

# Association Between an Extra (5<sup>th</sup>) Year of Medical School and Residency Match Outcomes

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## Introduction

Several institutions, including our own, have noticed that the number of medical students taking an extra (“gap”) year during medical school has increased in the past decade.<sup>1,2</sup> For students considering taking a gap year, the potential benefits (research productivity, residency outcomes, wellness, etc.) are weighed against several opportunity costs including delayed autonomy and monetary earning potential. Spurred by the lack of non-anecdotal data, this study within our top 20 NIH funded medical school sought to explore the association between completing medical school in 5 years and residency match outcomes.

## Methods

We queried a prospectively maintained database of University of California San Diego (UCSD) School of Medicine graduates who graduated medical school between 2014-2021. Students were excluded if they graduated in more than 5 years or if they did not have complete relevant covariable and outcome data available. Covariables of interest included age at matriculation, sex, ethnicity/race, year of medical school graduation, Step 1 score, Step 2CK score, number of honors in 3rd year clerkships (maximum 7), and specialty of residency. Primary outcomes of interest were the student’s matched residency program reputation and research scores as measured by Doximity which were converted into percentile rankings, stratified by specialty. Completing medical school in 5 years compared to 4 years was assessed with multivariable logistic regression. Multivariable linear regression was used to assess the association between residency program reputation or research score and completion of medical school in 5 years.

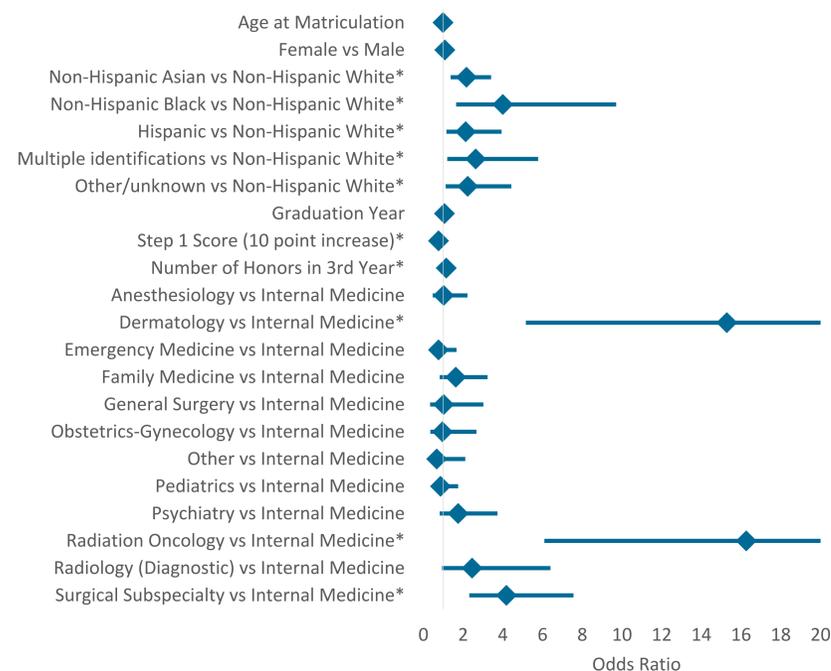


Figure 1. Forest Plot of Multivariable Logistic Regression on Taking a Gap Year. \* denotes p < 0.05.

## Results

In the final cohort’s 774 UCSD medical students, the median age at matriculation was 24 (range 19-41). There was an equal distribution of male (49.9%) and female (50.1%) students. Most of the students identified as non-Hispanic White (39.5%), non-Hispanic Asian (33.9%), or Hispanic (11.1%). Stratifying the final cohort by time to graduation, 564 (72.9%) students graduated medical school in 4 years and 210 (27.1%) students took a gap year and graduated medical school in 5 years.

In multivariable logistic regression, several variables were significantly associated with taking a gap year. (Figure 1) Compared to non-Hispanic White students, all other students were more likely to take a gap year (p=0.002). More honors in 3rd year clerkships was associated with increased odds of taking a gap year (p=0.03). Matching into Dermatology (OR 15.28, 95% CI [5.16, 45.25]), Radiation Oncology (OR 16.26, 95% CI [6.09-43.43]), or Surgical Subspecialties (OR 4.18, 95% CI [2.31-7.56]) were the only residency specialties associated with taking a gap year. A higher Step 1 score was the only variable associated with less odds (OR 0.76 for every 10 point increase in Step 1) of taking a gap year. Age at matriculation, sex, and graduation year were not significantly associated with taking a gap year.

