

Proposed Case Rates for Acute Coronary Syndrome and Budget Impact Analysis: Executive Summary

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Abstract

BACKGROUND: Coronary artery disease is the leading cause of death in the Philippines and can present as acute coronary syndrome. Hospitalization for ACS has epidemiologic and economic burden. In fact, last 2017, there were 1.52% or 152 admissions for every 10,000 hospitalized patients for medical conditions in PhilHealth-accredited hospitals locally. However, coronary angioplasty was performed in only less than 1% of these cases mainly because of its cost and the out-of-pocket expense that the treatment entail, when primary percutaneous intervention has been proven to be effective in reducing mortality in STEMI and early invasive intervention performed during index hospitalization for NSTEMI is likewise recommended. Moreover, there is a big disparity between the current case rates for ACS for medical therapy alone and for invasive intervention compared to the actual ACS hospitalization cost.

OBJECTIVES: 1) To propose revisions to the current PhilHealth case rates for acute coronary syndrome (ACS); and 2) To determine the budget impact of the proposed ACS case rates.

METHODS: The Philippine Heart Association with the assistance of a technical working group undertook the study. A panel of experts composed of general and invasive cardiologists from Luzon, Visayas, and Mindanao was formed. The ACS hospitalization costs based on the recent study by Mendoza were presented and discussed during the focus group discussions with the panelists. Issues pertinent to their localities that may affect the costs were discussed. The proposed revised costs on the particular ACS conditions and therapeutic regimens were then voted and agreed upon. A budget impact analysis of the proposed case rates was then performed.

RESULTS: The proposed case rates for ACS ranged from Php 80,000 (for low risk unstable angina given medical treatment) to Php 530,000 (for ST-elevation myocardial infarction initially given a thrombolytic agent then underwent PCI which necessitated the use of three stents). The budget impact analysis showed that the proposed ACS rates would require an additional PHP 1.5 billion to 2.3 billion during the first year of a 3- versus 5-year implementation period, respectively. The period of implementation will be affected by budgetary constraints as well as the availability of cardiac catheterization facilities in the country.

CONCLUSION: The proposed revised PhilHealth hospitalization coverage for ACS is more reflective or realistic of the ACS hospitalization costs in contrast with the current PhilHealth case rates. The corresponding budget impact analysis of these proposed case rates showed that PHP 7.6 billion is needed for full implementation. However, given the budget constraints, the percentage of the total costs for the first and subsequent years of implementation may be modified.

INTRODUCTION

Ischemic heart disease (IHD) or coronary artery disease (CAD) is the leading cause of death in the Philippines.¹ It can present in the form of chronic IHD or chronic coronary syndrome, acute coronary syndrome (ACS), or sudden cardiac death.² On the other hand, ACS includes unstable angina, non-ST-elevation myocardial infarction (NSTEMI) or ST-elevation myocardial infarction (STEMI).

Hospitalization for ACS has epidemiologic and economic burden. In 2017, data from the Philippine Health Insurance Corporation (PhilHealth) database revealed that the total number of admissions/claims for ACS was 42,490. This translates to 1.52% or 152 admissions for every 10,000 hospitalized patients for medical conditions in PhilHealth-accredited hospital in the country. Approximately 68% (67.9%) of these admissions for ACS were either NSTEMI or STEMI. Unfortunately, invasive procedures, especially coronary angioplasty, were performed in fewer than 1% of these admissions during the index hospitalization for ACS.³ This is disheartening, considering that these interventions, especially primary percutaneous coronary intervention, have been proven to be efficacious in reducing mortality in STEMI. Furthermore, early invasive intervention, that is, performed during index hospitalization for NSTEMI, is also recommended.⁴⁻⁶

It cannot be overemphasized that ACS is a life-threatening condition. In the 2017 local study, the in-hospital mortality rate of CAD patients (98.7% of these CAD admissions were for ACS) who received medical intervention alone was 9.2%. In contrast, the in-hospital mortality rate of CAD patients who received invasive interventions was 1.7%, whereas among the ACS patients who underwent invasive interventions during the index hospitalization for myocardial infarction, the mortality rate was 5.6%.³

PhilHealth's coverage for ACS and invasive interventions is as follows:

