



Home Sweet Home – The Integrated Plastic Surgery Residency Match During The COVID-19 Pandemic

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INTRODUCTION

Over the past 5 years, the number of integrated plastic surgery applicants has experienced a 53.3% increase. However, the number of residency positions offered has only seen a 15.5% increase. This translates to a 10.7% increase in applicants per year compared to a 3.1% increase in positions offered per year.¹ (Table 1)

The COVID-19 pandemic has led to inevitable changes in the residency application process. The past 3 years have been the most competitive in history. (Table 1) Therefore, any advantage an applicant can garner is of utmost importance (e.g. home matching). In previous years, one-fifth of plastic surgery residents matched into their home program with approx. 43% matching at programs where they completed an away rotation.^{2,3}

OBJECTIVES

Primary: To assess if the 2020-2021 and 2021-2022 plastic surgery match cycles and their outcomes related to home matching differed from previous years (2018-2020).

Secondary: To assess if the number of available positions, Doximity program rankings, geographic region, or rural-urban classification affected likelihood of home matching

TABLE 1

Year	No of Programs	Positions Offered	No of Applicants		No of Matches		% Matched	
			MD		MD		MD	
			Seniors	Total	Seniors	Total	Seniors	All
2013	53	116	179	203	111	115	62.0%	62.0%
2014	60	130	181	215	120	130	66.3%	66.3%
2015	67	148	168	206	136	144	81.0%	81.0%
2016	69	152	178	216	133	151	74.7%	74.7%
2017	73	159	200	246	148	157	74.0%	74.0%
2018	77	168	185	229	156	167	84.3%	84.3%
2019	78	172	188	234	158	172	84.0%	84.0%
2020	84	180	236	291	165	180	69.9%	69.9%
2021	85	187	239	329	167	187	69.9%	69.9%
2022	86	194	281	351	173	194	61.6%	61.6%

Table 1. Aggregate NRMP Data 2013-2022¹

METHOD

Data Collection

We reviewed publicly available match data from 86 ERAS-participating integrated US plastic surgery residencies between 2018 and 2022. Information was collected on residents' medical school affiliation for US medical graduates or most recent clinical or research affiliation for international medical graduates (total, n=904). (Table X)

Statistical Analysis

The mean percentages of program spots matched to home across the years were compared using a **t-test ($\alpha=0.05$)**.

Logistic regression analysis was performed for priori-defined variables (and possible confounders). Both **crude univariable** and **adjusted multivariable logistic analyses** were performed.

- Variables included **program size**, program **Doximity rank** by reputation (1-25, 26-50, 51-75, 76-100, unranked), **geographic region** (Midwest, Northeast, South, West), and **rural-urban classification** (as per 2013 RUCC codes).

For analysis by number of positions, two (median program size) was used as the reference, while reference groups for analysis by ranking (1-25) and region (Midwest) were arbitrarily defined

RESULTS

Overview

- 904 matched applicants identified across all 5 years. Of those, 901 (99.7%) had identifiable medical school or research fellowship affiliations.
- 77 programs had complete 5-year match data (Table 2)

Incidence of Home Matching (Figure 1)

- Results revealed a **statistically significant (t-test, $p=0.0002$) increase** in the incidence of home matches in 2021 as compared to the aggregated three previous matches [2018-2020].
- Match 2022 experienced a **statistically significant (t-test, $p=0.037$) decrease** in home match incidence versus 2021.

Logistic Regressions (Table 3)

Match Year

- Applicants in previous years [2018-2020] were **50% less likely to match at their home as compared to 2021** (CI:0.3,0.9, $p=0.01$). Remained significant when accounting for confounders in the multivariate analysis ($p=0.04$).
- No statistically significant difference between 2021 and 2022.**

Program Size

- Programs with only 1 available position were **30% less likely to match a home applicant in previous years [2018-2020] when compared to 2021** (CI:0.2,0.6, $p=0.001$). Remained significant when accounting for confounders in the multivariate analysis ($p=0.003$).

Ranking

- Statistically significant ($p=0.04$) in our multivariate analysis however no applicable significance was attained.

Region and RUCC

- No statistical significance in both univariate and multivariate analyses.

