

**Response to Reviewer Comments**  
**Manuscript No. 61361**  
**Reducing Unnecessary Crossmatching for Hip Fracture Patients by Accounting for**  
**Preoperative Hemoglobin Concentration**  
**February 17, 2021**

**Reviewer 1:**

The conclusion in Abstract is inconsistent with that in Text; the ethical statement should be added; all estimates (ROC, etc.) should report a 95% confidence interval; how to calculate appropriate sample size; if the authors can do propensity score matching analysis, the article will be more convincing

**Response:** Thank you for taking the time to review our manuscript and provide comments on how to improve our work. In order to correct for the concerns raised by the reviewers, we have made the following changes:

To align the conclusion in the abstract and the text, we have added the following to the conclusion, page 10: “Our findings suggest that a hemoglobin <11g/dL and <9g/dl warrants a type-and-cross of only 1 and 2 units, respectively, and a hemoglobin >11g/dL warrants consideration of only a type-and-screen. The MSBOS may over allocate RBC units in the era of restrictive transfusion thresholds and we propose that preoperative hemoglobin levels should be considered in determining the number of units to type and cross prior to surgery.”

The following ethical statement was added to the methods section (page 5): “Documentation of consent was waived by our institutional review board as this was a minimal risk retrospective review of electronic medical record data.”

Confidence intervals were added for all receiving operating curve analyses results in the abstract (page 2) and in the results section (page 7).

Regarding calculation of appropriate sample size, for estimation of sample size needed for an appropriate area under the curve (AUC) analysis as conducted in our study, our study had well above the suggested sample size that has been established as the rule of thumb in biomedical statistics literature (with effect size = 0.10, n=117 for low AUC and n=54 for high AUC) ([Haijan-Tilaki et al, J Biomed Inform, 2014](#)).

While we agree with the reviewers that propensity score matching can often be used to strengthen a study, we felt that it was not necessary for the current one. As Table 1 demonstrates, the only baseline characteristic with any difference between the pre- and post-PBM cohorts was congestive heart failure, which was actually greater in the post-PBM cohort. Despite this, the results of our study demonstrated decreased blood product utilization after PBM implementation. Additionally, we did not feel that there was enough reason to suspect baseline differences between the pre- and post-PBM cohorts to justify the need for propensity score matching.