Author's response to reviews

Title: Status and perspectives of hospital mortality in a public urban Hellenic hospital, based on a five-year review.

Authors:

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Author's response to reviews: see over
Reviewer's report
Title: Status and perspectives of hospital mortality in a public urban Hellenic hospital, based on a five-year review.
Version: 1 Date: 5 September 2007
Reviewer: Robert Anderson
Reviewer's report:
General
This is a much improved manuscript. Nearly all of my concerns have been adequately addressed, save one.

Reviewer:
Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)
1. My only remaining concern has to do with point #4 in my original review regarding the use of underlying cause. Conditions such as heart failure and kidney failure, which are important from the standpoint of health care delivery, are not coded as the underlying cause when reported as the result of some antecedent condition, such as hypertension or diabetes. As a result, it is likely that the underlying cause deaths due to heart and kidney failure significantly underestimate the burden associated with these conditions. Ideally, an analysis of these conditions ought to look at all deaths with mention of these conditions on the death certificate. For this particular paper, at the very least there should be mention of the fact that the burden of heart failure and kidney failure for this hospital is underestimated because deaths are coded to the underlying condition, eg, diabetes, hypertension, etc.

Authors’ response
The data were reviewed and the following were added in the text:

A). Result section, page 10, line 18:
‘Coding diabetes mellitus (E10-E14) as underlying cause of death included 76 patients who were treated with cardiac failure and 45 patients treated with renal failure. Coding hypertensive diseases (I10-I15) as underlying cause of death also included 18 patients treated for cardiac failure and 1 patient treated for renal failure. Hence, the actual workload of patients with cardiac failure was 556 (9.5% of the total 5836) and the sum of patients with renal failure was 307 (5.2% of the total 5836).’
B). Discussion section, page 16, line 15:

‘In this study, cardiac failure (I50.0-I50.9) caused a high proportion of deaths (n = 462, 7.9%). However, it was observed that the ICD-10 coding underestimated the workload of the hospital with respect to cardiac failure and the actual sum of patients with cardiac failure was 556 (9.5% of the total 5836). Cardiac failure is a major public health problem with a reported inhospital mortality of 4% [20].’

C). Discussion section, page 18, line 8:

“The high proportion of deaths attributed to diseases of the genitourinary system (N00-N99) in this study (n = 341: 5.8%), is due to a large number of patients with chronic renal failure (N17-N19: n = 261: 4.5%). This is due to a high volume of patients being treated in a specialized unit of this hospital. An additional number of patients were classified under the codes of diabetes mellitus (E10-E14) and hypertensive diseases (I10-I15) and the actual sum of patients with renal failure was 307 (5.2% of the total 5836).”

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

1. 

Discretionary Revisions (which the author can choose to ignore)

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article of importance in its field

Quality of written English: Acceptable

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests.

Reviewer's report

Title: Status and perspectives of hospital mortality in a public urban Hellenic
“There are three traditions in studying MORTALITY. For public health tradition, the denominator of mortality is the mid-year population of a country or region and the nominator is the number of deaths from general population at risk. In this tradition, the mortality is an indicator of population health and has been used for monitoring the health problem, identifying the priorities, and evaluating the health policies or programs.”

**Authors’ response**
The authors agree with the reviewer, but the data of the study do not allow such an analysis.

**Reviewer's report:**
“…For clinical cohort tradition, the denominator of mortality is the person-years of patients of certain disease and the nominator is the number of patients died. More precisely speaking, this kind of mortality is case fatality rate or survival rate. The typical study designs are the clinical trials or prognosis studies. Sometimes the investigators used standardized mortality ratios (SMR) for those patient cohorts with small number of cases.’

**Authors’ response**
The authors agree with the reviewer, but the available data of the study do not allow such an analysis.

**Reviewer's report:**
‘For the third tradition, in hospital mortality has often been used as an indicator of quality of healthcare. The denominator of in hospital mortality is the number of patients received certain kind of procedures (e.g., surgery or PTCA) and the nominator is the number of patients died in the hospital after receiving the procedures.’

‘The present study calculated two kinds of hospital mortality rates. The denominator of the first one was number of all death (i.e., proportional mortality rate). The denominator of the second one was number of discharge of certain diagnosis or in certain department.’

**Reviewer:**
‘In terms of the limitation of the data the authors have, I suggest the authors of this study to focus on the mortality of certain procedures, i.e., the third tradition of mortality study, which would be more robust and would be less sustaining the selection bias.’

**Authors’ response with respect to the reviewer’s two previous paragraphs:**
The following were corrected in the text:

1) Result section, subheading Limitations, page 13, line 11:
‘Proportional hospital mortality was used in this study because access to all hospitals of the country is open to the whole of the population, and estimation of population based data is difficult. In addition, the total 149,896 discharged diagnoses of this hospital although available in an electronic form they were not coded by the ICD-10.’

2) In the discussion section page 15, line 22 the authors added the phrase:
‘Proportional hospital mortality which was used in this study has its limitations. …’

3) In the Result section, Table 4.
With respect to expression of the mortality as “*Proportion % of the deceased in relation to the total 149,896 discharged patients from the hospital” which was stated in Table 4, the authors accepted that may confuse the reader and deleted the last column of Table 4.”

