

## ORIGINAL RESEARCH

# Are otolaryngology residents ready for independent practice? A survey study

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## Abstract

**Objective:** We surveyed otolaryngology program directors (PDs) and recent otolaryngology residency graduates on the operative autonomy of graduating residents and their comfort with independent practice.

**Methods:** An anonymous survey was sent to otolaryngology PDs and recent graduates of training programs (members of the Young Physicians Section [YPS] of the American Academy of Otolaryngology–Head and Neck Surgery Foundation). Questions were developed around the 14 key indicator procedures (KIPs) defined by the Accreditation Council for Graduate Medical Education.

**Results:** Fifty PDs (43% of PDs) and 152 recent graduates (6% of YPS members) responded. Over 90% of participating PDs felt their graduating residents were either somewhat or extremely comfortable performing 12 out of 14 KIPs. Among the 12 procedures PDs felt their graduating residents were comfortable performing, 57% to 95% of recent graduates also felt either somewhat or extremely comfortable performing them by graduation. Similarly, at least 90% of responding PDs felt their residents achieved meaningful autonomy in the last 2 months of residency prior to graduation for 11 of 14 KIPs. For these same 11 procedures, 74% to 95% of recent graduates indicated they achieved meaningful autonomy. The procedures that PDs and recent graduates felt required the most surgical assistance were ossiculoplasty/stapedectomy, rhinoplasty, and mastoidectomy. All PDs agreed or strongly agreed that graduating residents are comfortable operating and taking call as general otolaryngologists, compared to 86% and 93% of recent graduates.

**Conclusion:** Most PDs and recent graduates agree that residents are well-prepared for general otolaryngology practice with the exception of select KIPs.

Level of evidence: 4.

## KEYWORDS

autonomy, competency, performance, surgical education

A portion of the data in this article was presented orally at the American Academy of Otolaryngology–Head and Neck Surgery Foundation Annual Meeting in September 2019.

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## 1 | INTRODUCTION

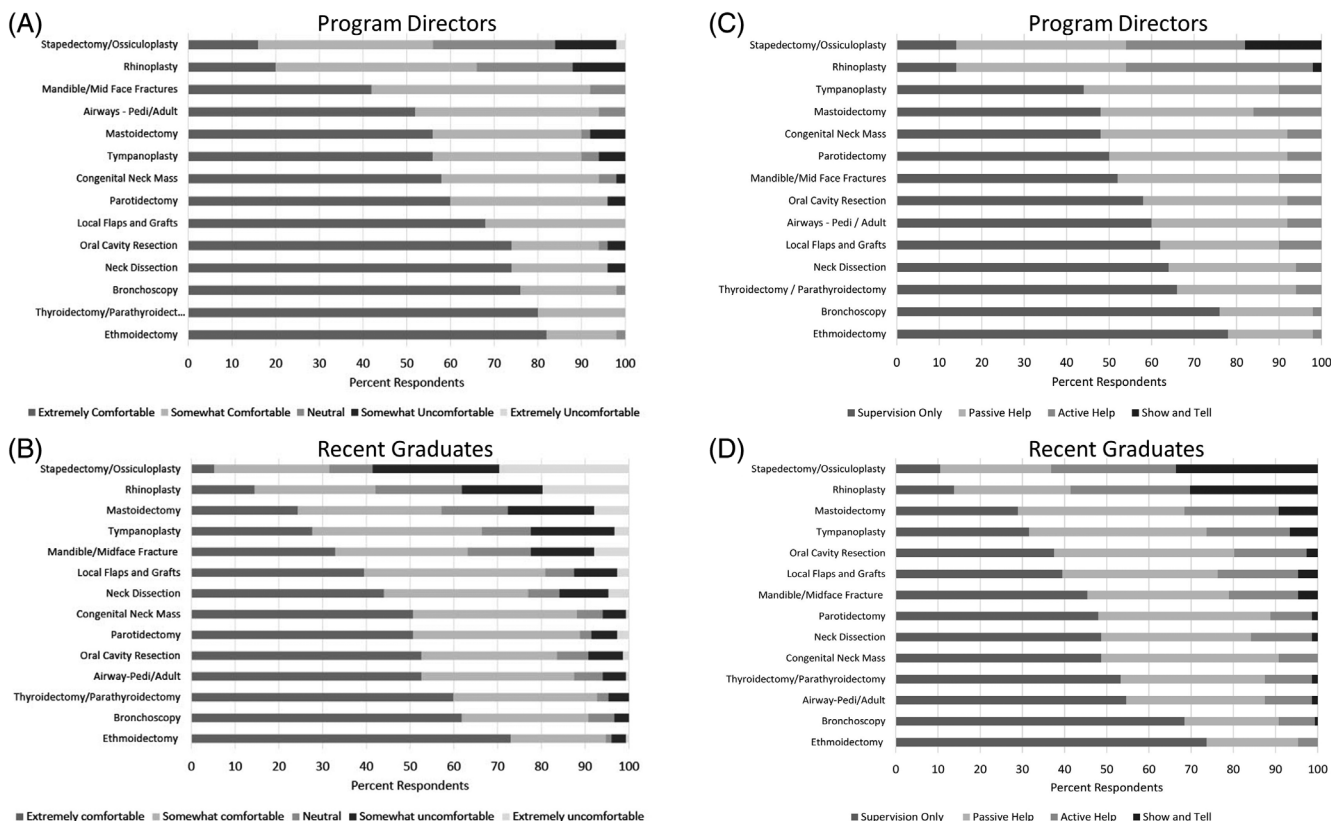
In surgical specialties, residency training has historically relied on a model of progressive operative responsibility. This model has been challenged by a need to balance resident teaching with patient safety, work hour restrictions, increasing patient complexity, and a growing emphasis on hospital productivity.<sup>1,2</sup>