- (1) Unstable angina = Philippine peso (PHP) 12,000
- (2) Myocardial infarction (either NSTEMI or STEMI) = PHP 18,900
- (3) Coronary angiogram = PHP 9,700
- (4) Coronary angioplasty = PHP 30,300 immaterial of the number of vessels opened up or stents used⁷⁻⁹

With access to health care delivery in the country primarily through out-of-pocket expenses⁴ and the cost of percutaneous coronary intervention, a major deterrent to its nonavailing despite its efficacy in reducing ACS mortality, two studies were undertaken. The first study refers to the proposal to revise the current PhilHealth case rates for ACS, whereas the second refers to the budget impact analysis (BIA) of implementing the revised ACS case rates in the next 3 or 5 years.

METHODS

A proposal to revise the current PhilHealth case rates for ACS

was undertaken by the Philippine Heart Association with the assistance of a technical working group. A panel of experts composed of general and invasive cardiologists from Luzon, Visayas, and Mindanao was formed. The ACS hospitalization costs from the recent study by Mendoza¹⁰ were presented and discussed during the focus group discussions with the panelists. Issues pertinent to their localities that may affect the costs were discussed. The proposed revised costs on the particular ACS conditions and therapeutic regimens were then voted and agreed upon.

The revised case rates proposed by the experts served as the unit costs for the specific ACS scenarios in the subsequent BIA. Together with the data from the study on the prevalence of ACS hospitalization in 2017 and the Philippine Heart Association ACS registry,^{3,11} the eligible population for the BIA was derived. The new ACS hospitalization costs (annual cost) were determined by multiplying the eligible population with the proposed case rates. The incremental costs, as compared with the current ACS PhilHealth case rates, were then calculated in order to determine the budget impact of the proposed ACS case rates.

RESULTS

Table 1 shows the proposed case rates for the specific component of ACS and the corresponding hospitalization claims in 2017. These ACS-specific components were further subdivided according to their corresponding medical and invasive interventions. The total hospitalization cost was PHP 8,739,660. This was reduced to PHP 8,726,364,000 in subsequent tables because of savings as a result of the prevention of readmissions.

Tables 2 and 3 show the total future and incremental costs for the next 3 and 5 years, respectively. These tables also show the savings that will be incurred as a result of the prevention of the readmissions had the recommended invasive interventions been done. These savings most probably were underestimated because the unit cost used for the readmissions was the PhilHealth case rate for IHD without myocardial infarction. Furthermore, the number of readmissions per the PhilHealth data is probably underestimated, considering that rehospitalization within 90 calendar days for the same condition or diagnosis is given only one hospitalization coverage. The BIA demonstrated that there will be difference in the annual hospitalization costs, depending on the time period of implementation of the new case rates. For example, the proposed ACS rates would require an additional PHP 1.5 billion to 2.3 billion during the first year of a 3- versus 5-year implementation period, respectively. The period of implementation will be affected by budgetary constraints as well as the availability of cardiac catheterization facilities in the country.

The proposed ACS hospitalization costs may be considered huge; however, prevention of deaths and frequent readmissions

Table 1. Future Hospitalization Costs for ACS

Type of ACS	Intervention	Proposed Case Rate in Philippine Peso	No. of Hospitalization Claims*	Subtotal
Unstable angina			13,621	
Low risk	Medical	80,000	10,965	877,200,000
High risk	Medical plus invasive		2656	
	Plus coronary angiography only	170,000	1328	225,760,000
	Plus PCI—one stent	320,000	332	106,240,000
	Plus PCI—two stents	385,000	664	255,640,000
	Plus PCI—three stents	450,000	332	149,400,000
NSTEMI			14,724	
	Medical	100,000	10,160	1,016,000,000
	Medical plus Invasive		4564	
	Plus coronary angiography only	170,000	1141	193,970,000
	Plus PCI—one stent	320,000	856	273,920,000
	Plus PCI—two stents	385,000	1712	659,120,000
	Plus PCI—three stents	450,000	856	385,200,000
STEMI			14,145	
	Medical		4951	
	With thrombolysis	140,000	2475	346,500,000
	Without thrombolysis	120,000	2475	297,000,000
	Medical plus invasive without thrombolysis		3678	
Without thrombolysis	Plus coronary angiography only	200,000	405	81,000,000
	Plus PCI—one stent	380,000	818	310,840,000
	Plus PCI—two stents	445,000	1637	728,465,000
	Plus PCI—three stents	510,000	818	417,180,000
	Medical plus invasive with thrombolysis		5516	
With thrombolysis	Plus coronary angiography only	220,000	607	133,540,000
	Plus PCI—one stent	400,000	1227	490,800,000
	Plus PCI—two stents	465,000	2455	1,141,575,000
	Plus PCI—three stents	530,000	1227	650,310,000
Grand total				8,739,660,000

