Clinical and financial impact of readmissions following colorectal resection: An analysis of predictors, outcomes, and cost

Authors: Rachelle N Damle1, MD; Nicole B Cherng2, B.S.; Julie M Flahive3, MS; Jennifer S Davids4, MD; Justin A Maykel4, MD, FACS; Paul R Sturrock4, MD; W Brian Sweeney4, MD, FACS; Karim Alavi4, MD, FACS

Author Affiliations:
1Department of Surgery, University of Massachusetts Medical Center
2University of Massachusetts Medical School
3Center for Outcomes Research, University of Massachusetts Medical School
4Division of Colorectal Surgery, University of Massachusetts Medical Center

Corresponding author contact information:
Rachelle N Damle, MD
University of Massachusetts
55 Lake Ave Room S3-752
Worcester, MA 01655
Phone: 209-678-8279
Email: rachelle.damle@umassmemorial.org

Background: Following passage of the Affordable Care Act, 30-day readmissions have come under greater scrutiny, with penalties levied for higher than expected readmission rates. We examined risk factors for 30-day readmission following colorectal resection and evaluated the financial impact of readmissions on the healthcare system.

Methods: The University HealthSystem Consortium Clinical Database was queried for adults undergoing colorectal surgery for cancer, diverticular disease, inflammatory bowel disease, or benign tumors from 2008-2012. Predictors of 30-day readmission were assessed with multivariable logistic regression. Additional endpoints included time to readmission, readmission diagnosis, readmission length of stay (LOS), and readmission cost.

Results: A total of 70,484 patients met study inclusion criteria, 13.7% (9,632) of which were readmitted within 30 days of discharge. The strongest independent predictors of readmission were: LOS ≥4 days (OR 1.44; 95% CI 1.32-1.57), stoma (OR 1.54; 95% CI 1.46-1.51), and non-home discharge (OR 1.68; 95% CI 1.57-1.81). Of those readmitted, half occurred within 7 days, 13% required ICU care, 6% had a reoperation, and 2% died during the readmission stay. The median combined total direct hospital cost was over two times higher ($26,917 v. $13,817; p<0.001) than non-readmitted patients. Compared with late readmissions, those readmitted within 7 days were more likely to have a reoperation (8% v. 4%, p<0.001), be admitted to the ICU (14% vs. 12%, p<0.001), and had a longer median readmission LOS (5d vs. 4d, p<0.001).

Conclusions: 30-day readmissions following colorectal resection occur frequently and incur a significant financial burden on the healthcare system. Highest-risk patients include those with longer LOS, stoma, and non-home discharge. Future studies aimed at targeted interventions may reduce readmissions and curb escalating healthcare costs.