

Revised PhilHealth Case Rates for Hospitalization for Acute Coronary Syndrome in the Philippines

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Abstract

BACKGROUND: Hospitalization for acute coronary syndrome (ACS) has epidemiologic and economic burden. The coverage for hospitalization in the local setting is much less than the actual costs. Many patients do not consent to or avail of the optimal and timely management because of financial challenges.

OBJECTIVES: The paper aimed to propose revised PhilHealth case rates/packages for ACS, namely: 1) unstable angina (UA), 2) non-ST-elevation myocardial infarction (NSTEMI), and 3) ST-elevation myocardial infarction (STEMI).

METHODS: A consensus panel was organized to provide inputs such as cost and other matters pertaining to the revision of the PhilHealth ACS case rates/packages. The results of the cost of hospitalization of the different ACS conditions derived from a study on hospitalization cost for ACS were presented to the panel. Several focused group discussions were held afterward for propositioning new case rates through votation and by nominal group technique, using the costs from the study as the bases of rate adjustment.

RESULTS: Final costs agreed upon by the consensus panel for medical management alone for UA, NSTEMI, and STEMI were adjusted or amended in increments of Php 20,000, (80,000, 100,000, and 120,000, respectively). Thrombolysis of a patient admitted for STEMI increased the cost to Php 140,000. An additional cost of Php 150,000 was added on top of the cost for medical management and coronary angiogram for NSTEMI- ACS for PCI with use of a single stent. For STEMI, the same category had an additional cost of Php 180,000. For each additional stent used for all clinical scenarios undergoing PCI, Php 65,000 was added, to cover up to a total of 3 stents.

CONCLUSION: Based on the consensus process with Philippine Heart Association ACS panelists, the cost proposed ranges from 80,000 pesos to 530,000 pesos depending on the clinical scenarios.

KEYWORDS: case rates, PhilHealth, acute coronary syndrome, economic impact

INTRODUCTION

Hospitalization for acute coronary syndrome (ACS) has epidemiologic and economic burden. In 2017, data from the Philippine Health Insurance Corporation (PhilHealth), revealed that the total number of admissions/claims for ACS was 42,328. This translates to 1.52% or 152 admissions for every 10,000 hospitalized patients for medical conditions in PhilHealth-accredited hospital in the country in 2017. About 68% (67.9%) of these admissions for ACS were either ST-Elevation Myocardial Infarction (STEMI) or Non-ST Elevation Myocardial infarction (NSTEMI).¹

Timely medical management as well as percutaneous coronary interventions (PCI) had been proven to be effective in reducing mortality when performed in the appropriate time during index hospitalization for ACS.^{2,3}

PhilHealth's coverage for ACS and invasive interventions are as follows: 1) UA = PHP12,000, 2) Myocardial Infarction (either STEMI or NSTEMI) = PHP18,900, 3) Coronary Angiogram = PHP9,700, and 4) Coronary Angioplasty = PHP30,300 regardless of the number of vessels treated or the number of stents used.^{4,5} The International Classification of Diseases (ICD)-10 codes and Relative Value Units (RVU) codes found during the search in relation to ACS can be found in Appendix 1. These coverages are given on the index hospitalization.

In the local setting, this coverage is much less than the actual cost. Many patients or their relatives do not consent to these procedures, even if highly recommended and can reduce mortality,¹ because of financial challenges.

Considering that support from PhilHealth can improve adherence of lifesaving interventions, this study was conducted with the following objectives:

General Objective

To propose revised PhilHealth case rates/packages for acute coronary syndrome.

Specific Objectives

To propose revised PhilHealth case rate/packages (medical alone or medical plus invasive interventions)* for the following specific acute coronary syndrome conditions:

- a) unstable angina
- b) STEMI
- c) NSTEMI

METHODOLOGY

A. Organization of the process

Preliminary meeting with the officers of the Philippine Heart Association (PHA)

A meeting with the Philippine Heart Association (PHA) officers and the Technical Working Group (TWG)(Please see Appendix

2 for the complete list of TWG) was undertaken. The meeting covered the study overview, the criteria for the selection of panel members and the approval of the mechanics of the focused group discussion. The details on the mechanics of the FGD are discussed lengthily below.

Convening of the Consensus Panel

A consensus panel was organized to provide inputs such as cost and other matters pertaining to the revision of the PhilHealth ACS case rates/packages.

