Reviewer's report

Title: Healthcare costs among survivors of neonatal necrotizing enterocolitis in a Medicaid cohort

Version: 1 Date: 16 May 2013

Reviewer: Jonathan Mintzer

Reviewer's report:

In this well-referenced, robust retrospective case-control study, the authors determined the long-term healthcare costs of medical vs. surgical NEC patients versus a set of well-matched controls. The study design and statistical methodology produced understandable, meaningful, and likely reliable results which demonstrated significantly elevated costs for NEC groups (especially surgical NEC) compared to controls. These elevated healthcare costs were demonstrated to remain following an extended time period for surgical NEC versus medical NEC and controls.

In designing this analysis, the authors accounted for numerous potentially confounding factors and utilized appropriate regression techniques where applicable, thus adding to the generalizability of their results. Finally, the authors appropriately framed their findings as they relate to healthcare spending while simultaneously addressing the limitations of this retrospective design.

Major Compulsory Revisions:

None

Minor Essential Revisions:

1) Though aims are stated at the end of the Introduction, no hypothesis is mentioned. While probably considered obvious (eg., "medical/surgical NEC will result in more healthcare costs than controls"), the authors should state a hypothesis.

2) Though an outstanding description of statistical methods is provided, no statement is made of a cutoff (eg., p < 0.05) for statistical significance in the Methods.

There are several stylistic, grammatical, and typographical errors which stand out in various sections of the manuscript. Where possible, I will state location and put the concerning phrases in quotes. Having a non-author proofread this manuscript line-by-line would be beneficial.

RESULTS

3) In 2nd sentence, the authors mention that groups are well-matched except for ELBW status. Two sentences later, PDA is described as being another difference
between groups. Also, according to Table 2, neural tube defects are discrepant between groups as well. The three non-matched items (ELBW, PDA, and neural tube defects) should all be mentioned in that original sentence.

4) The final paragraph ("Multivariate regression modeling...") is very long, quite dense, and potentially confusing. Though this paragraph is quite informative, you may want to consider paring it down to essential elements as much as possible.

DISCUSSION
5) In 2nd paragraph, avoid use of phrase "highly significant." The result is mathematically significant based on your chosen statistical cutoff.

6) In 3rd paragraph, consider rephrasing the expression "due to extremity of low birth weights." (Perhaps "due to ELBW status").

7) In 4th and 5th paragraphs, the expression "for e.g.," should be changed to simply "E.g.," or "for example."

8) In 4th paragraph, "Environmental and Protection Agency" should be changed to "Environmental Protection Agency."

9) In 5th paragraph, "disability status, hospitalizations etc., and demographics" is awkward. Is the "etc." needed?

10) In 5th paragraph, please change "such as gestation age" to read "such as gestational age."

CONCLUSIONS
11) Please change "during early childhood development period" to "during the early childhood development period."

FIGURE 1
12) Though stated in Results, include percentages at each level of enrollment flowchart (missing from deaths and survivors at 6mo).

FIGURE 2 & 3
13) The graphical resolution of these figures seems somewhat grainy. This may be just an outcome of converting to PDF, but is worth looking into - in Figure 3, the listed p-values are somewhat difficult to read.

FIGURE 2
14) This figure is somewhat confusing, especially in that the cost for medical NEC appears to go below 0 at 12-24mo age.

Discretionary Revisions
1) It may be worthwhile to consider using the "p < 0.05" statistical cutoff for the entire paper, rather than stating particular p-values throughout the paper. If the authors have decided upon 0.05 as the statistical cutoff, then anything fitting that
criteria is now "significant." This avoids the use of such phrases as "highly significant," etc., which tend to introduce an element of personal commentary into an essentially mathematic statement.

DISCUSSION

2) The 4th paragraph is quite long. Consider starting a new paragraph where the Spencer study is described ("In a study among infants..."). Additionally, consider another new paragraph where transplantation is discussed ("Regardless, the healthcare costs...") - this may require a change in wording.

3) The 5th paragraph is also too long. Consider starting a new paragraph where study limitations are discussed ("A significant limitation of this study...").

TABLE 3

4) According to the table, GI artificial openings are statistically more common in Medical NEC cases versus controls at 6-12mo, though this is not mentioned anywhere else. More specific detail on this should be provided if available (especially since, for example, gastrostomy tube management can significantly contribute to healthcare costs).

FIGURE 3

5) Consider changing p-values (where applicable) to "p < 0.05" to denote statistical significance. The exact p-value is probably not necessary to further the points being made in this figure (as mentioned above).

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

Declaration of competing interests:

I declare that I have no competing interests.