

Impact of Length of Rank Order List on Match Results: 2002-2016 Main Residency Match

The NRMP collects data on the relationship between the average length of the rank order lists (ROL) of Matched applicants and filled programs vs. the average length of rank order lists of unmatched applicants and unfilled programs. The data show that matched applicants and filled programs consistently have longer ROLs than unmatched applicants and unfilled programs.

Program Data¹

Over the period for which data are reported, the average number of ranks per position for unfilled programs is between 37-52% less than that for filled programs.

Year	Filled Programs				Unfilled Programs			
	Number and % Filled		Average Length of ROL	Average Ranks per Position	Number and % Unfilled		Average Length of ROL	Average Ranks per Position
2002	2,747	(74.3%)	54.75	9.24	950	(25.7%)	26.94	5.03
2003	2,748	(74.5%)	55.04	9.32	942	(25.5%)	30.24	4.89
2004	2,936	(78.7%)	55.61	9.40	796	(21.3%)	27.93	4.85
2005	3,005	(79.4%)	55.66	9.35	779	(20.6%)	26.63	4.90
2006	3,159	(81.8%)	55.85	9.74	702	(18.2%)	25.31	4.65
2007	3,360	(84.1%)	56.8	9.96	635	(15.9%)	25.23	4.97
2008	3,410	(84.4%)	57.66	10.04	628	(15.6%)	29.5	5.37
2009	3,601	(87.3%)	58.94	10.52	526	(12.7%)	27.56	5.68
2010	3,614	(87.3%)	61.78	11.11	528	(12.7%)	27.68	5.64
2011	3,660	(87.1%)	63.35	11.33	542	(12.9%)	32.51	6.28
2012	3,767	(85.9%)	64.27	11.52	619	(14.1%)	30.52	6.63
2013	4,029	(87.9%)	68.12	11.11	555	(12.1%)	27.31	6.56
2014	4,041	(86.1%)	68.88	11.52	654	(13.9%)	32.42	7.28
2015	4,093	(86.8%)	70.72	11.64	623	(13.2%)	34.38	7.13
2016	4,191	(87.2%)	71.93	11.99	613	(12.8%)	36.01	7.54

Applicant Data ²

Year	Matched Applicants		Unmatched Applicants	
	Number and % Matched	Average Length of ROLs	Number and % Unmatched	Average Length of ROLs
2002	17,986 (80.4%)	7.46	4,387 (19.6%)	4.14
2003	18,382 (80.5%)	7.45	4,443 (19.5%)	4.46
2004	18,808 (78.5%)	7.44	5,156 (21.5%)	4.40
2005	19,234 (79.7%)	7.65	4,901 (20.3%)	4.48
2006	19,484 (76.4%)	7.81	6,011 (23.6%)	4.51
2007	20,042 (75.1%)	8.23	6,660 (24.9%)	4.64
2008	20,167 (74.0%)	8.52	7,094 (26.0%)	4.32
2009	20,458 (72.3%)	8.74	7,854 (27.7%)	4.46
2010	20,797 (71.9%)	9.25	8,130 (28.1%)	4.50
2011	21,363 (73.7%)	9.53	7,608 (26.3%)	4.38
2012	21,745 (73.5%)	9.75	7,855 (26.5%)	4.69
2013	24,186 (74.5%)	9.81	8,299 (25.5%)	4.58
2014	24,660 (76.1%)	10.30	7,760 (23.9%)	4.71
2015	24,918 (75.9%)	10.41	7,913 (24.1%)	4.78
2016	25,481 (76.3%)	10.60	7,903 (23.7%)	4.66

US Seniors Data ²

Year	Matched Applicants		Unmatched Applicants	
	Number and % Matched	Average Length of ROLs	Number and % Matched	Average Length of ROLs
2002	12,281 (95.6%)	7.96	587 (4.4%)	4.62
2003	12,692 (94.7%)	7.97	710 (5.3%)	5.02
2004	12,731 (93.8%)	7.99	843 (6.2%)	5.34
2005	12,975 (94.7%)	8.25	726 (5.3%)	5.29
2006	13,285 (94.7%)	8.40	748 (5.3%)	5.26
2007	13,486 (94.7%)	8.90	756 (5.3%)	5.62
2008	13,406 (95.0%)	9.26	699 (5.0%)	5.63
2009	13,560 (94.0%)	9.59	858 (6.0%)	6.27
2010	13,920 (94.0%)	10.17	896 (6.0%)	6.83
2011	14,466 (94.7%)	10.55	817 (5.3%)	6.36
2012	14,477 (95.6%)	10.93	670 (4.4%)	6.52
2013	15,099 (94.2%)	11.04	929 (5.8%)	6.58
2014	15,117 (95.0%)	11.68	796 (5.0%)	6.80
2015	15,512 (94.3%)	11.72	940 (5.7%)	7.15
2016	15,714 (94.3%)	11.97	950 (5.7%)	7.11



Charting Outcomes in the Match for U.S. Allopathic Seniors

**Characteristics of U.S. Allopathic Seniors Who Matched to Their
Preferred Specialty in the 2016 Main Residency Match**

1st Edition

Prepared by:
National Resident Matching Program
www.nrmp.org

September 2016

U.S. seniors consistently have the highest Match rate and the longest average ROLs. Although there are small year-to-year variations, about 94% of U.S. seniors match each year.

The data do not take into account a number of other factors that influence the Match rate of applicants and the fill rate of programs. Those factors include competitiveness of the applicant, competitiveness of the program, competitiveness of the specialty and number of interviews completed.

Both applicants and programs are well advised to include all acceptable choices on their rank order lists. A longer ROL in no way affects the chances of being matched to choices higher on the ROL.

¹ Data on programs are based on the number of positions offered. Any programs with one or more positions unfilled after The Match, regardless of the number of positions filled, is included in the unfilled program data. Programs that donated unfilled positions to other programs through reversions are considered unfilled, while data on programs that received reverted positions in the Match are based on the original quota.

² The data are based only on applicants' primary rank order lists and do not include couples.

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National Resident Matching Program, Charting Outcomes in the Match for U.S. Allopathic Seniors, 2016. National Resident Matching Program, Washington, DC 2016.

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Background

The first edition of *Charting Outcomes in the Match* was published in August 2006 to document how applicant qualifications affect success in the Main Residency Match®. The report was published biennially between 2007 and 2011 and was a collaboration of the National Resident Matching Program® (NRMP®) and the Association of American Medical Colleges® (AAMC®). Match outcome data from the NRMP were combined with applicant characteristics from the AAMC's Electronic Residency Application Service (ERAS®) and United States Medical Licensing Examination (USMLE®) scores from the AAMC data warehouse. However, starting with the 2014 Main Residency Match, the NRMP added a Professional Profile section to its Match registration process to collect the USMLE scores and other applicant characteristics. NRMP has used those data to independently produce this report since the 2014 version of *Charting Outcomes in the Match*.

In prior years, this report examined the Match success of only two applicant groups: senior students from U.S. allopathic medical schools and independent applicants. Independent applicants included all applicant types other than U.S. seniors: previous graduates of U.S. allopathic medical schools, students/graduates of osteopathic medical schools, students/graduates of Fifth Pathway programs, students/graduates of Canadian medical schools, and U.S. citizen and non-U.S. citizen students/graduates of international medical schools. Because independent applicants are a heterogeneous group, a decision was made this year to report data separately for U.S. allopathic medical school seniors, students/graduates of osteopathic medical schools, U.S. citizen students/graduates of international medical schools, and non-U.S. citizen students/graduates of international medical schools. This report examines the characteristics of U.S. allopathic seniors.

Data

Match success, specialty preference, and ranking information were collected through the Main Residency Match. The 40 U.S. medical schools receiving the highest totals of National Institutes of Health (NIH) grants were obtained from the NIH website. Other applicant characteristics, including USMLE Step 1 and Step 2 CK scores, academic degrees, publications, Alpha Omega Alpha Honor Medical Society (AOA) membership, and research, work and volunteer experiences, were self-reported through the Professional Profile section of the NRMP's Applicant Registration Form for the Match. To complete the form, applicants were asked to answer the questions as they did in their ERAS Common Application Form (CAF). Completion of the form was optional, and applicants who completed the form could consent or decline to participate in NRMP research. Data collection for the self-reported Professional Profile section was granted exemption by the American Institutes for Research (AIR) Institutional Review Board (IRB).

A total of 18,187 U.S. allopathic seniors submitted certified rank order lists in the 2016 Main Residency Match. After excluding the 9.4 percent of U.S. allopathic seniors who did not give consent to participate in NRMP research, 16,484 applicants were included in the final dataset. Missing data were found in Step 1 scores (2.0% missing), Step 2 CK scores (4.0%), number of research experiences (14.6%), number of abstracts, presentations, and publications (14.9%), number of work experiences (17.5%), number of volunteer experiences (17.2%), Ph.D. degree (8.4%), other graduate degree (8.8%), and AOA membership (9.3%).

To ensure that USMLE Step scores were not misreported, the NRMP asked medical schools to verify the scores of their U.S. senior students. In 2016, 91 percent of the Step 1 scores and 92 percent of the Step 2 CK scores used in this report were verified, corrected, or supplied by U.S. medical schools. Because the self-reported scores are highly accurate (the intraclass correlation coefficient (ICC) between the self-reported scores and school-verified scores was 0.981 for Step 1 scores and 0.978 for Step 2 CK scores), both verified and unverified scores were used to prepare this report.

Methods

Specialties that offered 50 or more positions in the 2016 Main Residency Match are included in this report. Over the years, new specialties have been added to the report, including Otolaryngology and Neurology in 2007, Neurological Surgery in 2009, and Child Neurology and Vascular Surgery in 2014. Transitional Year programs were excluded beginning with the 2011 report because they are not viewed as a specialty choice.

Twelve measures are incorporated in this report. Probability analysis using a simple logistic regression model was introduced in 2009 to evaluate the relationship between Match success and contiguous ranks and USMLE Step 1 scores. Probability analyses in this report used data on U.S. seniors who participated in the Match in 2014, 2015, and 2016.

It is important to note that for purposes of this report, Match success is defined as a match to the specialty of the applicant's first-ranked program, or "preferred specialty," because that is assumed to be the specialty of choice. Lack of success includes matching to another specialty as well as failure to match at all. No distinction was made based on whether applicants matched to the first, second, third, or last choice program.

Summary

Some general observations apply to all specialties in this report. U.S. allopathic seniors who are successful in matching to their preferred specialty are more likely to:

- Rank more programs within their preferred specialty
- Have higher USMLE Step 1 and Step 2 scores
- Be members of Alpha Omega Alpha

Although other measures seem to be related to Match success for some specialties, the relationships are not consistent enough to draw broad conclusions across specialties. In addition, the data sources used for *Charting Outcomes in the Match* do not include other important applicant factors such as course evaluations, reference letters, and the Medical School Performance Evaluation (MSPE).

Despite the fairly strong relationship between USMLE Step scores and Match success, the distributions of scores show that program directors consider other qualifications. A high score is not a guarantee of success, and a lower score is not a bar to success. Even in the most competitive specialties a few individuals with higher scores are not successful. In the less competitive specialties, U.S. seniors with scores slightly above passing usually match to their preferred specialties. The data also are reassuring because they indicate that at least some programs do not employ an arbitrary cutoff or decline to consider applicants with less than excellent test performance.

