**Objective:** To determine the attitude toward and the state of research within the field of otolaryngology–head and neck surgery.

**Design:** A questionnaire was sent to the chairpersons of departments of otolaryngology where residency training is provided.

**Participants and Setting:** Program directors of academic otolaryngology training programs.

**Main Outcome Measure:** Responses to questionnaire.

**Results:** Questionnaires were sent to 95 programs from which 86 responses were received. Respondents believed strongly that research was important to the specialty. Only two thirds of the full-time clinical faculty, however, do research, and on average they devote only 17% of their time to this activity. About a third of those doing research have funding, and the National Institutes of Health support only 12% of clinician-investigators. Although program directors believe that clinicians should do research, three fourths stated that clinicians were too busy to accomplish this goal. Surprisingly, half of the respondents were unaware of residency programs that offered 2 years of research training, aimed to develop clinician-investigators, who can become competitive for attainment of research funding.

**Conclusions:** Although leaders within our specialty believe that research is important, clinicians are not provided with enough time to conduct research. Furthermore, pathways that would enhance their competitiveness to obtain research funding are not recommended to our future clinicians.


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**The Generation of New Knowledge**

The generation of new knowledge is essential to the future of otolaryngology–head and neck surgery. New knowledge, as a rule, occurs through time devoted to research.

In 1982, Bailey believed that research in otolaryngology was in a period of decline and sounded a call to action. In 1991, Rosenfeld stated, “In an era of cost-effectiveness and quality control, the need for sound clinical research as a basis for health care decisions has intensified.” To carry out clinically related research, our specialty needs clinical investigators (scholars). These are individuals whose primary activities include clinical care; the generation of new knowledge, including publication of articles in peer-reviewed journals; and teaching. In 1999, Nadol believed that there was an undersupply of clinician-investigators and that the deficiency was worsening. In 2000, Smith expressed concern that the current medico-economic environment had adversely affected the academic health care system, with decreased research funding and departmental support leading many young otolaryngologists to question whether to pursue academic careers. The need for clinician-investigators coupled with a changing academic environment has created a potentially unfavorable situation.

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To address the shortage of clinician-investigators, we as well as others developed training programs that maintained the level of clinical training required by our specialty board but added more research training. The research training was chosen to last for 2 years, based on the Lenfant report. In essence, this report prepared for the National Institutes of Health (NIH) suggested that future success in research, as judged by the ability to obtain...
METHODS

We developed a 16-item, single-page questionnaire that could be completed within 5 minutes. We mailed the survey in June 2000 to 95 academic training programs. In July, we sent a second survey to those who had not responded. In total, we received 86 responses, a 91% yield.

We analyzed the data primarily by using descriptive statistics. Nonparametric statistics were used. The Mann-Whitney test was used to evaluate differences between groups. \( P \leq 0.05 \) was considered significant.

Funding and make research a prolonged and substantial part of one's career, was related to the duration of fellowship training; ie, the longer the fellowship, the more successful the career. In fact, the success rate in programs with training for less than 2 years was so poor that the NIH elected to stop supporting them.

Since we began to offer 2 years of research training, we have noted a decline in the number of applicants to our program, despite providing a solid clinical and teaching experience. An informal telephone survey of six 7-year programs also showed decreased applicant enthusiasm for the 2-year research component. To gain more insight into the difference between the perceived need for clinician-investigators and the desire of applicants to pursue a path toward that goal, we surveyed the directors of the otolaryngology residency training programs.

RESULTS

A 100-mm visual analog scale anchored by the words “not important” (0) and “critical” (100) was used to gauge clinicians’ perceptions of the importance of research to otolaryngology–head and neck surgery. A score of 87.5 (range, 29-100) was obtained, which suggested the importance of research (Figure 1). Using a similar scale, we asked about the importance of research to the promotion of clinical faculty. The score decreased to 70 (range, 12-100).

We next questioned the program directors about the number of full-time clinical faculty in each program. The median number of clinical faculty members per program was 8 (range, 4-21). The importance of research to the specialty or to promotion did not vary for programs with 8 or more faculty members compared with programs with fewer than 8 clinical faculty members (87 vs 85 and 70 vs 67, respectively). The median number of clinical faculty members doing research was 5 (range, 4-21), or 63% of the clinical faculty. The clinical faculty spent 15% (range, 5%-60%) of their time doing research, which is the equivalent of less than 1 day per week. Only 12% had NIH-sponsored funding for their research, whereas 30% had other sources of funding, and 58% had none (Figure 2). Sixty-four (74%) of the program directors stated that clinicians were too busy to do research.

We also inquired about the faculty with PhD degrees in the programs. The median number of faculty members with PhD degrees was 2 (range, 0-15). Twenty-four percent of the faculty with PhD degrees had NIH funding. Only 4 (5%) of program directors believed that faculty members with a PhD degree should be the only ones pursuing research in the program.

With the exception of the 7-year programs offering 2 years of research, the programs offered, on average, 4 months (range, 2-16 months) of protected time to pursue research training. Half of the respondents were unaware of the 7-year programs that include 2 years of research training, and 53% stated that they would not recommend them to medical students. Those not aware of the existence of these programs tended to be the ones who would not recommend them.

