

## **Optimizing preoperative outcomes: risk assessment, patient preferences and performance measures**

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When assessing the risk of anesthesia, the traditional approach has been to focus on factors in which anesthesia directly contributes to mortality and major morbidity. Based upon this definition, there has been a marked improvement in anesthesia risk over the last 50 years. With these improvements in anesthesia outcomes has been a focus on improving nonfatal perioperative outcomes which can be impacted by the anesthesiologist, with a specific focus on preservation of organ function. For example, reductions in the rate of perioperative myocardial infarction and pulmonary dysfunction have been a topic of significant focus.

### *The role of risk assessment*

Since the development of the American Society of Anesthesiologists Physical Status Classification, anesthesiologists have been both subjectively and objectively assessing risk. The most common means of assessing risk is the development of multi-variant models defining the influence of independent predictors for risk. An example of this in the area of cardiovascular risk is the Cardiac Risk Index by Goldman and colleagues.<sup>2</sup> Since its publication in 1977, numerous groups have both validated and refined the original index. This culminated in the recent publication and validation of the Revised Cardiac Risk Index by Lee and colleagues.<sup>1</sup> A second approach has been to study the influence of specific factors using matching techniques including propensity scores. But the question is why assess risk. Risk indices can identify those independent predictors of adverse events in order to define who needs further evaluation and to target interventions.<sup>3</sup> It can also be used to better inform the patient (ie. Consent), and benchmark local care by comparing outcomes which are risk adjusted. Most recently, risk indices have been used to determine the efficacy of different interventions, particularly respect to preoperative testing and beta-blocker therapy.<sup>4</sup>

### *Patient preferences*

Although research during the last several decades has focused on the assessment of different interventions and therapies on perioperative outcomes, there are few interventions which clearly are supported as Class I recommendations. Therefore, the decision to either undergo surgery itself, the optimal location of care (eg. Inpatient, hospital outpatient, ambulatory surgery center) or choice of intervention should include the patient preference. Ways of assessing preferences include standard gamble and willingness to pay. Both techniques have been used for anesthesia outcomes with success. For example, willingness-to-pay has been used to assess the value of interventions for postoperative nausea and vomiting.<sup>5</sup> The standard gamble technique has been utilized to assess location of care for outpatient versus inpatient surgery.<sup>6,7</sup> Until interventions are clearly proven to be efficacious without question, patient preferences take on greater importance.

### *Performance measures*

Recently, governments and insurers have become interested in measuring compliance with best practices and both publishing and incenting physicians and hospitals based upon the results. A continue of inclusion for most programs is the requirement that the practice should be based upon strong evidence and a Class I recommendation. Examples in the perioperative period include antibiotic timing and redosing, continuation of preoperative beta-blocker administration, and PONV treatment. The supposition is that measuring best “processes” will lead to better outcomes. Although there is some data to support this hypothesis, these is not universal agreement that it works. Therefore, we need to continue to study the best approach to improving outcomes.

### References

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