




# Impact of COVID-19 on the Ophthalmology Residency Home-Institution Match Rate

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## Abstract

**Purpose** The aim of this study was to evaluate the ophthalmology residency match results to determine changes in the rate of home-institution matches during the coronavirus disease 2019 (COVID-19) pandemic.

**Methods** Aggregate deidentified summary match result data from 2017 to 2022 was obtained from the Association of University Professors of Ophthalmology and the San Francisco (SF) Match. A chi-squared test was performed to determine if the rate of candidate matching to the home residency program in ophthalmology was higher in the post-COVID-19 compared with pre-COVID-19 match years. A literature review using PubMed was performed of other medical subspecialty match rates to home institution during the same study period.

**Results** A chi-squared test for difference in proportions confirmed a significantly higher chance of matching to the home program for ophthalmology in the post-COVID-19, SF Match year of 2021 to 2022 compared with 2017 to 2020 ( $p = 0.001$ ). Other medical specialties including otolaryngology, plastic surgery, and dermatology also showed similar increased home institution residency match rates during the same time period. Although neurosurgery and urology also had increased trend rates for home institution match rates, these results did not reach statistical significance.

**Conclusions** The ophthalmology home-institution residency SF Match rate was significantly increased during the COVID-19 pandemic year 2021 to 22. This mirrors a trend reported in other specialties including the otolaryngology, dermatology, and plastic surgery in the 2021 match. Additional study will be required to identify factors leading to this observation.

## Keywords

- ▶ ophthalmology
- ▶ residency
- ▶ match
- ▶ COVID-19
- ▶ home match
- ▶ home-institution match
- ▶ San Francisco Match

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The coronavirus disease 2019 (COVID-19) pandemic has affected all aspects of the ophthalmology residency application cycle. Multiple changes for the 2020 to 2021 San Francisco (SF) Match cycle included reduced opportunity for in-person away rotations, centralized interview scheduling with a new cap on maximum interviews, and a switch to mandatory virtual interviewing. Retrospective analysis of other 2021 residency specialty matches including otolaryngology,<sup>1,2</sup> plastic surgery,<sup>1,3,4</sup> and dermatology<sup>5,6</sup> have noted significantly increased home-institution residency match rates when compared with previous years. Interestingly, urology and neurosurgery also had higher home-institution match rate trends but did not achieve statistical significance.<sup>1</sup> We hypothesized that there was an increased rate of SF Match rates to the home residency program during the COVID-19 and described the potential reasons for this statistically significant trend. To our knowledge, this is the first report to confirm the increased home-institution match rate of ophthalmology residents during the COVID-19 pandemic.

## Materials and Methods

Aggregate deidentified summative SF Match data from 2017 to 2022 was obtained from the Association of University Professors of Ophthalmology (personal communication, Steven Feldon, MD). The SF Match data included totals for number of residency positions offered, positions filled, and number of students matching at home programs. A home-institution match was defined as a student matching at his/her medical school affiliated residency program. Statistical analyses were performed with Microsoft Excel (Microsoft, Redmond, WA). Results were analyzed with a chi-squared test for difference in proportions with  $p < 0.05$  considered significant.

## Results

► **Table 1** shows the number of residency positions offered, positions filled, and number of students matching at a home

institution. There was a significant increase in home match rates for 2021 when compared with the combined years of 2017 to 2020 ( $p = 0.004$ ). Similarly, a significant increase in home match rate was seen in 2022 when compared with the combined years of 2017 to 2020 ( $p = 0.02$ ). In addition, a significant increase in home match rate was demonstrated when comparing the combined 2021 to 2022 years to the combined years of 2017 to 2020 ( $p = 0.001$ ). There was no significant difference in home match rates between 2021 and 2022 as individual years ( $p = 0.65$ ).

## Discussion

Our findings are consistent with retrospective 2021 residency match analyses for otolaryngology, plastic surgery, and dermatology. Although neurosurgery and urology had increased trend rates of home-institution match rates, these results did not reach statistical significance. Faletsky et al noted that urology had a higher proportion of matched non-US senior graduates and neurosurgery had a higher proportion of international medical graduates (IMGs) when compared with otolaryngology and plastic surgery.<sup>1</sup> The authors speculated that these groups may have “diluted” the home-institution match numbers leading to the observed statistical nonsignificance.