The data in this report support the following straightforward advice one should give to an applicant:

- Rank all of the programs you really want, without regard to your estimate of your chances with those programs.
- Include a mix of both highly competitive and less competitive programs within your preferred specialty.
- Include all of the programs on your list where the program has expressed an interest in you and where you would accept a position.
- If you are applying to a competitive specialty and you want to have a residency position in the event you are unsuccessful in matching to a program in your preferred specialty, also rank your most preferred programs in an alternate specialty.
- Include all of your qualifications in your application, but know that you do not have to be AOA, have the highest USMLE scores, have publications, or have participated in research projects to match successfully.

Program directors and applicants will find the tables and charts for the specialty of their particular interest later in this report.

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Tables and Charts for All Specialties

**Chart
1**

**Active Applicants in the 2016 Main Residency Match
by Applicant Type**

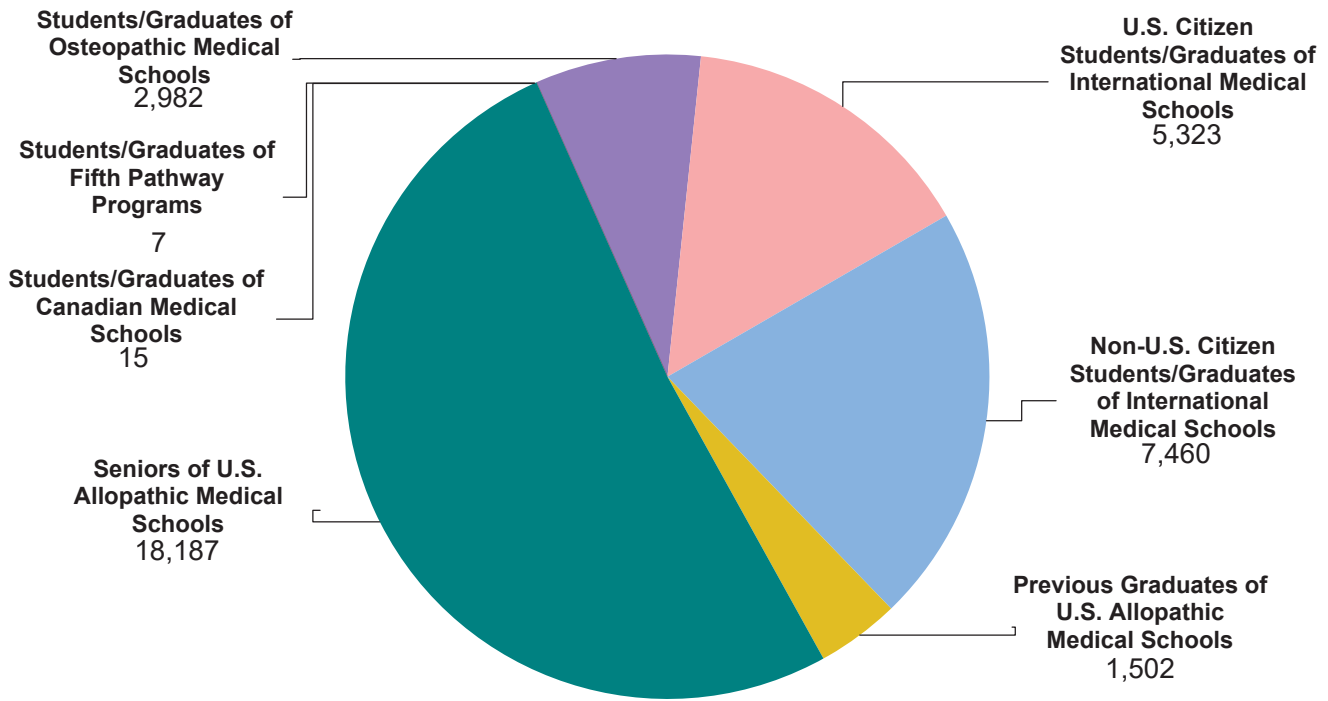


Chart 1 shows the number of active applicants (applicants who submitted rank order lists of programs) by applicant type in the 2016 Main Residency Match. A total of 35,476 active applicants participated in the 2016 Main Residency Match. U.S. allopathic medical school seniors constituted 51.3 percent of the applicants in the 2016 Match. The next largest group were non-U.S. citizen students and graduates of international medical schools (21.0%). The numbers of Fifth Pathway (n=7) and Canadian graduates (n=15) are small.

**Table
1****Number of Applicants and Positions in the 2016 Main Residency Match
by Preferred Specialty***

Preferred Specialty	Total Positions Offered	Total Number of All Applicants	Number of All Applicants Per Position	Number of U.S. Seniors			Number of U.S. Seniors Per Position
				Matched	Not Matched	Total	
Anesthesiology	1,696	1,771	1.04	1,048	28	1076	0.63
Child Neurology	170	170	1.00	95	6	101	0.59
Dermatology	440	614	1.40	360	107	467	1.06
Diagnostic Radiology	1,168	1,220	1.04	719	15	734	0.63
Emergency Medicine	1,895	2,270	1.20	1,471	142	1613	0.85
Family Medicine	3,238	4,139	1.28	1,393	84	1477	0.46
General Surgery	1,241	1,845	1.49	897	184	1081	0.87
Internal Medicine	7,352	9,857	1.34	3,422	84	3506	0.48
Internal Medicine/Pediatrics	386	460	1.19	325	44	369	0.96
Neurological Surgery	216	342	1.58	200	64	264	1.22
Neurology	770	985	1.28	434	18	452	0.59
Obstetrics and Gynecology	1,265	1,606	1.27	979	97	1076	0.85
Orthopaedic Surgery	717	1,034	1.44	649	214	863	1.20
Otolaryngology	304	358	1.18	272	34	306	1.01
Pathology	579	755	1.30	246	12	258	0.45
Pediatrics	2,768	3,234	1.17	1,825	64	1889	0.68
Physical Medicine and Rehabilitation	414	538	1.30	219	27	246	0.59
Plastic Surgery	152	206	1.36	133	40	173	1.14
Psychiatry	1,386	2,134	1.54	841	94	935	0.67
Radiation Oncology	186	218	1.17	169	17	186	1.00
Vascular Surgery	56	107	1.91	49	20	69	1.23

*Preferred specialty is the specialty of the first-ranked program on an applicant's rank order list, excluding preliminary programs in specialties.

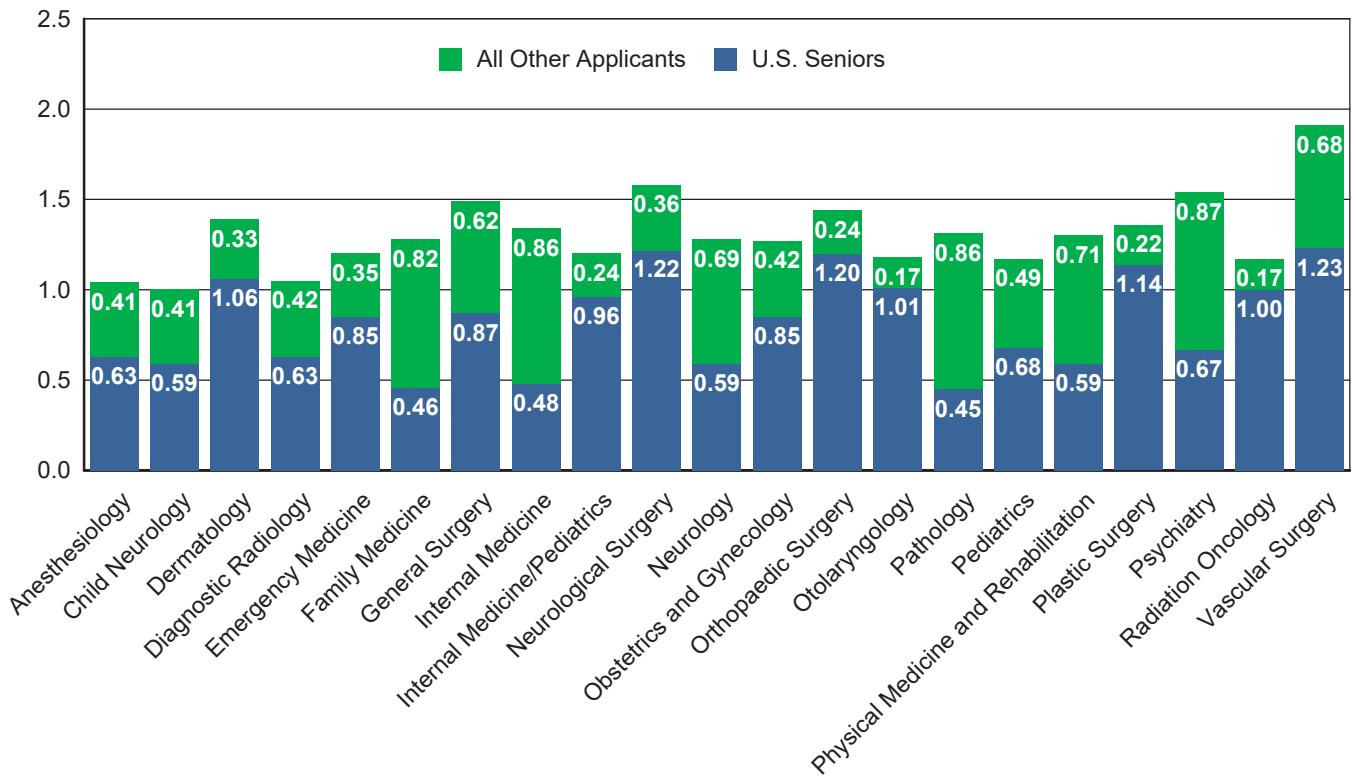
Source: NRMP Data Warehouse.

Table 1 provides a summary of the numbers of positions for selected specialties and the numbers of all applicants and U.S. allopathic seniors who preferred each specialty. For example, a total of 1,771 applicants preferred Anesthesiology (or ranked an Anesthesiology position first), among whom 1,076 were U.S. allopathic seniors (1,048 matched and 28 not matched to Anesthesiology). For each of the 1,696 Anesthesiology positions there were 1.04 applicants who preferred the specialty, including 0.63 U.S. allopathic seniors.

Only those specialties offering 50 or more positions are included. For those specialties offering both PGY-1 and PGY-2 positions (including Physician (R) positions), all position types have been combined.

