

Allergy education in otolaryngology residency: a survey of program directors and residents

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Background: The purpose of this study was to survey program directors of the accredited otolaryngology residency programs and resident attendees of the 2013 American Academy of Otolaryngic Allergy (AAOA) Basic/MOC Course regarding resident education and participation as well as assessment of competency in otolaryngic allergy and immunotherapy.

Methods: A multiple-choice questionnaire was sent to all accredited otolaryngology residency training programs in the United States as part of resident attendance at the 2013 AAOA CORE Basic/MOC Course. Following this, a similar multiple-choice survey was sent to all resident attendees from the programs that responded positively.

Results: Program directors reported that 73% of their academic institutions offer allergy testing and immunotherapy. More PDs than residents indicated that residents participate in allergy practice and perform/interpret skin testing and in vitro testing, and more residents (85%) than program directors (63%) reported inadequate or no allergy training. Program directors and residents equally indicated that residents do not calculate immunotherapy vial formulations or administer immunotherapy injections. The majority of

program directors indicated that resident competency in allergy was assessed through direct observation, whereas residents more commonly perceived that no assessment of competency was being performed for any portion of allergy practice.

Conclusion: This survey demonstrates a discrepancy between program directors and residents regarding resident involvement and adequacy of training in the allergy practice. Although the majority of otolaryngology residencies report offering otolaryngic allergy services and education, the vast majority of residents report inadequate allergy training and less participation in an allergy practice compared to the majority of program directors. © 2013 ARS-AAOA, LLC.

Key Words:

training; otorhinolaryngology; immunology and allergy; teaching; curriculum; house staff

How to Cite this Article:

Bailey SE, Franzese C, Lin SY. Allergy education in otolaryngology residency: a survey of program directors and residents. *Int Forum Allergy Rhinol*. 2014;4:104-109.

Increased emphasis has been placed on otolaryngic allergy education and training during residency, including didactics and hands-on training. Escalated allergy training specifications have been mandated by the American Board of Otolaryngology (ABO) and the Accreditation Council

for Graduate Medical Education (ACGME), who now require allergy education in residency programs as well as standardized testing. A recommended otolaryngic allergy curriculum was outlined with the most current American Academy of Otolaryngic Allergy (AAOA) Scope of Knowledge for Allergy report, which describes “an organized evidence-based core of information for direction and guidance of future allergy education.”¹

The ACGME Otolaryngology program requirements, revised in 2007, mandated that residency programs include didactic education only in otolaryngic allergy, stating that “the educational program should include core knowledge, skills, and understanding of the basic medical sciences including knowledge of otolaryngic allergy.”² The more recently revised program requirements, implemented in July 2013, further define specifications for allergy training by including requirements for practical training, in addition to the inclusion of allergic rhinitis as one of the milestones

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Potential conflict of interest: None provided.

Received: 5 September 2013; Accepted: 18 October 2013
DOI: 10.1002/alr.21256

View this article online at wileyonlinelibrary.com.

for resident evaluation. The latest revision specifies that “didactic topics must include allergy and immunology” and not only must residents “demonstrate proficiency in data gathering and interpretation in areas including allergy testing,” but they must also “demonstrate proficiency in surgical (including perioperative) and non-surgical management and treatment of conditions affecting allergic and immunologic disorders.”³ These most recent revisions are the most detailed program requirements for otolaryngic allergy training.

Currently, there is a paucity of otolaryngology literature on the present status of resident allergy training. In 1985, a study by Osguthorpe⁴ reported that only 8% of residency programs met the minimum instructional guidelines recommended by the AAOA by offering at least 12 hours of didactic instruction in allergy and 5 days in an active otolaryngology clinic. A follow-up survey done by Lin and Mabry in 2006 revealed that nearly 62% of otolaryngology residency programs had active allergy programs at that time, whereas 75% of the remaining programs planned to add allergy to their practices.⁵ Despite this improvement, approximately half of the residents feel they are undertrained in allergy, according to the annual survey of the American Academy of Otolaryngology–Head and Neck Surgery (AAO-HNS) Section for Residents and Fellows (SRF), with residents scoring the inadequacy of allergy training ahead of cosmetic facial plastic surgery, skull base surgery, and sleep medicine.^{6–8}

Despite increasing exposure to allergy education over the past several decades, residents’ perception is that the training is still insufficient. Advancement in otolaryngic allergy education hinges on knowledge of the current status of allergy education and there are no published studies that describe actual resident involvement in practical allergy management or evaluation of resident proficiency in allergy.⁹ This project serves as a follow-up to these previous survey studies in an effort to obtain information regarding the nature of otolaryngic allergy training and assessment of competency.