The panel was chosen by the PHA, who also acted as the convenor, based on the following criteria: 1) panel member must be from either Luzon, Visayas, Mindanao and Metro Manila; 2) private and government hospitals must be represented, 3) can be either a general cardiologist or an interventional cardiologist, and 4) panel member should be willing to attend the scheduled meetings from the start up to its adjournment.

As per the criteria set by the convenor and after agreement by the invited experts, a total of eight panelists were selected. (Please see Appendix 2 for the complete list of expert panel members and the PHA convenors). All the members of the panel signed and submitted conformés and conflict-of-interest (Col) forms, which were then stored by the PHA Secretariat. None had any conflict of interest to declare.

B. Presentation of Cost of Hospitalization for Acute Coronary Syndrome in the Philippines

Initial cost estimate was presented to the panel members based on the study "Cost of Hospitalization for Acute Coronary Syndrome in the Philippines". [Appendix 3].⁶

The paper discussed the estimation of the cost of treatment of uncomplicated ACS while following a specified treatment pathway. Results of the study, specifically the cost of treatment including diagnostic tests, interventional management, and professional fees were obtained through focused group discussion with general and interventional cardiologists and from a single private hospital, as well as catheterization fees from three cardiac catheterization laboratories. These provided the base case estimates for the following specific acute coronary syndrome conditions:

1. Unstable Angina low risk and high risk who were treated medically
2. NSTEMI
 - a. Medical treatment alone
 - b. Medical treatment plus invasive procedures in index hospitalization (coronary angiography with or without percutaneous coronary intervention (PCI))
3. STEMI
 - a. Medical treatment inclusive of fibrinolysis in non-PCI capable hospitals (with option to transfer to PCI-capable hospitals)

*coronary angiography with or without coronary angioplasty

Table 1. Table of disease conditions lifted from the study by Mendoza et al⁶

Disease Condition of Concern	Type of Management
Unstable Angina	Medical management Medical management with PCI
Non-STEMI	Medical management Medical management with PCI
STEMI	Medical management without thrombolysis Medical management with thrombolysis Medical management with PCI

STEMI=ST elevation myocardial infarction; PCI=percutaneous coronary intervention.

- b. Medical treatment plus immediate coronary angiography (in cases where results of coronary angiography would not lead to PCI)
- c. Medical treatment plus primary PCI

The hospitalization base case rates were classified as *best* (lowest amount, i.e., best for the consumer/patient), *base* (nearest to the actual cost) and *worst* (highest amount, i.e., worst for the consumer/patient) cost per medical condition enumerated above. The rates included all cardiac costs from the time a patient entered the emergency room up to discharge. (See appendix 3 for the table of the base case rates).

C. Focused Group Discussion (FGD) for proposing new case rates

To come up with specific costs to be proposed to PhilHealth regarding ACS coverage, a series of FGDs were conducted. The data from the study by Mendoza et al were used as bases.⁶

A total of four focus group discussions (FGDs) were organized among the representatives of the PHA, the panel members, and the technical working group composed of the study investigators, all done through virtual meetings using Zoom software (Zoom Video Communications, Inc, versions released 2020).

The first FGD provided an overview of the current study and its objectives. It was also done to get the viewpoints of the panelists on the topic. The subsequent FGDs consisted of the introduction of the study convenor (PHA), the technical working group and the panel of experts. The initial table of packages to be discussed were shown to the panelists, as below (Table 1). After further inputs from the panelists, a total of 15 categories among all disease condition of concern were finalized.

Table 2. Final table for costing per disease condition after discussion with panel

Conditions	Type of Treatment
Unstable Angina	Medical management
NSTEMI	Medical management
UA or NST-ACS	CA alone
	PCI + 1 stent
	PCI + 2 stents
	PCI + 3 stents
STEMI	Medical management
	With thrombolysis
	CA alone
	PCI + 1 stent
	PCI + 2 stents
	PCI + 3 stents
	PCI + 1 stent + thrombolysis
	PCI + 2 stents + thrombolysis
PCI + 3 stents + thrombolysis	

CA=coronary angiogram; NST-ACS=non-ST acute coronary syndrome; NSTEMI=non-ST-elevation myocardial infarction; PCI=percutaneous coronary intervention; STEMI=ST-elevation myocardial infarction; UA=unstable angina.

