Longitudinal Trends in Otolaryngology Residency Applications from 2018 to 2024

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Introduction

The otolaryngology (OTO) residency application landscape has undergone significant transformations from 2018 to 2024, characterized by dynamic shifts in application strategies, academic performance, and candidate experiences.

Methods and Materials

Study Design

A retrospective database study was conducted to analyze otolaryngology residency matching outcomes using data from the Texas Seeking Transparency in Application to Residency (STAR) program. The study focused exclusively on otolaryngology applicants between 2018 and 2024. Institutional review board (IRB) exemption was obtained under protocol number 2408-02-169, as the study utilized de-identified data and posed minimal risk to participants.

Study Population

The study population consisted of medical students who applied to otolaryngology residency programs and completed surveys within the Texas STAR database between 2018 and 2024

Statistical Analysis

Statistical analysis was performed using R software (version 4.3.3). Descriptive statistics, including means, standard deviations, and frequencies, were calculated to summarize the demographic characteristics and application profiles of otolaryngology applicants. Mann-Whitney U tests were used to compare continuous variables across years due to non-normal distributions. Additionally, for categorical data reported more than one value with a small range, the average was calculated. For example, if an age response equaled 22-25, it was considered equal to 23.5.

Research productivity was quantified as the total number of abstracts, posters, and oral presentations. Additional exploratory analyses assessed trends in match rates over time and identified factors associated with successful match outcomes. These factors included USMLE Step 2 scores, number of clerkship honors, research productivity, volunteer experiences, leadership roles, and applications submitted.

Results

Upon compilation of all Texas STAR data, a total of 659 otolaryngology participants were broken down by year and rate of response compared to offered positions per the NRMP in **Table 1**.

Table 1: Response rate across the years.

Year	Texas Star Applicants (n)	NRMP Positions (n)	Response Rate (%)
2018	65	315	20.63%
2019	84	328	25.61%
2020	123	350	35.14%
2021	82	350	23.43%
2022	99	361	27.43%
2023	115	373	30.83%
2024	98	382	25.65%
Total	666	2459	27.08%

Response rate of matched otolaryngology responses to Texas STAR compared to positions offered per NRMP data.

Application submissions increased steadily from 65.55 ±20.58 (2018, mean ± SD), peaking at 80.38±34.98 (2023), before declining to 49.93±25.82 (2024, p< 0.001). **Interview numbers decreased** from 22.11 ±10.21 (2018) to 14.53±8.42 (2021), remaining stable between 2023 and 2024 (14.10±5.50 in 2024, p=NS). **Peer-reviewed publications increased** from 2.94±2.78 (2018) to 6.92±3.91 (2023), before declining to 4.49 ±3.63 (2024, p< 0.01).

Volunteer and leadership positions demonstrated stability from 2018-2023, with a **significant decline from 2023 to 2024 (p< 0.01).** Step 2 scores remained consistent across the years, with a mean score of 256.97±9.41 in 2018 and a slight increase to 259.23 ±7.67 (2024, p=NS).

Clerkship honors decreased from 4.52±2.28 in 2018 to its lowest at 3.75±2.62 (2023) then back to its peak of 4.81±2.12 (2024, p< 0.01).

Discussion

Step 2 Scores

We see an increase in Step 2 scores for matching into otolaryngology. This falls in line with the general pattern of the rising emphasis of Step 2 scores on admission to both nonsurgical and surgical specialties, as Step 2 knowledge scores have been associated with residency performance[1]. For otolaryngology, Step 2 scores were also utilized as a moderate metric for predicting interviews, underscoring its importance in residency applications for all specialties.

Clerkship Honors and Research Experiences

In otolaryngology, clerkship honors remained crucial in predicting an interview invitation. This indicates the importance of clinical rotations in a successful match for students. For otolaryngology, research publications or abstracts were a secondary metric which predicted an interview for the applicant. These factors can impact the likelihood of receiving an interview during the match process and the outcome of the match. While clerkship grades have displayed significant variance between medical schools, honoring a clerkship rotation has been shown to be associated with greater success in the match process[2].

The Decrease in Volunteer and Leadership Experiences

The statistically significant decrease in volunteer and leadership experiences may suggest a reallocation in time from these pursuits towards research and academics. This trend can reflect the focus for otolaryngology applicants to possess both technical skills and strong academic accomplishments. However, volunteer experiences are still moderately positive predictors for interviews in otolaryngology.

Conclusions

OTO resident application submissions and publications peaked in 2023 before dropping in 2024 while volunteer and leadership were stable before their decline in 2024. Additionally, in 2024, clerkship honors demonstrated a statistically significant increase, along with a non-statistically significant increase in step 2 scores. Our results suggest the increasing importance of clinical education in distinguishing OTO residency applicants, most notably since step 1 went pass/fail.

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