Eighty (95%) of the programs plan to recruit new clinical faculty in the next 5 years. Thirty-eight (44%) will be looking for subspecialty-trained candidates, and 19 (22%), for research-oriented generalists; 29 (34%) had no preference (Figure 3).

COMMENT

While program directors recognize the importance of research, considering it critical to our future, our clinical
academic faculty members are spending little time on research (slightly more than half a day per week), and most of that time is unfunded. These observations seem paradoxical. If research is important, then why don’t we provide faculty with sufficient time to pursue it successfully? The problem lies within our academic programs or in the individuals we recruit.

Various publications provide some clues to the answer. Carney and colleagues5 reviewed the contribution of otolaryngologists of the United Kingdom to the otolaryngology literature between 1985 and 1994 and found a significant trend toward more publications in clinical research than in basic laboratory research. Rosenfeld2 reported a similar trend combined with a decline in articles on research with grant support. On a positive note, he noted improved study designs. One interpretation of these findings is that the basic sciences are becoming more complex and that it is more difficult for clinicians to compete in this arena. Thus, our current faculty are not trained to participate in this arena.

Nadol3 approached the issue from the perspective of faculty members who have been in practice less than 5 years. In that group, the most common reason for entering academics was the desire to teach. The factors identified for success most often by young faculty members were clinical, teaching, and communication skills, not research training. Thus, our young faculty members do not appear to be motivated to do research. When young faculty members did research, their most common source of funding was intradepartmental. This is not surprising, because only 10% participated in research fellowships, of which 79% were 1 year in duration. Thus, the suggestion of the Lenfant report is demonstrated within our specialty.5 Consistent with our results, the survey by Nadol3 showed that 13% of the young otolaryngology faculty members surveyed had NIH funding, and they devoted only 13% of their time to research, which contrasts with the specialty of internal medicine, in which 50% of a physician’s time is spent conducting research.

In 2000, Smith4 reported findings of a survey of academic chairpersons; the most frequently recruited faculty members in the last 5 years were generalists, and generalists were most likely to be recruited in the future. Interestingly, the program directors listed the ability to conduct research as a perceived advantage of entering academic medicine. However, they ranked research as lower in priority than clinical skills and resident teaching in their decision to hire new faculty. Unfortunately, this hiring practice will cause a continued decline in the ability of our specialty to contribute substantially to new knowledge. This will result in a situation in which other specialties or industry will dictate the advances in the future care of our patients, and, at best, we will collect groups of patients and provide research material.

To obtain “protected” time for research, individuals need to be funded, an endeavor at which our academic clinicians have not been very successful. Unless there are large endowments, money for research funding comes either externally or internally from shifts in clinical funds. The medico-economics of the last few years have made it more difficult to shift funds internally. Competing successfully for extramural funding requires skills and preliminary data. The skills needed to conduct research are acquired only with significant effort and a significant time commitment. One half day per week hardly seems sufficient protected time for research. Furthermore, why should 4 months of research during otolaryngology training produce an investigator, when it requires 5 years to train a clinician and surgeon? Is learning the scientific method a 4-month proposition?

Although we attract the most accomplished medical students to our specialty, as indicated by their scores on national tests and their high ranking within their medical school classes, we do not convert them into clinician-investigators. This could be the result of the mixed message that program directors present or the lack of curiosity of our trainees. This is particularly distressing because we are in an exciting time of accelerating discovery. The discovery process increases the complexity of our scientific methods, requiring increased training to understand them. The establishment of the National Institute on Deafness and Other Communication Disorders and the increased money given to the NIH by Congress show the government’s desire to enhance biomedical research for those who have the skills to make significant contributions.7 Unfortunately, our specialty is not training enough people with these skills.

One strategy to improve the quality and magnitude of our research effort is to develop 7-year otolaryngology training programs. These programs would provide the required 5 years of clinical training deemed necessary for becoming a competent clinical otolaryngologist plus the 2 years of research training deemed the minimal requirement for a successful research career. These programs would train clinical investigators to provide quality patient care and would teach the skills necessary to compete successfully for research funding. However, only half of our program directors are aware of this option and would recommend this career option to medical students. How do we interpret this observation? Is this a lack of understanding of the process needed for training investigators or the result of simple misinformation?

Figure 3. Preferences of the program directors for potential faculty recruits in the next 5 years.

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<tr>
<th>Subspecialty Trained</th>
<th>Research Oriented</th>
<th>No Preference</th>
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<tbody>
<tr>
<td>34%</td>
<td>44%</td>
<td>22%</td>
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Our specialty’s leadership must accept our current shortfall and look to the future. We must encourage medical students to understand the need for clinician-investigators. In addition to efforts by our leadership, the program directors have to make a special effort to attract the right medical students and to encourage them to pursue research as part of their training. In the end, the enthusiasm, motivation, and drive of individuals are the largest factors affecting research output. Although we cannot generate personal curiosity and motivation, we can direct students to new pathways and fashion an environment that allows them the time needed for them to pursue and develop novel ideas.

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REFERENCES


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