The added eight permutations included whether coronary angiogram alone was done for UA, NSTEMI and STEMI. Moreover, costs were differentiated depending on the number of stents inserted, as well as whether the patient underwent thrombolysis with PCI or not, for the latter (Table 2).

The subsequent methodology was followed for arriving at new proposed cost.

- a. Costs of hospitalization from the study of Mendoza, et al [6] were presented per category. The costs included best or low, base or medium, and worst or high case rates.
- b. Panelists were asked to write in the chat box which among the three case rates would approximate the cost of each category; otherwise, they were asked to propose a new costing.
- c. The costs written in the chat box were computed to arrive at the median number which would represent the new cost for each category.
- d. Panelists were asked whether they agreed with the new cost presented. Panelists were instructed to type in "Agree" or "Disagree" in the chat box.

- e. If majority (defined as 50% of the panelists plus one) decided to adapt the median, then the voting for that costing was completed.
- f. If the panel did not agree to adapt the median, the panel members were asked if they would want the cost to be higher or lower than the median.
- g. If the panelist had a different cost (either higher or lower) other than the initial median presented, the moderator asked the panel members to input their proposed cost in the chat box.
- h. A member of the technical working group computed the median value of the “new” proposed cost.
- i. The “new” median value was flashed on the screen. The moderator would again ask the group to input “agree” or “disagree” in the chat box. The vote of majority was followed.
- j. After consensus was reached, the cost proposal would be deemed final, and the discussion moved on to the next disease entity/category of concern.

Moreover, to give basis to a panel member's decision to agree or to disagree and eventually propose a different cost, the moderator asked each panel member to give his/her reason for their votes using the nominal group technique. All reasons given by the panelists were documented by the technical working group.

Only the panelists were allowed to vote. Prior to commencement of voting, an additional rule was established to address the possibility of a standstill or multiple repeated votings, which is that one of the members of the PHA board would be asked to give his own vote to reach a final proposed cost.

RESULTS

During the entire voting process, a consensus was reached. Table 3 shows the final cost per disease entity / category. As shown below, medical management for UA, NSTEMI and STEMI rose in increments of Php 20,000. For patients with STEMI who will undergo thrombolysis, an additional Php 20,000 was added on top of the medical management alone.

An additional Php 150,000 was added on top of the cost for medical management and coronary angiogram for NSTEMI-ACS for percutaneous coronary intervention with use of a single stent. For STEMI, the same category had an additional cost of Php 180,000.

For each additional stent used for all categories undergoing PCI, Php 65,000 was added.

Table 4 shows the rationale for the proposed costs. There was a unanimous vote among the panel members on the amount of

Table 3. Cost per Disease Condition/Category After Consensus

Type of Treatment	Condition	Agreed Cost (Php)
Medical management	Unstable Angina	80,000
	NSTEMI	100,000
	STEMI without thrombolysis	120,000
	STEMI with thrombolysis	140,000
NSTEMI-ACS (UA HR or NSTEMI) Medical management + invasive procedure	NSTEMI-ACS + CA alone	170,000
	NSTEMI-ACS + PCI (1 stent)	320,000
	NSTEMI-ACS + PCI (2 stents)	385,000
	NSTEMI-ACS + PCI (3 stents)	450,000
STEMI Medical management + invasive procedure	STEMI with CA alone	200,000
	STEMI + PCI (1 stent)	380,000
	STEMI + PCI (2 stents)	445,000
	STEMI + PCI (3 stents)	510,000
	STEMI + thrombolysis + CA alone	220,000
	STEMI + thrombolysis + PCI (1 stent)	400,000
	STEMI + thrombolysis + PCI (2 stents)	465,000
	STEMI + thrombolysis + PCI (3 stents)	530,000

NSTEMI=non-ST elevation myocardial infarction; STEMI=ST elevation myocardial infarction; NSTEMI-ACS=non-ST elevation acute coronary syndrome; UA HR=unstable angina high risk; CA=coronary angiogram; PCI=percutaneous coronary intervention.

