

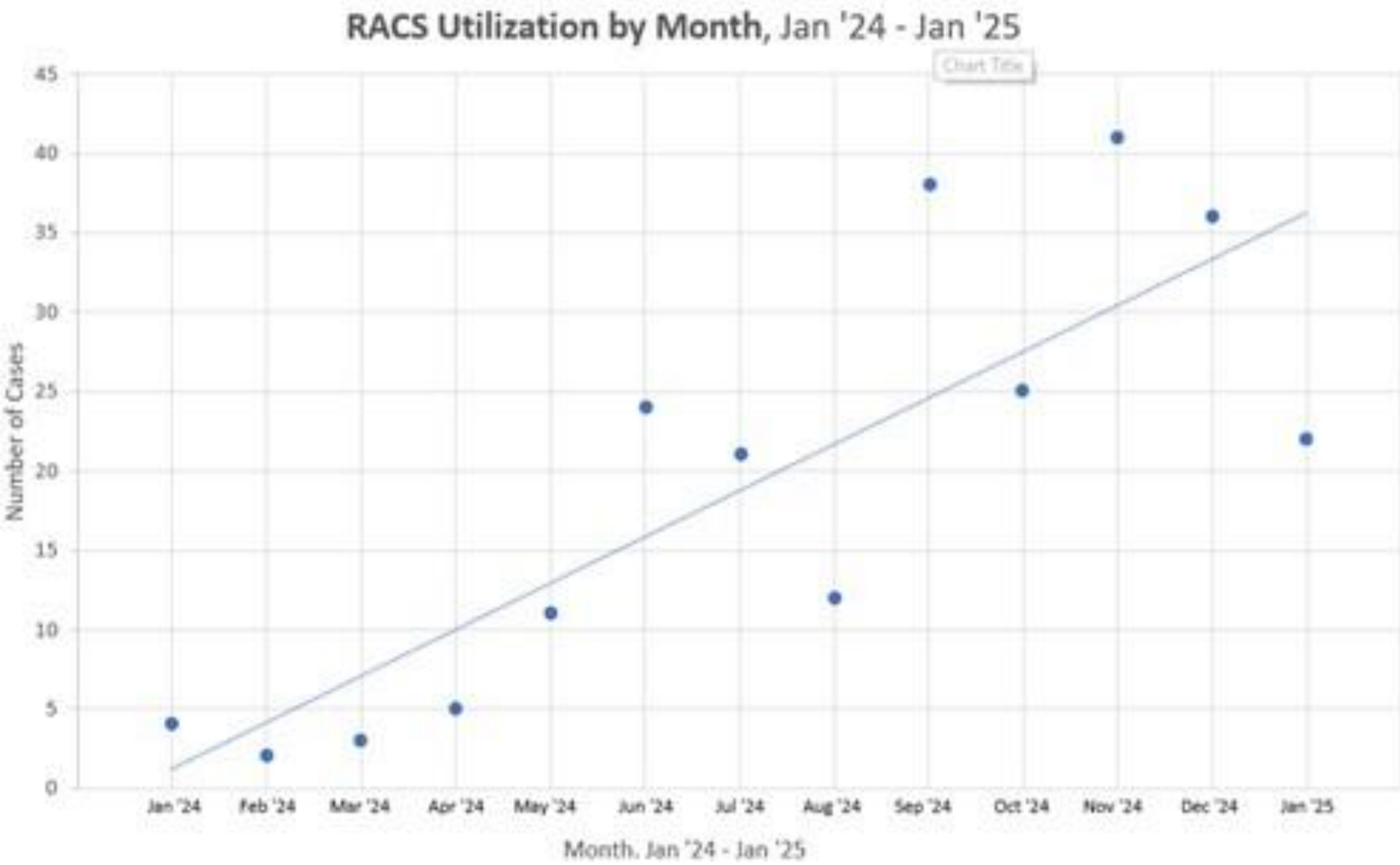
Background

- Robotic acute care surgery (RACS) has gained increasing interest and utilization, but adoption remains limited due to logistical barriers, training requirements, questionable utility, and a lack of data on successful models.
- We evaluated the implementation of a RACS program at our academic Level 1 trauma center, focusing on case volume, growth, and operative efficiency over time.
- No RACS was performed prior to the start of this study
- Varying levels of robotics experience for the involved surgeons often concordant with duration since completion of training
 - Most with limited to no robotics experience
- Surgeons were initiated on the robot roughly 2 at a time every 2 months for the first 6 months

Methods

- RACS case volume and operative efficiency metrics were analyzed from January 2024 through January 2025
- Included acute care surgeons with limited to no prior robotic experience who underwent a structured training pathway.
- Pathway:
 - Industry-sponsored online didactics
 - Simulator-based skills training
 - In-person hands on robotics training
 - Virtual observation sessions
 - Initial proctored clinical cases (n=3)
 - First cases performed without trainee involvement (n=20)
- Assessed overall robotics volume
- Assessed cholecystectomy operative times
 - Most frequent operation
- Assessed the impact of trainees on operative times

Results



Cholecystectomy Median Console Times			
	First 4 Cases	All Subsequent Cases	Percent Median Change
Surgeon 1	64	24.5	61.72
Surgeon 2	39	35	10.26
Surgeon 3	47.5	45	5.26
Surgeon 4	46	65	-42.30
Surgeon 5	50	43	14.00
Surgeon 6	33.5	34	-1.49
Surgeons Out of Training for > 5 Years Average Efficiency Change = +25.75%			
Surgeons Out of Training for <= 5 Years Average Efficiency Change =-9.60%			

Cholecystectomy Case Times with Introduction of Trainees	
	Median Case Times
All Cases	53.0
Cases with No Resident Involvement	46.5
Cases with Any Level of Resident Involvement	61.0

Discussion

- A marked increase in RACS utilization was seen within the first year of implementation (n=244)
 - Q1 mean 3 cases/mo
 - Q4 mean 33 cases/mo
- Average improvement in median times for cholecystectomy after the first 4 cases was 8.1% across all surgeons.
- Surgeons who had been out of training for 5 or more years demonstrated a greater efficiency improvement after the initial 4 cases (25% reduction in console time) compared to those out of training for less than 5 years (9% increase in console time).
- Introductions of residents did increase operative times (61 vs 53 min) but the clinical significance of this increase is questionable.

Conclusion

- In our institution, the implementation of a structured robotics training pathway enabled rapid adoption of RACS.
- Surgeons show rapid efficiency gains on the robotic platform with subsequent changes in preference for RACS.
- Introduction of trainees does impact case times but the clinical significance of this is unclear
- These findings support the feasibility of integrating robotic surgery into acute care settings and suggests that a structured training and pathway can generate a robust acute care robotics program.