Materials and methods

In December 2012, a 13-item multiple-choice questionnaire (Appendix A) was sent electronically to all 101 accredited otolaryngology residency training programs in the United States as part of resident attendance at the 2013 AAOA CORE Basic/MOC Course. In January 2013, a similar 12-item multiple choice survey questionnaire (Appendix B) was sent electronically to all resident attendees from the programs that responded positively. All program director and resident responses were included in the reported results. The study was performed at the Eastern Virginia Medical School, Norfolk, VA.

Results

Program directors and resident attendees who did not initially respond were sent reminder notices. Of the 101 ac-

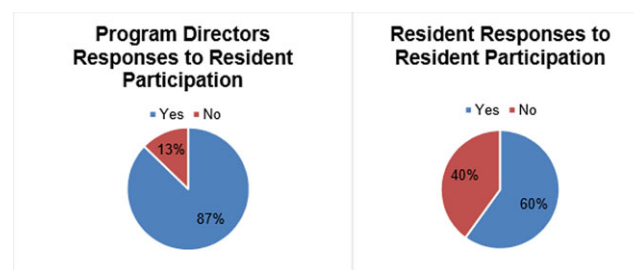


FIGURE 1. Program director and resident responses to resident participation in the allergy practice.

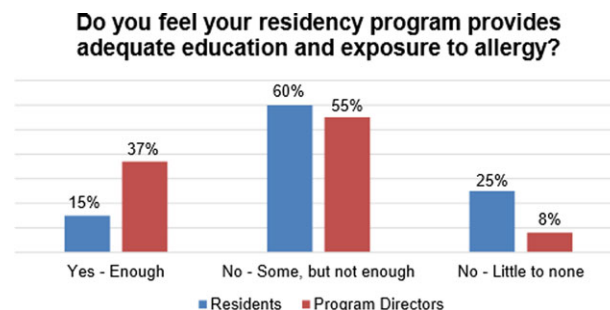


FIGURE 2. Program director and resident responses to adequacy of allergy training in residency.

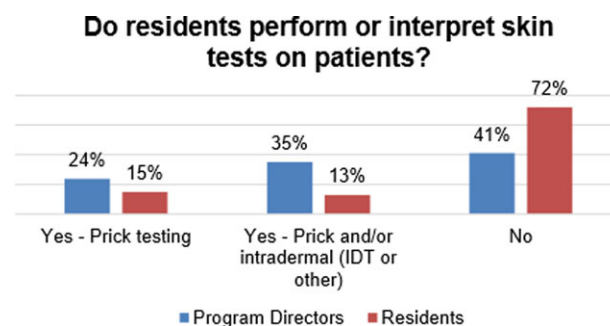


FIGURE 3. Program director and resident responses to performance or interpretation of skin testing.

credited programs, 49 program directors responded, for a response rate of 48.5%. Of the 63 residents contacted, 48 residents participated, for a response rate of 76.2%.

Program directors indicated that 73% of departments have an allergy practice that offers testing and immunotherapy. Program directors reported that a full-time academic otolaryngology faculty member runs the allergy practice in 69% of programs, whereas residents reported that this occurs in only 43% of programs.

Figures 1 and 2 illustrate the discrepancy between the perceptions of program directors and residents regarding participation in an allergy practice and the adequacy of allergy education. Only 15% of residents indicated that an adequate education was provided to residents, whereas 37% of program directors were in agreement. Further discrepancies are highlighted in Figures 3 and 4, which illustrate responses from both groups regarding performance or interpretation of skin tests and specific immunoglobulin E

Do residents interpret specific IgE allergy tests (RAST)?

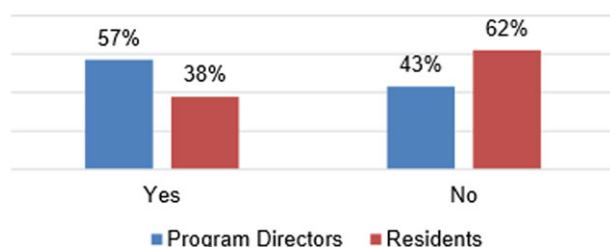


FIGURE 4. Program director and resident responses to interpretation of RAST testing. RAST = radioallergosorbent test.

