Effects of a Pass/Fail Step 1 on Otolaryngology Trainee Research Productivity During Medical School

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ABSTRACT

Introduction
The transition of the USMLE Step 1 exam to a pass/fail format has shifted factors influencing the Otolaryngology residency match process, particularly research productivity. This study aims to evaluate research output by comparing current PGY-2 physicians (pass/fail cohort) and current PGY-6 physicians (scored cohort) as evidence suggests that pass/fail cohorts perceive greater emphasis on research in their application cycle.

Methods
This retrospective study assesses research productivity for each cohort using author searches in PubMed, MEDLINE, and Scopus databases between October 2024 and October 2025. The data collected included Otolaryngology-related publications, case reports, original articles, number of first- and second-author articles, total publications, and mean impact factor achieved per individual during medical school. Comparative analyses and T-tests were performed for statistical analysis.

Results
A total of 138 PGY-2 residents (2023-2024 match cycle) and 125 PGY-6 residents (2019-2020 match cycle) across 36 institutions were evaluated for significant research output differences. Analysis showed the pass/fail cohort (current PGY-2s) had a higher average number of total publications compared to the scored cohort (current PGY-6s) (6.75 vs. 4.44, $p < 0.001$). Additional significant differences between cohorts included a higher number of case reports (0.88 vs. 0.31, $p = 0.0023$), Otolaryngology-related articles (4.60 vs. 2.92, $p = 0.000468$), number of first- and second-author articles (4.26 vs. 2.68, $p = 0.001$). No significant differences were found in the number of original articles (4.31 vs. 3.80, $p=0.3187$) and mean impact factor (5.98 vs. 4.92, $p= 0.333$).

Conclusion
Students in the pass/fail cohort demonstrate higher research productivity across multiple analyzed variables. These findings suggest research productivity may be emphasized in the current Otolaryngology residency selection process or possibly that the applicant landscape to Otolaryngology simply includes more publications across all students. Notably, there are no statistically significant differences in mean impact factor scores and original articles published.

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INTRODUCTION

- The USMLE Step 1 Exam's transition to a pass/fail format marked a change medical student's path to residency.
- Evidence suggests a perceived increased emphasis on research productivity during medical school
  - Perception is increased based on competitiveness of specialty
  - Otolaryngology is considered "competitive"

- **Objective**
  - **Compare research productivity between PGY1s/PGY2s (pass/fail cohort) and PGY5s/PGY6s (scored cohort) during their time in medical school and before.**

METHODS

- Retrospective review between October 2024-present
- Physician names obtained via review of residency program website
  - Also name of medical school attended
- Names input into PubMed, MEDLINE, Scopus databases
- Output research articles verified via student's affiliation with their medical school
  - Included articles published during undergraduate, research years
  - Excluded articles published during residency as verified by individual's affiliation unless article was submitted during medical school

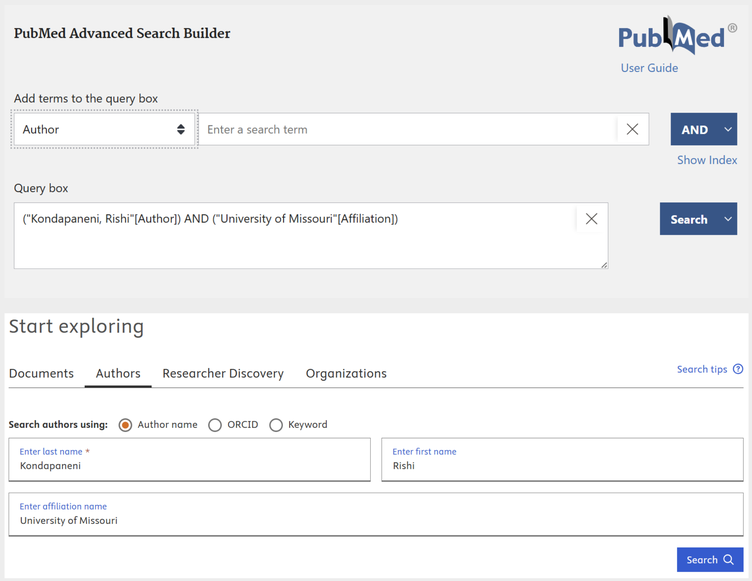

Figure 1: Sample search queries in PubMed and Scopus. Used for initial search to ensure affiliation with medical school.