Php 80,000 to cover for UA that received medical management alone, whether for low-risk or high-risk patients. The amount would cover different hospital tiers where patients of this disease subtype are admitted. The decision to increase the cost of coverage for patients with NSTEMI is due to the longer duration of hospital stay among these patients. The same rationale was applied to the subtype of patients with STEMI undergoing medical management alone who are no longer qualified to receive thrombolytic therapy because of the delay in transport to the hospital from the onset of chest pain. Moreover, patients who suffer from STEMI usually have longer stays in the intensive care unit / coronary care unit compared to those who admitted due to UA or NSTEMI, because the former subtype of patients would usually undergo more diagnostic tests and receive additional medications, such as vasopressors.

For STEMI management with thrombolysis, an additional cost of Php 20,000 on top of medical management was given for the cost of the thrombolytic drug. A point was raised to increase the total amount to Php 150,000 because one of thrombolytic drugs used, Alteplase, costs about Php 30,000. Streptokinase, on the other hand, costs about Php 9,000 to Php 13,000. The final cost decided on (Php140,000) was deemed to be equitable, whichever of the two thrombolytics drugs will be used.

The decision to add the cost of Php 50,000 to Php 120,000 on top of medical management for NSTEMI-ACS or STEMI patients undergoing coronary angiogram was primarily for the cost of the said procedure, depending on the health facility. Moreover, patients with NSTEMI-ACS who would undergo coronary angiography have high risk features noted during treadmill stress test done during index admission (for UA subtype) or have non-remitting chest pain. Truncating the procedure to CA alone might either be due to the absence of a significant stenosis as in cases of myocardial infarction with non-obstructive coronaries (MINOCA), or the presence of either a triple-vessel disease, or a left main coronary artery disease which necessitates coronary artery bypass graft (CABG) instead of PCI.

The difference in added cost for PCI in NSTEMI-ACS versus those in STEMI was primarily because of the emergent nature of the procedure for STEMI patients. For the category of STEMI patients who underwent thrombolysis, additional category of CA with or without PCI was added, for those patients who still had high risk features after thrombolysis such as persistent chest pain, hemodynamic instability, persistently abnormal electrocardiogram tracing or the development of ventricular arrhythmia not attributed to reperfusion.

Table 4. Rationale for the Proposed Costs per Disease Condition/Category

Category		Final Proposed Amount (Php)	Rationale
Conditions	Type of Treatment		
Unstable Angina	medical management	80,000	Equitable; will cover most hospitals where patients with UA undergoing medical management alone is admitted
NSTEMI	medical management	100,000	Longer hospital stays for patients with NSTEMI
UA or NST-ACS	CA alone	170,000	Cost of medical management of UA or NSTEMI is Php 80,000 to Php 100,000 plus cost of CA, which ranged from Php 50,000 to Php 120,000, depending on area. The agreed-upon total median cost is Php 170,000
	PCI + 1 stent	320,000	Php 170,000 plus Php 150,000 to cover for the additional cost of 1 stent, cathlab fee, PF of interventional cardiologist ± cardiac anesthesiologist, longer ICU/hospital stay
	PCI + 2 stents	385,000	Additional cost (Php 65,000) attributed to the added stent. No other additional cost because the dye, guide wire, length of hospital stay is usually similar in all three aspects. What drives the cost of the procedure up is the cost of the stent
	PCI + 3 stents	450,000	Additional cost (Php 65,000) attributed to the added stent. No other additional cost because the dye, guide wire, and length of hospital stay is usually similar in all three aspects. What drives the cost of the procedure up is the cost of the stent

(continuation of Table 4)

STEMI	medical management	120,000	STEMI out of the golden period for thrombolysis STEMI generally has longer ICU/CCU and regular room stay compared to NSTEMI; more diagnostics done; more medications given, e.g., inotropic support
	With thrombolysis	140,000	For Php 140,000: Cost of STEMI without thrombolysis is Php 120,000. Addition of Php 30,000 is for the cost of the thrombolytic: alteplase is ~Php 30,000; streptokinase is Php 9,000 to Php13,000 Proposed amount equitable, if cost of thrombolytic is to be considered
	CA alone	200,000	There will be patients who will not undergo PCI even if patient has STEMI because of MINOCA or other possible causes, e.g., patient is for coronary artery bypass Cost will cover the surcharge of an emergency procedure, which will entail additional charges in the cathlab as well as for the staff Addition of Php 120,000 on top of the medical management alone includes stat fee
	PCI + 1 stent	380,000	Addition of Php 180,000 on top of Php 200,000 will cover IV antiplatelet + surcharge + cost of stent
	PCI + 2 stents	445,000	Additional cost of 1 stent
	PCI + 3 stents	510,000	Additional cost of 2 stents
	PCI + 1 stent + thrombolysis	400,000	Thrombolysis* Add Php 20,000 as cost of thrombolytic agent
	PCI + 2 stents + thrombolysis	465,000	Thrombolysis* Add Php 20,000 as cost of thrombolytic agent
	PCI + 3 stents + thrombolysis	530,000	Thrombolysis* Add Php 20,000 as cost of thrombolytic agent