Do residents calculate immunotherapy vial formulations?

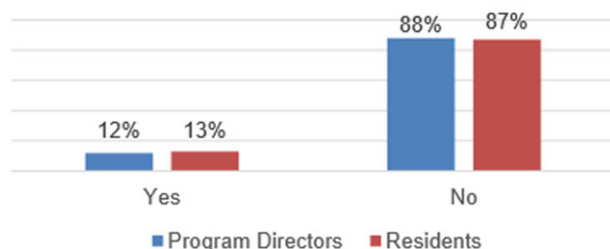


FIGURE 5. Program director and resident responses to calculation of immunotherapy vial formulations.

Do residents give immunotherapy injections?

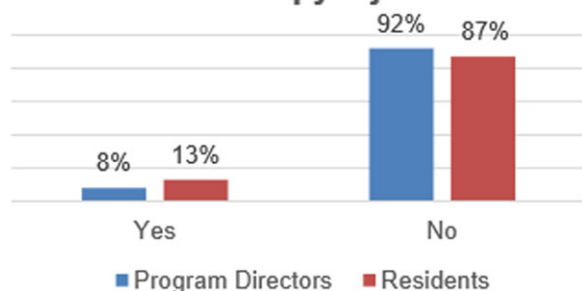


FIGURE 6. Program director and resident responses regarding administration of immunotherapy injections.

(IgE) testing. Program directors and residents equally indicated that residents do not calculate immunotherapy vial formulations or administer immunotherapy injections, except in a very small number of cases. (Figs. 5 and 6).

As far as assessing competency in allergy training, direct observation or performance on the Otolaryngology Training Examination (Fig. 7) were the methods most commonly reported by program directors, with a fair number reporting no assessment of competency. Residents most frequently perceived that competency was not assessed at all or it was assessed by attendance at an allergy training course (Fig. 8), another important discrepancy between trainees and educators.

Discussion

The amount of otolaryngic allergy education in training programs has varied over time, although it seems to have increased since 1985. A survey-based study of otolaryngic allergy training in residency program directors done that year by Osguthorpe⁴ reported that only 8% of residency programs met the minimum instructional guidelines recommended by the AAOA of offering at least 12 hours of didactic instruction in allergy and 5 days in an active otolaryngology clinic. At that time, 58% of residency programs did not offer formal allergy training in the residency curriculum, whereas 34% devoted only brief training in allergy. In 2000, Pillsbury et al.¹⁰ identified the need for the addition of allergy to existing otolaryngology practices in the Otolaryngology Work Force Study conducted in conjunction with the AAO-HNS.

In 2006, Lin and Mabry⁵ surveyed academic otolaryngic allergy practices in order to assess the response to the program requirement changes and to determine the challenges and economic implications faced by academic institutions when they added allergy services to the residency program. Results revealed that nearly 62% of residency programs had active allergy programs, whereas 75% of remaining programs planned to add allergy. In the present survey, the responding program directors indicated that 73% of their programs had an allergy practice that offers allergy testing and immunotherapy, which is an increase compared to 2006.⁵

In the 2006 survey, challenges to the establishment of allergy training within residency programs included the lack of personnel, followed by lack of space, and difficulties in finding an otolaryngologist with allergy experience, among other reasons.⁵ However, the addition of allergy to a practice resulted in economic benefit to departments. Responders from this study also reported that the most common reasons for the addition of allergy services were for teaching, to fulfill residency training requirements, financial reasons, or to fulfill a community need. However, this study did not assess the exposure of residents to allergy training, the use of didactics vs hands-on training, observational vs participatory clinical exposure, or whether or not and how the competency of residents in allergy and immunotherapy was assessed.

A more recent indicator of resident education in otolaryngic allergy is the annual survey of the AAO-HNS Section for Residents and Fellows (SRF). From 2010 to 2012, participant responses to the SRF surveys indicate that approximately half of the residents feel that they are undertrained in allergy.⁶⁻⁸ Residents scored the inadequacy of allergy training ahead of cosmetic facial plastics, skull base surgery, and sleep in 2010 and 2011 and ahead of skull base surgery and sleep, but just behind cosmetic facial plastics in 2012.

