Reviewer’s report

Title: Impact of Bleeding-related Complications and Blood Product Transfusions on Hospital Costs in Inpatient Surgical Patients

Version: 3 Date: 5 November 2010

Reviewer: Darryl T Gray

Reviewer’s report:

This study of hospital costs associated with post-operative bleeding complications/interventions is generally well-written, addresses an important issue and provides useful and interesting new data. The improved re-submission (especially the discussion) more than adequately addresses many issues raised in prior reviews. However, the analysis and presentation still raise some (generally addressable) issues. Specific comments follow, including those on some issues that appear to remain from the prior review.

Under the journal's review criteria, it would appear mandatory that a revised manuscript would, at a minimum, explicitly address or comment on the bracketed (i.e., [[ ]]) issues raised below. This does not necessarily require that the analysis be redone.

ABSTRACT:

[[Assuming this is true, Results here should clarify that incremental cost differences were adjusted for covariates. ]]

TEXT:

Introduction:

1st paragraph. Deaths from bleeding due to the trauma that precipitated admission are not as relevant to discussions of bleeding as a surgical complication as are deaths from bleeding that started during the surgery performed for trauma.

Materials and Methods:

1st paragraph: [[ The authors should briefly describe the PCD (inclusion criteria for patient and provider populations, how hospitals are chosen, etc.). Criteria and data sources for variables such as race (who report this?), geographic region, urban/rural status, etc. should be included and/or referenced. ]]

Data from the AHRQ Healthcare Cost and Utilization Project indicate that there are more than 30 million discharges from US hospitals annually. Therefore the 5 million captured by PCD represent less than the stated one sixth of annual discharges from US hospitals (especially if one wishes to account for discharges from federal hospitals in the total denominator). Presumably the PCD has
encrypted identifiers that allow multiple admissions for individual patients or admissions of different patients to the same hospital to be linked.

[[It would appear that this study of patient-level anonymized (but probably not-de-identified) data was eligible for expedited IRB review with a possible waiver of requirements for informed consent. It does not appear that this study was exempt from requirements for a priori IRB review; but it does not appear that that a priori IRB review was performed. Please comment.]]

2nd paragraph: [[ It would appear that the ~5% of admissions with multiple procedures should have been categorized by the single most relevant procedure (based on some specified criteria) and then counted just once in the analysis, or excluded because of problems with determining which surgical procedure sub-group was most appropriate. It would appear that a re-analysis that does not count these cases (at least) twice should perhaps be performed. Admittedly this might only apply to (or change results for) surgical procedure sub-groups more affected by this double-counting. Please comment.]]

[[That patients of all ages were included should be stated in the Methods section. It would appear that the different spectra of ages, procedures and co-variates seen in pediatric surgical cases *might* argue for separate analyses of such cases, or for including in the paper an explanation of why this was not done.]]

Lumping the pediatric surgical cases with the adult cases provides no insight regarding pediatric surgical cases and does not clarify the results for adults either.

3rd paragraph: [[ Did the authors consider excluding vascular trauma, ruptured aortic aneurysm, GI bleeding, etc., from the study to facilitate excluding bleeding occurring as a consequence of the underlying or presenting condition?]]

5th paragraph: The term “prior hemostat exposure” might better be described as pre-operative use of substances that promote hemostasis if that is what was meant. “ORC” should be spelled out.

Results

Results in the text should emphasize that incremental LOS differences were unadjusted for covariates. Age ranges are not in Table 3.

[[ For each surgical procedure subgroup, the % of cases < 18 years old should at least be noted. For each surgical procedure subgroup, the % of cases counted twice somewhere in the analysis should also at least be noted.]]

Competing Interests

As this study was entirely industry-funded, the companies involved (United BioSource, Ethicon and Excenda) should be briefly described. [[ The existence of any products potentially relevant to the study should be briefly noted in the


manuscript. For example, it would be useful for readers to know if any of these companies make or support companies that make products that prevent or reduce bleeding complications, since they could benefit directly or indirectly from results showing larger costs attributable to such complications.]

Level of interest: An article of outstanding merit and interest in its field

Quality of written English: Acceptable

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