

### Introduction:

The literature lacks evidence on accurate preoperative prediction of postoperative surgical outcomes by surgeons. Our goal is to accurately assess the ability of surgeons to predict the 30-day post-operative morbidity and mortality risk in surgical patients. To do this we will compare surgeons’ responses to standardized vignettes compared to a statistical risk model.

The Surgical Risk Preoperative Assessment System (SURPAS) is a set of surgical risk assessment algorithms that provides individual patients with accurate procedure-specific preoperative risk prediction of 30-day postoperative adverse outcomes including:

- Mortality
- Overall morbidity
- Clusters of respiratory, cardiac/bleeding, venous thromboembolic, renal, infectious, and neurological outcomes.

To predict these values, SURPAS uses 8 variables:

- Procedural complexity and procedure-specific risk (both derived from the current procedural terminology code)
- Functional health status
- American Society of Anesthesiologists Physical Status Classification (ASA class)
- Patient age
- Emergency status of the operation
- In-/outpatient procedure
- Surgeon specialty.

These risk algorithms were developed from American College of Surgeons National Surgery Quality Improvement Program (NSQIP) database, which include the independent variables entered into SURPAS & the postoperative adverse outcomes.

### Methods:

We compared the accuracy of surgeons’ ability to predict overall morbidity & mortality for a variety of surgical procedures within their specialty to the outcomes predicted by SURPAS, and to the known postoperative outcomes. 30 patients’ NSQIP data was presented to surgeons in standardized vignette formats, including the procedure performed & each patient’s comorbidities. Vignettes of patients in each of ASA class I-V were randomly presented to the participants. Surgeons were asked to predict each patient’s likelihood of 30-day postoperative mortality & overall morbidity.

### Results:

Results show that thoracic surgeons were able to accurately & precisely predict both the morbidity & mortality risk amongst low risk patients (ASA class 1 & 2). In high risk patients (ASA class 3-5) the agreement amongst surgeons on both mortality & morbidity was variable. Surgeons were also less accurate at predicting risk in the high-risk patient pool.

### Conclusions:

- Thoracic surgeons were more accurate at predicting postoperative risk in patients with lower overall burden of disease (ASA < 3)
- Not as accurate as an automated risk assessment tool (SURPAS)
- Not as accurate for higher risk patients (ASA 4 or 5)
- High degree of variability between surgeon’s risk predictions
- Use of an automated risk assessment tool may more accurately predict risk than surgeons
  - May facilitate more informed preoperative risk discussions

### References:


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