This is the first study to evaluate the hands-on aspect of allergy training and mechanisms used to assess competency in residency programs. Throughout the survey is an apparent discrepancy between the perception of program

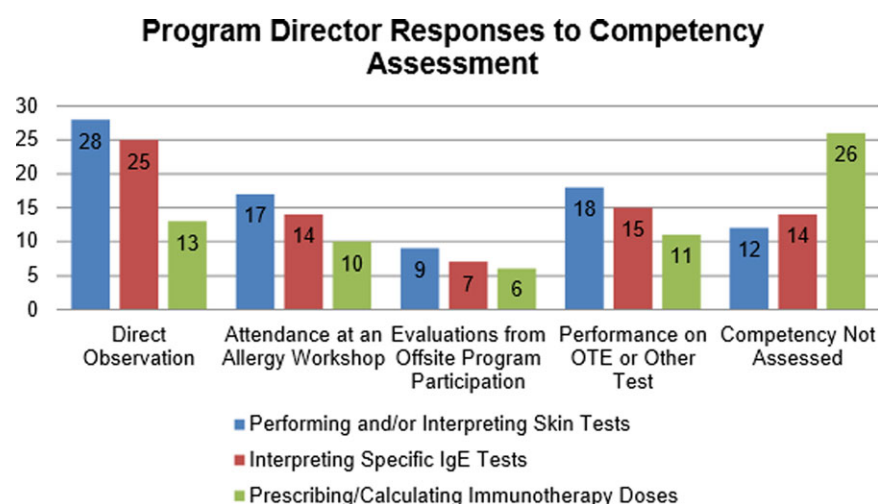


FIGURE 7. Program director responses regarding assessment of competency of in allergy.

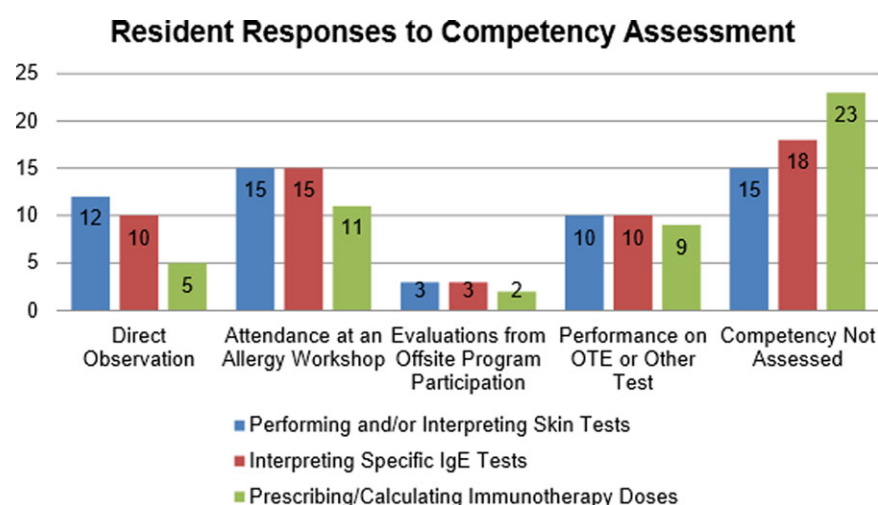


FIGURE 8. Resident responses regarding assessment of competency of residents in allergy.

directors and residents regarding resident involvement in the allergy practice. More program directors (87%) than residents (60%) indicated that residents participate in the allergy practice. This corresponds to the finding that more residents (85%) than program directors (63%) reported inadequate or no allergy training. Likewise, more program directors (49%) than residents (28%) felt that residents performed or interpreted skin tests than residents for skin prick testing (SPT) alone and SPT and/or intradermal (IDT or other), whereas the remaining 41% of program directors and 72% of residents reported no participation in this. Concerning in vitro testing, more program directors (57%) than residents (38%) reported that residents interpret these test results.

