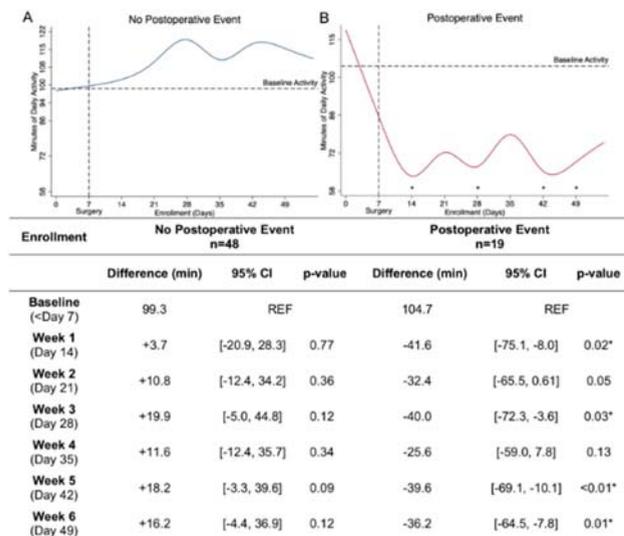patient quality of life and early detection of deviation from expected recovery.

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Figure. Trends in daily exertional activity compared to preoperative baseline among patients (A) without and (B) with a clinically significant postoperative event. Absolute differences from baseline, in minutes, are provided at postoperative weeks 1-6 (enrolment days 14, 21, 28, 35, and 49). CI: confidence interval; min: minutes; *: denotes statistical significance defined as two-sided p-value<0.05.

Patient Complexity Varies by Surgical Specialty and Does Not Strongly Correlate with Work Relative Value Units

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INTRODUCTION: There are few data on patient complexity variation across surgical specialties. Understanding surgical population differences can inform policy decisions about resource allocation and reimbursement. This study identified variation in patient complexity across surgical specialties and assessed correlation between complexity and relative value units (RVUs).

METHODS: The 2017 American College of Surgeons NSQIP was queried for cases involving the specialties of general, neurologic, vascular, urology, orthopaedic, cardiac, thoracic, plastics, and ENT. Ten markers of patient complexity were measured, including American Society of Anesthesiologists class ≥ 4, number of major comorbidities, emergent operation, major complications, concurrent procedures, additional procedures, length of stay, non-home discharge, readmission, and mortality. Specialties were ranked by individual markers of complexity and then summed, creating an overall complexity score and rank that was then compared with general surgery as the referent.

RESULTS: Overall, 936,496 patients were identified. When markers of complexity were considered individually, cardiac had the longest median operative time (225 minutes; interquartile range 165 to 292 minutes) and their patients were most complex across 4 individual markers: American Society of Anesthesiologists class ≥ 4 (78.5%; 95% CI 77.2% to 79.8%), 30-day mortality (3.39%; 95% CI 2.85% to 4.00%), major complications (56.9%; 95% CI 55.3% to 58.4%), and mean length of stay (9.79 days; 95% CI 9.52 to 10.1 days). Vascular patients were most complex by number of major comorbidities (2.73; 95% CI 2.72 to 2.74) and 30-day readmissions (10.1%; 95% CI 9.82% to 10.3%). Compared with general, cardiac patients were most complex with 40% increased complexity and ENT was least with 60% decreased complexity (Table). Relative value units were very weakly correlated with overall complexity score (Spearman's $\rho = 0.07$; $p < 0.01$).

Table. Surgical Specialty Overall Complexity and Primary Work Relative Value Units

Specialty	Overall complexity score	Ratio of complexity score	Median RVU (IQR)
Cardiac	75	1.42	33.8 (33.1−43.3)
Vascular	71	1.34	20.5 (10.2−22.5)
Thoracic	66	1.25	23.5 (14.5−25.8)
Neurologic	57	1.08	23.5 (15.4−27.5)
General	53	1.00 (ref)	11.9 (9.5−20.8)
Orthopaedic	40	0.70	20.7 (12.4−20.7)
Urology	37	0.75	15.3 (8.0−26.8)
Plastic	30	0.57	15.9 (10.4−17.1)
ENT	21	0.40	11.2 (4.4−15.6)

IQR, interquartile range; RVU, relative value unit.

CONCLUSIONS: There were substantial differences between patient complexity across surgical specialties, which very weakly correlated with RVUs. This suggests that RVUs are inadequate in capturing surgical complexity.

Quantifying the Contribution of Medical Scribes in an Outpatient Academic Surgical Oncology Setting

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INTRODUCTION: With increasing demands of electronic health records, numerous studies and anecdotal reports have demonstrated improvement in provider morale and patient satisfaction with integration of medical scribes into clinical practice. We sought to quantify changes in work flow attributable to scribes in an outpatient academic surgical oncology setting.

