Reviewer's report

Title: The changing economic burden of obesity related hospital admissions in Ireland

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Reviewer: Edward Livingston

Reviewer's report:

This study reports findings of the hospital costs associated with any discharge diagnosis of obesity for Ireland. This is interesting data and certainly worthwhile publishing.

However, this is not a study about costs and the title is misleading. This is really a study about length of stay-Costs (or charges) where not directly measured as is possible from databases that report individual hospital admission charges such as AHRQ's NIS database. The authors calculated the LOS associated with obesity admissions then multiplied by as estimated average cost per day derived from *The average hospital cost per day was derived from the report of the Commission on Financial Management and Control systems in Health Service 18. The 2001 average cost per inpatient bed day is baseline and the Consumer Price Index (Base 2001)*. This is a very imprecise way to measure hospital costs attributable to obesity. At best, it provides a ballpark number, which is OK but not accurate enough to make the major emphasis of this work a cost analysis. The title and emphasis for this work should be shifted from cost to LOS.

I have some minor points:

Page 11: *The overall increase in discharge frequency was calculated with a linear curve estimation procedure to be 4% per year (p=0.156) for adults and 9% per year (p=0.005) for children.* The methods section did not specify what statistical test was used for this analysis. Most regression techniques rely on data points being tested as being uncorrelated. Often, this is not the case with time series data. Because of this, providing p-values that are probably not valid is not a good idea. Either perform a formal time series analysis
(which you have too few data points to do) or report the subjective observation of the trend and leave the statistical analysis out.

Page 12: * Classified in the main disease areas, the principal diagnoses with a secondary diagnosis of obesity are shown in figure 1.* This wording is confusing especially in light of the preceding paragraphs that describe bronchial conditions as the most frequent diagnosis observed when obesity is listed as a secondary diagnosis. Is this a mistake? If not, change the wording to be more specific. Consider: *Primary diagnoses aggregated into disease categories when obesity appears as a secondary diagnosis are presented in figure 1.*

Page 13: where did *The disease group symptoms and signs and ill defined conditions** come from. Was there some sort of disease grouping system used?

Page 13: Length of stay data do not follow the normal distribution. This is evidenced by the mean LOS being 6.9 days with a SD of 33.2 days. Since the SD far exceeds the mean value, the data are known to be substantially skewed. Given this, calculation of mean values is not appropriate. Neither is the use of a statistical test, such as the t-test, that relies upon the normal distribution. Median values should be reported and differences between groups tested with nonparametric statistics such as the Mann-Whitney two sample test. 95% error bars are meaningless with non-normally distributed data * get rid of them.