Review of: "A Prospective Study on Direct Out-of-Pocket Expenses of Hospitalized Patients with Acute Exacerbation of Chronic Obstructive Pulmonary Disease in a Philippine tertiary care center"

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Potential competing interests: No potential competing interests to declare.

Introduction

This is a pilot study that investigates the excess cost (with respect to the financial coverage provided by the national health insurance system) of the COPD hospitalizations during an exacerbation in the Philippines. The study followed the COPD patients admitted to the Philippines General Hospital for six months. I find the paper interesting but (in my opinion) several things need to be reviewed to improve the likelihood of being accepted for publication. In general, each paper concept should be described only once and in the right place. (See an example of introduction without redundances in appendix). The “Methods” section should include all necessary details to make the results replicable. The “Results” section should describe the presented tables and figures. Tables and figures should be self-explicative.

I report in the following sections my remarks and advice.

Major reviews

The paper should be restructured according to the strobe guidelines (https://www.strobe-statement.org/)

- Introduction. This section is the literature context where your paper place itself. In my opinion, it should be built with a top-down strategy, i.e. from general to particular. I would reorganize it as follow: a) What is COPD? Including a definition (missing), symptoms, causes (missing) and treatments; b) International epidemiological situation; c) epidemiological situation in Philippines and the specific national characteristics related to the study (the national health assurance); d) the paper aims

- **Methods**.

- You did not title this section. I presume the methods section starts before “A prospective study” on page 3.
- It is a prospective study and not a prospective cross-sectional study.
- The period of follow-up should be clearly presented in the “Setting” subsection (see strobe checklist for cohort studies).
- According to the strobe guidelines, all outcomes and dependent variables should be clearly defined in the appropriate subsection of methods. What is the Gold Classification? I have not found a description for the estimation of

accommodation cost nor procedural cost (presented in table 3 and figure 1). The term 'prolonged stay' refers to a hospital stay that exceeds what threshold? How did you get the smoking data? Through an interview with the patient or through a questionnaire? Have you investigated other environmental or occupational exposures? …

- Table 3 and figure 1: is “Therapeutics cost" in the formula used for calculating the total net expenditure (Page 4) broken down in medication and procedural cost?
- Why are you interested in hospitalizations with a cost higher than 20,000 Php rather than those higher than 12,200 Php (case rate)?
- In table 1, comorbidity variable: I was expecting just 1 p-value

- **Results**.

This section should describe the main results presented in tables and figures. Results description should follow the tables and figures order with the related citation “(table n.)” at the end of each paragraph. For example, comments in tables 2-3 should be included in the related paragraph.

- Table 1: The percentage distribution of age classes in "charity" does not sum up to 100%
- I would include Table 2 in table 1 (as the following two rows: “ICU”, “non-ICU”).
- Table 1 caption: “Demographic, behavioural and clinical profile of the patients. Data are expressed as frequency (%); mean (SD); median (Q1-Q3) if grouped by categorical and continuous normal or non-normal variables, respectively. The Philippine 2019.” I would add table notes to describe SD, Q1 and Q3.
- Table 3 caption: Hospitalization cost (per P1000 Php) of COPD. The Philippines, 2019.
- Table 4 caption: Predictors of prolonged hospital stay. The Philippines, 2019.
- Table 5 caption: Predictors of hospitalization cost of > P20,000. The Philippines, 2019.
- In table 1: Since some patient in private accommodation has several comorbidities, I would add a category “multiple comorbidity”.
- I would eliminate the “total” column from tables 1 and 3.
- In table 1, I would add the “Missing” category in variables with missing data (fox example in age class there are 42 cases instead of 43).
- Table 3 caption describes the average price per day, while the column header is “median”.
- Tables 1,4-5: check age classes bound (19-44, 45-64,65+).
- Tables 1,3: I would replace “mean + STD” with “Mean (SD)“ and “Median (IQR)” with “Median (Q1-Q3)”. SD, Q1 and Q3 should be defined in table notes.
- Tables 4-5: since significant estimations have 95% CI that do not include 1, I would suggest to display only the column "odds ratio". Frequency columns are redundant because already reported in table 1. Tables 4-5: I would place the reference category as the last one and replace “(reference)” with “1”

- **Discussion**.