In general surgery, evidence suggests that residents are currently granted less operative autonomy during training and may not be confident in their operative abilities by graduation.<sup>3</sup> Less is known about training in otolaryngology. We surveyed otolaryngology program directors (PDs) and recent otolaryngology residency graduates on the operative autonomy of graduating residents and comfort with independent practice.

## 2 | METHODS

An anonymous survey was administered using Qualtrics Software (Provo, UT) to the Otolaryngology PD Organization (Supplement A, surveyed between November 2019 and January 2020) and the Young Physicians' Section (YPS) of the American Academy of Otolaryngology email lists (Supplement B, surveyed between May 2020 and July

2020), the latter of which is comprised of otolaryngologists in their first 8 years of practice or who are under 40 years of age. Participants indicated their informed consent in completing this voluntary survey. Questions were developed around 14 key indicator procedures (KIPs) defined by the Accreditation Council for Graduate Medical Education (ACGME): parotidectomy, neck dissection, oral cavity resection, local flaps, airway procedures, congenital neck mass, thyroid/parathyroidectomy, bronchoscopy, ethmoidectomy, mandible/midface fractures, tympanoplasty, mastoidectomy, rhinoplasty, and ossiculoplasty/stapedectomy. Participants were asked how comfortable they or their senior residents were near the time of graduation performing each procedure on a 5-point scale ranging from "Extremely Uncomfortable" to "Extremely Comfortable." Questions then assessed the autonomy residents achieved for each procedure during their last 2 months of residency on a four-level Zwisch scale: Show and Tell, Active Help, Passive Help, and Supervision Only.<sup>4</sup> Lastly, PDs and recent residency graduates were asked to rate how much they agreed with the statements "[I/Our residents] feel comfortable *operating* as general otolaryngologists after graduation" and "[I/Our residents] feel comfortable *taking call* as general otolaryngologists after graduation" on a 5-point Likert scale. Additionally, recent graduates who completed a fellowship were asked to rate the statement "I did a fellowship because I did not feel comfortable operating as a general otolaryngologist after



**FIGURE 1** (A) Program directors (PDs) reporting the comfort level of their program's senior residents performing KIPs at the time of graduation. (B) YPS members/recent graduates reporting their comfort level performing KIPs at the time of graduation from residency. (C) PDs reporting the level of autonomy in the operating room achieved by graduating residents at the end of residency, on a four level Zwisch scale. (D) YPS members/recent graduates reporting the level autonomy they achieved in the operating room at the end of residency

graduation" on a 5-point Likert scale. This study was exempt from review by the local Human Studies Committee.