*Based on PhilHealth hospitalization claims in 2017 and ACS Registry of the Philippine Heart Association.^{3,10}

ACS=acute coronary syndrome; NSTEMI=non-ST-elevation myocardial infarction; PCI=percutaneous coronary intervention; STEMI=ST-elevation myocardial infarction.

Table 2. Future and Incremental ACS Hospitalization Costs for the Next 3 Years

	1st Year—30% New (Plus 70% Old)*	2nd Year—70% New (30% Old)*	3rd Year—100%*
Unstable angina	484,272,000	1,129,968,000	1,614,240,000
NSTEMI	758,463,000	1,769,747,000	2,528,210,000
STEMI	1,379,163,000	3,218,047,000	4,597,210,000
Subtotal	2,621,898,000	6,117,762,000	8,739,660,000
Less savings [prevention of readmissions: prevalence × case rate; 1108 in 2017; case rate = PHP 12,000]	30% of 13,296,000	70% of 13,296,000	13,296,000
Total future costs*	3,412,187,000	6,448,860,000	8,726,364,000
Incremental costs (future cost less present cost, ie, using PhilHealth case rates)	2,277,504,000	5,314,177,000	7,591,681,000

*Represents use of new case rates for 30% or 70%, whereas the old case rate is applied to the rest of the population; the corresponding savings is applied accordingly, for example, 30% of savings if the new case rate is applied to 30% of the population (100% savings is applied in the third year once implementation is 100%).

ACS=acute coronary syndrome; NSTEMI=non-ST-elevation myocardial infarction; PHP=Philippine peso; STEMI=ST-elevation myocardial infarction.

Table 3. Future and Incremental ACS Hospitalization Costs for the Next 5 Years

	1st Year 20% New (80% Old)*	2nd Year 40% New (60% Old)*	3rd Year 60% New (40% Old)*	4th Year 80% New (20% Old)*	5th Year 100%*
Unstable angina	322,848,000	645,696,000	968,544,000	1,291,392,000	1,614,240,000
NSTEMI	505,642,000	1,011,284,000	1,516,926,000	2,022,568,000	2,528,210,000
STEMI	919,442,000	1,838,884,000	2,758,326,000	3,677,768,000	4,597,210,000
Subtotal	1,747,932,000	3,495,864,000	5,243,796,000	6,991,728,000	8,739,660,000
Less savings: cost of readmissions	20% of 13,296,000	40% of 13,296,000	60% of 13,296,000	80% of 13,296,000	13,296,000
Total future costs*	2,653,019,000	4,171,355,000	5,689,692,000	7,208,028,000	8,726,364,000
Incremental costs (future cost less present cost)	1,518,336,000	3,036,672,000	4,555,009,000	6,073,345,000	7,591,681,000

*Represents use of new case rates for 20% or 40% or 60% or 80%, whereas the old case rate is applied to the rest of the population; the corresponding savings is applied accordingly, for example, 20% of savings if the new case rate is applied to 20% of the population (100% savings is applied in the fifth year once implementation is 100%).

ACS=acute coronary syndrome; NSTEMI=non-ST-elevation myocardial infarction; STEMI=ST-elevation myocardial infarction.

due to the provision of recommended medical and invasive interventions must be given due considerations. In addition, return to economic productivity with proper medical and invasive procedures may be achieved, which in turn may not only offset the monetary inputs on health but also lead to positive net monetary benefits.

CONCLUSIONS

The proposed revised PhilHealth hospitalization coverage for ACS is more reflective of its true hospitalization costs. The corresponding BIA of these proposed case rates showed that PHP 7.6 billion is needed for full implementation. However, given the budget constraints, the percentage of the total costs for the first and subsequent years of implementation may be modified.

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