Reviewer's report

Title: Variations of 10 common medical conditions on unplanned readmission, length of hospital stay, mortality, and medical cost: retrospective analysis of hospital episode statistics in Hong Kong: A retrospective cohort study using hospital admissions data

Version: 1 Date: 8 January 2011

Reviewer: Peter Callery

Reviewer's report:

1. This study was designed to determine the variation in unplanned readmission rates for 10 common medical conditions. This is a clear question, although comparison across medical conditions limits the extent to which the study can contribute to comparison of populations, services, and costs.

2. Appropriate use of routinely collected data is described. The reliability and validity of coding is key to the study and there is potential for systematic differences as well as error in the data. The authors note that the heart disease code includes a number of heart diseases but do not comment on the potential for similar problems in the other conditions included in the study. Coding can be a low level administrative activity and there is potential for variation between reporting centres (Audit Commission, 2010 #5113). A minor essential revision is for the authors could describe the information available about the reliability and validity of the coding in their dataset.

3. There is potential for the soundness of the data to be affected by factors in addition to the coding issues identified above. The authors acknowledge that information about the severity of disease and other comorbidities was not available. It is not clear whether the data accounts for mortality during admissions. A minor essential revision is to identify whether index admissions in which the patient died in hospital are included or whether these were all live discharges. This could influence the interpretation of data since differences in in-hospital mortality between conditions, hospitals and populations could affect the calculation of readmission rates. A minor essential revision is to note the limited usefulness of the cost data (if it is to be included) because of the potential for substantial variation in demand on human and other resources (eg intensive care) across conditions.

4. The following minor essential additions are required for the manuscript to adhere to the relevant standards for reporting and data deposition: a statement about whether data were missing and if so how these were handled; and details of data deposition and availability. A discretionary revision would be the publication of more detailed data, for example the distribution of diagnostic and demographic characteristics across the clusters.

5. The discussion and conclusions are generally well balanced and adequately supported by the data. The extent to which conclusions can be drawn is limited
by comparison across conditions. The interventions required to avoid readmissions are likely to be very different across the range of conditions included in the study. It is also notable that readmissions were more common in those receiving public assistance, living in residential accommodation and a little higher in men than women. This suggests that it is important to compare demographic characteristics within diagnostic groups. A minor essential revision is to identify why multivariate analysis was not conducted, which limits the potential to compare services and populations.

6. Limitations of the work are clearly stated, although additional limitations are identified elsewhere in this review.

7. The authors acknowledge work upon which they are building. Some of the essential revisions identified above these would build on the following which should be acknowledged: Callery, P., Kyle, R.G., Campbell, M., Banks, M., Kirk, S. & Powell, P. (2010) Readmission in children's emergency care: an analysis of hospital episode statistics. Archives of Disease in Childhood, 95(5), 341-346.

8. The title and abstract accurately convey what has been found.

9. The writing is generally acceptable but a minor essential revision is proof reading to correct English errors, including the incorrect spelling of principal throughout.

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests.