Establishing Robotic General and Colorectal Surgery in a 3-Operating Room Community Hospital

Gregory Wu, MD; Sophie Lipson, MD; Rebecca Hoffman, MD; John Semian, MD
Geisinger Medical Center, Danville, PA

Background

- Use of robotic procedures in surgical specialties has dramatically increased over the past decade
- Utilization of robotic surgery favors larger, academic centers over smaller institutions
- Since the Covid-19 era, there has been an increasing interest in the transition of robotic surgery towards smaller hospitals

Question

This study sought to characterize patient demographics, efficacy and outcomes of the first year of general surgery and colorectal robotic cases performed in a newly implemented robotic surgery program at a 3-OR/70-bed rural community hospital

Methods

- Retrospective review of the first year of robotic cases from April 2022 to April 2023
- Analyzed patient characteristics, type of case, case duration, conversion to open, intraoperative complication, length of stay, 30-day readmission, and death
- Performed ANOVA analysis to compare average turnover times between robotic cases and the three possible case-types either prior to or following the robotic case: robotic, laparoscopic, and open

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Results

Table 1. Patient Characteristics

	Age (Years)	Male (N)	Female (N)	Average BMI	Average ASA
General Surgery	57.36	89	8	28.82	2.37
Colorectal Surgery	64.52	11	10	29.29	2.57
Overall	58.65	100	18	28.91	2.41

Chart 1. Robotic Procedures Performed

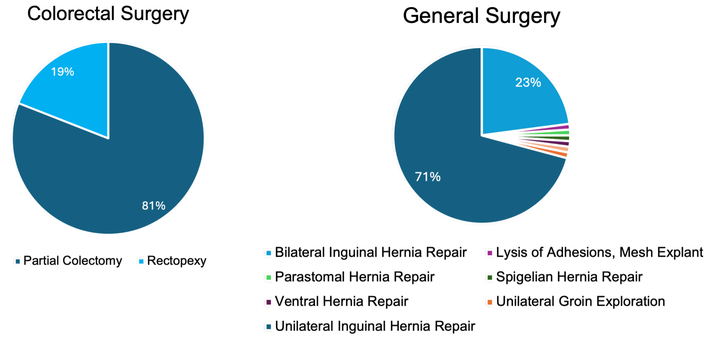


Table 2. Average Turnover Times by Case Type

	Average Turnover Time (Min)	P-value
Robotic-Robotic	45.29	*p = 0.03*
Robotic-Laparoscopic	36.13	
Robotic-Open	45.91	

Table 3. Outcomes by Robotic Surgery Performed

	N	*Average Case Duration (Hour:Min)*	*Average EBL (mL)*	Conversion to Open *(N)*	*30-Day Readmit (N)*	*Average LOS (Days)*	*Intra-Op Complications (N)*	Deaths *(N)*
General Surgery (Overall)	97	1:48	11.54	0	0	0.13	0	0
Unilateral Inguinal Hernia Repair	24	1:39	9.04	2	0	0.06	0	0
Bilateral Inguinal Hernia Repair	67	2:12	16.82	0	1	0	1	0
Ventral Hernia Repair	1	1:31	20	0	0	0	0	0
Spigelian Hernia Repair	2	2:07	17.5	0	0	0.5	0	0
Groin Exploration	2	2:31	27.5	0	0	2.5	0	0
Parastomal Hernia Repair	1	2:36	25	0	0	3	0	0
Colorectal Surgery (Overall)	21	2:38	34.16	2	0	3	0	0
Partial Colectomy	17	2:58	37.59	1	0	2.82	0	0
Rectopexy	4	1:42	15	1	0	3.5	0	0

Key Findings

- 118 surgery cases were performed during the first year of robotic implementation in a rural community hospital with minimal negative outcomes
- There was an overall significant difference in average turnover time among robotic-robotic, robotic-laparoscopic and robotic-open case transitions
- The lowest average turnover time was robot-laparoscopic case turnovers ($p<.05$)

Conclusion

- Implementing robotic surgery at smaller institutions is feasible and safe in terms of patient outcomes and can be efficiently utilized in the proper turnover arrangements
- Introducing robot surgery to rural community hospitals will improve access to care and technology to a larger subset of patients while also freeing up operative volume at higher acuity centers