Reviewer’s report

Title: Relationships between child well-being, deprivation and duration of emergency admissions for common presentations in North West England: an analysis of hospital episode statistics

Version: 1 Date: 11 October 2011

Reviewer: Alex Bottle

Reviewer’s report:

Main questions (major compulsory revisions)

Analysis was at the PCT level largely it seems because this is the level of interest to commissioners, though this limits power and risks the ecological fallacy as the authors mention only briefly. This is a major limitation, particularly as the commissioning angle does not seem that important in the write-up. The analysis could be done at a level lower than PCT, such as district. Was this considered?

A national PCT-level study would of course have more power. Correlations with <2 days were not significant at the 5% level, but some were quite respectable (0.3 or 0.4) in Table 4 and, with more PCTs or even a less-aggregated analysis, may very well have had lower P values. I think the report should reflect this, because at the moment it gives the impression that there’s no relation for the shortest stays, which I don’t think is true.

Table 5 considers same-day discharges whereas the rest of the manuscript uses a category of <2 days (actually one night max). What is the rationale for this distinction? HES doesn’t have times of course, just dates, so an overnight stay may be shorter in duration than a same-day discharge.

There isn’t much detail on HES data processing. Did you just take the primary diagnosis from the first episode? This is problematic due to the increasing use of symptom codes in episode 1 due to a short period spend in an assessment unit before the patient is transferred and often given a ‘proper’ diagnosis (i.e. not the R chapter in ICD10) in episode 2. Reliance on episode 1’s DIAG1 will underestimate the numbers of admissions and may distort hospital-level patterns. This needs discussing at least, though some extra analysis to assess the size of this issue in this set of hospitals would be better.

Another HES question relates to the handling of transfers – many of these records are (mistakenly) given ADMIMETH values of 21-28, making them look like new spells but they’re not, and ignoring this will lead to some multiple counting. A short LOS in spell 1 may occur because the pt has been transferred elsewhere.

Minor essential revisions
Methods, para 3 (P4): “EARs were calculated as the number of in-patient spells (comprising both admission and discharge)”: what does the phrase in the brackets mean?

Methods, para 2 (P4): “ICD-10 codes were selected to derive these categories and to exclude babies cared for in neonatal units.” Can you explain how ICD codes can exclude neonatal pts?

Same para (P4): “Categories were aggregated prior to analysis due to potential for co-morbidity and differences in clinical coding practice.” Can you explain this better? Do you mean that individual ICD codes weren’t analysed separately? No diagnosis categories seem to have been analysed.

Table 1: I doubt that anonymity is threatened with small numbers, but I agree with omitting them for clarity

Table 4: a blank line before ‘all LOS’ would help readability. Also, why are the columns labelled IMD on the left and CWI quintile 5 on the right? With the text alignment, it implies at first glance that only CQI quintile 5 used, so these labels need to be combined better.

Order of sections within the Discussion: it’s much more usual to summarise the results first before talking about limitations, and I suggest you reorder unless you can see some compelling reason for the current order

Discussion, para 1 (P8): “this precludes multivariate modelling” – I think you mean it precludes adjustment for other variables. The term “multivariate modelling”, strictly speaking, refers to multiple Y not multiple X.

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

**Quality of written English:** Acceptable

**Statistical review:** Yes, and I have assessed the statistics in my report.

**Declaration of competing interests:**

I declare that I have no competing interests.