

The Prevalence of Otolaryngologist's Practice Location In Relation To: Birth State, Medical Residency, and Medical School

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Abstract

Objective: This workforce study examines the geographic distribution of practicing otolaryngologists in relation to the residency, medical school and state of birth from which these physicians came.

Study Design: Descriptive cross sectional study.

Subjects and Methods: Using the American Medical Association (AMA) master physician file, current otolaryngologist practice locations were analyzed for the distance from previous medical training sites and birth state.

Results: Of the 6648 otolaryngologists for which practice location, training locations, and birth state could be obtained, approximately 25.7% and 30.7% practice within 100 miles of their graduating medical school and residency, respectively. 31.6% of otolaryngologists currently practice within the same state as birth. These rates were variable by state with New Jersey, New York, and California residents having higher than national average rates of regional retention.

Conclusion: Approximately 1/3 of otolaryngologists practice within regions of previous medical training. While future studies are needed to determine causal relationships, by acknowledging these current trends we can adapt future graduate training decisions to support the geographic diversification of otolaryngologists.

Introduction

Each year the approximately 300 graduating otolaryngology residents and fellows must decide where to practice. This decision has vast implications from an individual, family, community, business, and population perspective. As the demand for physician's increases, understanding which factors contribute to a physician's location of practice is important. While pragmatic factors such as malpractice cost, tort reform, and incentive pay play a role [1], so do other factors related to personal background and even location of training during medical school [2]. Particularly, graduating otolaryngology residents rank geographic location as the second most important factor (after time available for family) in the choice of practice setting [3].

The vast majority of physician specialties in demand are primary care practitioners (general internists, family physicians, and psychiatrists). Likewise, the literature regarding training location's impact on practice location is dominated by primary care specialties. There is, however, still a great demand for employment within the Otolaryngology specialty. According to recruiting agencies like Merritt Hawkins, Otolaryngology is ranked 17 in the top 20 most sought after specialties by employers in 2011 – 2012 [4].

A recent study by Johnson et al. quantified the distribution of residents in the Otolaryngology specialty relative to where they went to medical schools. They found that a strong proportion of current residents in the South and Midwestern regions attended residency programs affiliated with their medical schools.¹⁰

However; the factor that ultimately affects the physician shortage in specific areas of the United States is where these physicians will ultimately establish their practice following the completion of their education. Furthermore, little research has been done to identify motivations for the current group Otolaryngologists to establish a practice in a specific region. We aimed to assess the geographic distribution of current otolaryngology physician practices in relation to the residency, medical school, and state of birth from which these physicians came.

Methods

Using the American Medical Association (AMA) Physician Master file a data set of active otolaryngologists was collected. Since the goal of the study was to provide a current snapshot in time, only active practicing physicians were included. Residents, current fellows, teaching (non clinical) physicians, and research (non clinical) physicians were excluded so that only confirmed office based or hospital based otolaryngologists in the United States were included. The otolaryngology sub specialties that met these criteria were also included within the data set. Furthermore, since the AMA physician master file is based on reporting, only those with confirmed practice location addresses (rather than home addresses) were included within the data set.

Fagan et al. [5] found that 56% of Family Physicians practice within 100 miles of their residency program. According to the National Bureau of Economic Research calculation of hospital competition, community hospitals can expect patients living within 35 miles to seek care at their facility and tertiary care/teaching centers can expect patients living within 100 miles [6]. This may suggest 100 miles as a reasonable cut off for competitiveness between otolaryngology centers [6].

Using the same radius as a model, we too chose to elucidate whether otolaryngology physicians practiced within 100 miles of their residency or medical school program. The public address listed for each medical school and residency was compared to the city center of each physician practice. Google Maps was utilized to calculate road travel distances and the data was recorded for each physician in a binary fashion. The data was also used to determine the percentage of otolaryngologists that are currently practicing within the same state of birth.

Results

Excluding residents, teaching physicians, and research physicians yielded a data set of 9,045 active otolaryngologists but only 6,648 had a confirmed active practice location (rather than home location) on file. This sample was representative of practices in all 50 states in addition to the District of Columbia and Guam. The data set was consistent with prior workforce analyses and contained 13.7% females and 86.3% males [7].

The 6,648 otolaryngologists included graduates from 348 different medical schools; of these, 213 were foreign medical schools, 130 United States allopathic institutions, and 15

osteopathic institutions. After excluding international graduates a sample size of 5,901 otolaryngologists remained. Results revealed that 1,519 or 25.7% currently practice within 100 miles of their medical school (Table 1). Figure 1 demonstrates the state variability and one can see that New York, New Jersey, Delaware, and Louisiana have higher than national average rates of otolaryngologists currently practicing within 100 miles of their medical school.