Outside of the medical specialties mentioned, we were unable to find reports on home-institution match rates for other medical specialties on the PubMed database using combinations of search terms “home,” “match,” “residency,” and “COVID-19” and reference checking of cited material.

The strength of our dataset is that it reflects the complete ophthalmology match and does not rely on self-reporting or survey data. The main weakness is that the limited summary data does not allow us to look for specific factors that may be driving the observed trend. In addition, we only have the home-institution program data and not the home city (where multiple programs might exist in the same city or region). We also suspect that the no-match rate for candidates without a home program or for multiple candidates

**Table 1** Ophthalmology home-institution match data from 2017 to 2022

Match year	Positions offered	Positions filled	Matched to home institution (n)	Matched to home institution (%)
2017	468	462	86	18
2018	475	475	75	16
2019	485	484	84	17
2020	496	495	90	18
2021	499	498	115	23
2022	509	507	111	22
	2017–2020 vs. 2021		$p = 0.004^*$	
	2017–2020 vs. 2022		$p = 0.02^*$	
	2017–2020 vs. 2021–2022		$p = 0.001^*$	
	2021 vs. 2022		$p = 0.65$	

Abbreviation: COVID-19, coronavirus disease 2019.

This table shows the variation of home-institution matches from 2017 to 2022. There is a statistically significant difference in the 2021 and 2022 years when compared with the 2017 to 2020 pre-COVID-19 baseline.

The asterisks indicate statistical significance.

from the same institution might also be higher given the trends toward higher acceptance to home programs.

Future variables for study might include presence or absence of a home program, possible concurrent changes in region-based matching, relevance of program size or geographic location, effect of completed virtual or in-person rotations during the pandemic, and changes in the matched number of nonsenior and IMG candidates. In dermatology, while the home-institution match rate increase was significant, the home-region match rate was not.<sup>5</sup> It was also noted that larger dermatology programs were more likely to match home candidates.<sup>6</sup> Both otolaryngology and plastic surgery noted a reduced match rate for applicants without a home program.<sup>2,3</sup>

One hypothesis for the increased home-institution match rate in ophthalmology is that it is directly related to COVID-19 restrictions on away rotations. This is the leading hypothesis from nearly all dermatology, otolaryngology, and plastic surgery publications reporting increased home-institution match rates.<sup>1-6</sup> Plastic surgery noted an increased match rate if a virtual rotation was performed.<sup>4</sup> Since our relative increase in home matches is ~25 students, it would be interesting to see if there is a subset of ophthalmology applicants or programs that place a higher emphasis on the away rotation when creating a rank list. The published data on ophthalmology away rotations remains limited and is another area of possible future research focus.

A second hypothesis for the increased home-institution match rate is that it is only indirectly related to COVID-19 and more directly a result of the shift to virtual interviewing. A 2021 survey of ophthalmology applicant and program perceptions of the 2020 to 2021 application cycle found that a majority of both medical students and program directors had a preference for in-person interviews, specifically noting the ability to “connect” with faculty.<sup>7</sup> Abdelwahab et al suggested one factor for dermatology’s increased home-institution matches was a program’s unfamiliarity with outside applicants secondary to virtual rotations and virtual interviewing potentially leading to higher ranking of internal candidates.<sup>6</sup>

## Conclusion

Compared with 2017 to 2020, there was a statistically significant increase in home-institution matches for the 2021 and 2022 ophthalmology residency match cycles. This coincides with the COVID-19 pandemic and mirrors a trend seen in otolaryngology, dermatology, and plastic sur-

gery for the 2021 match. Additional study of accessible ophthalmology match data, potentially with a survey of both recent applicants and programs, is needed to identify and delineate possible factors leading to this observation.

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### Informed Consent

No informed consent was required for this manuscript.

### Conflict of Interest

No conflict of interest exists for any author.

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