### 3 | RESULTS

Fifty PDs (43% of all PDs) and 152 recent otolaryngology graduates (6% of all YPS members) responded. Among the recent graduates, 68% completed training in the last 5 years and 50% completed a fellowship. Over 90% of participating PDs felt their graduating residents were either somewhat or extremely comfortable performing 12 out of 14 KIPs (Figure 1A). However, only 56% and 66% of PDs felt that residents were either somewhat or extremely comfortable performing ossiculoplasty/stapedectomy and rhinoplasty, respectively. Among the 12 procedures PDs felt their graduating residents were comfortable performing, 57% to 95% of recent graduates also felt either somewhat or extremely comfortable performing them by graduation (Figure 1B). Only 32% and 42% of recent graduates felt somewhat or extremely comfortable performing ossiculoplasty/stapedectomy and rhinoplasty, respectively, by graduation.

Responses regarding autonomy were similarly distributed. At least 90% of responding PDs felt their residents achieved meaningful autonomy in the last 2 months of residency prior to graduation (Passive Help or Supervision Only) for 11 of 14 KIPs (Figure 1C). For these same 11 procedures, 74% to 95% of recent graduates indicated they achieved meaningful autonomy (Figure 1D). The procedures that PDs and recent graduates felt required the most surgical assistance were ossiculoplasty/stapedectomy, rhinoplasty, and mastoidectomy.

All PDs agreed or strongly agreed that graduating residents are comfortable operating and taking call as general otolaryngologists. This is compared to 86% and 93% of recent graduates. Of the fellowship-trained YPS members, only 11% reported that they pursued a fellowship because they did not feel comfortable operating as a general otolaryngologist after graduation.

### 4 | DISCUSSION

This study indicates that most PDs believe that graduating residents are prepared to practice independently as generalists and perform the vast majority of KIPs. This corroborates a 2017 survey of fellowship directors concluding that otolaryngology fellows were generally well-prepared by residency training.<sup>5</sup> These results contrast with a number of general surgery survey studies raising concern regarding trainee readiness for independent practice.<sup>6,7</sup> However, the data also suggest that autonomy and comfort level achieved at the end of training are not uniform across KIPs. Rhinoplasty and otologic surgeries were reported to be among the most difficult KIPs to perform, corroborating a recent survey of current otolaryngology residents.<sup>8</sup> Supplemental educational strategies, including surgical simulation and cadaveric labs, may augment operative experiences and increase surgical comfort and confidence with these specific procedures.<sup>9</sup> A lack of historical survey data makes it difficult to discern how trainee readiness,

from the perspectives of PDs and recent graduates, has changed over time. However, these study results call on individual PDs and programs to reflect on the strengths and weakness of their own curricula with the goal of training confident and competent graduates.

Recently graduated residents stated that they felt comfortable operating and taking call early in their practice, although they generally reported lower levels of comfort performing procedures at the time of graduation than the average PD. This may not be surprising as residents are known to have more critical self-assessments when compared to attending physicians' evaluations.<sup>10,11</sup> The low response rate by recent graduates in this study makes it difficult to determine if these results are generalizable although future investigation of a larger sample is likely difficult to achieve given the low response rate of physicians to electronic surveys regardless of incentives, perhaps due to survey fatigue.<sup>12</sup> Other weaknesses of the study include the subjectivity of question interpretation and recall biases of respondents. Some recent graduates may not routinely perform a number of key indicator cases and this may affect their answers. Similarly, PDs may not be able to accurately discern the competency levels of graduating residents. Despite these limitations, this study samples opinions regarding otolaryngology training among two key stakeholders to identify potential weaknesses within the current training paradigm, finding that PDs and recent graduates agree that residents are generally well-prepared for general otolaryngology practice.