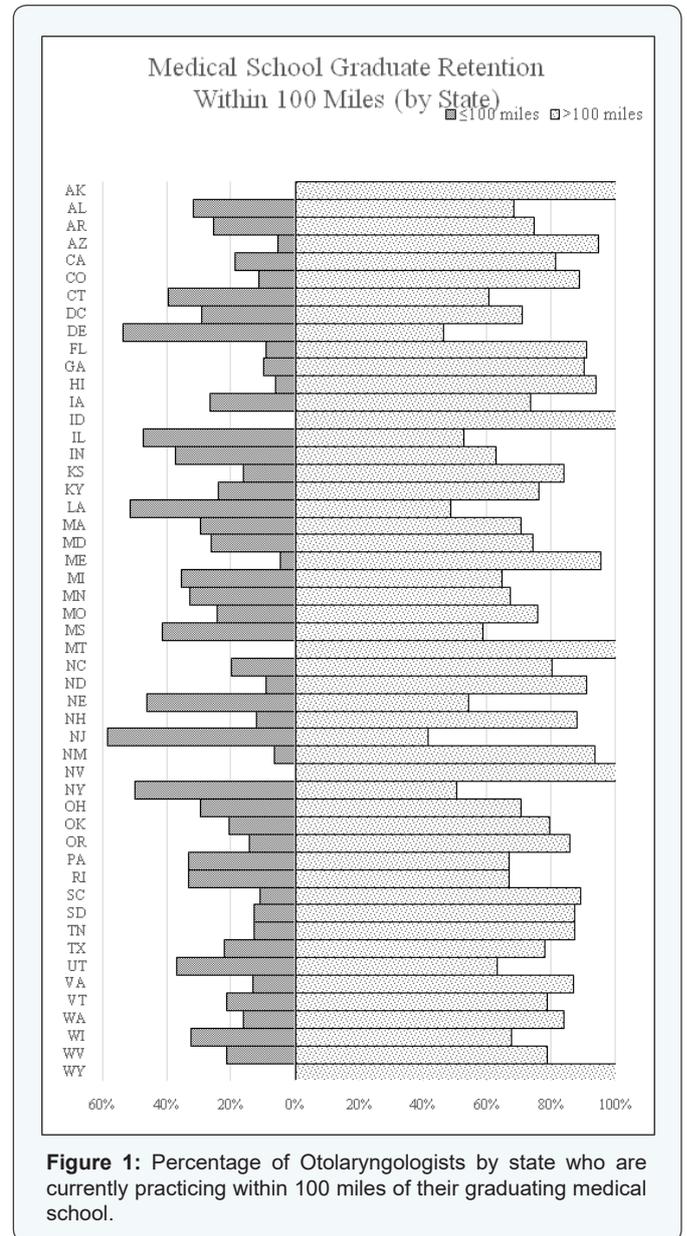
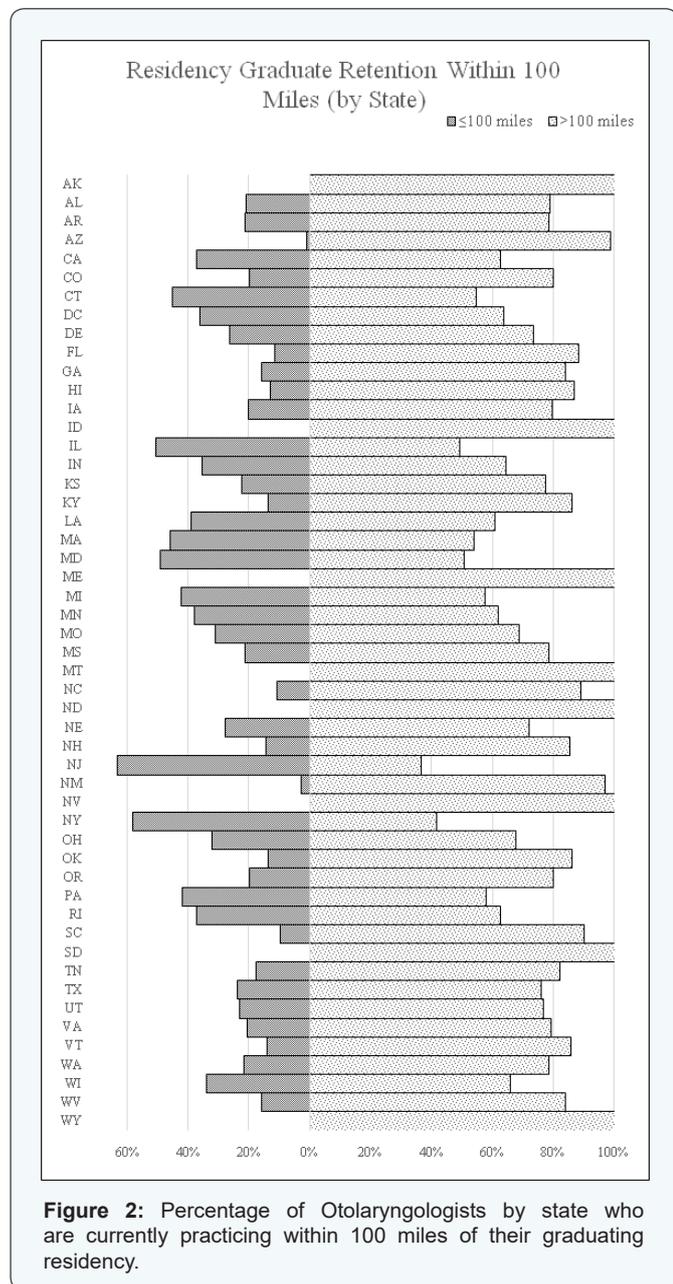