METHODS: A retrospective cohort review of outpatient surgical oncology encounters at a single tertiary-care institution from August to September, 2018 and January to February, 2019 was performed. Records from 2 months pre- and post-scribe integration

in a pilot program for 2 attending surgeons were compared. Main outcomes measures were patient wait time, patient volume, chart closure time, and level of service. Surrogate variables for visit complexity and resident involvement were recorded.

RESULTS: A total of 385 clinic encounters (183 pre- and 202 post-scribe) over 35 days were reviewed. There were no significant differences pre- vs post-scribe in number of problems (p = 0.2), medications (p = 0.5), orders (p = 1.0), cases scheduled (p = 0.4), provider (p = 1.0), or level of service (p = 0.4). Pre- vs post-scribe mean patient wait time (26.8 ± 30.6 minutes vs 31.2 ± 65.5 minutes; p = 0.1) and time to chart closure (2.4 ± 4.9 days vs 2.3 ± 3.8 days; p = 0.7) were similar. Mean number of patients seen per day increased from 9.6 ± 4.5 to 12.6 ± 4.3 (p = 0.05) (Table) and resident involvement increased from 33.9% to 45.1% (p = 0.03) of visits after scribe implementation.

CONCLUSIONS: In this preliminary evaluation of medical scribe implementation in outpatient surgical oncology clinics, scribes can provide both a financial and intellectual return on investment by increasing patient volume and maximizing opportunities for resident interaction and education.

Table. Comparison of Clinic Visit Factors Pre- and Post-Scribe Implementation

Variable	Overall (n = 385)	Pre-scribe (n = 183)	Post-scribe (n = 202)	p Value
Resident involved in visit, n (%)	153 (39.7)	62 (33.9)	91 (45.1)	0.03
CPT level for visit, n (%)				0.4
2 or 3	67 (17.9)	27 (14.8)	40 (20.8)	
4	168 (44.8)	88 (48.1)	80 (41.7)	
5	62 (16.5)	29 (15.9)	33 (17.2)	
Post-op, n (%)	78 (20.8)	39 (21.3)	39 (20.3)	
Wait time to be seen, min, mean ± SD	29.1 ± 51.8	26.8 ± 30.6	31.2 ± 65.5	0.1
Time to close chart, d, mean ± SD	2.4 ± 4.4	2.4 ± 4.9	2.3 ± 3.8	0.7
No. of patients seen per clinic day, mean ± SD	11.0 ± 4.6	9.6 ± 4.5	12.6 ± 4.3	0.05

Race and Socioeconomic Status Limit Choice of Hospital among Colorectal Surgery Patients in New York City

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INTRODUCTION: A patient's ability to choose their hospital is crucial to undergoing a successful oncologic surgery, even if that is outside their local neighborhood. Among New York City's (NYC) 5 boroughs, most academic medical centers are located in Manhattan, and these hospitals are more likely to have multidisciplinary cancer treatment programs. It is unclear if racial minorities are afforded the same choice of oncologic center as white patients.

METHODS: Analysis of the New York Statewide Planning and Research Cooperative System was performed for 2010 to 2016. Adult patients residing in NYC, but outside of Manhattan, undergoing elective partial colectomies for colon cancer were included. Primary end point was likelihood of undergoing a surgical procedure in a Manhattan hospital.

RESULTS: A total of 3,713 colectomies were performed for colon cancer among NYC patients who reside outside Manhattan, 39.11% of which were performed in Manhattan hospitals. White patients were significantly more likely to undergo operations in Manhattan compared with their black or Hispanic counterparts (47.5%, 22.8%, and 28.2% respectively; p < 0.001). Similarly, privately insured patients were more likely than Medicaid patients to undergo operations in Manhattan (private 42.7%, Medicaid 18.1%; p < 0.001). These associations persisted on adjusted analysis (Table). Undergoing operations in Manhattan led to a decreased likelihood of having a postoperative complication for non-white patients (odds ratio [OR] 0.74; p = 0.02) but not for whites (OR 0.88; p > 0.1).

CONCLUSIONS: Choice of hospital among racial minorities and Medicaid patients in NYC is more limited than for white or privately insured patients, even when these vulnerable populations can benefit most from this choice.

Table. Adjusted Analysis of Likelihood on Undergoing Operation in Manhattan for Non-Manhattan Residents

Variable	Odds ratio (95% CI)	p Value
Age	0.97 (0.95−0.98)	<0.001
Female sex	1.09 (0.93−1.27)	NS
Race		
Black	0.32 (0.27−0.4)	<0.001
Hispanic	0.43 (0.34−0.54)	<0.001
Insurance		
Medicaid	0.44 (0.29−0.66)	<0.001
Charlson Comorbidity Index >6	1.86 (1.24−2.79)	0.003
Year of operation	1.06 (1.02−1.11)	0.002

Race Does Not Predict Discharges Against Medical Advice in Surgical Patients

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INTRODUCTION: Race is seen as a significant predictor of discharges against medical advice (DAMA) in numerous current studies. These discharges are associated with increased readmission, mortality, and costs. However, most studies are disease- or setting-specific and results