to re-evaluate the adequacy and sustainability of the existing case-based payment rates, especially in the light of increasing inflation rates. They could also be used in formulating future recommendations for health financing of the Department of Health and Philippine Health Insurance Corporation.

The general objective of this study was to compare the difference of PhilHealth case rates versus the actual charges of hospitalization of 5 common General Surgery procedures in Batangas Medical Center from January 01, 2017 up to December 31, 2019. Specifically, the authors

wished to: determine the top 5 most common General Surgery procedures in Batangas Medical Center and their corresponding RVS codes; determine the average hospital bill of these 5 procedures, in both private and service cases; determine the average professional fees of attending physicians in private cases for these procedures; determine the average professional fees of attending physicians paid by PhilHealth in service cases; compare the difference between the PhilHealth Healthcare Institution Rates versus the average total hospital bill of these 5 most common procedures, in both private and service cases; compare the difference between the PhilHealth Professional Fee Rates versus the average professional fees of attending physicians in private cases; and, determine the range of perceived acceptable professional fees for these procedures.

Methods

This is a cross-sectional study of patients who underwent the 5 most common General Surgery procedures at Batangas Medical Center from 2017 to 2019.

Inclusion Criteria:

Only uncomplicated General Surgery cases among in the 5 most common surgical procedures of Batangas Medical Center from 2017-2019 were included in the study. Both service cases, also commonly known as charity cases, and private cases were included. Only procedures with existing Philippine College of Surgeons Guidelines were included. Records included were determined through RVS codes and procedure done as stated in the PhilHealth and Medical Records.

Exclusion Criteria:

Surgical procedures under the Obstetrics and Gynecology Service were not included in the study. Cases with any form of surgical complications that could be classified under the Clavien-Dindo Classification Grade I to V upon review of medical records were excluded. Cases with wrong information, or incomplete or missing medical records were also excluded from the study.

Determining the 5 Most Common Surgical Procedures

The top 5 most common surgical procedures were determined through the annual census from 2017-2019 of the Department of Surgery of Batangas Medical Center. Subsequently, their corresponding RVS codes were identified.

Determining the Average Hospital Bill

Using the RVS codes of the procedures of interest, PhilHealth and medical records from 2017 to 2019 were reviewed by the primary investigator to determine the average hospital bill for each procedure. The mean total hospital bill was computed per procedure. Mean difference was used to compare the average hospital bill versus PhilHealth Healthcare Institution rates.

Determining the Professional Fees of Attending Physicians

Using the RVS codes of the procedures of interest, PhilHealth and medical records from 2017 to 2019 were reviewed by the primary investigator. For service cases, the average professional fees paid by PhilHealth for the 5 most common procedures in Batangas Medical Center from 2017-2019 were determined. For private cases, the average professional fee for each procedure was determined. Mean difference was used to compare the average hospital bill for private cases versus PhilHealth Healthcare Professional Fee rates.

Determining the Range of Perceived Acceptable Professional Fees

An online survey using Google Forms was distributed among the surgeons of Batangas Medical Center to determine the perceived acceptable range of professional fees for the procedures of interest. No identifying information such as repondent's name, email address or IP address was collected. The range of perceived acceptable professional fee selected by majority of the survey respondents was reported.

Statistical Analysis

One-sample t-test was used to determine if the average hospital bill was significantly different from the PhilHealth Healthcare Institution Rates. One-sample t-test was also used to determine if the average professional fee of the attending physician was significantly different from the PhilHealth Healthcare Professional Fee Rates. Outliers were determined using the interquartile range.

Results

After review of the annual census of the Department from 2017-2019, the top 5 most common procedures performed were determined to be open appendectomy (n=1461), open cholecystectomy (n=333), initial repair of inguinal hernia (n=178), total thyroidectomy (n=175) and modified radical mastectomy (n=104), with a total of 2551 charts (Table 1). Upon chart review, a total of 1934 charts were included in the study. The reasons for exclusions included erroneous RVS codes, complicated or different disease entity, with additional procedures other than the procedure of interest, lost charts, and those with postoperative complications, majority of which were classified under Clavien Dindo Grade 2.

