**Title**  
LOWER ANTERIOR RESECTION SURGICAL COMPLICATIONS IN COLORECTAL CANCER PATIENTS: ASSOCIATION WITH LENGTH OF STAY, DISCHARGE TO INSTITUTIONAL CARE, AND 90-DAY READMISSION

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**Abstract**

OBJECTIVES: Lower anterior resection (LAR) surgical complications are associated with substantial morbidity and economic burden. This study assessed the association between three complications of particular importance in colorectal surgery—anastomotic leak (AL), bleeding, and infection—and hospital length of stay (LOS), discharge to institutional care, and 90-day readmission in patients who underwent LAR for colorectal cancer.

METHODS: Patients who underwent LAR for colorectal cancer from 2008Q1-2015Q2 were identified with ICD-9-CM procedures and diagnoses recorded in the Optum Clinformatics Data Mart, a large U.S. database of health insurance claims (first hospitalization for LAR=index LAR). ICD-9-CM codes were used to identify patients diagnosed with AL, bleeding, and/or infection during the index LAR; patients with evidence of these complications present on admission or within 180d pre-index were excluded. Generalized linear models and Cox regression were used to separately identify the association between each complication and: LOS, discharge to institutional care (e.g., skilled nursing facility), and time-to 90-day readmission (all-cause; censoring at loss to follow-up), adjusting for patient demographics and baseline (180d pre-index) clinical characteristics.

RESULTS: The study included 3,278 colorectal cancer patients who underwent LAR (median age 60y; 41% female; 69% privately insured; 88% elective admissions). During the index LAR, AL, bleeding, and infection were documented in 382 (11.7%), 384 (11.7%), and 211 (6.4%) patients, respectively. After covariate adjustment, each complication type was associated with increased LOS (adjusted differences: AL, 6.1 days, p<0.0001; bleeding, 3.3 days, p<0.0001; infection, 8.4 days, p<0.0001), higher odds of discharge to institutional care (ORs: 2.12, p=0.0006; 3.03, p<0.0001; 4.25; p<0.0001), and greater risk of 90-day readmission (HRs: 1.31, p=0.006; 1.35, p=0.002; 1.85; p<0.0001).

CONCLUSIONS: This study provides contemporary real-world evidence on the burden of complications associated with LAR for colorectal cancer. Innovations in surgical care delivery and technology may reduce the risk and burden of these complications.