4) With respect to mortality as it is expressed in “Table 2. Distribution of death rates per specialty.” the authors wish to retain them as they believe that may help the physicians of deferent specialties to know the death rates of a 5-year period, compare them with the death rates of other specialties and accept priorities for effective clinical audit in their practice.

Reviewer:
‘Throughout the article, the authors “mistakenly” interpreted the hospital mortality differences as population mortality differences.’

Authors’ response
The authors agreed and reviewed the discussion section. In order to clarify and distinguish the findings of the present study from the data of the literature the authors stated the mortality data as they were published e.g. proportion of all cases mortality, 28-day case fatality, age standardized mortality, in hospital mortality etc.

In page 16, line 5, the phrase was improved to:

“Diseases of the circulatory system (I00-I99) caused 2461 (42.1%) of the deaths in this study. The reported burden of the total cardiovascular mortality in the European countries represents around 40% of all-causes mortality for the ages 45-74 years [16].”

Reviewer:
‘It’s a wrong statement in background “evaluation of hospital mortality is an important source of information concerning the status of the cause of death and their variations in place and time, and thence for substantiation of health care priorities, the evaluation of infrastructure developments…” (Page 5, the first paragraph, the third sentence)

Using only data of one hospital is a serious biased estimation of mortality pattern of general population. As indicated by the authors “The reduction of number of deceased which was observed throughout the years 1997-1999 coincides with the establishment of a new general hospital in this region” (Page 14, the third paragraph, the first sentence), the changes in patterns of causes of death were seriously affected by changes in delivery of healthcare services outside this hospital which accommodates only 17.8% of the total beds of this health care region (Page 13, the first sentence).

Authors’ response
The authors agreed with the reviewer and replaced the phrase: “Evaluation of hospital mortality is an important source of information concerning the status of the causes of deaths and their variations in place and time, and thence for substantiation of health care priorities, the evaluation of infrastructure developments, the identification of risk factors, and the evaluation of treatment programs”.

By the phrase (page 5, line 4):

‘Analysis of hospital mortality can help to assess the standards of health care delivery.’

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Reviewer:

“Please add more accounts on how the coders disagreed on the interpretation of International Selection Rules for underlying cause of death, especially the Rule 3.”

Authors’ response

The data were reviewed and the following were added in the text:

Result section, page 9, line 10.

“A high consistency was found between the two coders in coding the causes of death, with 5526 of the 5836 receiving identical codes (k = 0.943, p = 0.003). A subset of 310 deaths initially classified in different chapters by the two authors. The most common differences between the two coders, in coding the underlying cause of death observed in the following blocks: A00-B99, certain infectious and parasitic diseases (n = 14, 0.3%); C00-D48, neoplasms: all codes (n = 15, 0.4%); C00-D48, neoplasms (all codes except the following specified) (n = 12, 0.2%); E00-E90, endocrine, nutritional and metabolic diseases: all codes (n = 10, 0.2%); E10-E14, diabetes
mellitus (n = 11, 0.2%); I00-I99, diseases of the circulatory system (all codes except the following specified) (n = 14, 0.3%); I50.0-I50.9, cardiac failure (n = 11, 0.2%); J00-J99, diseases of the respiratory system: all codes (n = 27, 0.4); J10-J18, influenza and pneumonia (n = 17, 0.3%); K00-K93, diseases of the digestive system (n = 17, 0.3%); V01-Y98, external causes of morbidity and mortality: all codes (n = 17, 0.3%). Consequently the 310 deaths were reviewed by the three first authors, consensus was achieved and the resulted classification was further analyzed.”

PLEASE see also the authors’ response to a query of the first reviewer with respect to coding diabetes mellitus, cardiac and renal failure.

Reviewer:

“How are the differences between patterns of causes of death distribution in this hospital compared with official published regional patterns?”

Authors’ response

It is very difficult to eliminate regional data and patterns. In the Discussion section page 15, line 1 the authors were stated:

“Currently, coding is centralized by the National Statistics Service but the feedback to the hospital-based clinicians is poor. Trained nosological coders may monitor the mortality, co-ordinate the process of certification and encourage regular and comparative reviews with the medical records [10].”

In addition:

In the discussion section the authors are stating a substantial volume of data that compare the findings of the present study with other published data from Greece and other countries. These are too many to be included in this report.

Reviewer:
Is ‘nosocomial’ coders a misspelling of ‘nosological’? (Page 14, the second sentence)

Authors’ response

Thanks, it has been corrected to:

‘Trained nosological coders …’ (Page 15, line 1)

What next?: Reject because scientifically unsound
Level of interest: An article of insufficient interest to warrant publication in a scientific/medical journal
Quality of written English: Needs some language corrections before being published
Statistical review: No, the manuscript does not need to be seen by a statistician.

Overall authors’ response

This study describes the status of hospital mortality. It is a work independent from governmental data collection and evaluation. “The objectives of this retrospective cohort study were to substantiate the status and to identify disease-specific, functional and infrastructural factors associated with the hospital mortality, in order to produce evidence for upgrading health care.” Within this context the authors used applicable methods and given that the published data are sparse, the present study has yielded very useful data to be taken into consideration for improving health care delivery.

The authors thank the reviewers because they helped in increasing the values of this study.

The corresponding author takes the responsibility to present the revised paper and the authors’ response to the reviewer’s comments.

Yours sincerely

The corresponding author

I N Papadopoulos.