Reviewer’s report

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

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Reviewer: Wendy A Davis

Reviewer’s report:

The aim of this paper was to estimate the hospital costs associated with obesity and related conditions for adults and 6-17 year old children and to determine whether there was an increasing trend in obesity-related hospital costs for the period 1997-2004. The paper is highly relevant in the current climate of increasing incidence of obesity and its sequelae, but would benefit from a more focused structure.

Major points:

Introduction:

1. This could be more succinct.

2. The sentence beginning "Costs calculated according to..." is long and confusing. It needs another "costs" (i.e. "the proportion of costs attributable to obesity...")

3. The paper by Wang et al (2002), upon which the current paper appears to be based, should be cited early in the Introduction and it would seem reasonable for an aim to be to compare the situation in Ireland with that in the USA for children aged 6-17 years old (described in Wang’s paper) as well as between adults and children in Ireland.

Methods:

1. Surely, the annual discharge frequency for obesity as primary or secondary diagnosis should be:

Number of discharges in a given year with obesity as primary or secondary diagnosis/the total number of discharges in that year

not as stated (and taken from Wang et al (2002)):

Number of obesity-related discharges/total number of diagnoses (principal and secondary) for each year

since the total number of diagnosis codes per discharge is prone to report bias.

2. It would be informative if the annual discharge frequency for obesity as a primary diagnosis was also given, i.e.:
number of discharges in a given year with obesity as primary diagnosis/the total number of discharges in that year

since this figure, although smaller, is less likely to be prone to coding error due to omission.

3. Since there were up to 6 secondary diagnosis codes between 1997-2001 and up to 10 between 2002-2004, it might be better to divide the time period up accordingly and calculate annualized incidence rates for the two periods and see if there is a marked difference in the trends. If there is, a contributing factor might be the four additional diagnosis codes. Alternatively, use only the first 6 secondary diagnosis codes for the whole period, assuming that codes 7-10 are less important than 1-6.

3. Can you confirm whether or not secondary diagnosis codes are input by coders if the condition is present even if it did not contribute to the primary diagnosis (eg the patient broke a leg unrelated to obesity (e.g. in a car accident), but the patient is obese (co-morbidity)). Obesity may increase length of stay (and therefore costs).

4. The CPI was used to adjust costs to the base year 2001. Would it not be more appropriate to use health price inflation figures?

Results:

1. The figures for increase in discharges for obesity as primary diagnosis would be more meaningful if changes in the adult and 6-17 year old children Irish population during the same time period are also presented.

2. Table 1 has not been referenced within the text.

3. Figure 1 summarizes the description of principal diagnoses when obesity was a secondary diagnosis so only the key points should be highlighted in the text. The Figure could be expanded to include the proportions observed for each principal diagnosis in 1998 and 2004.

4. The description of the disease group “symptoms and signs and ill-defined conditions” should be in the Methods section.

Discussion:

1. The Discussion can be shortened considerably by a more focused and structured approach and would benefit from a comparison of the results with the published literature.

2. The growing awareness of obesity as a significant health problem during the study period might have affected not only the physicians completing the discharge summaries, but also the coders, thus confounding the results.

3. The increase in secondary diagnosis codes from 6 to 10 should also be addressed since the 4 extra codes allow greater opportunity for including obesity
as a secondary diagnosis.

4. How is hospital care paid for in Ireland? If reimbursement policies changed during the study period, this might have impacted on the completeness of coding. For example, if reimbursement is dependent on the complexity of the admission, then coders might be encouraged to seek out every co-morbidity.

5. Length of hospital stay per admission is generally declining with the advent of day surgery, etc. This will have confounded the observation of length of stay during the study period and should be discussed. Hospital costs are very dependent on length of stay.

6. Towards the end of the discussion, the authors claim that a strong predictor of obesity is high socioeconomic status. This is the case in the developing world, but Ireland is very much developed and in developed nations it is low socioeconomic status that is associated with obesity.

Minor point:
Commas rather than full stops should be used as separators (i.e. 100,000 not 100.000).

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

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

**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.