**Chart
2**

**Ratio of U.S. Allopathic Seniors Ranking Specialty First / Available Positions
by Preferred Specialty**

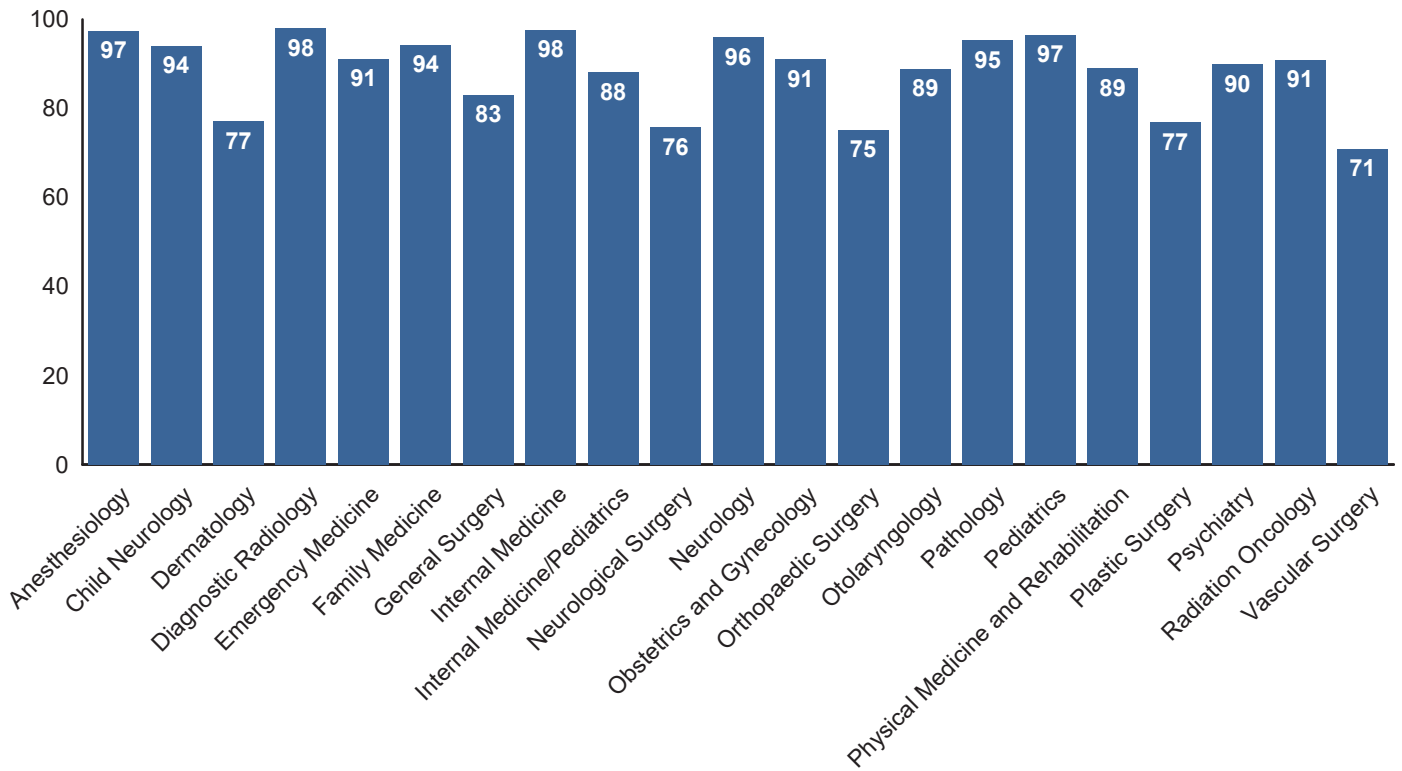


Source: NRMP Data Warehouse

Chart 2 shows the ratios of U.S. allopathic seniors and all applicants who preferred each specialty to available positions in that specialty. All specialties except Dermatology, Neurological Surgery, Orthopaedic Surgery, Plastic Surgery, and Vascular Surgery have enough positions to accommodate all U.S. seniors who preferred that specialty. The ratio was lowest for Pathology, Family Medicine, and Internal Medicine.

**Chart
3**

**Match Rates of U.S. Allopathic Seniors
Percent Matched by Preferred Specialty**



Source: NRMP Data Warehouse

Chart 3 shows the percentages of U.S. seniors who matched to their preferred specialty. Overall, 91.9 percent of U.S. seniors matched to their preferred specialty, ranging from a high of 98.0 percent (Diagnostic Radiology) to a low of 71.0 percent (Vascular Surgery).

**Table
2****Summary Statistics on U.S. Allopathic Seniors
All Specialties Combined**

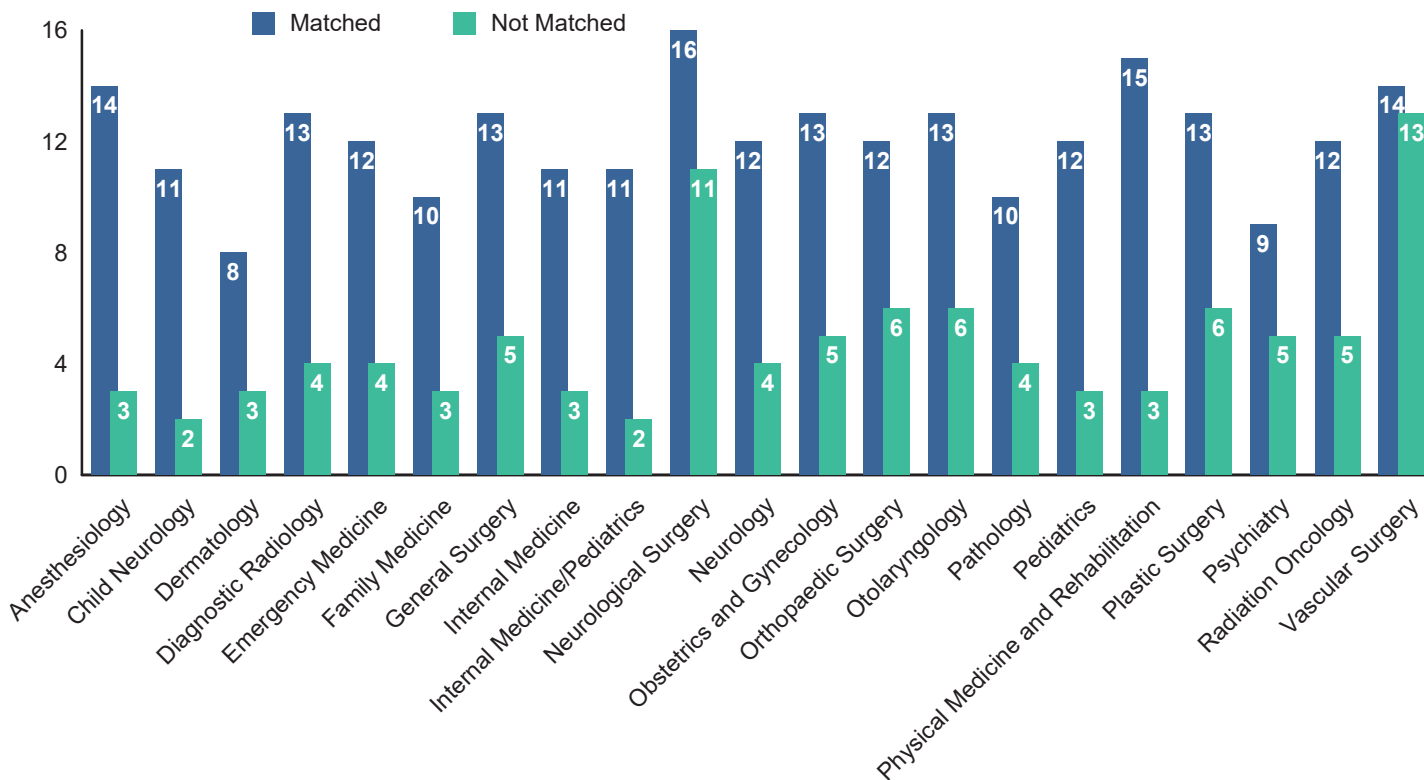
Measure	Matched (n=14,518)	Unmatched (n=1,766)
1. Mean number of contiguous ranks	11.8	4.4
2. Mean number of distinct specialties ranked	1.2	1.5
3. Mean USMLE Step 1 score	233	230
4. Mean USMLE Step 2 CK score	245	239
5. Mean number of research experiences	3.0	3.4
6. Mean number of abstracts, presentations, and publications	4.7	5.1
7. Mean number of work experiences	3.2	3.1
8. Mean number of volunteer experiences	6.9	6.4
9. Percentage who are AOA members	17.3	12.4
10. Percentage who graduated from one of the 40 U.S. medical schools with the highest NIH funding	32.1	25.9
11. Percentage who have Ph.D. degree	4.1	3.6
12. Percentage who have another graduate degree	16.9	19.4

Sources. NRMP Data Warehouse; Top 40 U.S. medical schools with the highest NIH funding in measure 10 is from the NIH website (<http://report.nih.gov/award/index.cfm>).

Table 2 provides summary statistics for all specialties by Match outcome on the 12 measures presented in this report. Data on each of these measures are displayed graphically by preferred specialty on the following pages. Only U.S. allopathic seniors who gave consent to use their information in research are included in this table and the rest of the report.

**Chart
4**

**Median Number of Contiguous Ranks of U.S. Allopathic Seniors
by Preferred Specialty and Match Status**



Source: NRMP Data Warehouse

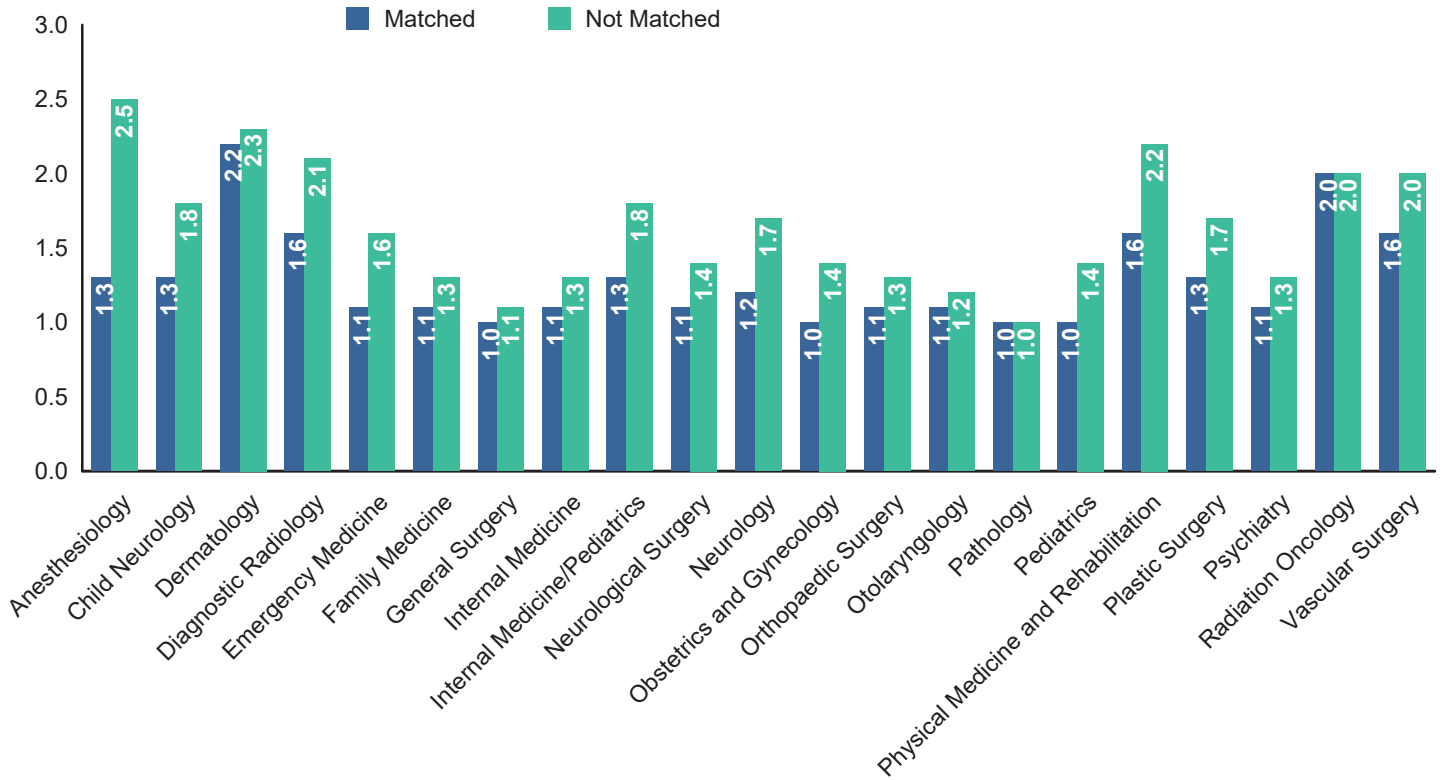
In general, applicants are more likely to be successful if they rank more programs in their desired specialty. To quantify this aspect of applicant behavior, we tallied the number of programs ranked in the first-choice specialty before a program in another specialty appeared on the applicant's rank order list (contiguous ranks).