The mean differences between the hospital bill of service patients compared to the Philhealth healthcare institution rates were statistically significant for all the five procedures (Table 2). The average hospital bill of open appendectomy procedure was lower compared to the Philhealth healthcare institution fee. On the other hand, the average hospital bills for open cholecystectomy, initial repair of inguinal hernia, modified radical mastectomy, and total thyroidectomy were significantly higher compared to the Philhealth healthcare institution fee.

The mean differences of the hospital bills and Philhealth healthcare institution fees of private patients who underwent open appendectomy, open cholecystectomy and modified radical mastectomy were statistically significant. The average hospital bill of the open appendectomy procedure was lower as compared to the Philhealth fee, while the average hospital bill of private patients who underwent open cholecystectomy and modified radical mastectomy were higher compared to the Philhealth healthcare institution fee. Statistically, the average hospital bills of private cases of initial repair of inguinal hernia and total thyroidectomy were not significantly different from the Philhealth healthcare institution fee (Table 3).

The average surgeon professional fee of private patients in each procedure were all significantly higher compared to the PhilHealth professional fee (Table 4).

The average anesthesiologist professional fee of private patients in each procedure were all significantly higher compared to the PhilHealth professional fee (Table 5).

Table 1. Top 5 most common procedures from 2017-2019.

Cases	Private n (%)	Service n (%)
RVS 44950 – Appendectomy (n=1269)	42 (1.89)	1227 (96.69)
RVS 47600 - Open Cholecystectomy (n=272)	33 (12.13)	239 (87.87)
RVS 49505- Initial repair of inguinal hernia (n=154)	27 (17.53)	127 (82.47)
RVS 19240 - Modified radical mastectomy (n=83)	41 (49.40)	42 (50.60)
RVS 60240- Total Thyroidectomy (n=156)	54 (34.62)	102 (65.38)
Total Cases (n=1934)	197 (10.19)	1737 (89.82)

Table 2. Average hospital bill and Philhealth Healthcare Institution rate per procedure – Service Cases.

Procedure	**Range**	**Hospital Bill** Mean (SD)	**Philhealth Healthcare Institution Fee**	**Mean Difference**	**95% Confidence Interval**	**p-value**
RVS 44950 Appendectomy (n=1227)	4494.00-45341.00	13,479.80 (3,690.44)	14,400.00	-920.20	-1127.40, -713.00	<0.001*
RVS 47600 Open Cholecystectomy (n=239)	2380.00-54246.50	24,118.03 (8,647.01)	18,600.00	5,518.04	4401.92, 6634.15	<0.001*
RVS 49505 Initial repair of inguinal hernia (n=127)	3644.00-40776.50	17,062.51 (6,736.94)	12,600.00	4,462.51	3260.00, 5665.02	<0.001*
RVS 19240 Modified radical mastectomy (n=42)	17180.00-51536.00	28,406.79 (6,822.40)	13,200.00	15,206.79	13080.79, 17332.80	<0.001*
RVS 60240 Total Thyroidectomy (n=102)	7277.00-40177.00	22,545.60 (7,287.79)	18,600.00	3,945.60	2506.90, 5384.30	<0.001*

*Significant at 0.05 level of significance

Table 3. Average hospital bill and Philhealth Healthcare Institution rate per procedure – Private Cases.