This discrepancy continued to be apparent when groups responded to methods of assessing resident competency. For example, program directors' most common reported modality for assessing competency was direct observation for performing and/or interpreting skin tests and interpreting specific IgE tests, whereas residents most commonly

reported their competency was not assessed for these at all. The discrepancy in response between the 2 groups indicates a disconnect between trainees and their faculty, not only among trainees' perception of allergy training provided by their programs and their program directors' perception of the training provided, but also in both groups' perception of how competency in allergy training is assessed. Why this discrepancy exists between the groups is unclear and likely multifactorial, but indicates that at least trainees perceive the need for additional allergy training. It also indicates that if assessment of allergy competency is occurring, the residents are unaware of it or do not recognize it.

This survey study is limited in that less than half of the program directors responded. Furthermore, a selection bias must be considered for both the program director and resident responders. Regarding the residents, only those who attended the 2013 AAOA CORE Basic/MOC Course were surveyed. Therefore, these residents could be seeking out additional training given the lack of exposure at their home institutions or may feel that their training is inadequate if

they wish to establish an allergy practice upon graduation and are seeking more comprehensive training than those residents who do not plan to practice allergy after residency. However, resident responses from this survey seem consistent with responses to the SRF 2010–2012 surveys regarding the inadequacy of allergy training.

Although the number of programs offering residents exposure to allergy appears to have increased, improvements to otolaryngic allergy training is still needed. The next step in further improving resident education in otolaryngic allergy is to ensure that residents are exposed to hands-on, practical training in allergy in addition to didactics or courses, whether it is through their own department or through a nearby institution. Furthermore, competency in allergy training should be universally assessed and documented in a standard fashion, with residents made aware of the results of such assessment. Supplemental educational materials that meet the core competencies and educational expectations should be developed and be made widely available for all residency programs.

Conclusion

Although the number of residency programs providing training in otolaryngic allergy has increased with time, the majority of residents still report inadequate allergy training and competency assessment, particularly when compared to program directors. Resident involvement in allergy practices should include hands-on training in addition to didactics, in the setting of an allergy practice within a residency program or in the setting of residents obtaining training at an outside allergy practice given the lack of an allergy practice within their home institution or department. Further effort should be directed toward the development of supplementary educational materials as desired by residency programs in addition to the development and use of standardized competencies to assess resident proficiency in otolaryngic allergy. 

Appendix A

Thirteen-item program director survey

1. Does your otolaryngology department have an allergy practice which offers testing and immunotherapy?
 - (a) Yes
 - (b) No.
2. Does your otolaryngology residency program have residents participate in an allergy practice?
 - (a) Yes
 - (b) No.
3. Is the practice run by a full-time academic otolaryngology faculty member?
 - (a) Yes
 - (b) No.
4. Do residents perform on interpret skin tests on patients?
 - (a) Yes - Prick testing
 - (b) Yes - Prick and/or Intradermal (IDT) or other
 - (c) No.
5. Do residents interpret specific IgE allergy tests (RAST)?
 - (a) Yes
 - (b) No.
6. Do residents calculate immunotherapy vial formulations?
 - (a) Yes
 - (b) No.
7. Do residents give immunotherapy injections?
 - (a) Yes
 - (b) No.
8. How do you assess resident competency in performing and/or interpreting skin tests? Select all that apply.
 - (a) Direct observation
 - (b) Performance on OTE or other test
 - (c) Attendance at an allergy course
 - (d) Evaluations from participation in an offsite rotation
 - (e) Competency not assessed.
9. How do you assess resident competency in interpreting specific IgE tests? Select all that apply.
 - (a) Direct observation
 - (b) Performance on OTE or other test
 - (c) Attendance at an allergy course
 - (d) Evaluations from participation in an offsite rotation
 - (e) Competency not assessed.
10. How do you assess resident competency in prescribing/calculating immunotherapy doses? Select all that apply.
 - (a) Direct observation
 - (b) Performance on OTE or other test
 - (c) Attendance at an allergy course
 - (d) Evaluations from participation in an offsite rotation
 - (e) Competency not assessed
11. Do you feel that your residency program provides adequate education and exposure to allergy?
 - (a) Yes - enough
 - (b) No - little to none
 - (c) No - some, but not enough.
12. Would you use resident materials through a digital platform, if offered, to help meet the RRC requirement?
 - (a) Yes
 - (b) No.
13. Rate the following from lowest value to highest value (lowest value to lower value to modest value to moderate value to highest value).
 - (a) Online on-demand modules
 - (b) Live webinars
 - (c) In-person courses
 - (d) Regional workshops
 - (e) Study materials with questions.

