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## Benchmarking rectal cancer care: institutional compliance with a longitudinal checklist

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### ABSTRACT

**Background:** In 2012, the American Society of Colon and Rectal Surgeons published the Rectal Cancer Surgery Checklist, a consensus document listing 25 essential elements of care for all patients undergoing radical surgery for rectal cancer. The authors herein examine checklist adherence in a mature, multisurgeon specialty academic practice.

**Materials and methods:** A retrospective medical record review of patients undergoing elective radical resection for rectal adenocarcinoma over a 23-mo period was conducted. Checklists were completed *post hoc* for each patient, and these results were tabulated to determine levels of compliance. Subgroup analyses by compliance and experience levels of the treating surgeon were performed.

**Results:** A total of 161 patients underwent resection, demonstrating a median completion rate of 84% per patient. Poor compliance was noted consistently in documenting baseline sexual function (0%), multidisciplinary discussion of treatment plans (16.8%), pelvic nerve identification (8.7%) and leak testing (52.9%), and radial margin status reporting (57.5%). Junior surgeons achieved higher rates of compliance and were more likely to restage after neoadjuvant therapy (67.9% *versus* 29.4%,  $P < 0.001$ ), discuss patients at tumor board (31.3% *versus* 13.2%,  $P = 0.014$ ), and document leak testing (86.7% *versus* 47.2%,  $P = 0.005$ ) compared with senior surgeons.

**Conclusions:** Checklist compliance within a high-volume, specialty academic practice remains varied. Only surgeon experience level was significantly associated with high checklist compliance. Junior surgeons achieved greater compliance with certain items, particularly those that reinforce decision-making. Further efforts to standardize rectal cancer care should focus on checklist implementation, targeted surgeon outreach, and assessment of checklist compliance correlation to clinical outcomes.

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## Introduction

The treatment of rectal adenocarcinoma is complex and often requires multimodal therapy including specialty imaging, radiation, surgery, and chemotherapy.<sup>1</sup> Data have repeatedly demonstrated that close coordination and collaboration between radiologists, surgeons, and radiation and medical oncologists improve outcomes for patients undergoing surgical resection.<sup>2-4</sup> Yet in North America, patients have continued to experience highly variable treatment and inconsistent outcomes—including abnormally high rates of permanent ostomy creation, local recurrence, and mortality—over the past two decades.<sup>5-7</sup> In response, the American Society of Colon and Rectal Surgeons (ASCRS) published the Rectal Cancer Surgery Checklist in 2012.

The checklist, based on expert consensus and an iterative feedback process from ASCRS members, was intended to standardize care and guide clinicians caring for rectal cancer patients undergoing curative resection.<sup>8</sup> It contains 25 components of preoperative, perioperative, and postoperative care that should be performed for every patient (see [Appendix](#)).<sup>9</sup> However, neither adherence rates nor clinical use of the checklist has been previously reported. It remains unclear whether full compliance with all checklist items is a feasible goal in a busy clinic practice.

We therefore designed this study to benchmark ASCRS Rectal Cancer Surgery Checklist adherence in a high-volume, academic specialty practice as well as identify factors associated with high compliance. We hypothesized that checklist compliance will be less than 100% and varies among surgeons. Overall checklist compliance among patients undergoing curative resection for rectal cancer is reported, along with subgroup analysis of junior and senior surgeon practice trends.

## Methods

### Data source

All patients undergoing elective, curative resection for rectal adenocarcinoma at a single tertiary, academic specialty practice from November 2013 through December 2015 were selected from a prospectively maintained billing registry. Those aged under 18 y, undergoing urgent or endoscopic (transanal endoscopic microsurgery) resection, or diagnosed with bowel obstruction or inflammatory bowel disease were excluded from further review. A single reviewer (P.C.) then used a centralized medical record to retrospectively complete an ASCRS Rectal Cancer Surgery Checklist for each eligible patient. Additional demographic data including insurance source, Charlson Comorbidity Index score,<sup>10</sup> travel distance from treating medical center, location of neoadjuvant therapy administration, and operating surgeon were collected from the same medical record. Each patient underwent either a low anterior resection or an abdominoperineal resection by seven surgical faculty with 1-22 y of postfellowship experience. The Washington University School of Medicine Institutional Review Board approved this investigation and granted a waiver of informed consent.

### Variables and subgroups

The 25-item ASCRS Rectal Cancer Surgery Checklist was developed and published by the ASCRS Quality Assessment and Safety committee in 2012 after extensive literature review and iterative expert discussions (see [Appendix](#)).<sup>8</sup> Each item from the checklist served as a variable for initial

**Table 1 – Demographic and operative characteristics of patients undergoing elective transabdominal resection from 2013-2015.**

Patient characteristics	Total (n = 161)	Patients treated by senior surgeons (n = 129)	Patients treated by junior surgeons (n = 32)	P
Male	64.6%	62.8%	71.9%	0.34
Mean age (standard deviation)	58.8 (12.2)	59.5 (12.4)	56.0 (10.0)	0.09
Mean BMI (standard deviation)	29.0 (6.4)	29.0 (6.4)	29.0 (6.7)	0.70
Race				
Caucasian	80.7%	82.9%	71.9%	0.42
African-American	14.9%	13.2%	21.9%	
Hispanic	0.6%	0.8%	0%	
Other	3.7%	3.1%	6.3%	
Insurance status				
Private	45.3%	47.3%	37.5%	0.16
Medicare	41.6%	42.6%	37.5%	
Medicaid	9.3%	7.0%	18.8%	
Uninsured	3.7%	3.1%	6.3%	
Charlson Comorbidity Index (standard deviation)	4.2 (2.0)	4.3 (2.0)	3.8 (1.8)	0.18
Procedure				
LAR	66.5%	68.2%	59.4%	0.34
APR	33.5%	31.8%	40.6%	

LAR = low anterior resection; APR = abdominoperineal resection.

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