Procedure	**Range**	**Hospital Bill** Mean (SD)	**Philhealth Healthcare Institution Fee**	**Mean Difference**	**95% Confidence Interval**	**p-value**
RVS 44950 Appendectomy (n=42)	5275.00, 24094.00	12,598.03 (3,811.39)	14,400.00	-1,801.97	-2974.94, -628.99	0.003*
RVS 47600 Open Cholecystectomy (n=33)	11872.50, 34294.75	21,221.68 (5,919.91)	18,600.00	2,621.68	522.57, 4720.79	0.016*
RVS 49505 Initial repair of inguinal hernia (n=27)	5446.72, 31237.50	13,908.58 (6,104.23)	12,600.00	1,308.58	-1106.17, 3723.33	0.276
RVS 19240 Modified radical mastectomy (n=41)	2758.00, 37589.50	26,346.68 (6,906.96)	13,200.00	13,146.68	10966.57, 15326.78	<0.001*
RVS 60240 Total Thyroidectomy 60240 (n=54)	9732.00, 27806.50	18,318.65 (4,539.14)	18,600.00	-281.35	-1571.36, 1008.66	0.663

*Significant at 0.05 level of significance

Table 4. Average Surgeon Professional Fee and Philhealth Professional Fee per procedure – Private Cases.

Procedure	Range	Professional Fee Mean (SD)	Philhealth Professional Fee	Mean Difference	95% Confidence Interval	p-value
RVS 44950 Appendectomy (n=42)	5878.00, 42014.00	12,430.83 (11,014.48)	6,720.00	5,710.83	2321.07, 9100.58	0.001*
RVS 47600 Open Cholecystectomy (n=33)	7558.00, 61931.25	22,338.39 (18,098.55)	8,680.00	13,658.39	7240.93, 20075.86	<0.001*
RVS 49505 Initial repair of inguinal hernia (n=27)	5040.00, 47966.25	11,928.30 (12,282.19)	5,880.00	6,048.30	1189.62, 10906.97	0.017*
RVS 19240 Modified radical mastectomy (n=41)	5.00, 43442.50	10,738.27 (8,959.25)	6,160.00	4,578.27	1750.39, 7406.16	0.002*
RVS 60240 Total Thyroidectomy (n=54)	7545.00, 58616.00	20,744.89 (17,693.88)	8,680.00	12,064.89	7036.34, 17093.44	<0.001*

*Significant at 0.05 level of significance

Table 5. Average Anesthesiologist Professional Fee and Philhealth Professional Fee per procedure – Private Cases

Procedure	Range	Professional Fee Mean (SD)	Philhealth Professional Fee	Mean Difference	Confidence Interval of the Difference	p-value
RVS 44950 Appendectomy (n=42)	2880.00, 20527.00	5,616.92 (5,098.74)	2,880.00	2,736.92	1167.76, 4306.08	0.001*
RVS 47600 Open Cholecystectomy (n=33)	3720.00, 35826.25	12,438.37 (11,299.19)	3,720.00	8,718.37	4711.85, 12724.89	<0.001*
RVS 49505 Initial repair of inguinal hernia (n=27)	2520.00, 20502.50	5,623.81 (5,801.59)	2,520.00	3,103.81	808.77, 5398.84	0.010*
RVS 19240 Modified radical mastectomy (n=41)	2640.00, 32247.50	7,449.03 (7,207.47)	2,640.00	4,809.03	2534.03, 7083.99	<0.001*
RVS 60240 Total Thyroidectomy (n=54)	3720.00, 34427.50	12,733.55 (9,818.67)	3,720.00	9,013.55	6223.11, 11803.98	<0.001*

*Significant at 0.05 level of significance

For service cases, professional fees are based solely in the PhilHealth Professional Fee (Table 6).

The perceived acceptable professional fee as per the survey conducted was higher than the current PhilHealth Professional Fee in all procedures (Table 7).

Discussion

The National Health Insurance Program[2] was established to help alleviate the financial risks associated with medical care. Furthermore, the Universal Health Care Act was passed with a goal to provide accessible, affordable and quality health care goods and services to all Filipinos.[1] However, results from this study showed that the amount covered by PhilHealth on case-based payment was insufficient for the incurred hospitalization charge.