TABLE 2

		Positions per program		Percent home matches				Programs matching ≥1 home applicant		Programs matching ≥2 home applicants	
Year	No of Programs	Mean	SD	Mean	SD	Median	IQR	#	%	#	%
(a) All programs for which any match information was found											
2022	82	2.3	1.1	19.3	30.4	0.0	33.3	29	35.4	3	3.7
2021	84	2.2	1.0	28.5	35.1	0.0	50.0	40	47.6	10	11.9
2020	81	2.2	0.9	19.8	27.7	0.0	33.3	33	40.7	2	2.5
2019	80	2.2	1.0	14.7	27.7	0.0	25.0	21	26.3	4	5.0
2018	80	2.2	0.9	16.8	28.0	0.0	33.3	27	33.8	3	3.8
2018-2020	241	2.2	0.9	17.1	27.8	0.0	33.3	81	33.6	9	3.7
(b) Programs for which complete 5-year match data was found											
2022	77	2.4	1.0	19.0	29.5	0.0	33.3	28	36.4	3	3.9
2021	77	2.3	1.0	27.8	34.1	0.0	50.0	37	48.1	10	13.0
2020	77	2.2	0.9	20.1	27.9	0.0	33.3	32	41.6	2	2.6
2019	77	2.2	1.0	14.6	27.9	0.0	25.0	20	26.0	4	5.2
2018	77	2.2	0.9	16.3	28.2	0.0	33.3	25	32.5	3	3.9
2018-2020	231	2.2	0.9	17.0	28.0	0.0	33.3	77	33.3	9	3.9

Table 2. Descriptive Statistics: Mean Positions per program, % Home Matches, Programs Matching ≥ 1 and ≥ 2 Home Applicants

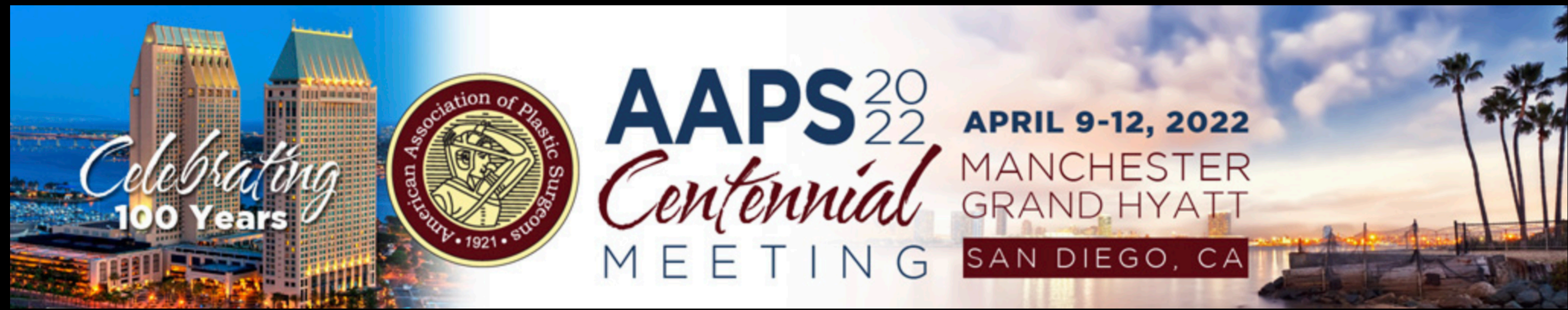


TABLE 3

Variable	Crude OR (95% CI)	p (univariable)	Adjusted OR (95% CI)	p (multivariable)
Year		0.07†		0.04*†
	2018-2020	0.6 (0.3, 0.9)	0.5 (0.3, 0.9)	0.01*
	2021	ref	ref	
	2022	0.6 (0.3, 1.1)	0.5 (0.3, 1.1)	0.07
Program Size		0.0002*†		0.003*†
	1	0.4 (0.3, 0.8)	0.3 (0.2, 0.6)	0.001*
	2	ref	ref	
	3	1.4 (0.8, 2.3)	1.4 (0.7, 2.8)	0.3
	4	2.1 (1.1, 4.1)	1.6 (0.7, 3.5)	0.3
	5	1.7 (0.1, 27.5)	1.2 (0.06, 23.4)	0.9
Ranking		0.003*†		0.04*†
	1-25	ref	ref	
	26-50	0.4 (0.2, 0.6)	0.6 (0.3, 1.1)	0.1
	51-75	0.6 (0.3, 0.9)	1.3 (0.6, 2.7)	0.5
Region	No rank	0.5 (0.2, 1.1)	1.6 (0.5, 5.1)	0.4
				0.1†
	Midwest	ref	ref	
	Northeast	0.9 (0.5, 1.5)	0.8 (0.5, 1.5)	0.6
RUCC	West	0.8 (0.4, 1.5)	0.8 (0.4, 1.6)	0.5
	South	1.3 (0.8, 2.3)	1.6 (0.9, 3.0)	0.1
				0.08†
RUCC	1	ref	ref	
	2	0.6 (0.4, 1.0)	0.5 (0.3, 0.9)	0.03*
	3	0.8 (0.3, 1.7)	0.8 (0.3, 1.8)	0.5
*indicates p value of statistical significance at $\alpha=0.05$				
†indicates variable category p-values, not level-specific				

Table 3. Logistic Regression Models: Univariate and Multivariate, Odd Ratios with Confidence Interval

