The Impact of Trainee Involvement during Robotic Colectomies in the Veteran Population

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Introduction:

- Conducting education and training for health professionals and residents within the VHA is one of the four statutory missions of the Department of Veterans Affairs
- Multiple studies report that trainee involvement increases operative time.
- There has been limited study of the impact of residents on postoperative outcomes specific to robotic surgery.
- The goal of this study is to examines the impact of trainee involvement on robotic colectomies performed within the VHA.

Methods:

- Retrospective review of Veterans Affairs Surgical Quality Improvement Program (VASQIP).
- All robotic colectomies between 1999-2019.
- Robotic cases were identified by a Healthcare Common Procedure Coding System (HCPCS) modifier code.
- Cases were divided into two cohorts based on the presence or absence of a trainee.
- Univariate analysis was performed for operative time as a primary outcome.
- VASQIP-generated composite morbidity score was a secondary outcome.
- Variables with a significant association (p<.1) were entered into a linear regression model for operative time and a logistic regression model for morbidity.

Table 1. Univariate Postoperative Outcomes By Presence of a Trainee.

Variables	Overall Population	Trainee Involvement		P value	aOR	95% CI
	n = 800	No Trainee n = 432	With Trainee n = 368			
Death within 30 Days (%)	1 (0.1%)	1 (0.2%)	0 (0.0%)	.356	.998	.993 - 1.002
Operative Time (mean±SD)	4.76 ± 1.895	4.86 ± 1.732	4.64 ± 2.066	.021		
Postop Complication (%)	119 (14.9%)	66 (15.3%)	53 (14.4%)	.729	.933	.631-1.380
Superficial SSI (%)	26 (3.3%)	14 (3.2%)	12 (3.3%)	.987	1.006	.460 - 2.204
Organ Space Infection (%)	31 (3.9%)	20 (4.6%)	11 (3.0%)	.231	.635	.300 - 1.343
Wound Disruption (%)	8 (1.0%)	4 (0.9%)	4 (1.1%)	.820	1.176	.292 - 4.735
Pneumonia (%)	10 (1.3%)	6 (1.4%)	4 (1.1%)	.702	.780	.218 - 2.786
Reintubation (%)	13 (1.6%)	8 (1.9%)	5 (1.4%)	.582	.730	.237 - 2.251
PE (%)	7 (0.9%)	4 (0.9%)	3 (0.8%)	.867	.879	.196 - 3.955
DVT (%)	3 (0.4%)	0 (0.0%)	3 (0.8%)	.060	1.008	.999 - 1.018
Prolonged Intubation (%)	6 (0.8%)	4 (0.9%)	2 (0.5%)	.532	.585	.106 - 3.211
Renal Failure (%)	2 (0.3%)	2 (0.5%)	0 (0.0%)	.191	.995	.989 - 1.002
UTI (%)	14 (1.8%)	8 (1.9%)	6 (1.6%)	.812	.878	.302 - 2.555
MI (%)	4 (0.5%)	0 (0.0%)	4 (1.1%)	.030	1.01	1.000 - 1.022
Sepsis (%)	26 (3.3%)	20 (4.6%)	6 (1.6%)	.017	.341	.136 - .859
Return to OR (%)	45 (5.6%)	27 (6.3%)	18 (4.9%)	.406	.771	.418 - 1.424
Length of Stay (mean±SD)	6.95 +/- 6.380	6.91 ± 6.670	6.99± 6.030	.159		

Surgical Site Infection (SSI), Pulmonary Embolism (PE), Deep Vein Thrombosis (DVT), Urinary Tract Infection (UTI), Myocardial Infarction (MI). Additional variables not included in table: deep SSI, C.diff infection, cardiac arrest, CVA

Population :

- 800 robotic colectomies were included – 432 cases done by an attending alone and 368 cases involved a trainee.
- Both groups had similar demographics.
- Only statistically significant differences between groups were race, history of PAD and wound class.

Results :

- ***Operative time*** was ***longer*** in the ***attending only*** group.
- There was ***no statistically significant association*** between ***trainee involvement*** and ***mortality, morbidity, or hospital length of stay***.
- In a linear regression model, ***trainee involvement*** was an ***independent predictor for shorter operative time***
- In a linear regression model, BMI, malignant pathology, and previous radiation therapy predicted longer operative time.
- When controlling for confounders, ***trainee involvement was not associated with increased odds of morbidity***.
- BMI, hypertension, prior MI, and previous radiation therapy were associated with increased odds of perioperative morbidity.

Conclusions:

- Resident participation in robotic colectomies within the VHA does not significantly impact morbidity or mortality.
- Trainee involvement was associated with decreased operative times and did not statistically impact perioperative complications or intraoperative outcomes.