Figure 1: Percentage of Otolaryngologists by state who are currently practicing within 100 miles of their graduating medical school.

The sample was representative of Otolaryngology ACGME, AOA, and military accredited residencies. Of the 6,648 otolaryngologists only 5,922 had medical residency information provided in such a manner that the location could be verified. Of these 5,922 otolaryngologists, 1,821 or 30.7% currently practice within 100 miles of their postgraduate training (Table 1). Figure 2 represents the percentage of otolaryngologists that currently

practice within 100 miles of their residency demarcated by state. New York, New Jersey, and Illinois have the highest rates of otolaryngologists living within 100 miles of their postgraduate residency training.



The sample was representative of otolaryngologists born in all 50 states, Guam, the District of Columbia, Puerto Rico and the Virgin Islands. Out of 6,648 Otolaryngologists, state of birth was provided for 5,192 of them. Of these 5,192 otolaryngologists, 1,641 or 31.6% currently practice within their state of birth (Table 1). Louisiana and New York are the two states with the highest retention of physicians based on state of birth (Figure 3).

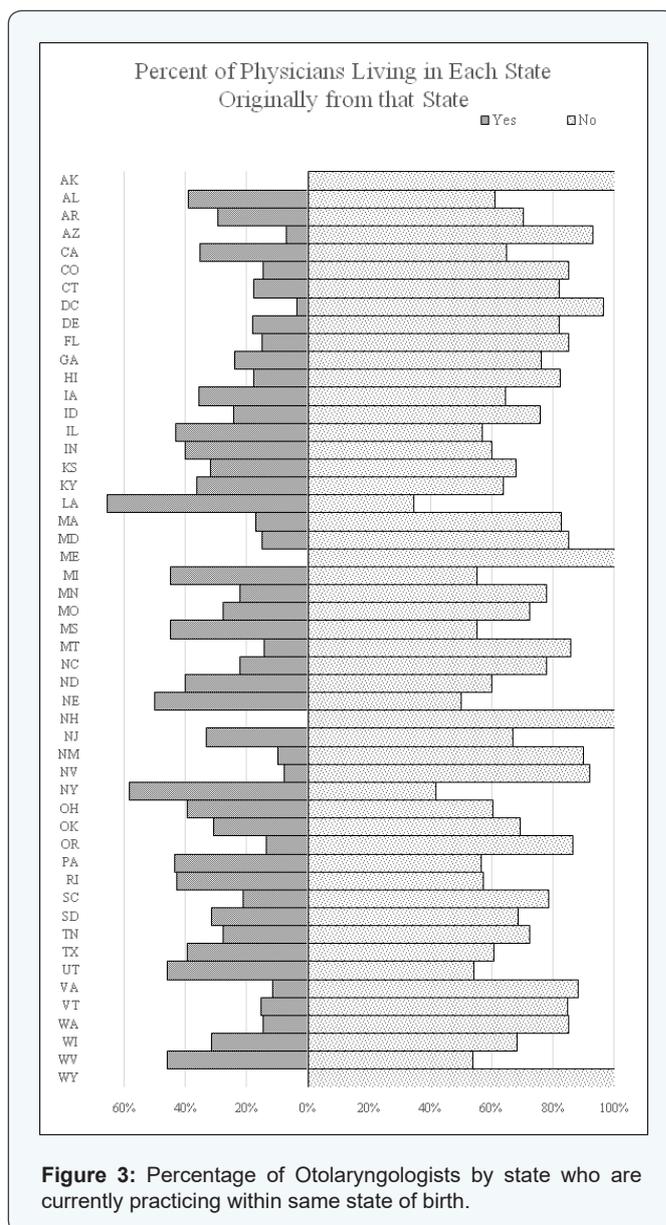


Table 1: Physicians practicing within 100 miles of their medical school, residency, and within their state of birth.

