

**TITLE:** A NEW LOOK AT THE VOLUME AND OUTCOME RELATIONSHIP IN SURGERY FOR COLORECTAL CANCER

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**ABSTRACT:**

**Purpose :** Surgeon and hospital factors have a significant impact on treatment outcomes for colorectal cancer (CRC). Limited research has been done to assess cost and quality of treatment by surgeon-volume. We aim to identify the surgeon factors impacting cost and quality of surgical care for CRC.

**Methods :** The University HealthSystem Consortium database was queried for patients who underwent colon resection for cancer from 2008 to 2012. Patients were grouped by surgeon-volume. Outcomes of interest were post-operative complications, ICU admission, readmission rate, inpatient hospital length of stay (LOS) and direct hospital cost. Average surgeon-volume per year was categorized as high (>6) or low (1-6) based on the distribution of surgeon-volume.

**Results :** 29,972 patients over age 18 were identified for inclusion. 25,426 underwent resection by high-volume surgeons (HVS) and 4,547 by low-volume surgeons (LVS). LVS were more likely to admit patients to the ICU than HVS (21% v 33%,  $p<0.01$ ). Average LOS was shorter for HVS compared to LVS (8.9 v 11.2,  $p<0.01$ ). Patients operated on by HVS had a lower 30-day readmission rate than LVS (5.8% v. 8.3%,  $p<0.01$ ). HVS had a lower complication rate than LVS (8.3% v 12.2%  $p<0.01$ ). HVS were more likely than LVS to perform the procedure laparoscopically ( $p<0.01$ ). Hospital direct cost for both open and laparoscopic colectomies were lower when performed by HVS compared to LVS ( $p<0.01$ ).

**Conclusions :** Surgeons who perform greater than 6 colectomies per year for colon cancer are more likely to use laparoscopy, less likely to admit patients to the ICU, have lower complication and readmission rates, and shorter LOS. Hospital cost is significantly lower in patients operated on by high volume surgeons. As health care costs continue to escalate and health care reform efforts gain momentum, factors leading to high- quality, cost-effective care need to be identified.