

Robotic vs Laparoscopic Sleeve
Gastrectomy (SG)
in Adolescents and Younger Adults:
A National Analysis of Complications
and Utilization Trends (2015–2023)

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BACKGROUND

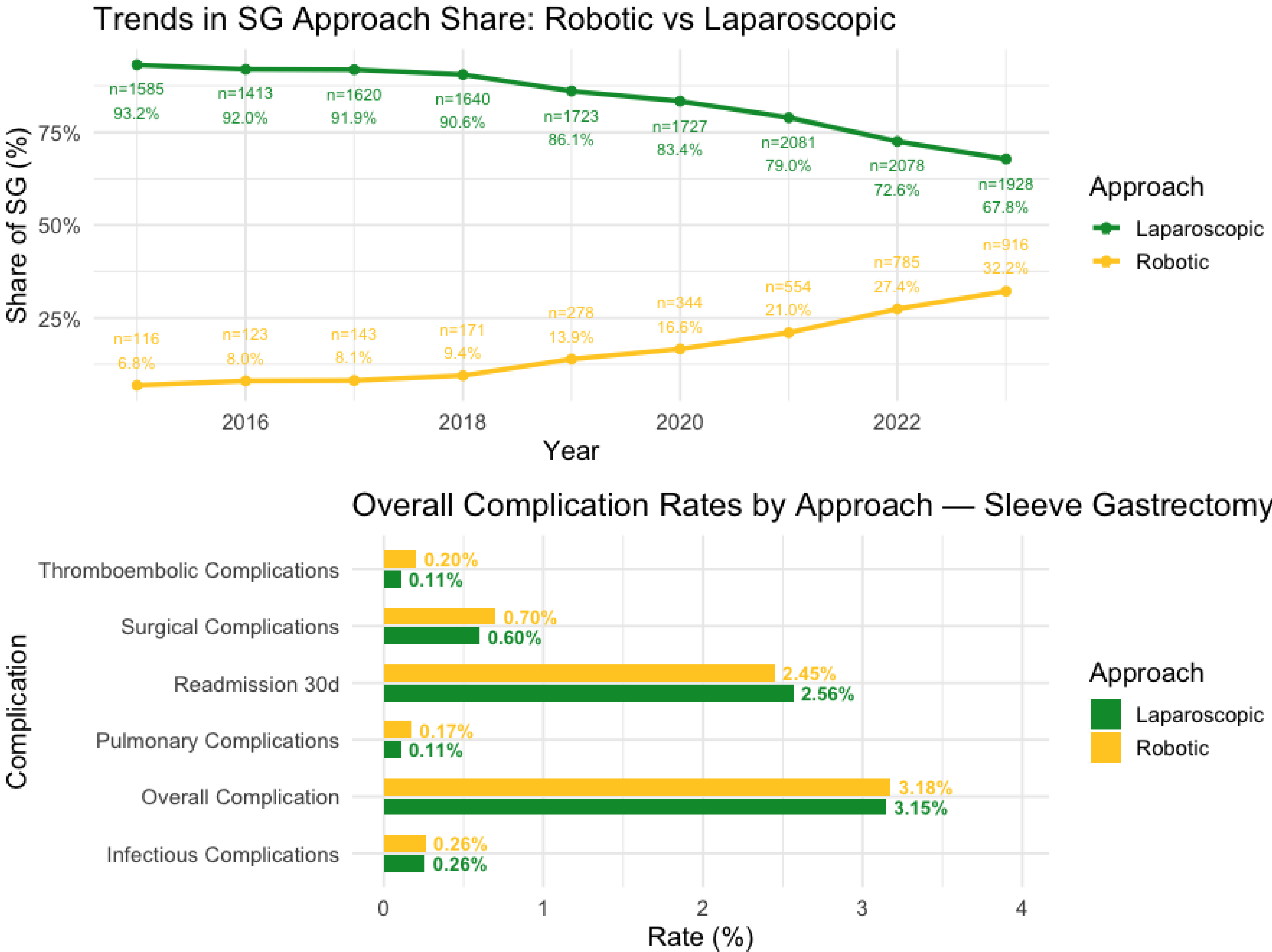
- Robotic assistance in bariatric surgery, including sleeve gastrectomy (SG), has increased over time.
- Safety profile and postoperative outcomes in adolescents and young adults remain incompletely characterized.

METHODS

- Data source:** MBSAQIP, 2015 to 2023.
- Study population:** Patients aged ≤21 years undergoing sleeve gastrectomy.
- Exposure:** Surgical approach
 - Conventional laparoscopic SG
 - Robotic SG
- Baseline comparisons:**
 - Categorical variables: chi-square or Fisher’s exact tests
 - Continuous variables: t-tests
- Primary analyses:** Adjusted logistic regression models evaluating the association between approach and grouped postoperative complications:
 - Infectious
 - Pulmonary
 - Thromboembolic
 - Surgical
 - 30-day readmission
 - Overall complications
- Covariate adjustment:** Demographic characteristics and comorbidities.

Robotic and laparoscopic SG demonstrate similarly low complication rates.

Robotic utilization increased from 6.8% to 32.2% over the study period.



RESULTS

19,225 SG cases: 15,795 (82.2%) Laparoscopic vs 3,430 (17.8%) Robotic

Baseline: Lap vs Robotic

	Laparoscopic	Robotic	p-value
Mean Age	19.2	19.3	<0.01
Mean BMI	46.8	47.7	<0.01
Female %	77.8%	80.2%	<0.01
Diabetes %	11.0%	12.2%	0.04
GERD %	10.0%	13.3%	<0.01
Smoker %	4.4%	3.0%	<0.01

Adjusted ORs: Robotic vs Laparoscopic (all p > 0.05)

Outcome	Laparoscopic	Robotic	aOR (95% CI)
Infectious	0.26%	0.26%	1.00 (0.45–1.97)
Pulmonary	0.11%	0.17%	1.27 (0.41–3.22)
Thromboembolic	0.11%	0.20%	1.65 (0.59–4.03)
Surgical	0.60%	0.70%	1.16 (0.72–1.79)
Readmission 30d	2.56%	2.45%	0.93 (0.72–1.17)
Overall	3.15%	3.18%	0.99 (0.79–1.21)

Robotic SG: 116 cases (6.8%) in 2015 → 916 cases (32.2%) in 2023

CONCLUSION

Among SG patients ≤21 years, robotic and laparoscopic approaches demonstrate similarly low early postoperative complication rates, with no significant adjusted differences across grouped outcomes. Despite increasing adoption of robotics in this population, these data do not show early outcome advantages over conventional laparoscopy.