Appendix B

Twelve-item resident survey

- Does your otolaryngology residency program have residents participate in an allergy practice?
 - Yes
 - No.
- Is the practice run by a full-time academic otolaryngology faculty member?
 - Yes
 - No.
- Do you perform on interpret skin tests on patients?
 - Yes - Prick testing
 - Yes - Prick and/or Intradermal (IDT) or other
 - No.
- Do you interpret specific IgE allergy tests (RAST)?
 - Yes
 - No.
- Do you calculate immunotherapy vial formulations?
 - Yes
 - No.
- Do you give immunotherapy injections?
 - Yes
 - No.
- How does your program assess resident competency in performing and/or interpreting skin tests? Select all that apply.
 - Direct observation
 - Performance on OTE or other test
 - Attendance at an allergy course
 - Evaluations from participation in an offsite rotation
 - Competency not assessed.
- How does your program assess resident competency in interpreting specific IgE tests? Select all that apply.
 - Direct observation
 - Performance on OTE or other test
 - Attendance at an allergy course
 - Evaluations from participation in an offsite rotation
 - Competency not assessed.
- How does your program assess resident competency in prescribing/calculating immunotherapy doses? Select all that apply.
 - Direct observation
 - Performance on OTE or other test
 - Attendance at an allergy course
 - Evaluations from participation in an offsite rotation
 - Competency not assessed.
- Do you feel that your residency program provides adequate education and exposure to allergy?
 - Yes - enough
 - No - little to none
 - No - some, but not enough.
- Would you use resident materials through a digital platform, if offered, to help meet the RRC requirement?
 - Yes
 - No.
- Rate the following from lowest value to highest value (lowest value to lower value to modest value to moderate value to highest value).
 - Online On-Demand Modules
 - Live webinars
 - In-person courses
 - Regional workshops
 - Study materials with questions.

References

- Marple BF. American academy of otolaryngic allergy CME report: allergy; scope of knowledge. *Otolaryngol Head Neck Surg.* 2007;136:8–10.
- Accreditation Council for Graduate Medical Education. ACGME Program Requirements for Graduate Medical Education in Otolaryngology. Effective 1 July 2007. https://dconnect.acgme.org/acWebsite/downloads/RRC_progReq/280otopr707.pdf. Accessed November 20, 2013.
- Accreditation Council for Graduate Medical Education. ACGME Program Requirements for Graduate Medical Education in Otolaryngology. ACGME-approved: June 10, 2012; Effective: July 1, 2013. http://www.acgme.org/acgmeweb/Portals/0/PFAssets/ProgramRequirements/280_otolaryngology_07012013.pdf. Accessed November 13, 2013.
- Osguthorpe JD. Allergy and immunology training in otolaryngology residency programs. *Arch Otolaryngol.* 1985; 111:779–780.
- Lin SY, Mabry RL. Allergy practice in the academic otolaryngology setting: results of a comprehensive survey. *Otolaryngol Head Neck Surg.* 2006;134:25–27.
- American Academy of Otolaryngology–Head and Neck Surgery. 2010 Survey Results: AAO-HNS Section for Residents and Fellows. <http://www.entnet.org/Community/public/upload/2010-SRF-SurveyResults.pdf>. Accessed November 13, 2013.
- American Academy of Otolaryngology–Head and Neck Surgery. 2011 Survey Results: AAO-HNS Section for Residents and Fellows. http://www.entnet.org/Community/public/upload/2011SRF_SurveySummary.pdf. Accessed November 13, 2013.
- American Academy of Otolaryngology–Head and Neck Surgery. 2012 Survey Results: AAO-HNS Section for Residents and Fellows. <http://www.entnet.org/Community/public/upload/2012-SRF-Survey-Summary-Results.pdf>. Accessed November 13, 2013.
- Franzese CB. The current status of allergy training in otolaryngology residency programs. *Curr Opin Otolaryngol Head Neck Surg.* 2012;20:205–208.
- Pillsbury HC 3rd, Cannon CR, Sedory Holzer SE, et al. The workforce in otolaryngology–head and neck surgery: moving into the next millennium. *Otolaryngol Head Neck Surg.* 2000;123:341–356.