

Impact of Resident Participation on Intra-operative Variables in Thyroid Surgery

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Abstract

Objectives: To investigate the impact of resident participation on operative duration for patients undergoing thyroid lobectomy.

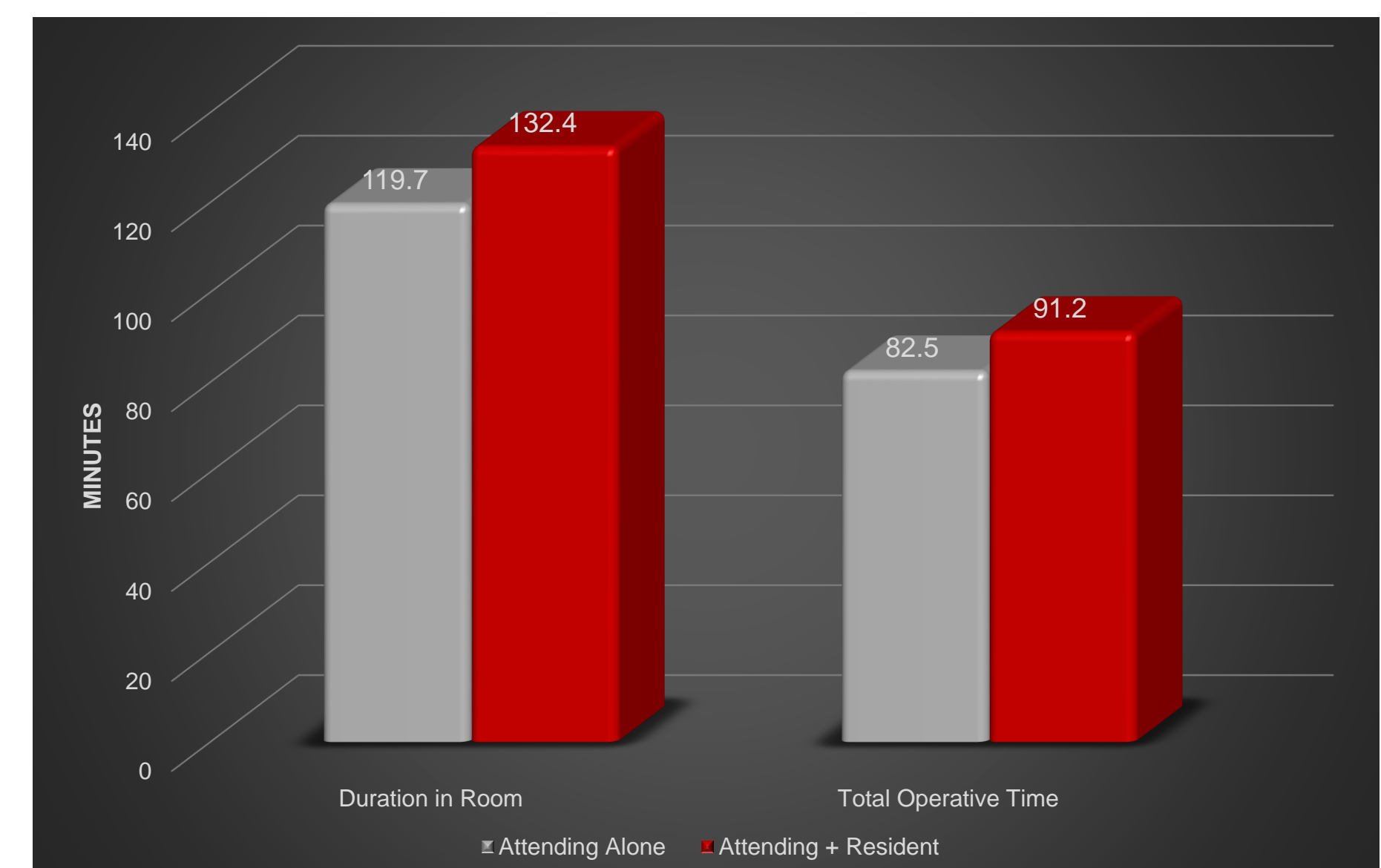
Methods: The National Surgical Quality Improvement Program dataset for years 2006 to 2012 was queried to identify 13,151 adult patients who underwent a thyroid lobectomy, with or without isthmusectomy. Patients were stratified into two groups based on resident participation during the surgical procedure.

Results: Resident participation with attending supervision prolonged the operative duration by nearly 11% (82.5 minutes versus 91.2 minutes, $p < 0.0001$). Patients undergoing surgery by attending alone had a higher incidence of obesity, COPD, and hypertension at baseline. Although the length of hospitalization, intraoperative adverse events and reoperation rates remained comparable, there was a higher incidence of readmission and wound complications for patients that underwent surgery with resident participation.

Conclusions: Resident participation in thyroid lobectomy, with or without isthmusectomy, contributed towards increased operative duration, incidence of postoperative wound complications and higher readmission rates. This information is important to identify areas for improvement to optimize educational programs, reduce cost of healthcare delivery, and maximize patient safety, while continuing to train a competent physician workforce for the future.

Results

Operative Duration With and Without Resident Participation



	Attending	Attending & Resident	p-value
Operative Time			<0.0001
Mean (SD)	82.5 (32.5)	91.2 (34.0)	
Duration pt in room			<0.0001
Mean (SD)	119.7 (36.8)	132.4 (39.2)	

Data is recorded in minutes

Methods

- Data evaluation of ACS National Surgical Quality Improvement Program (NSQIP)
- Thyroid lobectomy patients (n=13,151) from 2006-2012
- Population divided into 2 subgroups: attending alone vs attending and resident.
- T-tests, chi-squared tests, and Fisher's Exact tests were performed.

Conclusions

- Resident participation led to a nearly 11% increase in operative time.
- Staff physicians operated on more complex patients and performed more outpatient surgeries.
- Resident participation is safe and did not lead to increase in major complications.

Results

Pre-operative Variables

Comparable in 31 categories except below:

	Attending	Attending & Resident	p-value
COPD	2.1%	1.3%	0.0008
Hypertension	35.8%	31.7%	<0.0001
Cerebrovascular Disease	1.1%	0.8%	0.0402
BMI	29.49 ± 7.31	28.91 ± 6.98	<0.0001

Post-operative Complications

Resident involvement resulted in higher postoperative complications.

	Attending	Attending & Resident	p-value
Wound disruption	0 (0%)	9 (0.1%)	0.0332
Readmissions	12 (2.2 %)	41 (4.2%)	0.0367

Clinical Implications

- **Increased operative time may contribute to:**
 - Increased direct cost of patient care
 - Opportunity cost for staff physicians
 - Increased use of resources
- **Resident education is necessary to train competent future surgeons.**
- **Opportunities to improve efficiencies in the operating room:**
 - Simulation training
 - Improved communication
 - Work flow evaluation

References

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