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**Title**

The Diminishing Gap in USMLE Scores Amongst Neurosurgery Residency Applicants

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The data associated with this publication are not available for this reason: N/A



## Introduction

Neurological surgery is a historically challenging specialty to match into, with match rates of 65% (1). With the USMLE Step 1 exam now graded on a pass/fail basis, there is piqued interest in whether Step 2 will become the “new” Step 1 as a factor to assess candidates for competitive specialties such as neurosurgery. To date, there is no literature that describes the differences in Step 2 scores between matched and unmatched allopathic seniors and how these differences have changed through time.

## Hypothesis

We hypothesize that there is a statistically significant difference in Step 2 scores between matched allopathic seniors and unmatched allopathic seniors, and that this difference has changed through time.

## Methods

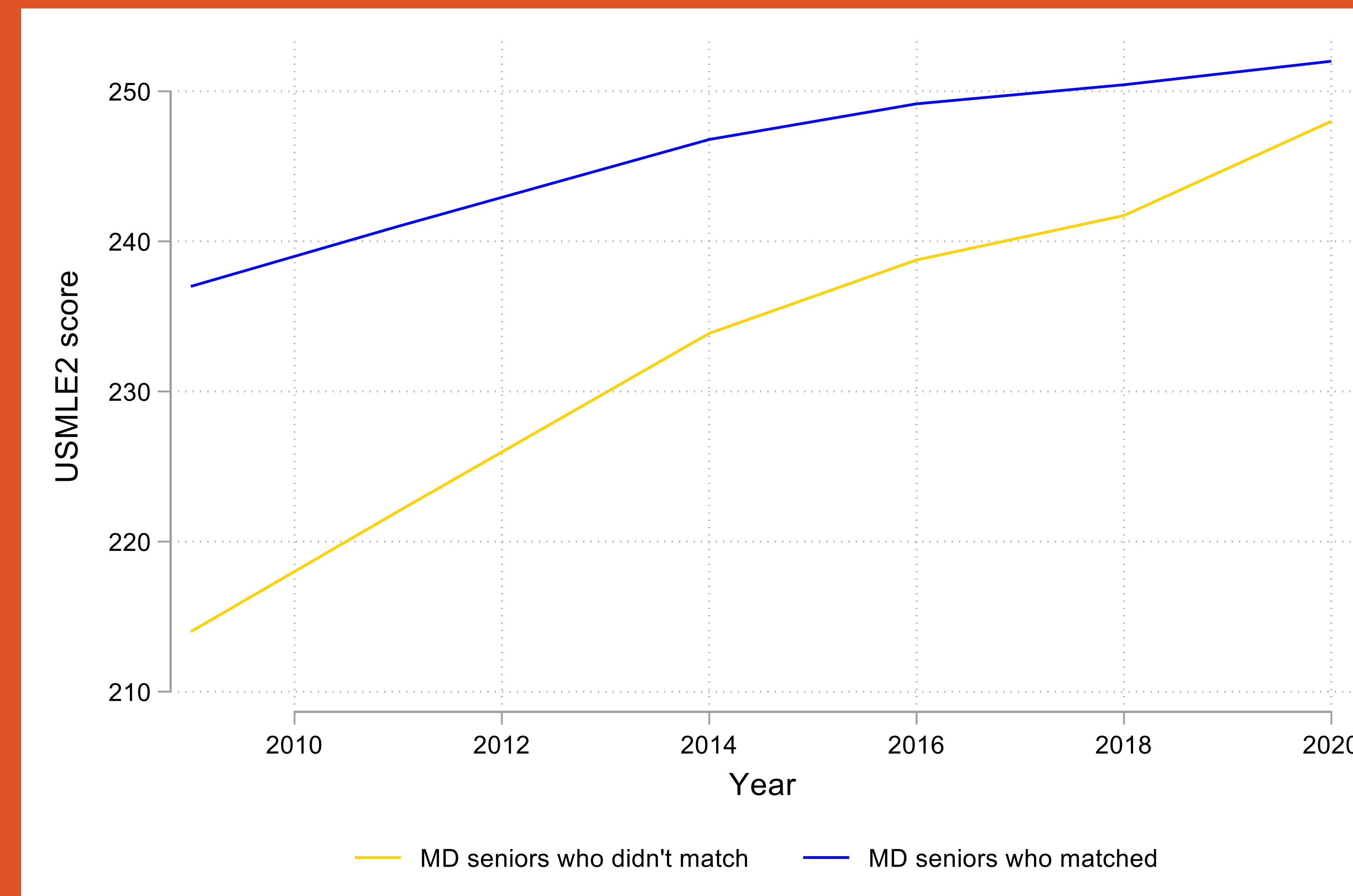
This study protocol did not require institutional review board approval since the data are from public databases. USMLE Step 2 data were collected from the National Resident Matching Program (NRMP) “Charting Outcomes in the Match” reports from all years in which neurosurgery residency outcomes were included (2009, 2011, 2014, 2016, 2018, 2020) for matched and unmatched MD seniors. Multiple linear regression with an interaction term was used to evaluate: (1) how Step 2 scores have changed through time amongst U.S. MD seniors applying for a neurosurgical residency, (2) whether there is a difference in Step 2 scores between unmatched and matched MD seniors applying for a neurosurgical residency, and (3) how the difference in Step 2 scores between matched and unmatched applicants has changed through time.

# The Diminishing Gap in USMLE Scores Amongst Neurosurgery Residency Applicants

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## Results:

Average Step 2 scores have been increasing through time by 6.46 points regardless of match status into a neurosurgical residency ( $p < 0.001$ ). Between matched and unmatched MD seniors, there is a 21.95 points difference between scores ( $p = 0.001$ ). Through time, the difference in USMLE Step 2 scores diminishes between MD seniors who matched and those who did not by 3.51 points.



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## Conclusion

Over the 11-year study period, the diminishing difference in USMLE Step 2 scores between MD seniors who matched and those who did not indicates that it may be harder to differentiate students by this score alone. However, Step 2 scores reflect one of many factors that determine outcome into a neurosurgical residency program. Thus, more analysis is required to evaluate other applicant characteristics.

## Limitations

Data provided by the NRMP includes population level data through the course of linear, but not consecutive, years. Our statistical analysis focuses on reviewing publicly available data and resolving data points that are not provided through multiple linear regression. Additionally, our comparison groups were focused on U.S. MD seniors who matched successfully into a neurosurgery residency program and those who did not. This limits generalizability to all neurosurgery residency applicants including osteopathic (DO) and international medical students who apply for U.S. neurosurgery programs. Lastly, our study focuses on Step 2 scores. However, Step 2 is one characteristic in an application and future studies that examine other factors would aid in understanding differences between these two groups.

## References

1. Yaeger KA, Schupper AJ, Gilligan JT, Germano IM. Making a match: trends in the application, interview, and ranking process for the neurological surgery residency programs. *Journal of Neurosurgery*. 2021;135(6):1882-1888. doi:10.3171/2020.11.JNS203637