

# New ACS NSQIP Surgical Risk Calculator provides accurate surgical complication estimates

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The new American College of Surgeons National Surgical Quality Improvement Program (ACS NSQIP) Surgical Risk Calculator is a revolutionary new tool that quickly and easily estimates patient-specific postoperative complication risks for almost all operations, according to research findings appearing online in the *Journal of the American College of Surgeons*. The study will be published in a print edition of the Journal later this year.

Surgeons and patients have long been seeking an accurate decision-support tool to estimate patients' risks of complications after surgical procedures. This process is essential for patient-centered care, shared decision making with patients, and true informed consent. Moreover, the Centers for Medicare and Medicaid Services—through the Physician Quality Reporting System (PQRS)—may soon provide a financial incentive for surgeons to calculate the risks of operations using the Surgical Risk Calculator and to discuss these patient-specific risks with patients prior to elective operations performed in the U.S.

"Predicting postoperative risks, and identifying patients at a higher risk of complications, has traditionally been based on anecdotal experience of the individual surgeon or small studies from other institutions. Importantly, these risk estimates have been generic and not specific to an individual patient's risk factors. To have truly informed consent and shared decision making with a patient, we need the ability to provide

customized, [personal risk](#) estimates for patients undergoing any operation," according to Karl Bilimoria, MD, FACS, ACS faculty scholar, director of the Surgical Outcomes and Quality Improvement Center at Northwestern University, Chicago, and lead author of the study.

For the study, Dr. Bilimoria and colleagues used highly detailed and accurate ACS NSQIP data collected from nearly 400 hospitals and 1.4 million patients to develop a universal surgical [risk calculator](#) that covers more than 1,500 unique surgical procedures across multiple specialties. The authors leveraged the highly accurate outcomes data collected by ACS NSQIP to create the Surgical Risk Calculator.

"The quality and rigor of the ACS NSQIP clinical outcomes data was critical to the development and reliability of the Surgical Risk Calculator," explained study coauthor Clifford Y. Ko, MD, FACS, director of the ACS Division of Research and Optimal Patient Care. "Our experience with the calculators shows that it helps surgeons improve the quality of care they provide their patients because it improves shared decision making and patient-centered informed consent."

The Surgical Risk Calculator allows surgeons to quickly enter a total of 22 preoperative patient risk factors about their patients. Next, the risk calculator estimates the potential risks of mortality and eight important postoperative complications and displays these risks in comparison to "an average patient's risks." The authors spent a great deal of time to ensure the information would be presented in a patient-friendly way, accommodating a broad range of health literacy needs.

The authors also performed rigorous tests to ensure the validity of the risk estimates provided by the Surgical Risk Calculator. The investigators reported that the ACS NSQIP Surgical Risk Calculator

yielded excellent prediction results for death, overall complication, and serious complication rates, as well as six additional postoperative complications: pneumonia, heart problem, surgical site infection, urinary tract infection, blood clot, and kidney failure. In addition, the Surgical Risk Calculator estimates a customized length of hospital stay for the patient, a clearly important factor for all patients.

However, other hard-to-measure factors may increase a patient's risk of postoperative complications, so the web-based risk calculator includes an important novel feature: a Surgeon Adjustment Score that allows a surgeon to increase the risk of an operation based on his or her subjective assessment of a patient. This feature enables surgeons to better counsel [patients](#) using both the modeled estimate along with the surgeon's experience and evaluation of the patient.

The risk calculator has been released publicly and is available to surgeons, clinicians, and the public at: <http://www.riskcalculator.facs.org>. According to Dr. Bilimoria, enhancements to the calculator will be made regularly with additional outcomes added to the tool in the coming months, as well as release of mobile versions.

Provided by American College of Surgeons

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