Chart 4 displays the median number of contiguous ranks by preferred specialty for U.S. allopathic seniors who matched and did not match to their preferred specialty. The chart shows considerable variation across the specialties for U.S. seniors. Neurological Surgery had the longest average contiguous rank list (16) for matched U.S. seniors and Dermatology had the shortest (8). For all specialties, U.S. seniors who matched to their preferred specialty had median contiguous rank lists that were longer than those of U.S. seniors who did not match.

The principal message of these graphs is that applicants with longer rank order lists are more successful than those with shorter ones. The NRMP has been recommending longer lists for many years, but some applicants apparently do not heed the advice. Others may have shorter lists because they found only a few programs willing to entertain their applications or because they could not afford a large number of interview trips.

**Chart
5**

**Mean Number of Different Specialties Ranked by U.S. Allopathic Seniors
by Preferred Specialty and Match Status**

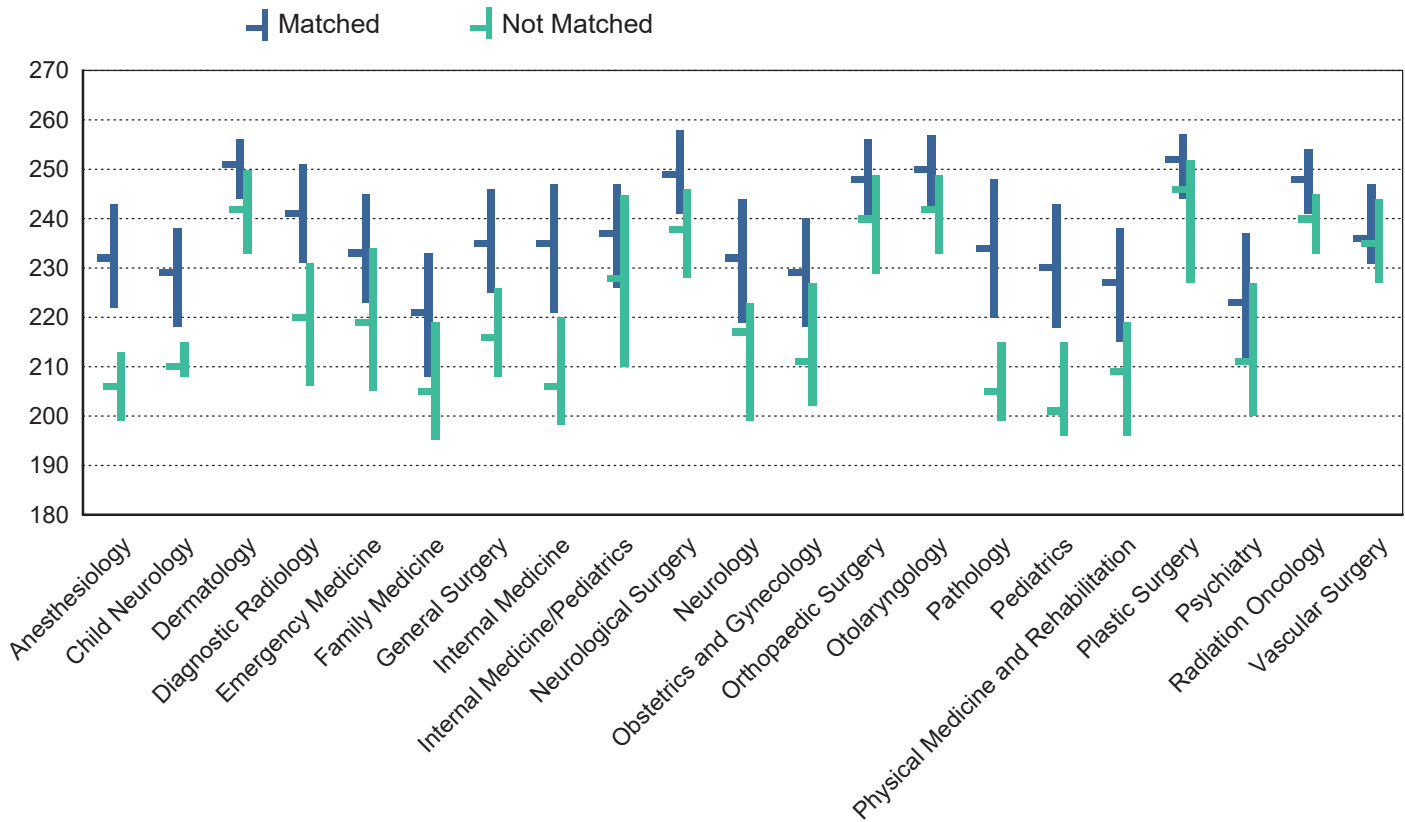


Source: NRMP Data Warehouse

Some applicants are interested in a single specialty while others consider two or more. Chart 5 displays the average number of different specialties ranked by preferred specialty and Match outcome. For all specialties, U.S. allopathic seniors who did not match to their preferred specialty had a higher mean number of different specialties ranked.

**Chart
6**

**USMLE Step 1 Scores of U.S. Allopathic Seniors
by Preferred Specialty and Match Status**



Source: NRMP Data Warehouse

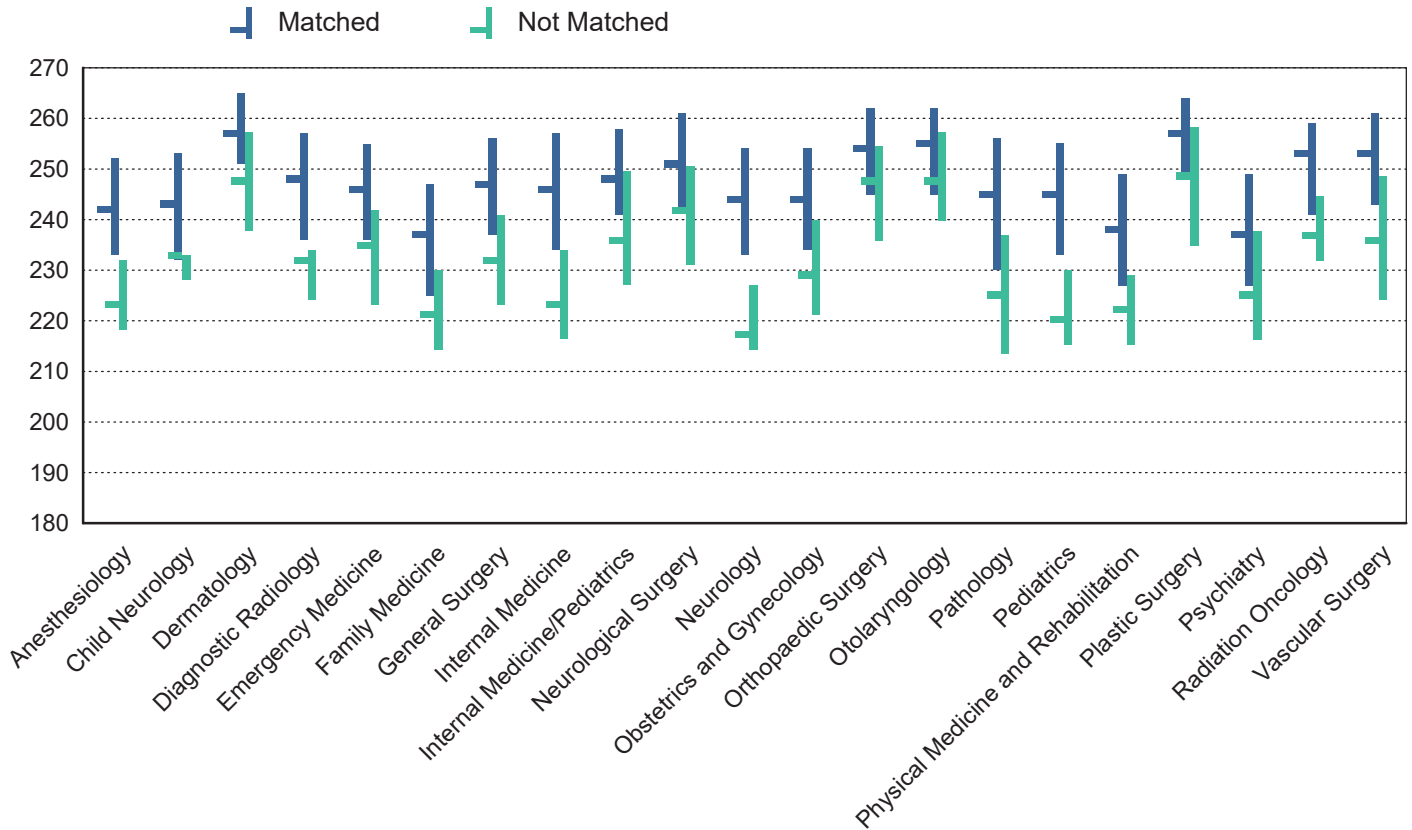
USMLE Step 1 scores are a measure of a student’s understanding of important basic science concepts and the ability to apply that knowledge to the practice of medicine. Although such knowledge is only one facet of applicant qualifications considered by program directors in their selection process, a Step 1 score is the only qualification that is universally available for all applicants during the interview season and prior to the NRMP’s ranking deadline. Overall, U.S. allopathic seniors who matched to their preferred specialty have *mean* USMLE Step 1 scores of 233.2 (s.d. = 17.4), well above the 2016 minimum passing score of 192. Step 1 scores were available for 98 percent of U.S. seniors who gave consent to research.

Chart 6 displays the Step 1 scores for U.S. allopathic seniors by specialty and Match status. The horizontal bars are the *median* values for successful applicants and the vertical lines show the interquartile ranges (IQR, the range of scores for applicants excluding the top and bottom quarters of the distribution). Scores generally are higher for the more competitive specialties, but there is substantial overlap when specialties are compared.

Across all specialties, the IQR of U.S. seniors who matched to their preferred specialties was higher than those who did not match.