- Further query completed by author search without affiliation, verification via any social media (i.e. LinkedIn)
- Measures
  - Total publications
  - Otolaryngology-related articles
  - Case reports
  - Original research articles
  - First- and second-author articles
  - Mean impact factor across published journals
    - Calculated via bioxbio.com statistics
- Analysis done via comparative statistics, T-tests

RESULTS

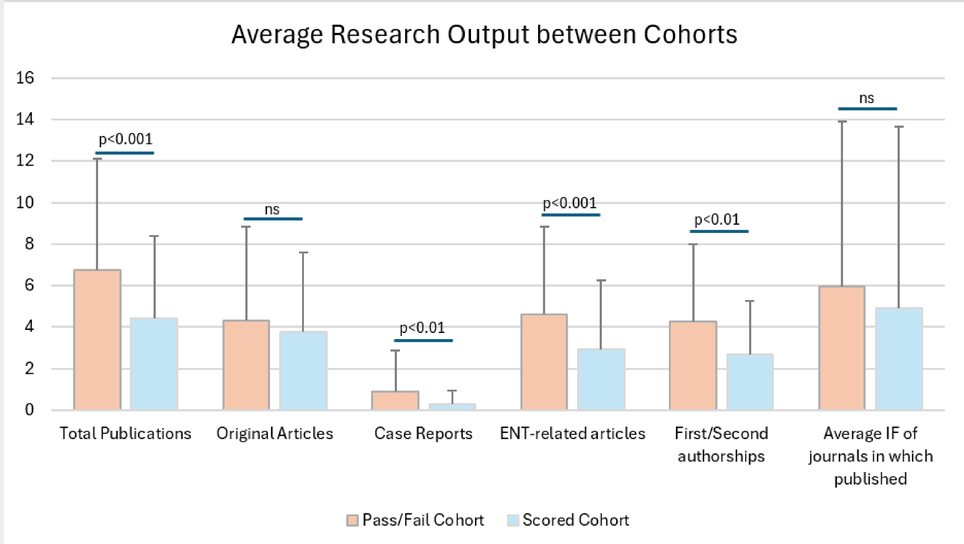

Figure 2: Average research output between cohorts. P-values are denoted above variables of interest. ns: non-significant difference

Variable	Pass/Fail Cohort (n=138)	Scored Cohort (n=125)	P-value
Total Publications	**6.75 (5.36)**	**4.44 (3.97)**	**0.00009**
Original Articles	4.31 (4.52)	3.80 (3.80)	0.32
Case Reports	**0.881 (2.01)**	**0.317 (0.644)**	**0.002**
ENT-related articles	**4.60 (4.26)**	**2.92 (3.36)**	**0.0005**
First/Second Authorships	**4.26 (3.74)**	**2.68 (2.59)**	**0.001**
Average journal IF	5.98 (7.94)	4.92 (8.72)	0.33

Table 1: Numerical representation of statistical analysis. Values reported as mean (SD). Statistically significant differences are bolded.

- n=138 in pass/fail cohort, n=125 in scored cohort across 36 programs

DISCUSSION AND CONCLUSIONS

- Students in P/F cohort have higher research productivity as assessed via total publications
- Increase in ENT-related articles, first/second authorships may represent perceived increased emphasis on specialty-specific research in the match process
- No significant change in IF across cohorts – suggests increased amount of equally-impactful research; though journal IFs generally do not fluctuate heavily between given years
- Limitations: not every student's identity could be verified through research database search, possibility of decreased
- Overall, findings suggest that **students may perceive increased emphasis on research productivity and are responding by increasing research output, though there may simply be more research being done in general.**
- Further research will focus on analyzing more individuals to increase sample size and statistical power.