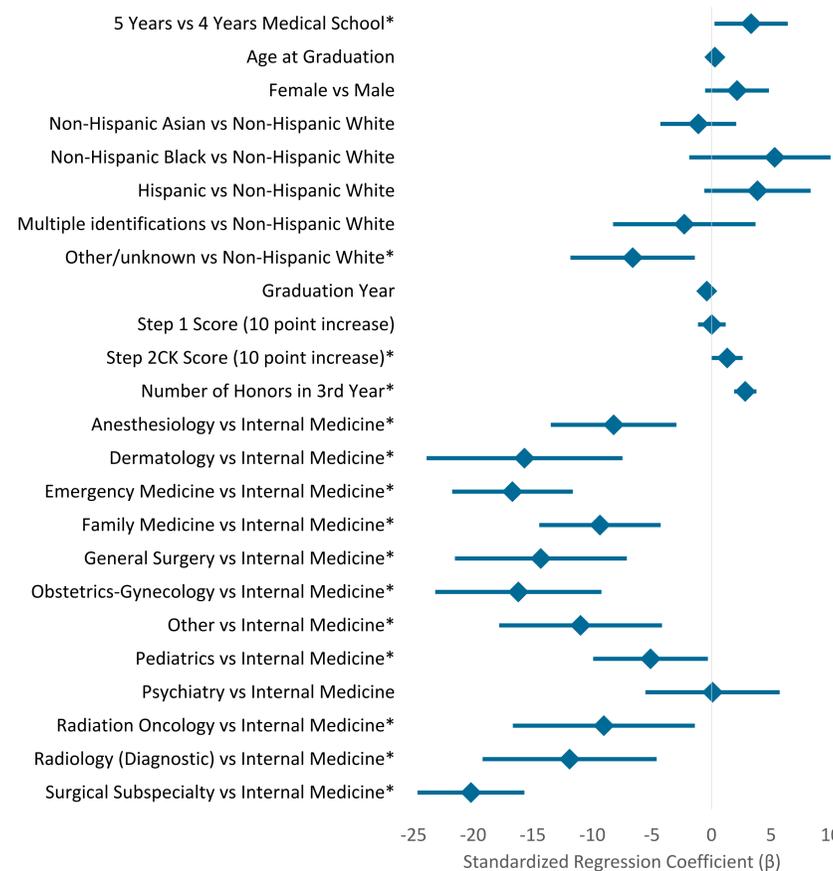


Figure 2. Forest Plot of Multivariable Linear Regression on Residency Reputation Ranking. \* denotes p < 0.05.

## Residency program ranking outcomes.

UCSD medical students across all specialties matched into residency programs with a median reputation score at the 87th percentile (mean 80<sup>th</sup> %ile, range 1.5-100<sup>th</sup> %ile) and a median research score at the 89th percentile (mean 81<sup>st</sup> %ile, range 0-100<sup>th</sup> %ile). In multivariable linear regression, taking a gap year was associated with an increase in 3.33 reputation rank percentiles (95% CI [0.26, 6.41], p=0.03). (Figure 2) Furthermore, the impact of a gap year on residency reputation rank did not vary by demographic or objective variables (ethnicity and race, sex, Step 1 score, Step 2CK score, residency specialty, etc.) (all p<sub>interaction</sub>>0.05). Other variables significantly associated with an increase in reputation rank were Step 2CK score (β 1.32 for every 10 point increase in Step 2CK, 95% CI [0.01, 2.62], p=0.04) and number of honors in 3rd year clerkships (β 2.84, 95% CI [1.90, 3.78], p<0.001). Compared to Internal Medicine, matching into nearly all other specialties was associated with decreased reputation rank.

In multivariable linear regression, taking a gap year was associated with an increase in 4.07 research rank percentiles (95% CI [0.47, 7.67], p=0.03). Like the above model, other variables significantly associated with an increase in research rank were Step 2CK score (β 2.79 for every 10 point increase in Step 2CK, 95% CI [1.22, 4.36], p<0.001) and number of honors in 3rd year clerkships (β 2.88, 95% CI [1.79, 3.97], p<0.001).

## Conclusions

- Across 7 graduating classes at a top NIH funded medical school, approximately 1 in 4 students took a gap/extra year during medical school.
- Altogether, UCSD medical students matched into residency programs in the highest quintile of Doximity reputation and research rankings.
- Gap year students had a 3.3 percentile increase in reputation rank and a 4.1 percentile increase in research rank.
- The impact of graduating in 5 years on residency reputation rank did not vary by matched specialty or student demographics.

As one of the first studies investigating gap years and residency outcomes across all specialties, this study provides potentially useful information for medical students and administration to navigate the complex decision-making process of taking a gap year during medical school. Future research will benefit from incorporating student preferences or match rank lists along with examining this impact across other medical schools of varying curriculums and experience.

## References

- [1] Gupta R, Norris ML, Barrowman N, Writer H. Pre-residency publication and its association with paediatric residency match outcome—a retrospective analysis of a national database. *Perspect Med Educ.* 2017;6(6):388-395. doi:10.1007/S40037-017-0383-8
- [2] Cotter EJ, Polce EM, Williams KL, Spiker AM, Grogan BF, Lang GJ. Current State of Research Gap-Years in Orthopedic Surgery Residency Applicants: Program Directors’ Perspectives. *Iowa Orthop J.* 2022;42(1):19.