NSTEMI=non-ST elevation myocardial infarction; STEMI=ST elevation myocardial infarction; NSTEMI-ACS=non-ST elevation acute coronary syndrome; UA=unstable angina; CA=coronary angiogram; PCI=percutaneous coronary intervention; ICU=intensive care unit; CCU=coronary care unit; MINOCA=myocardial infarction in nonobstructive coronary arteries; IV=intravenous.

*Thrombolysis done prior to PCI in the same institution (consent for PCI not given immediately) or thrombolysis done where patient was initially admitted then transferred to a PCI-capable institution.

DISCUSSION

The proposed costs were based on a systematic approach and consensus views among health care providers who are directly providing care to patients with ACS as represented by general and interventional cardiologists.

Using the initial estimates from the study by Mendoza et al,⁶ the process validated the initial costs and generated the final costs to be proposed to PhilHealth for different case scenarios for ACS. The recommended costs were based on the panelists' view on usual length of hospital stay, and the resources needed to provide the medical and interventional management to these patients.

The data generated covered different management strategies for ACS ranging from conservative medical management to

the more invasive procedures including coronary angiography and percutaneous intervention using 1 to 3 stents. The different costs proposed for the different scenarios increase depending on the type and number of resources needed in patient care. Considering the substantial cost of treatment, the present subsidy given by the government through PhilHealth is minimal compared to the amount that the patient pays out from his/her own pocket.

In the United States, ACS accrued an estimated \$75 Billion in terms of the direct medical costs in 2006.⁷ This includes hospitalization fees, the cost of drugs, physician's professional fees, etc.

The data provided above will hopefully guide stakeholders in revising PhilHealth benefit package for ACS which will greatly

benefit patients and help improve adherence to evidence-based therapy for a better clinical outcome.

CONCLUSION

Based on the consensus process with Philippine Heart Association ACS panelists, the cost proposed ranges from 80,000 pesos to 530,000 pesos depending on the clinical scenarios.

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Appendix 1. ICD-10 codes and RVS codes related to ACS⁴

Disease Entity	ICD-10 Code	Case Rate ⁺ (Php)
Unstable angina	I20.0	12,000
Variations for Myocardial infarction (NSTEMI or STEMI)		
Acute transmural myocardial infarction of anterior wall (or duration of <4 weeks) KILLIPS stage unspecified; Acute transmural infarction of anterior wall NOS (or duration of <4 weeks) KILLIPS stage unspecified; Acute anteroapical; anterolateral; anteroseptal transmural infarction (or duration of <4 weeks) KILLIPS stage unspecified	I21.0	18,900
Acute transmural myocardial infarction of inferior wall (or duration of <4 weeks) KILLIPS I; Acute transmural infarction of diaphragmatic wall (or duration of <4 weeks) KILLIPS I; Acute transmural infarction of inferior wall NOS; inferolateral; inferoposterior (or duration of <4 weeks) KILLIPS I	I21.1	18,900
Acute transmural myocardial infarction of other sites (or duration of <4 weeks) KILLIPS II; Acute apical-lateral transmural infarction (or duration of <4 weeks) KILLIPS II; Acute basal-lateral transmural infarction (or duration of <4 weeks) KILLIPS II; high lateral; lateral wall NOS; posterior (true); posterobasal; posterolateral; posteroseptal; septal NOS	I21.2	18,900
Acute transmural myocardial infarction of unspecified site; Transmural myocardial infarction NOS	I21.3	18,900
Acute subendocardial myocardial infarction; Nontransmural myocardial infarction NOS	I21.4	18,900
Acute myocardial infarction, unspecified (or duration of <4 weeks) KILLIPS I; Acute myocardial infarction NOS (or duration of <4 weeks) KILLIPS I	I21.9	18,900
Subsequent myocardial infarction of anterior wall; Acute subsequent infarction of anterior wall NOS; Acute subsequent infarction of anteroapical wall; Acute subsequent infarction of anterolateral wall; Acute subsequent infarction of anteroseptal wall	I22.0	18,900
Subsequent myocardial infarction of inferior wall; Acute subsequent infarction of diaphragmatic wall; Acute subsequent infarction of inferior wall NOS; Acute subsequent infarction of inferolateral wall; Acute subsequent infarction of inferoposterior wall	I22.1	18,900
Subsequent myocardial infarction of other sites; Acute myocardial infarction of apical-lateral wall; Acute myocardial infarction of basal-lateral wall; Acute myocardial infarction of high lateral wall; Acute myocardial infarction of lateral wall NOS; posterior (true); posterobasal; posterolateral; posteroseptal; septal NOS	I22.8	18,900
Subsequent myocardial infarction of unspecified site	I22.9	18,900