- I would add in discussion a sentence highlighting that the aim to build the methodology was achieved. Something like:

The paper summarizes the first step of a larger project to assess the cost of admissions for COPD exacerbation on a national scale. A robust methodology was built and used in this pilot study by following patients hospitalized in a tertiary government hospital over a 6-month period. …

- I would replace “64.49 + 12.68” with 64.49 (95% CI: 39.64-89.34)
- I would include the section “conclusion” in the section “discussion”

Minor reviews

About the abstract.

- I would structure it in background, methods, results and conclusions.

- In order to minimize the use of acronyms in the abstract, I would delete “(PhilHealth)” and “(Php)”.

- Page 4: the Acronym was not defined. To use an acronym, you should define it in the first appearance of the related text. For example: “… Philippine General Hospital (PGH) …“.

Appendix

Introduction

The chronic obstructive pulmonary disease (COPD) is a lung disorder that causes obstructed airflow and breathing-related problems. The disease is not fully reversible [9] and presents with chronic cough, sputum production and dyspnea on exertion among patients with moderate to severe disease which can progress to respiratory failure.[12]. WHAT ARE THE CAUSES? Although multiple therapies are already available, the disease remains underdiagnosed and undertreated especially among primary care physicians.[10][11] Undertreated and uncontrolled COPD is marked by frequent exacerbations defined as an acute event of worsening respiratory symptoms requiring medications.[8] Markers for increased risk of exacerbations based on studies include old age, chronic mucus hypersecretion, and decreased Forced Expiratory Volume in the 1st second.

According to WHO, there are 328 million people suffering from moderate to severe COPD worldwide, approximately 65 million of whom live in the Philippines.[1][2] Projected estimates report COPD to become the 3rd leading cause of death worldwide by 2030 with the majority of the reported deaths in COPD, unfortunately, occurring among low to middle-income countries.[2][3]

In ASEAN countries the reported incidence is 6% [6][7]. In USA? Africa? Europe? Australia?

Important factors that influence the health care costs of COPD in general include disease severity, frequency of exacerbations, and the presence of comorbidities. [6][13] The predominant economic burden lies in the hospitalization costs for COPD exacerbations which are linked to higher mortality rates. [6] In the US, exacerbations account for $18 billion in direct costs annually.[14] This high cost of therapy appears universal based on several studies conducted in Asia. [15][16] Treatment must therefore focus on the control of symptoms and prevention of future exacerbations – with

emphasis on the use of maintenance inhaler therapies. This poses a problem among low-income countries like the Philippines, which utilize health care resources to respond mainly to acute illnesses, and are less adept at addressing chronic conditions such as COPD.[17]

Based on local studies of the disease in the Philippines, the incidence is reported to be at least 14% and the smoking prevalence (28.3%) is higher than its ASEAN counterparts.[8]

National health coverage initially came into law through the Philippine Medical Care Act of 1969 which was signed by President Ferdinand E. Marcos, and eventually implemented in 1971. This act provided total coverage of medical services according to the needs of the patients. During the term of President Fidel V. Ramos, the development of House Bill 14225 and Senate Bill 01738 enabled the development of the National Health Insurance Act of 1995 (RA 7875). This created the Philippine Health Insurance Corporation (PhilHealth).[18] As of 2011, the case rate system has been introduced under the administration of President Benigno Aquino III. This payment mechanism set pre-determined coverage for select medical conditions and surgical procedures. On one hand this significantly reduced the turnaround time or processing of claims since the amount of coverage is already identified, on the other hand it may cause out-of-pocket expenses, with the present coverage for chronic obstructive pulmonary disease set at only Php 12,200.[5,18]

This study aims to determine the economic burden of patients admitted for COPD exacerbation, the amount of out-of-pocket expenses and predictors for prolonged stay and hospitalization costs. This study aimed to admissions at the Philippine General Hospital. This was a pilot study restricted to the Philippine General Hospital that will lead to the performance of a national-scale research project