Parameter	Yes	No	Unknown	Total
Medical School: Within 100 Miles	1519	4378	571	6468
Residency: Within 100 Miles	1821	4101	546	6468
Born Within State of Current Practice?	1641	3551	1276	6468

Discussion

It is not uncommon to hear anecdotal claims that physicians practice in locations surrounding their training institutions. Additionally, previous studies have found that

51% of all physicians work within the state of their residency [5]. Specifically, 56% of Family Physicians practice within 100 miles of their residency program [5]. While otolaryngologists may not currently be in demand to the extent that primary care specialties are, understanding trends and factors that influence practice locations are important to the future of the specialty.

Geographic location was the second most cited factor for choosing a practice location among graduating otolaryngology residents. Moreover, geographic location appears to become more important as residents transition from intern to graduates as their willingness to move family decreases [3]. Given the importance of geographic location to graduating otolaryngology residents it was our hypothesis that the rate of otolaryngologists practicing in areas surrounding their training would be comparable to that of family practice physicians.

The national rate of otolaryngologists practicing within 100 miles of their medical school (25.7%) and residency (30.7%) is lower than that of the general physician population. Training location is certainly not the only influence on practice location decisions. Low award cap areas for malpractice appear to attract surgeons and malpractice premiums have a statistically significant impact on geographic location of practice for all surgeons [1]. This may contribute to otolaryngology geographic retention rates being lower than that of the general physician population.

According to the U.S. Census Bureau 58.8% of Americans are currently living in their state of birth [8]. For the otolaryngology population 31.6% currently practice in the same state of birth. The rate of otolaryngologists practicing within their same state of birth is reduced from the general population. A possible explanation for these findings could be the competitiveness and decreased number of residency spots for otolaryngology in comparison to other specialties. Moreover, the amount of otolaryngologists needed per community is lower than that of family practice and markets may become more easily saturated with otolaryngologists. This may require otolaryngologists to travel to places with higher demand.

The outcome data of this study is variable by state. Naturally, states like Idaho, Montana, Alaska, and Wyoming without otolaryngology residencies or medical schools have non-existent training trends of geographic retention. As one may expect, states with numerous medical schools and residencies like New York and California had higher than national average rates of 100 mile retention. This demonstrates that although current residents are more likely to attend residency programs affiliated with their medical school in such areas as the South and Midwest [9], they will overwhelmingly flock to regions with higher population density such as California and New York. By using 100 miles as an inclusive criterion, we were also able to demonstrate the interesting case of New Jersey; approximately

60% of its otolaryngology population is currently practicing within 100 miles of their graduating residency and medical school, despite much less state training institutions. This is likely a result of the surrounding New York City metropolitan area.

While the sample used was nearly representative of all states of residence, otolaryngology residencies, US medical schools, and a male to female ratio consistent with other published demographic data [10] there were limitations to this descriptive cross sectional study. Although strict inclusion criteria were followed, since the AMA physician master file is a self-report measure, data may not demonstrate "desired" practice locations for all physicians. While those pursuing fellowship and residency were excluded, some may be pursuing other academic endeavors post-residency. This information was not included in the master file. Thus, there may be a bias towards physicians appearing to move to more centralized medical centers.

While other factors likely contribute, recognizing that approximately 25-31% of otolaryngologists practice within 100 miles of their medical training may help residency graduates or migrating otolaryngologists further decide on competitive practice locations. The strategic distribution of otolaryngologists may become more important as it has been previously proposed that there is a moderate oversupply of 3.16 otolaryngologists to 100,000 population [10].

Conclusion

This study demonstrates that nearly 1 out of 3 otolaryngologists practice within the same state of birth or within 100 miles of their training institution. If current trends continue, an otolaryngology residency program may expect approximately 1 out of 3 of their graduates to practice within 100 miles at some time. These rates are variable by state and region. Moreover, geographic population distribution and other factors likely contribute and further studies are needed to elucidate the specific causal relationships of these factors.

Given the rising concern over physician shortages today and in the near future, this study demonstrates that some residency programs and medical schools are more successful than others at retaining their physician graduates. Using this data as a guide for future study into incentives programs and public policy will allow regions, states, and other localities to better understand what motivates physicians to practice in certain areas. Further study is needed to assess whether demographics such as race, gender, age, and other factors affect location of practice.

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Note: Internal Review Board was exempt as this was not a patient study

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