+ Amounts reflected are for first case rates for ICD-10 codes pertaining to myocardial infarction.

Procedure of Concern	RVS Code	Case Rate Php
Imaging supervision, interpretation and report for injection procedure(s) during cardiac catheterization; ventricular and/or atrial angiography	93555	9700
Angiography, coronary as per PhilHealth Circular No. 27 s-2005	93556	9700
Transcatheter placement of an intracoronary stent(s), with or without other therapeutic interventions, any method; single vessel	92980	30,300
Percutaneous Transluminal Coronary Balloon Angioplasty, one or more vessel	92982	30,300

Appendix 2:

PHA Convenors:

1. Dr. Orlando R. Bugarin: PHA Immediate Past President; Adult Cardiology
2. Dr. Rodney M. Jimenez: Incumbent Treasurer, PHA Board; Director assigned for Research; Adult and Interventional Cardiology

Technical Working Group:

1. Dr. Bernadette A. Tumanan-Mendoza: Steering committee Head
2. Dr. Victor L. Mendoza
3. Dr. Felix Eduardo R. Punzalan
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5. Dr. Noemi S. Pestaño
6. Dr. Eugenio B. Reyes
7. Dr. Eric Oliver D. Sison
8. Dr. Karen Amoloza-De Leon
9. Dr. Maria Grethel C. Dimalala-Lardizabal
10. Dr. Nashiba M. Daud

Consensus panelists

1. Dr. Domicias L. Albacite: Adult and Interventional Cardiology, The Medical City Clark and Angeles University Foundation Medical Center, Pampanga
2. Dr. Ma. Belen A. Balagapo: Echocardiography and Vascular Medicine, Divine Word Hospital and Remedios Trinidad Romualdez Hospital, Tacloban City
3. Dr. Elfred M. Batalla: Adult and Interventional Cardiology, Davao Doctors Hospital and Southern Philippines Medical Center
4. Dr. Jonathan James G. Bernardo: Vascular Medicine, St Luke's Medical Center and Ospital ng Makati
5. Dr. Helen Ong Garcia: Cardiac Rehabilitation, St Luke's Medical Center
6. Dr. Amibahar J. Karim: Adult Cardiology and Vascular Medicine, Zamboanga Peninsula Medical Center, Hospital De Zamboanga and West Metro Medical Center
7. Dr. Gloria R. Lahoz : Adult Cardiology, Metro Vigan Hospital, Ilocos Sur and Mariano Marcos Memorial Hospital and Medical Center, Ilocos Norte
8. Dr. Neil Wayne C. Salces: Vascular Medicine, Chong Hua Hospital, Cebu

Appendix 3. Hospitalization Cost for ACS⁶

ACS Condition and Management		Base Case, Php	Best Case, Php	Worst Case, Php
Medical	UA	74,974	69,742	81,666
	NSTEMI	73,113	66,931	80,104
	STEMI without thrombolysis	74,648	67,645	82,814
	STEMI with thrombolysis	90,962	71,566	90,142
Medical + PCI	UA with PCI	349,769	268,409	423,342
	NSTEMI with PCI	346,529	265,169	420,102
	STEMI with PCI	346,529	265,169	420,102
	STEMI with thrombolysis + PCI	351,958	268,733	425,530

Adapted from Table 4 of Mendoza, VL, Hernandez R, Kilonzo M. Cost of Hospitalization for Acute Coronary Syndrome in the Philippines – thesis for Master in Health Economics, University of Aberdeen, Scotland⁶