**Chart
7**

**USMLE Step 2 CK Scores of U.S. Allopathic Seniors
by Preferred Specialty and Match Status**



Source: NRMP Data Warehouse

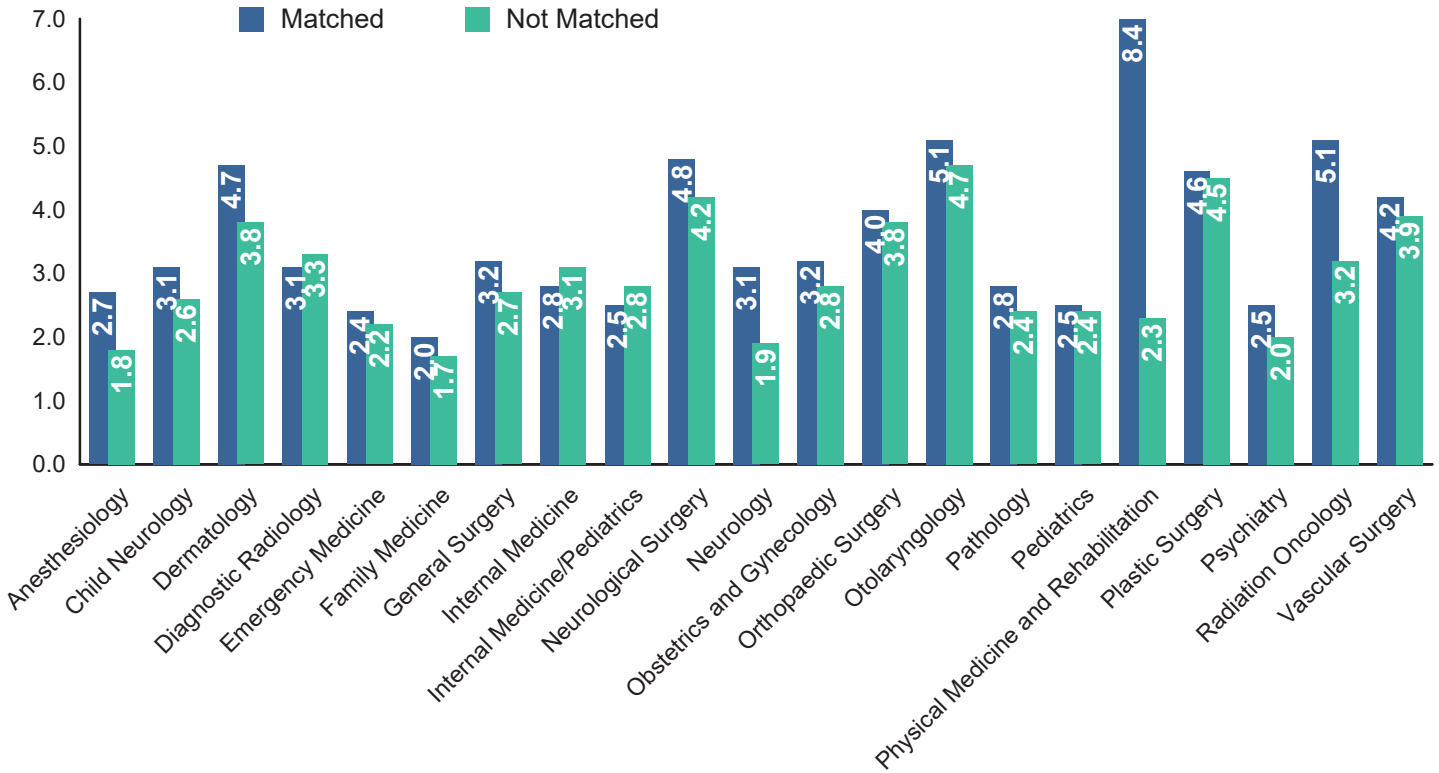
USMLE Step 2 CK scores are a measure of an applicant's ability to apply the medical knowledge, skills, and understanding of clinical science essential for providing patient care. Overall, U.S. allopathic seniors who matched to their preferred specialty had *mean* USMLE Step 2 CK scores of 244.8 (s.d. = 14.9), well above the 2016 minimum passing score of 209. Step 2 CK scores were available for 96 percent of U.S. seniors who gave consent to research.

Chart 7 shows the Step 2 CK scores for U.S. seniors by preferred specialty and Match status. The horizontal bars are the *median* values for successful applicants and the vertical lines show the interquartile ranges. As was the case for the Step 1 scores, the more competitive specialties have higher average Step 2 CK scores, but the overall variation is smaller.

Across all specialties, the IQR of U.S. seniors who matched to their preferred specialties was higher than those who did not match.

**Chart
8**

**Mean Number of Research Experiences of U.S. Allopathic Seniors
by Preferred Specialty and Match Status**

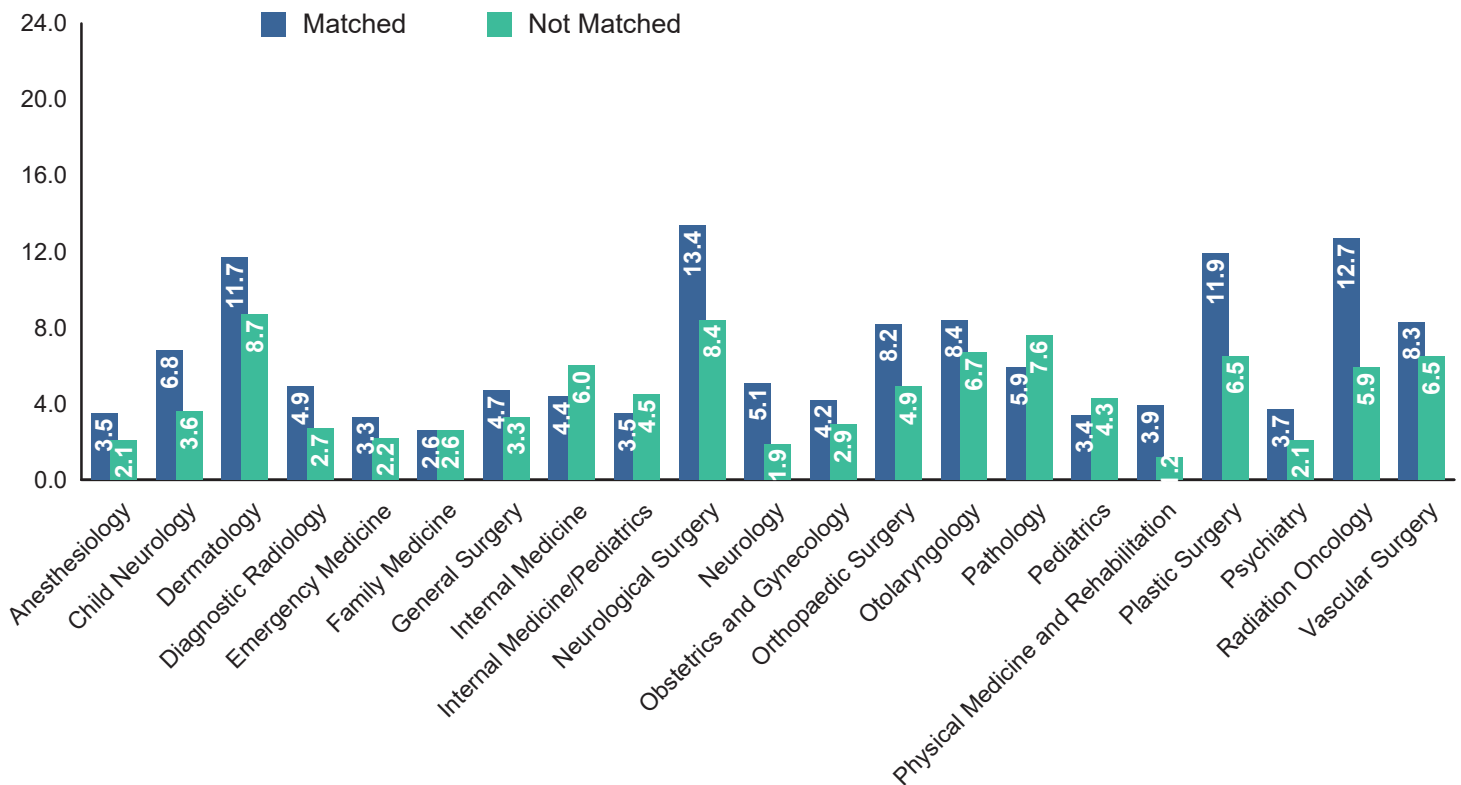


Source: NRMP Data Warehouse

Applicants were asked to report the number of research experiences entered in their Electronic Residency Application Service (ERAS) applications. The experiences are not verified or evaluated and quality may vary greatly. Chart 8 shows the average number of research experiences by preferred specialty and Match outcome. U.S. seniors averaged 3.0 research experiences, with 79.6 percent reporting this information. For all specialties except Diagnostic Radiology, Internal Medicine, and Internal Medicine/Pediatrics, matched U.S. seniors had more research experiences on average.

**Chart
9**

Mean Number of Abstracts, Presentations, and Publications of U.S. Allopathic Seniors by Preferred Specialty and Match Status



Source: NRMP Data Warehouse

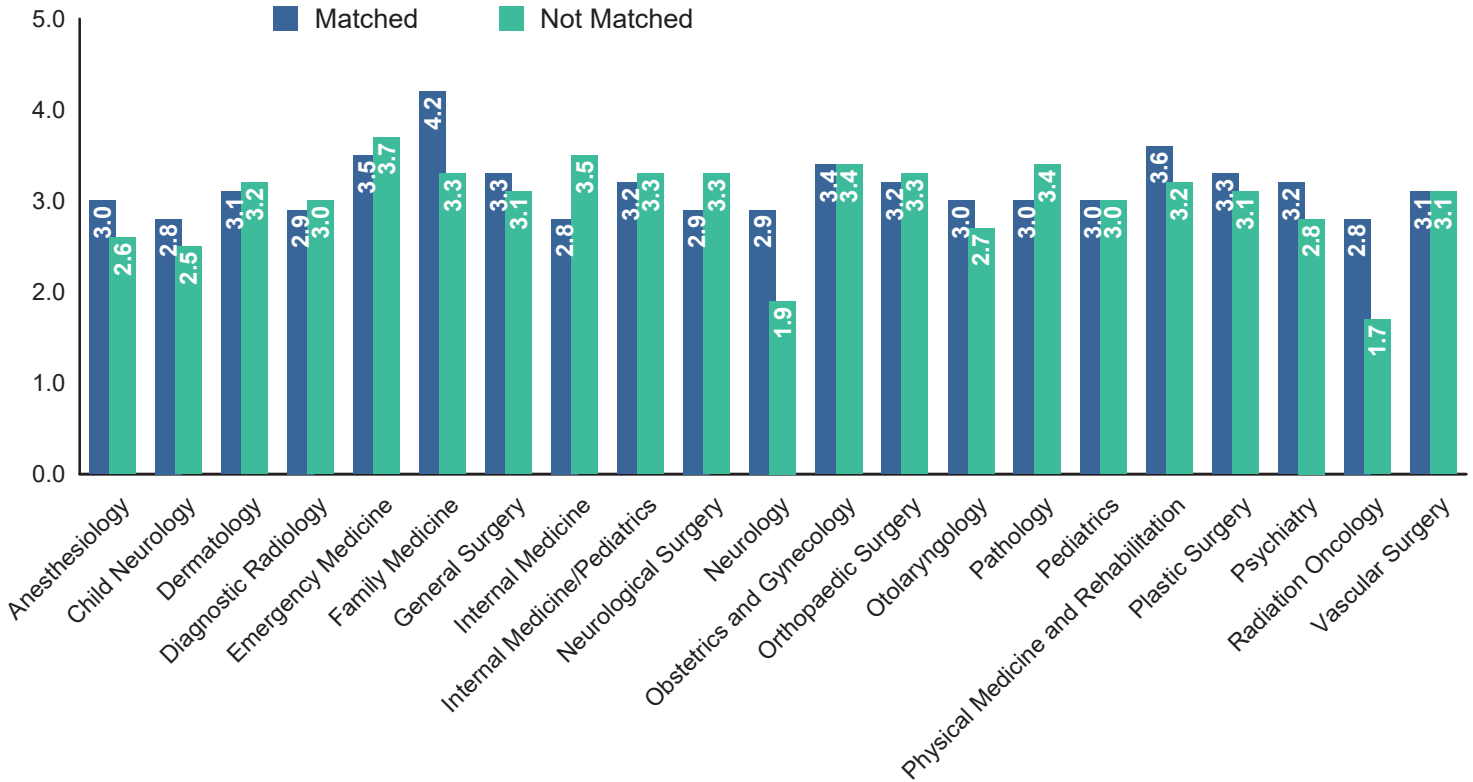
Applicants were asked to list the number of abstracts, presentations, and publications they reported in their ERAS applications. This information is self-reported and may include peer-reviewed articles, abstracts, poster sessions, and invited national or regional presentations. Some residency programs may independently verify and even review publications for applicants in whom they have an interest, but most probably do not.

