Title: Validating a novel perioperative mortality risk calculator for patients undergoing surgical fixation of hip fractures

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Objectives:
Hip fractures are common amongst patients over the age of 65 and have been shown to carry a high rate of mortality within 1 year, even when treated operatively. The decision to proceed with surgery is made by considering many factors including medical history, functional status, and patient goals of care. Several perioperative risk calculators exist but few have been developed that are specific to hip fractures treated surgically. This study aims to retrospectively apply a novel 30-day mortality risk calculator to a group of patients treated at the University of Virginia Health System for operative hip fractures. The goal of this project is to improve perioperative risk prediction so that surgeons and patients can make a more informed decision prior to proceeding to surgery.

Methods:
86 patients undergoing hip fracture surgery between 2015 and 2017 at the University of Virginia were retrospectively collected and analyzed based on previously published HEMA trial risk factors as well as several novel risk factors. As in the original paper, the HEMA risk score primary outcome was 30 day mortality.

Results:
There were no 30 day mortalities in our initial patient sample. However, there were 5 mortalities that occurred within one year of surgery. The average HEMA score in these patients was 2.7, compared to an average of 0.4 for all other patients. In addition to HEMA score, elevated creatinine, smoking history, and history of cardiac disease were associated with mortality at one year.

Conclusion:
HEMA score was found to be significantly associated with increased risk of 1 year mortality in this subset of patients. Several other factors were also associated including elevated creatinine, smoking history, and history of cardiac disease. Further research is needed to validate the HEMA scoring system and determine its value in guiding management of patients who are considering surgery for hip fracture.