As part of the objective to protect the people against financial risks brought about by sickness, PhilHealth released Circular No. 31-2013, which was implemented last 2013, shifting the payment mechanism from Fee-For-Service (FFS) to Case-Based Payment (CBP). In contrast to FFS where services were paid for separately, in CBP, there was a uniform fixed rate reimbursed to health care providers, inclusive of both hospital and professional fees[4], for the minimum level of care per specific disease, regardless of the membership category of the patient or nature of institution 5. Case-Based Payment has been implemented in varying degrees internationally.[5] It has been found to be easier to implement, more financially transparent, and more cost-efficient since it decreases the turn-around time for claims processing, payment and reimbursements.

Table 6. Average Professional Fee and Philhealth Professional Fee per procedure – Service Cases.

	Procedure	Philhealth Professional Fee	
		Surgeon	Anesthesiologist
1	RVS 44950 Appendectomy	6,720.00	2,880.00
2	RVS 47600 Open Cholecystectomy	8,680.00	3,720.00
3	RVS 49505 Initial repair of inguinal hernia	5,880.00	2,520.00
4	RVS 19240 Modified radical mastectomy	6,160.00	2,640.00
5	RVS 60240 Total Thyroidectomy	8,680.00	3,720.00

Table 7. Philhealth Professional Fee and range of perceived acceptable professional fee per procedure

	Procedure	Philhealth Professional Fee	Perceived Acceptable Professional Fee
1	RVS 44950 Appendectomy	6,720.00	20,000 – 40,000
2	RVS 47600 Open Cholecystectomy	8,680.00	20,000 – 40,000
3	RVS 49505 Initial repair of inguinal hernia	5,880.00	20,000 – 40,000
4	RVS 19240 Modified radical mastectomy	6,160.00	40,000 – 60,000
5	RVS 60240 Total Thyroidectomy	8,680.00	40,000 – 60,000

The Relative Value Scale (RVS) or Relative Value Unit (RVU) is a measurement of work value developed by Hsiao et al in 1988 to indicate the amount of effort required to perform a particular service or procedure.[6] This measure took into account the time, intensity of effort, mental effort, judgement, psychological stress, and technical skills needed to perform a procedure.[6] Although it included effort before and after the consult or procedure, it did not take into consideration the extensive background work, coordination, amount of experience, and special skills required for safe patient care.7 In a study by Hayon, et al, it was found out that although RVU was significantly associated with operative time, it did not account for the surgeon's efforts outside the operating room, such as preoperative planning and decision-making, education of trainees, care coordination, among others.[8] Another study, done by Ramirez, et al, has also show that RVUs did not correlate well with overall patient complexity scores across various surgical specialties, which, in turn, reflected physician efforts.[9]

Dalmacion, et al., interviewed hospital administrators and direct health providers, the case-based program has resulted in many complaints from healthcare workers. Eighty-five percent of the participating physicians in the study felt that their compensation was both inappropriate and unreasonable under the CBP system. Furthermore, 30% of the participants reported discrepancy between Clinical Practice Guidelines and PhilHealth Guidelines, 25% experienced slow payment or denial of reimbursement, and 15% found the reimbursement too small and was not worth the time and effort to apply for accreditation.[5] At the institutional level, one of the adverse effects of CBP was a decrease in the hospital admissions of low paying cases because it would minimize the potential income of the hospital, which would affect the sustainability of the program for the institution.[5]

A relatively wide range was seen in the hospital bills of both private and service cases. A possible contributing factor observed was whether the preoperative evaluation was done on an inpatient or an outpatient basis. For elective service cases included in this study, higher hospital bills might have been because preoperative evaluation was often done during the admission, thus prolonging the length of stay. For private cases, a similar trend may be observed, with the added possibility of the attending physicians having more streamlined and directed preoperative workups and being more likely to be conscious of the costs that their private patients may incur. Itemized review of these charges could better account for this variability, but that was beyond the scope of the study.