Many applicants report abstracts, presentations, or publications, sometimes dozens or even hundreds. In the individual specialty sections, we distinguish between no publications, 1 to 5 publications, and more than 5 publications. Chart 9 shows the average number of publications by preferred specialty and Match outcome.

U.S. seniors averaged 4.8 publications, with 70.9 percent reporting this information. Matched U.S. seniors had a higher mean number of abstracts, presentations, and publications in all specialties but Internal Medicine, Internal Medicine/Pediatrics, Pathology, and Pediatrics.

**Chart
10**

**Mean Number of Work Experiences of U.S. Allopathic Seniors
by Preferred Specialty and Match Status**

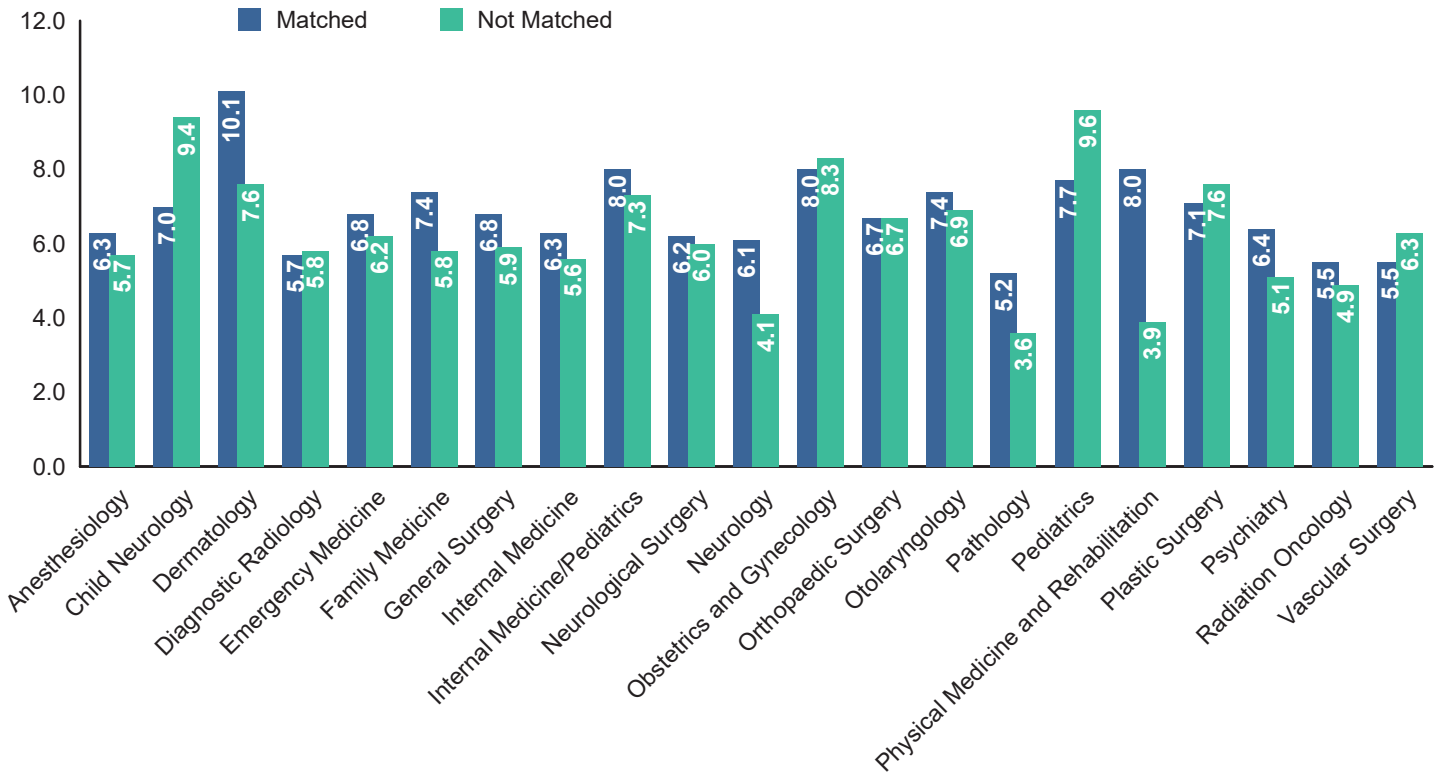


Source: NRMP Data Warehouse

Applicants were asked to list the number of work experiences they reported in their ERAS application. Chart 10 shows the average number of work experiences by preferred specialty and Match outcome. There is little variation across specialties or within specialties (matched or not matched) for the U.S. seniors. Three-quarters (75.8%) of U.S. seniors reported work experiences, with an average of 3.2 work experiences for all U.S. seniors. Differences in mean number of work experiences are small in most specialties.

**Chart
11**

**Mean Number of Volunteer Experiences of U.S. Allopathic Seniors
by Preferred Specialty and Match Status**

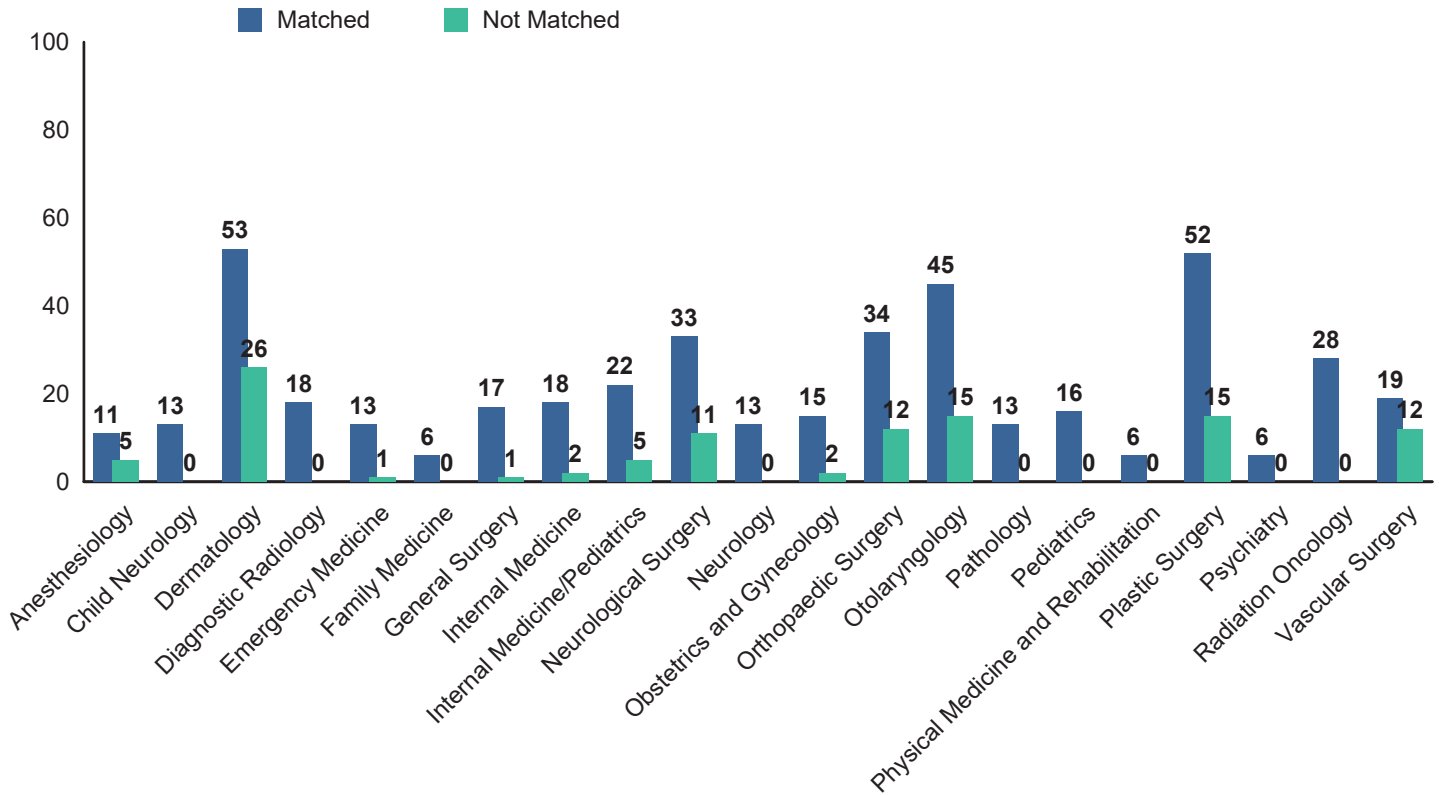


Source: NRMP Data Warehouse

Applicants were asked to list the number of volunteer experiences they reported in their ERAS applications. Chart 11 displays the average number of volunteer experiences by preferred specialty and Match outcome. Matched U.S. seniors in most specialties averaged more volunteer experiences when compared to unmatched seniors in the same specialties, with several averaging at least one more experience. U.S. seniors averaged 6.8 volunteer experiences, with 82 percent reporting at least one experience.

