

Expert consensus of general surgery residents' proficiency with common endocrine operations

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Background. Proficiency with common endocrine operations is expected of graduating, general surgery residents. However, no expert consensus guidelines exist about these expectations.

Methods. Members of the American Association of Endocrine Surgeons were surveyed about their opinions on resident proficiency with common endocrine operations.

Results. Overall response rate was 38%. A total of 92% of the respondents operate with residents. On average, they believed that the steps of a total thyroidectomy for benign disease and a well-localized parathyroidectomy could be performed by a postgraduate year 4 surgery resident. Specific steps that they thought might require more training included decisions to divide the strap muscles or leaving a drain. Approximately 66% of respondents thought that a postgraduate year 5 surgery resident could independently perform a total thyroidectomy for benign disease, but only 45% felt similarly for malignant thyroid disease; 79% thought that a postgraduate year 5 surgery resident could independently perform a parathyroidectomy. Respondents' years of experience correlated with their opinions about resident autonomy for total thyroidectomy (benign $r = 0.38$, $P < .001$; malignant $r = 0.29$, $P = .001$) but not parathyroidectomy. On multivariate analysis, sex and years of experience of the respondents were independently associated with opinions on autonomy but only for total thyroidectomy for benign disease ($P = .001$). Annual endocrine volume of the respondents did not correlate with beliefs in autonomy.

Conclusion. There was general agreement among responding members of the AAES about resident proficiency and autonomy with common endocrine operations. As postgraduate year 5 residents may not be proficient in advanced endocrine operations, opportunities exist to improve training prior to the transition to independent practice for graduates that anticipate performing endocrine operations routinely. (Surgery 2016;■:■-■.)

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COMPETENCY IN SURGERY requires the combination of good clinical judgment, timely and accurate decision-making, and a high degree of technical

skill proficiency. Currently, a general surgery resident physician's competency is determined through a time-based system that requires exposure to specific types of surgical specialties and meeting threshold volumes of self-reported cases. Resident physicians start as novice learners and are expected to achieve minimum levels of competency by the time they graduate. Part of this preparation is dependent on general surgery programs offering their residents the option to operate autonomously with expert feedback.

Only a minority of general surgery residents have opportunities for autonomy in the operating room, however, and most program directors have

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maintained that chief residents do not achieve operative autonomy by the end of residency, which necessitates further fellowship training.^{1,2} The recent Accreditation Council for Graduate Medical Education (ACGME) Milestones movement was the first step at clearly outlining domains of resident assessment to ensure progression of autonomy by the time of graduation.

The next step to determine if residents are ready for independent practice would be to create Entrustable Professional Activities (EPAs) that specifically delineate the steps of common general surgery operations with clear competency markers. These EPAs could then be combined with effective instruction techniques as well as validated and reliable assessment instruments to see how actual resident performance compares to expectations of performance. Since attending surgeons may not regularly operate with other attending surgeons, EPAs would also allow attending surgeons to calibrate their expectations of resident performance compared to other attendings' expectations. It is unclear, however, what is the most expedient way to determine normalized EPAs for the 88 common essential procedures listed in the national general surgery curriculum that is sponsored by the American Board of Surgery (ABS).^{3,4}

Thyroid and parathyroid operations are an ideal pilot project for EPAs for several reasons. Thyroidectomy and parathyroidectomy are considered common operative procedures with outcomes that are often directly dependent on the expertise of the operative surgeon. These endocrine procedures are also considered essential/core operations for all general surgery residents by the ACGME. In addition, the operative steps of common endocrine operations are fairly standardized and well represented on the in-training assessments of all general surgery residents. Lastly, most surgeons who regularly perform endocrine surgery operations are represented by a single national organization, the American Association of Endocrine Surgery (AAES), which could facilitate access to key stakeholders with the expertise to establish resident performance expectations.

Therefore, this study sought to define AAES endocrine surgeons' expectations of resident autonomy with several common endocrine operations. Specific research questions were as follows: (1) What is the average postgraduate year (PGY) level of general surgery residents who are able to perform each step of a total thyroidectomy for benign disease with direct supervision by an attending surgeon? (2) Do endocrine surgeons think that a graduating, general surgery PGY5

resident could independently perform a total thyroidectomy for benign and/or malignant disease? (3) What is the average PGY level of general surgery residents who are able to perform a parathyroidectomy with concordant imaging under supervision by an attending surgeon? (4) Do endocrine surgeons think that a graduating general surgery PGY 5 resident could independently perform a parathyroidectomy with concordant imaging independently? (5) Are beliefs in resident autonomy for common endocrine surgery operations influenced by the type of clinical practice, operative volume, or demographic factors (years of clinical practice, sex, geographical location) of the respondent endocrine surgeon?

METHODS

Scenarios and survey development. Two hypothetical scenarios of common, straightforward endocrine operations were created (see the attached survey for the scenario descriptions; [Appendix A](#)). Operative steps ([Tables I and II](#)) were based on previous descriptions in the literature and consensus from expert endocrine surgeons. An electronic survey (SurveyMonkey, Palo Alto, CA) was piloted with members of the AAES Education and Research Committee ($n = 9$), and the survey was subsequently revised into its final form ([Appendix A](#)).

Survey distribution. On September 15, 2015, an e-mail with a link to the survey was sent to all active members of the AAES ($n = 234$), AAES allied specialists ($n = 6$), and AAES candidate members (those having completed a surgery residency or AAES fellowship with membership pending, $n = 76$). Survey responses were anonymous. Two-week electronic reminders were sent to nonresponders. The survey was closed on October 21, 2015.

Survey analysis. The response rates were based on the total number of surveys received versus invitations sent as well as surveys received versus electronically opened. PGY levels from survey questions #8 and #10 were transformed into numerical values with PGY 1 = 1, PGY 2 = 2, PGY 3 = 3, PGY 4 = 4, PGY 5 = 5, Fellow = 6, Attending = 7. Mean values with standard deviations or median values with 25% and 75% quartiles were calculated for scale-level data depending on the distribution of the data. Correlations were computed as a Pearson correlation. Logistic regression was used to evaluate multiple, independent variables predicting a dichotomous dependent variable (Yes/No). SPSS statistical software was used (SPSS Inc, Chicago, IL). Free text comments from each survey were summarized thematically and organized by one of the authors (RP).

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