Though the differences may not be very huge, it should be noted that present data reflect charges for hospitalization in a government institution. Discrepancies are likely to be more marked in private hospitals where actual charges are higher though the case rates being paid by PhilHealth are the same. However, patients who have private insurance coverage through Health Maintenance Organizations (HMO) can avail of them in private hospitals in addition to their PhilHealth benefits. On the other hand, there are other options in government hospitals for financial assistance for balance after the PhilHealth coverage had been deducted. These are some of the factors to consider if one of the aims of the UHC is to avoid catastrophic health expenditures from out of pocket payments.

In private cases, a disparity between the actual professional fees of both surgeons and anesthesiologists and PhilHealth Professional Fee was observed in all procedures. This was also reflected on the results of survey conducted among the surgeons of Batangas Medical Center regarding the perceived level of acceptable professional fees, where a wide disparity was observed. As with hospital bills, higher fees over what PhilHealth pays translate to higher out-of-pocket balance for pay patients since HMOs are not accepted in the government institutions. Service patients, on the other hand, had no additional professional fees. Reconciling the difference between the PhilHealth Professional Fee and the recommended minimum fee for procedures according to the Philippine College of Surgeons RVU Manual, with or without co-payment, can be one of the crucial points in the implementation of the Universal Health Care Act.

Another notable finding was that 9% of the charts reviewed had recorded RVS codes that were inconsistent with the clinical details of the patient, hence were excluded from the study. An example of this was some cases who underwent open cholecystectomy with common bile duct exploration were given the code

for straight open cholecystectomy. A comprehensive evaluation of institutional systems to find and correct such errors was also beyond the scope of the study. However, it could be noted that the training of concerned personnel could be strengthened to reduce such errors and lead to better provider payment processes.

One of the limitations of the study was that a complete detailed analysis of the adherence of each case to the PCS Clinical Practice Guidelines had not been done. Considering that case-based payment rates were computed in relation to costing based on Clinical Practice Guidelines, non-adherence to the guidelines might explain some of the differences in the actual charges compared to the case-based rates. Also, the small number of cases in some groups with concomitant high variability, the private cases, could decrease the robustness of the results and make them vulnerable to outliers in the range of the charges.

Conclusion

The significant discrepancies exist between the actual hospitalization charges and the case rates set by PhilHealth. The National Health Insurance Program payouts for the five the most common general surgery procedures at Batangas Medical Center were insufficient to cover the cost of healthcare. This is in spite of Batangas Medical Center already being an apex DOH hospital meant to cater to those who cannot afford private health care. PhilHealth coverage appears to be insufficient to protect against financial risk. As more patients qualify for No-Balance-Billing, the burden of financial risk falls squarely on the healthcare provider institution. This may not be sustainable in the long run.

Recommendations

The authors recommend the following:

1. A study to investigate the rate of adherence of the Department of Surgery to the Philippine College of Surgeons Clinical Practice Guidelines and the factors associated with possible non-adherence
2. A more detailed study analyzing the breakdown of the charges for each procedure
3. Similar study be conducted at different institutions in different regions, both private and government, to have more subjects and more accurate evaluation of the cost differences, to provide evidence in possibly revising the case rates to make the system more sustainable and suggesting a regu-lar schedule of revisions every few years to adjust for inflation and in-creasing cost of living.
4. An analysis on which between the difference in hospital services or profes-sional fees has a greater impact on the overall difference in actual hospital-ization charge and PhilHealth case rates
5. A similar study with prospective design that will utilize constant diagnos-tic and therapeutic variables for better comparison with the actual case rates
6. A study comparing the Philippine College of Surgeons RVU Manual, the actual professional fee for each procedure, and the current PhilHealth Case Rates
7. Similar study that takes into account the changes in healthcare charges brought about by the COVID 19 pandemic
8. Training of general surgery residents and other personnel in charge of filling up the RVS details of the patients

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Conflicts of Interest Statement

There are no conflicts of interest, whether financial, personal or institutional that are relevant to the work conducted or reported in this manuscript.

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