**Chart
12**

**Percentage of U.S. Allopathic Seniors Who Are Members of AOA
by Preferred Specialty and Match Status**



Source: NRMP Data Warehouse

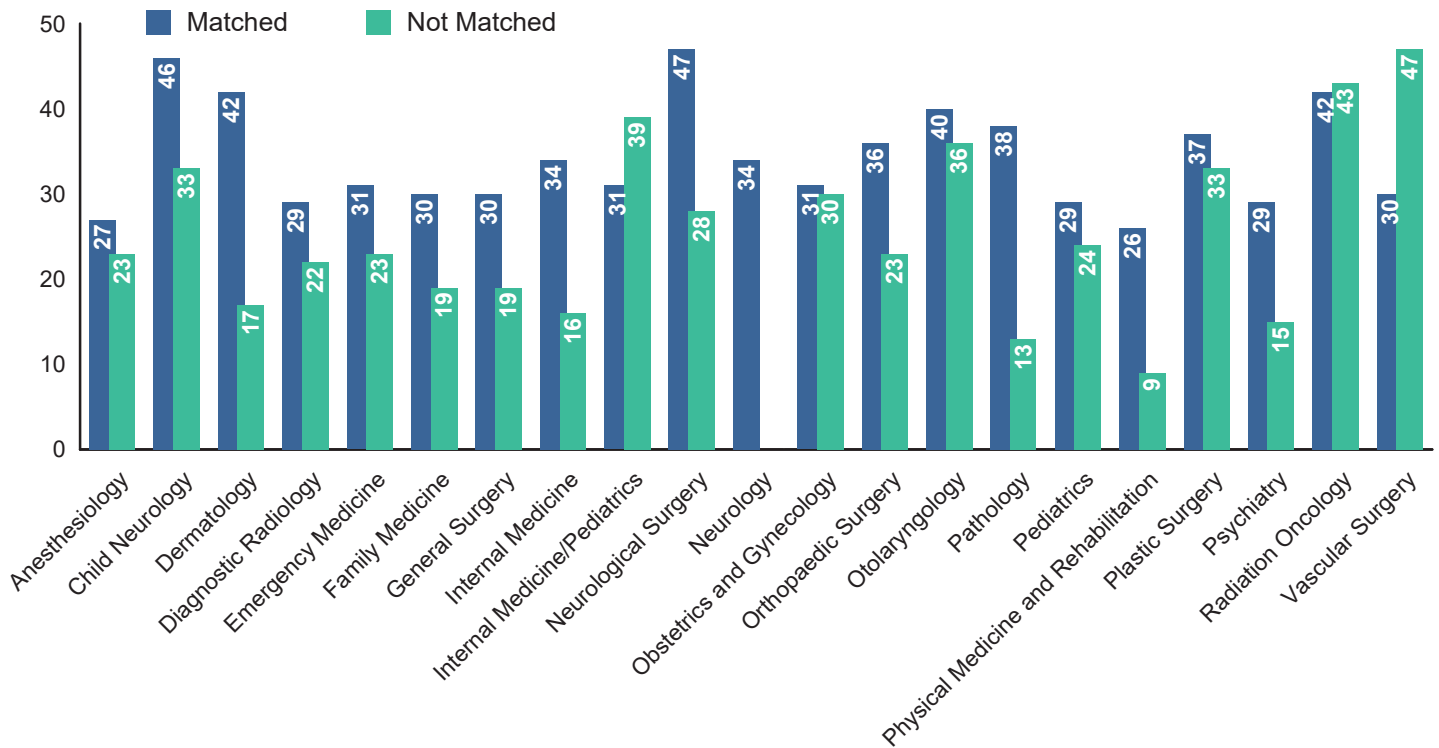
Membership in Alpha Omega Alpha (AOA) Honor Medical Society is an honor reserved for students with high academic achievement. AOA membership is limited to students in medical schools that sponsor an AOA chapter. Most, but not all, allopathic schools in the United States participate. An analysis of its relationship with success in the Match is limited by the relatively small number of applicants who are members, by the fact that some schools do not have AOA chapters, and by the fact that other schools elect AOA members too late in the academic year for it to be considered in the application process.

Data on AOA membership are self-reported. Overall, 16.9 percent of U.S. seniors included in this report claimed AOA membership. Among applicants who matched to their preferred specialty, 17.5 percent reported AOA membership, compared to 12.6 percent of unmatched applicants.

As with several of the other measures, the most competitive specialties are able to attract the greatest proportion of AOA members. All specialties attract some AOA applicants, but for most specialties AOA members account for fewer than one in four successful applicants.

**Chart
13**

Percentage of U.S. Allopathic Seniors Graduating from One of the 40 U.S. Medical Schools with the Highest NIH Funding* by Preferred Specialty and Match Status



Source: NRMP Data Warehouse

*NIH funding information was obtained from NIH website: <http://report.nih.gov/award/index.cfm>.

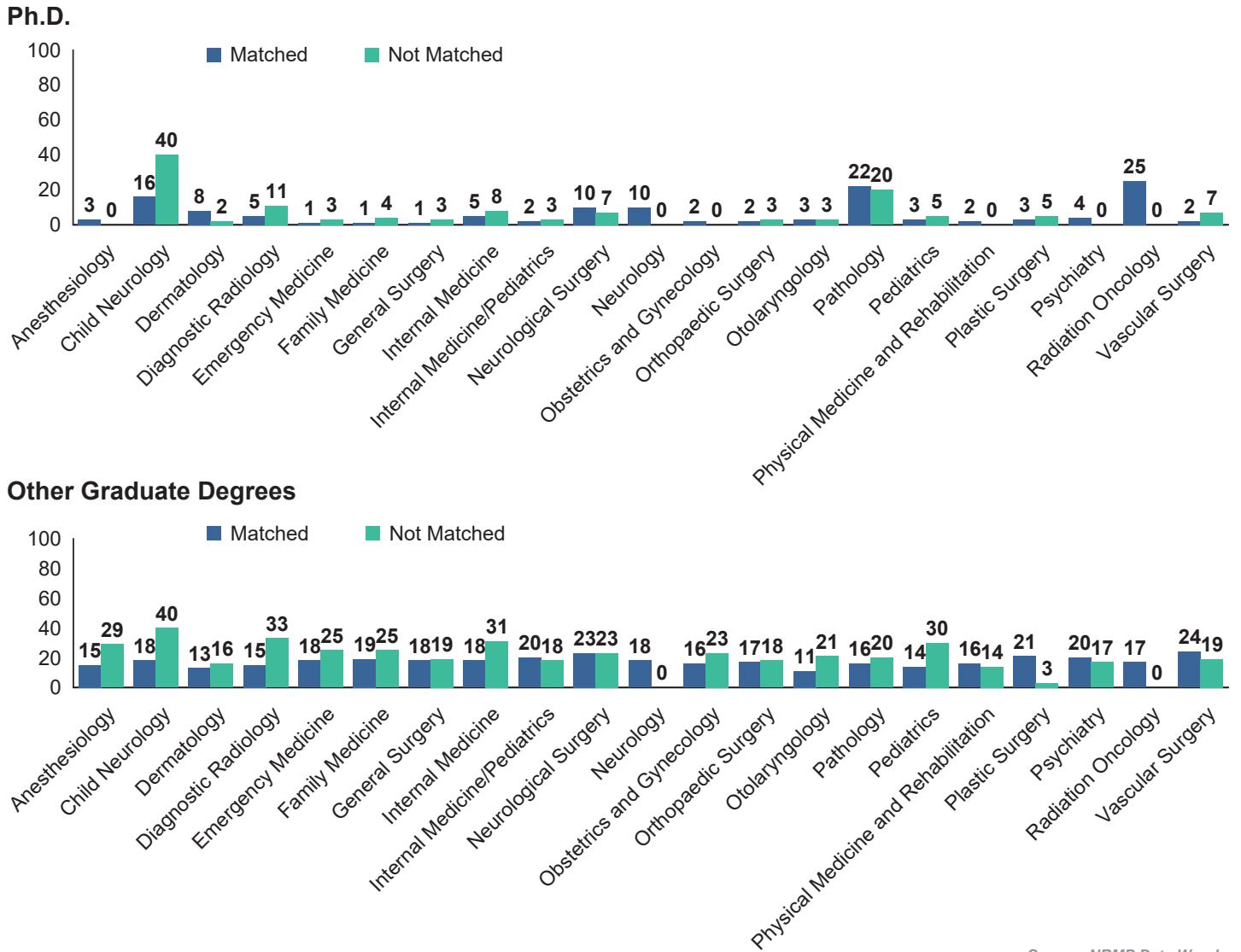
Some program directors may give preference to applicants with research experience or who graduated from a research-intensive medical school. To test that assumption, we obtained data on the amount of NIH grant awards and identified the 40 schools with the highest NIH funding. This measure, by definition, is limited to students of U.S. medical schools. Overall, 32.6 percent of matched and 26.7 percent of unmatched U.S. seniors were graduates of one of the 40 medical schools with the highest NIH funding.

Chart 13 shows the percentage of U.S. allopathic seniors who graduated from those schools by specialty and Match outcome. For example, 27 percent of U.S. seniors who matched in Anesthesiology were graduates of one of the 40 medical schools with the highest NIH funding, and 23 percent of seniors who did not match in Anesthesiology were graduates of those schools.

Neurological Surgery had the highest percentage of matched U.S. seniors who were graduates of a medical school with the highest NIH funding. Radiation Oncology, Child Neurology, Dermatology, and Otolaryngology also had higher percentages of matched applicants from those schools compared to the other specialties. For all specialties except Internal Medicine/Pediatrics, and Vascular Surgery, smaller percentages of seniors who did not match to their preferred specialty were graduates of a medical school with the highest NIH funding compared to seniors who matched.

Chart 14

Percentage of U.S. Allopathic Seniors Who Have a Graduate Degree by Preferred Specialty and Match Status



Source: NRMP Data Warehouse

Chart 14 shows by preferred specialty and Match status the percentage of U.S. allopathic seniors who have a Ph.D. and/or other graduate degrees. Radiation Oncology, Pathology, and Child Neurology had the highest percentages of matched U.S. seniors with a Ph.D. degree. For most specialties, the percentage of unmatched U.S. seniors who have other graduate degrees was higher than that of their matched counterparts.

Results of the 2016 NRMP Program Director Survey

June 2016

www.nrmp.org

Requests for permission to use these data as well as questions about the content of this publication or the National Resident Matching Program data and reports may be directed to Mei Liang, Director of Research, NRMP, at datarequest@nrmp.org.

Questions about the NRMP should be directed to Mona M. Signer, President and CEO, NRMP, at admin@nrmp.org.

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Introduction

In March 2016, the National Resident Matching Program (NRMP) conducted its biennial survey of the directors of all programs participating in the Main Residency Match®. The primary purpose of the survey was to shed light on the factors that program directors use to (1) select applicants to interview and (2) rank applicants for the Match.

The survey was fielded during the 18 days between the Rank Order List Deadline and Match Week so that program match outcomes would not influence respondents' answers.

The survey solicited information on:

- the number of applications received, screened, and reviewed, as well as the number of applicants interviewed and ranked
- whether the program typically interviews and ranks specific applicant groups
- use of test scores in considering which applicants to interview, and
- the factors used for both interview selection and for ranking applicants.

The overall response rate for all specialties in this report was 39.9 percent. Transitional Year programs and programs in 22 specialties with 10 or more responses are included in this report. Response rates are listed in the table below.

Additional questions were added to the 2016 questionnaire. In

this survey, program directors were asked to indicate the percentage of interview invitations sent and interviews conducted in certain time periods. They also were asked how often they interviewed and ranked candidates from each applicant group. In addition, program directors rated factors used in assessing residents' success. In surveys conducted prior to 2014, program directors were asked to indicate factors they used in selecting applicants to interview and to rate the importance of each factor in ranking. Beginning with the 2014 survey, program directors have been asked to indicate factors they used in selecting applicants to interview and rank and rate their importance on a scale of 1 to 5.

Numbers of responses are presented in most of the graphs, and some graphs use data from multiple survey questions. In those cases, different N's are listed. Numbers of applicants ranked and positions in the Match are extracted from the NRMP database. Graphs are suppressed for questions with fewer than five responses.