FIGURE

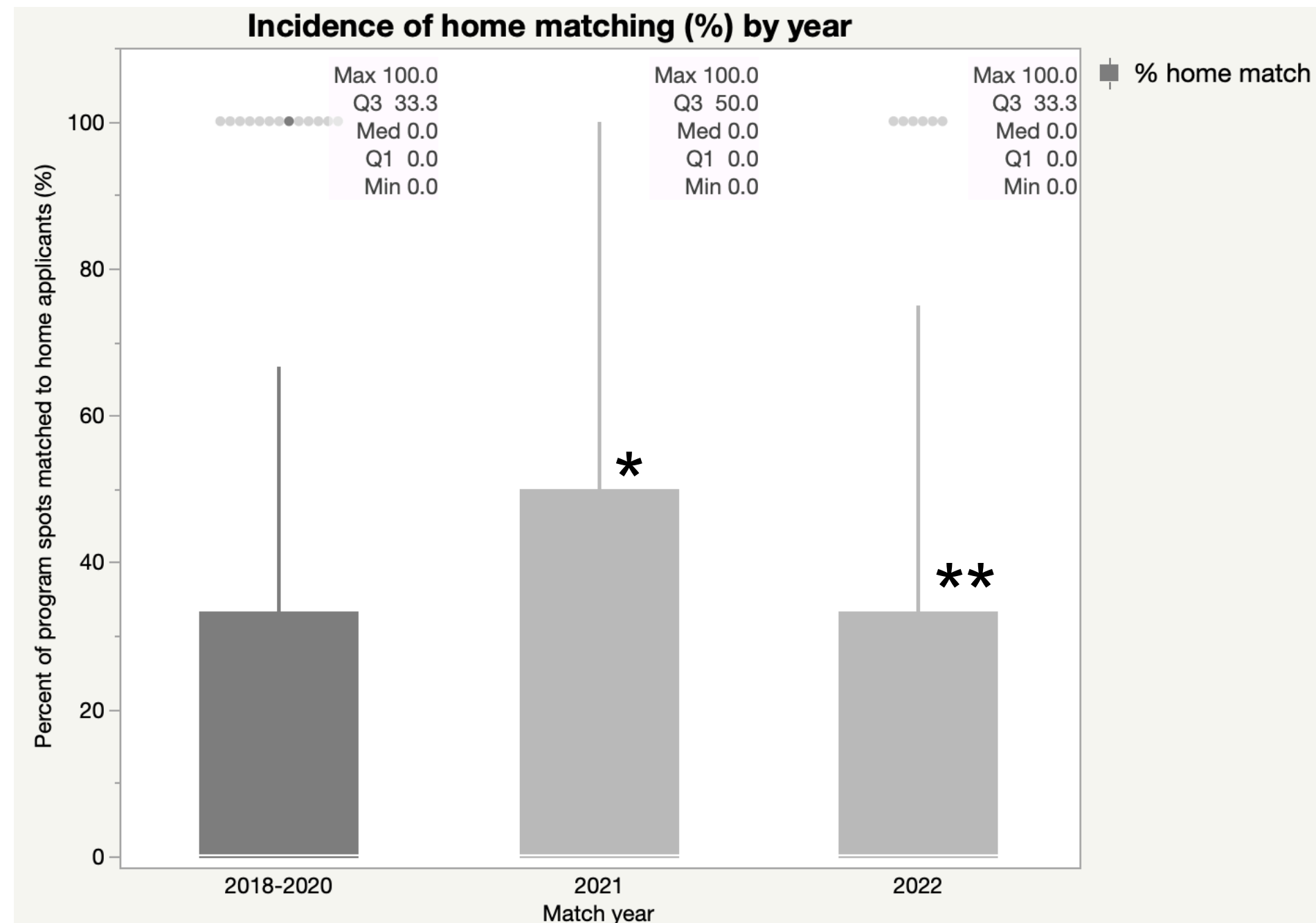


Figure 1. Incidence of Home Matching (%) by year.

*Statistically significant increase 2021 v 2018-2020, t-test ($p=0.0002$)

**Statistically significant 2022 decrease v 2021, t-test ($p=0.037$)

CONCLUSIONS

- We suggest **applicants** were less comfortable ranking unfamiliar programs after virtual interviews in **Match Cycle 2020-2021**, and thus **perhaps more likely "up-ranked" their home institutions**.
- As for **Match 2021-2022**, we suggest that residencies were **similarly likely to home match** as seen by no significant difference compared to odds ratio seen in **2021**.
- However, changes in this year's cycle such as the **reintroduction of away rotations** (restricted to only 1) may have driven applicants, residencies, or both to **decrease overall home-matching incidence**.
- Future studies should focus on what specific factors are driving these changes in candidate and/or residency mentality related to home matching.

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