

Samuel Salib BS¹, Layla Ali BA¹, Brian Kwan BS¹, Adam Ali BS¹, Meghana Renavikar BS¹, Iyawnna Hazzard MS¹, Angela Mihalic MD², Michael S. Wong MD¹
¹ California Northstate University College of Medicine
² University of Texas Southwestern Medical School

Introduction

The field of otolaryngology has long been among the most competitive specialties in the National Resident Matching Program (NRMP), with a limited number of positions relative to applicants, 381 positions for 513 applicants in 2024, yielding an unmatched rate of 25.7% (NRMP, 2024). Historically, programs weighed a combination of academic achievement and experiential metrics particularly high numerical USMLE Step 1 scores, clerkship honors, and research productivity to predict match success (Cabrera-Muffy et al., 2015; Bowe et al., 2023). The transition of USMLE Step 1 to a pass/fail format in January 2022 eliminated one of the most widely used quantitative measures, prompting program directors to re-examine alternative objective metrics, such as Step 2 scores, clerkship honors, and scholarly output, to differentiate applicants (Yang et al., 2023; Smith et al., 2024).

In this study, we leveraged the Texas STAR database which contains de-identified applicant data from voluntary respondents, to assess how the removal of numerical Step 1 scores affected otolaryngology application profiles. We compared two cohorts of matched applicants. Those from the 2022–2023 cycles (pre-transition) evaluated under the traditional numerical Step 1 system, and those from the 2024–2025 cycle (post-transition) the first without numerical Step 1 scores. Key metrics analyzed included USMLE Step 2 CK scores, clerkship honors, research experiences, publications, abstracts and presentations, and extracurricular activities.

Methods and Materials

This retrospective study analyzed matched otolaryngology applicants from the Texas STAR database under IRB exemption (protocol 2408-02-169). Two cohorts were defined: the 2022–2023 cycle (pre-USMLE Step 1 pass/fail) and the 2024–2025 cycle (post–pass/fail).

Metrics extracted included USMLE Step 2 CK scores, number of programs applied, interview offers, clerkship honors, research experiences, abstracts/posters/presentations, publications, volunteer experiences, and leadership positions. Continuous variables were assessed for normality and compared via Welch's t-tests, step 2 scores were centered at mid-range values to control minor scoring variations. Means, standard deviations, and p-values were reported for each metric.

Results

A total of 670 matched otolaryngology applicants were analyzed, with 327 applicants from the 2022–2023 cohort (pre-pass/fail) and 343 applicants from the 2024–2025 cohort (post-pass/fail)

Table 1: Comparison of the two cohorts

Variable	Pre-Pass/Fail (2022–23) Mean ± SD	Post-Pass/Fail (2024–25) Mean ± SD	p Value
Programs Applied	62.38 ± 37.16	38.34 ± 20.19	< 0.001
Interview Offers	15.76 ± 8.36	15.08 ± 5.38	0.213
USMLE Step 2 CK	259.10 ± 9.16	260.75 ± 7.26	< 0.05
Research Experiences	6.68 ± 3.43	5.84 ± 3.83	< 0.01
Abstracts/Posters/Presentations	8.24 ± 3.97	8.44 ± 3.97	0.515
Publications	5.64 ± 3.87	4.13 ± 3.75	< 0.001
Volunteer Experiences	7.66 ± 3.17	4.00 ± 2.44	< 0.001
Leadership Positions	4.93 ± 3.03	3.80 ± 1.99	< 0.001

