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Reply

We are pleased that Ayubi et al found the results of our article¹ interesting. However, they make a number of comments on our methodology. In our article, we categorized hemoglobin into approximate fifths of its distribution for subsequent analysis of the relationship between hemoglobin levels and cardiovascular outcomes. Ayubi et al state that we introduce a multiple comparisons problem and that our categorization is arbitrary and makes comparison with other studies difficult. They propose the use of locally weighted regression and curve fitting strategies without explaining how their methods address their perceived multiple comparisons problem or how their use simplifies comparison with other studies. All statistical methods are based on assumptions and arbitrary decisions, and will have varying robustness to outliers or hidden clustering in the data. The late, eminent statistician George E. P. Box is attributed with the statement that “all models are wrong, but some are useful.”² We accept that no approach is perfect. However, we believe that our approach is useful in that we have presented raw data categorizing hemoglobin levels to show the pattern of risk across the categories, thus providing interesting scientific results to a general medical audience in a simple, intuitive, and transparent fashion. We agree completely that sophisticated modeling approaches have their place, but not at the expense of presenting raw data, and we should not underestimate the importance of presenting results in as simple a manner as possible in general medical journals.

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