

Measure Title	RISK-ADJUSTED COMPLICATION LIKELIHOOD FOR SURGERIES		
Disease State	Appendectomy Cholecystectomy	Indicator Category	Outcome
Strength of Recommendation		Quality of Evidence	
Physician Specialties	General Surgery		
Clinical Rationale	<p>Disease Burden</p> <ul style="list-style-type: none"> • Appendicitis is a very common condition, with an incidence of over 40,000 cases per year, [1] and is most often treated by appendectomy.[2] • In 1997, over 5% of appendectomy procedures resulted in post-operative complications, including infection.[3] • Similarly, cholecystectomy has an annual rate of 260.8 per 100,000 population.[4, 5] • Complications related to cholecystectomy procedures occur in about 3-6% of cases.[6] <p>Reason for Indicated Intervention or Treatment</p> <ul style="list-style-type: none"> • Cohort studies have shown that appendectomy is an effective treatment for appendicitis.[7] Likewise, for gallstones and other digestive disease, cholecystectomy is an effective treatment.[8] • Open and closed appendectomy and cholecystectomy have shown to be safe procedures.[9, 10] Most often, complications are usually limited to elderly patients with comorbid conditions or are attributable to physician error or oversight.[11] <p>Evidence Supporting Intervention or Treatment</p> <ul style="list-style-type: none"> • Studies have shown that there are substantial costs associated with post-operative complication management, which can oftentimes be avoided. [12, 13] Surgical outcomes have also been shown to vary substantially by provider.[14, 15] • Risk-adjustment methodologies have been used in several studies utilizing outcomes data to accurately reflect quality of care.[16] • The National Surgical Quality Improvement Program (NSQIP) also recommends the use of risk-adjusted outcomes to identify aspects of surgical care that are in need of improvement.[17] <p>Clinical Recommendation</p> <ul style="list-style-type: none"> • NSQIP was created by the Department of Veteran Affairs as a result of the poor surgical care they were providing at the VA hospitals. Since the introduction of NSQIP, several VA hospitals have reduced complication significantly reduced surgical complication rates.[18] • NSQIP and other surgical improvement programs have developed valid risk adjustment methodologies that permits the use of outcomes data to assess quality.[15, 16, 19, 20] • Medical centers that perform surgery need to implement these risk-adjustment and measurement techniques in order to point out areas in which quality improvement efforts such as NSQIP can be deployed to improve the quality of surgical care. [13, 15, 18, 21, 22] 		

Methodology

Step 1: Identifying surgery procedures (appendectomy and cholecystectomy)

All Members who underwent either an appendectomy or cholecystectomy procedure.

Step 2: Flagging comorbidities and complication

- Secondary diagnosis codes are listed on claims for each surgery procedure.
- Health Benchmarks' team of physicians, which includes a practicing surgeon, separate these diagnoses between those that represent complications and those that represent comorbidities.

Example 1

Accompanying a claim with cholecystectomy, Health Benchmark considers a secondary diagnosis of choleperitonitis (bile leak) to be a complication, while diabetes is considered to be a comorbidity.

Example 2

For a claim with appendectomy or cholecystectomy, Health Benchmarks considers a secondary diagnosis of pneumonia to be a complication, while congestive heart failure is considered to be a comorbidity.

- Clinical experts also identified those comorbidities that could be considered especially severe (severe disease characteristics).
- The resulting procedure-specific listings of complications, comorbidities, and severe disease characteristics were incorporated in the patient case mix adjustments.

Interpretation of Score

High score implies better performance.

Physician Attribution

Score only the physicians who performed the index surgery.

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