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Invited Commentary

Becoming an adrenal surgeon—transition from trainee to attending

The relationship between surgeon volume and patient outcomes is well-established. For endocrine surgeons, this relationship has been shown for total thyroidectomy,[1] parathyroidectomy,[2] and adrenalectomy.[3] Volume cut-offs vary in the literature, but the 3 papers cited above suggest the following: 26 total thyroidectomies, approximately 40 parathyroidectomies, and 4 adrenalectomies per year. It stands to reason that the number necessary to *attain* competence exceeds the number needed to *maintain* competence and consistent, high-quality outcomes. Therefore, while case numbers are not the only measure of adequate training, they are a crucial metric. Trainees must do operations in order to learn how to do them, and progressive autonomy ultimately leads to independence.[4,5] High case volumes and increased autonomy are among the reasons trainees commit a year to the American Association of Endocrine Surgeons (AAES) Comprehensive Endocrine Surgery Fellowship, and this study by Dr. Fazendin and colleagues contributes to our understanding of how subspecialty training in a relatively rare operation translates into performance of that operation early in practice.[6] Notably, this very transition is the culmination of all graduate medical education: *the transition from trainee to attending.*

This paper address both sides of the transition—experiences during fellowship and surgical volume early in practice when skills are being solidified. Related to fellowship, 63% of respondents performed more than 20 adrenalectomies during their year-long fellowship, and over 90% gained experience in laparoscopic transabdominal adrenalectomy. By comparison, according to 2018-19 ACGME data, the average graduating chief resident had participated in 2.2 adrenal operations.[7] Once in practice, the volume of adrenal surgery fell dramatically for fellowship graduates. Sixty-one percent of respondents within their first year of practice performed no adrenal operations. However, for nearly two-thirds of those within 2–4 years of starting practice, cumulative volume of adrenal surgery was up to 11–50 operations. To summarize, there is significant exposure during fellowship (many times the number needed to reach "high-volume" status), following fellowship there is a sudden diminution, and then volume slowly rises to high-volume status for most early-career endocrine surgeons.

I would like to highlight three points that are well-illustrated by the data in this manuscript:

1. Completion of an AAES Comprehensive Endocrine Surgery Fellowship represents significant "value-added" to the adrenal surgery training received during general surgery residency. A few residency programs may offer high volumes to their residents, but the majority do not.
2. A prior study found that less than one-fifth of patients undergoing adrenalectomy in New York State were cared for by high-volume endocrine surgeons.[3] This reflects reality for most Americans who do not have access to fellowship-trained endocrine or oncologic surgeons. Academic surgeons involved in fellowship training also typically train residents. As high-volume adrenal surgeons, it is our responsibility to ensure that graduates from general surgery residency are able to safely evaluate and manage patients with adrenal disease, to perform straightforward adrenal operations, and, most importantly, to know when to refer patients for sub-specialty care. This is particularly important for those going into general surgery practice in areas of the country with fewer options for subspecialty referral.[8]
3. Training does not stop on the day of graduation from residency or fellowship. Operative technique of senior partners was a commonly reported reason for adopting a surgical approach different from that learned in fellowship. For early-career surgeons, senior partners are integral to success, especially in rare operations. A critical take-away message for trainees applying for first jobs (and for fellowship mentors advising them) is the importance of an experienced, generous mentor to help "complete," in a sense, their training and facilitate the transition from trainee to independent, high-volume adrenal surgeon.

As an early-career endocrine surgeon, the results of this survey reflect my experience quite closely. I performed one right and one left laparoscopic adrenalectomy during residency, and one open adrenalectomy. Then, during fellowship training at a high-volume institution, I performed 25 laparoscopic adrenalectomies (though, again, only one open). Now I am in practice with a senior partner who performs the operation similarly to my training, and over the last four years, my adrenalectomy volume has expanded from 4 in my first year in practice to several times the "high-volume" threshold in the most recent 12 months. Growing the practice has been slow but steady, and that would have been impossible but for the combination of high-volume fellowship training and an extremely supportive clinical mentor. This excellent paper highlights the importance of both.

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