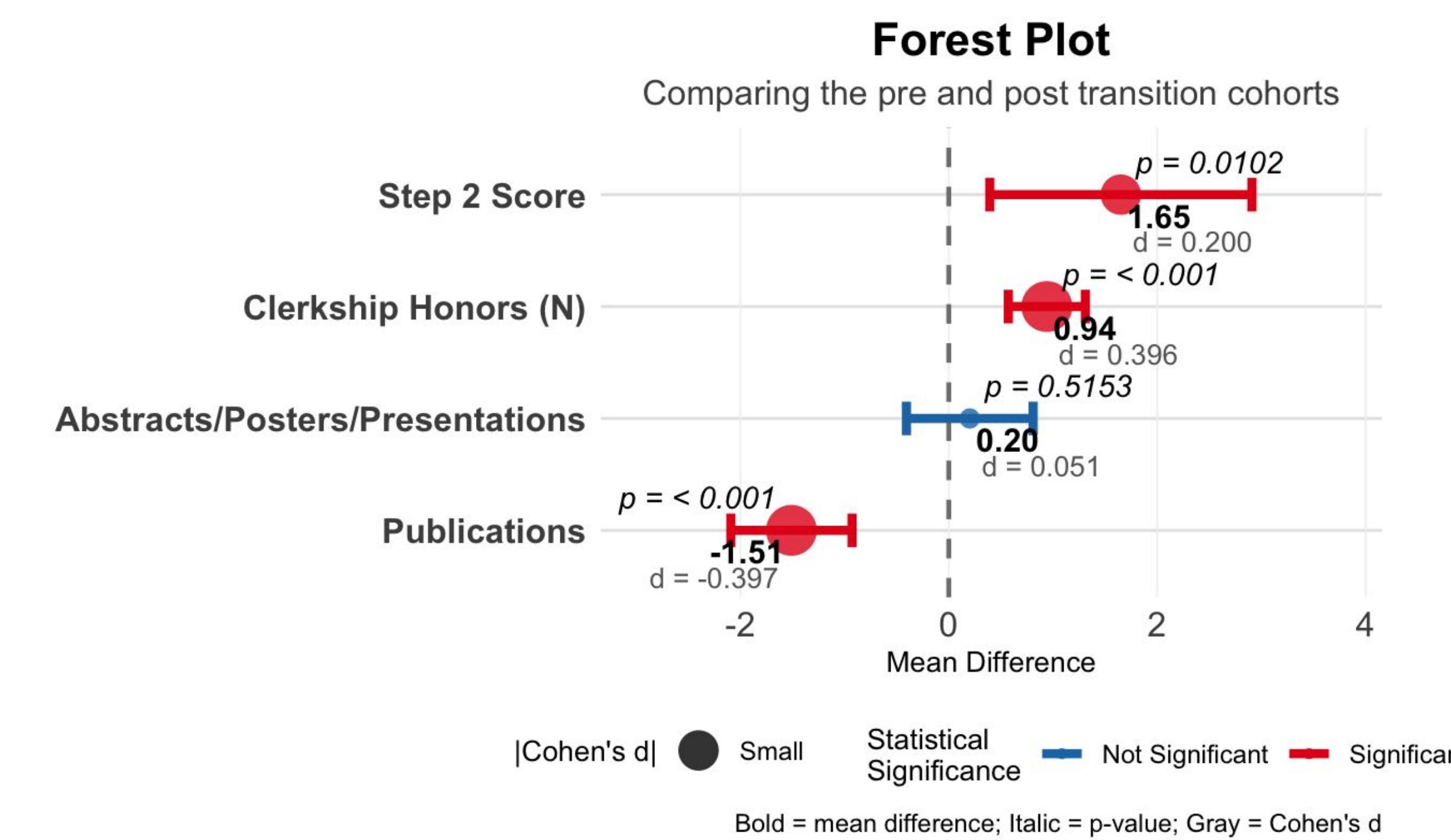
Academic Performance Metrics

USMLE Step 2 CK scores increased modestly in the post-pass/fail cohort (260.75 ± 7.26 vs. 259.10 ± 9.16 , $p < 0.05$). Clerkship honors showed the most pronounced increase, with post-pass/fail applicants earning significantly more honors (4.82 ± 2.15 vs. 3.88 ± 2.57 , $p < 0.001$).

Research and Scholarly Activity

Publications decreased significantly from 5.64 ± 3.87 to 4.13 ± 3.75 ($p < 0.001$), representing a 27% reduction. However, abstracts, posters, and presentations remained stable between cohorts (8.44 ± 3.97 vs. 8.24 ± 3.97 , $p = 0.515$).

Figure 1: Forest plot



Discussion

Clerkship Honors

The increase in clerkship honors may reflect both medical schools' compensatory grade inflation following Step 1's reduced discriminatory power and applicants' increased focus on clinical performance. Without numerical Step 1 differentiation, programs and students alike shifted emphasis to remaining quantifiable metrics.

Step 2 CK and Publication

The modest Step 2 CK score increase suggests applicants reallocated study effort from Step 1 preparation, though the minimal magnitude indicates a ceiling effect among already high-achieving otolaryngology applicants. The decline in publications, despite stable presentations, paint a more unclear picture. It may be that applicants changed their focus to more clinical measures such as clerkship performance or step 2.

Applications and Extracurricular Activities

The substantial reduction in applications from 62 to 38 programs likely reflects otolaryngology's implementation of preference signaling rather than the pass/fail transition. Studies demonstrate that signaling programs reduce application volume by 25-30% while maintaining interview success rates. The dramatic decreases in volunteer experiences (48%) and leadership positions (23%) are likely attributable to ERAS limiting applicants to 10 experiences per category beginning in 2024, forcing strategic prioritization.

Conclusions

The transition to pass/fail USMLE Step 1 scoring has coincided with a strategic narrowing of application behavior, increased emphasis on clinical performance, and reprioritization of extracurricular activities under ERAS limits. Preference signaling likely drove the marked reduction in applied programs without affecting interview yield. Clerkship honors emerged as a key differentiator, while research publications declined due to practical and time constraints. These shifts underscore the evolving landscape of otolaryngology applications and inform both applicants' strategies and program directors' evaluation criteria in the post-Step 1 pass/fail era.

Contact

Samuel Salib, BS

California Northstate University, College of Medicine
 9700 W Taron Drive, Elk Grove, CA, 95757, United States
 samuel.salib10011@cnsu.edu
 (626) 818-6587

References

- Results and Data: 2024 Main Residency Match. NRMP. June 28, 2024. Accessed October 23, 2024. <https://www.nrmp.org/match-data/2024/06/results-and-data-2024-main-residency-match/>
- Abaza, M. M., & Cabrera-Muffy, C. (2014). State of the otolaryngology match: Has competition increased since the early match? *Otolaryngology–Head and Neck Surgery*, 151 (1_suppl). <https://doi.org/10.1177/019459981451627a>
- Bowe SN, Bly RA, Whipple ME, Gray ST. Residency Selection in Otolaryngology: Past, Present, Future. *The Laryngoscope*. 2023;133(11):1-11
- Yang LC, Bonner A, Patel OU, et al. A Survey of Otolaryngology Residency Programs on Adapting to the United States Medical Licensing Examination (USMLE) Step 1 Transitioning to Pass/Fail. *Cureus*. 2023;15(9):e45227. doi:10.7759/cureus.45227
- Smith DH, Zeitouni J, Kim Thiesse N, Bowe SN. Trends of Rising Research Production Among Otolaryngology Residency Applicants. *OTO Open*. 2024 Jul 15;8(3):e170. doi: 10.1002/oto.2170. PMID: 39015735; PMCID: PMC11249817.