#### CONFLICT OF INTEREST

The authors declare no potential conflict of interest.

#### AUTHOR CONTRIBUTIONS

Jenny Chen contributed to the study design, survey design, data collection and analysis, manuscript writing, and final approval of the manuscript. Aaliyah Riccardi contributed to the study design, survey design, data analysis, manuscript writing, and final approval of the manuscript. Neha Shafique contributed to the study design, survey design, data analysis, manuscript writing, and final approval of the manuscript. Stacey Gray contributed to the study design, survey design, data analysis, manuscript writing, and final approval of the manuscript. This study was deemed exempt by the local institutional review board.

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#### BIBLIOGRAPHY

1. Hashimoto DA, Bynum WE, Lillemoe KD, Sachdeva AK. See more, do more, teach more. *Acad Med.* 2016;91(6):757-760. doi:10.1097/ACM.0000000000001142
2. Chen JX, Kozin E, Bohnen J, et al. Tracking operative autonomy and performance in otolaryngology training using smartphone technology: a single institution pilot study. *Laryngoscope Invest Otolaryngol.* 2019;4(6):578-586. doi:10.1002/lio2.323
3. George BC, Bohnen JD, Williams RG, et al. Procedural Learning and Safety Collaborative (PLSC). Readiness of US general surgery

- residents for independent practice. *Ann Surg.* 2017;266(4):582-594. doi:10.1097/SLA.0000000000002414
4. George BC, Teitelbaum EN, Meyerson SL, et al. Reliability, validity, and feasibility of the Zwisch scale for the assessment of intraoperative performance. *J Surg Educ.* 2014;71(6):e90-e96. doi:10.1016/J.JSURG.2014.06.018
  5. Highland J, Cabrera-Muffly C. Graduating otolaryngology resident preparedness for fellowship as assessed by fellowship faculty. *Laryngoscope.* 2018;128(8):E281-E287. doi:10.1002/lary.27054
  6. Fonseca AL, Reddy V, Longo WE, Gusberg RJ. Graduating general surgery resident operative confidence: perspective from a national survey. *J Surg Res.* 2014;190(2):419-428. doi:10.1016/j.jss.2014.05.014
  7. Elfenbein DM. Have we created a crisis in confidence for general surgery residents? A systematic review and qualitative discourse analysis. *JAMA Surg.* 2016;151(12):1166-1175. doi:10.1001/jamasurg.2016.2792
  8. O'Brien DC, Kellermeyer B, Chung J, Carr MM. Experience with key indicator cases among otolaryngology residents. *Laryngoscope Investig Otolaryngol.* 2019;4(4):387-392. doi:10.1002/lio2.274
  9. Chen JX, Kozin ED, Shaye DA, Hadlock T, Lindsay R, Lee LN. Educational cadaveric module for teaching percutaneous and intranasal osteotomies in rhinoplasty. *Otolaryngol Neck Surg.* 2017;156(6):1088-1090. doi:10.1177/0194599817706328
  10. Minter RM, Gruppen LD, Napolitano KS, Gauger PG. Gender differences in the self-assessment of surgical residents. *Am J Surg.* 2005;189(6):647-650. doi:10.1016/j.amjsurg.2004.11.035
  11. Gow KW. Self-evaluation: how well do surgery residents judge performance on a rotation? *Am J Surg.* 2013;205(5):557-562; discussion 562. doi:10.1016/j.amjsurg.2013.01.010
  12. Cook DA, Wittich CM, Daniels WL, West CP, Harris AM, Beebe TJ. Incentive and reminder strategies to improve response rate for internet-based physician surveys: a randomized experiment. *J Med Internet Res.* 2016;18(9):e244. doi:10.2196/jmir.6318

#### SUPPORTING INFORMATION

Additional supporting information may be found in the online version of the article at the publisher's website.

**How to cite this article:** Chen JX, Riccardi AC, Shafique N, Gray ST. Are otolaryngology residents ready for independent practice? A survey study. *Laryngoscope Investigative Otolaryngology.* 2021;6(6):1296-1299. doi:10.1002/lio2.678