This report presents results by specialty on selected items from the survey. The NRMP hopes that program directors, medical school officials, and applicants find these data useful as they prepare for and participate in the Main Residency Match.

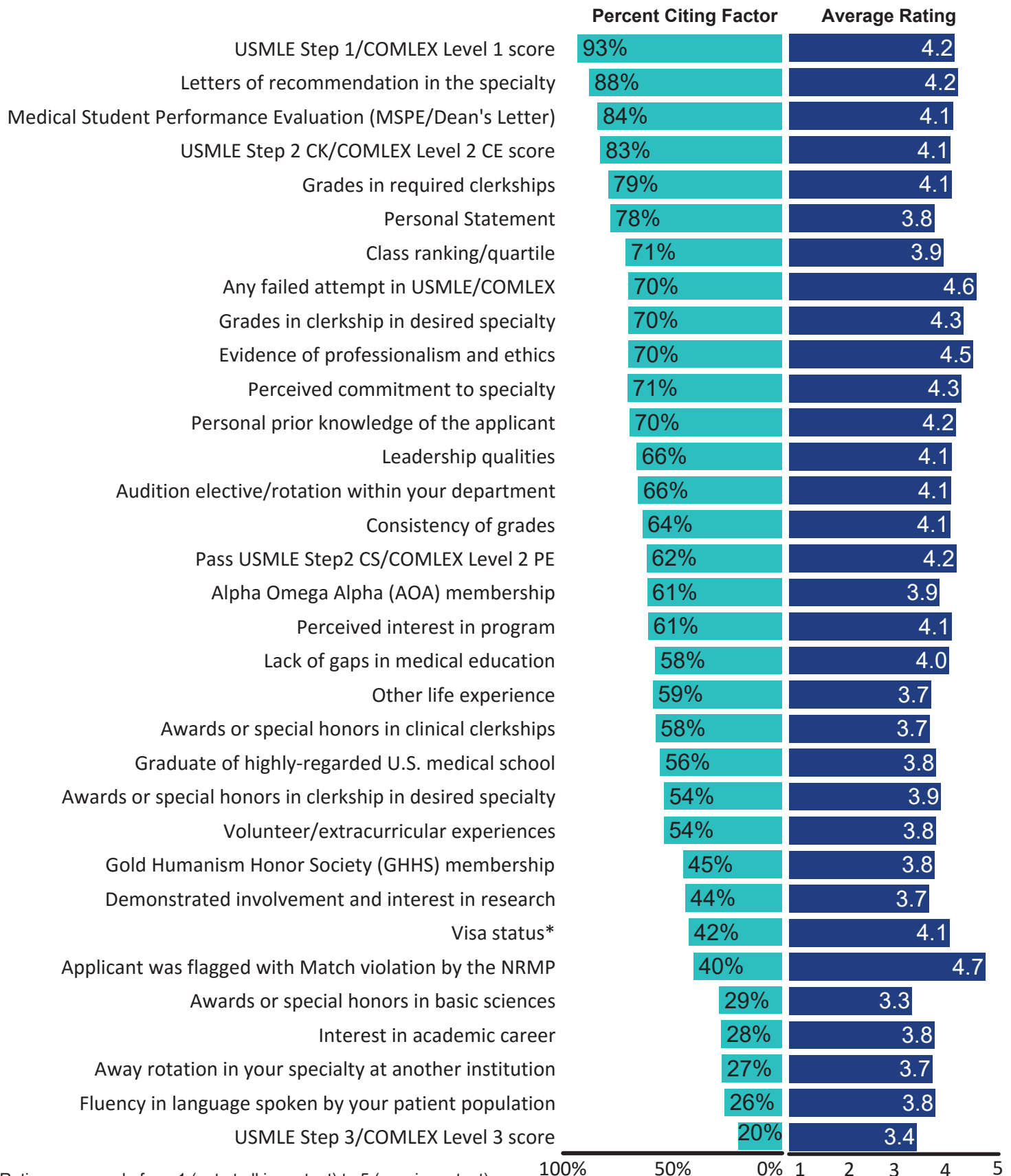
The NRMP's data reporting and research activities are guided by its Data Release and Research Committee. NRMP data and reports can be found at: www.nrmp.org/match-data/.

Specialty	Surveys Sent	Number Responding	Response Rate
Anesthesiology	129	57	44.2%
Child Neurology	70	36	51.4%
Dermatology	113	39	34.5%
Emergency Medicine	166	80	48.2%
Family Medicine	454	190	41.9%
Internal Medicine	408	163	40.0%
Internal Medicine/Pediatrics	79	28	35.4%
Neurological Surgery	105	32	30.5%
Neurology	132	55	41.7%
Obstetrics and Gynecology	236	95	40.3%
Orthopaedic Surgery	150	66	44.0%
Otolaryngology	100	31	31.0%
Pathology	133	58	43.6%
Pediatrics	188	92	48.9%
Physical Medicine and Rehabilitation	78	34	43.6%
Plastic Surgery	69	28	40.6%
Psychiatry	185	80	43.2%
Radiation Oncology	82	28	34.1%
Radiology-Diagnostic	176	55	31.3%
Surgery-General	277	96	34.7%
Thoracic Surgery	27	12	44.4%
Transitional Year	88	27	30.7%
Vascular Surgery	48	15	31.3%
All Others	106	38	35.8%
Total	3,599	1,435	39.9%

All Specialties Combined
(N=1,435)

Figure 1

All Specialties
Percentage of Programs Citing Each Factor And Mean Importance Rating¹ for Each Factor in Selecting Applicants to Interview
(N=1,300)

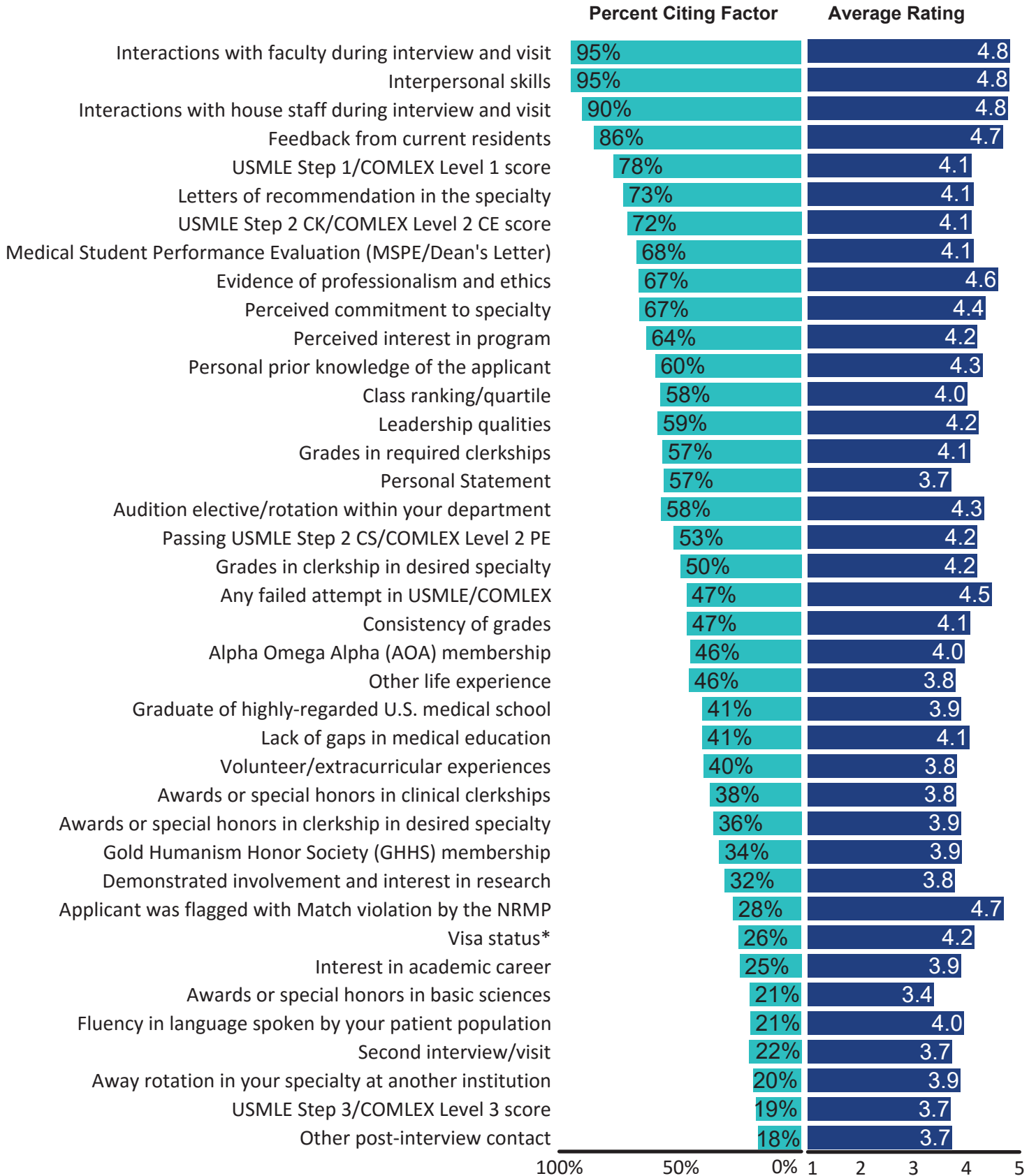


¹ Ratings on a scale from 1 (not at all important) to 5 (very important).

* International Medical Graduates only

Figure 2

All Specialties
Percentage of Programs Citing Each Factor And Mean Importance Rating¹ for Each Factor in Ranking Applicants
(N=1,275)



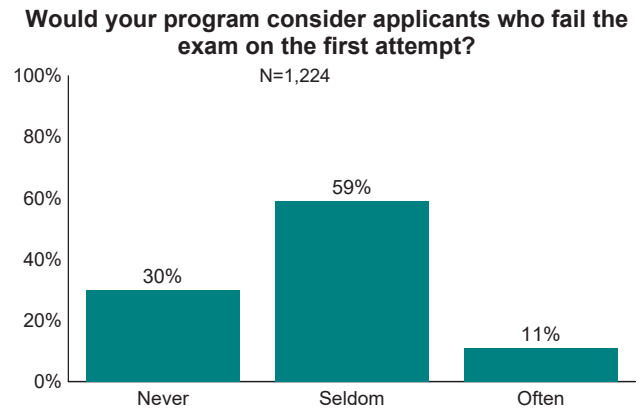
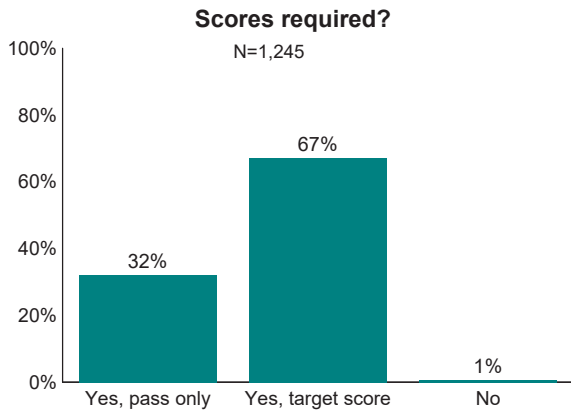
¹ Ratings on a scale from 1 (not at all important) to 5 (very important).

* International Medical Graduates only

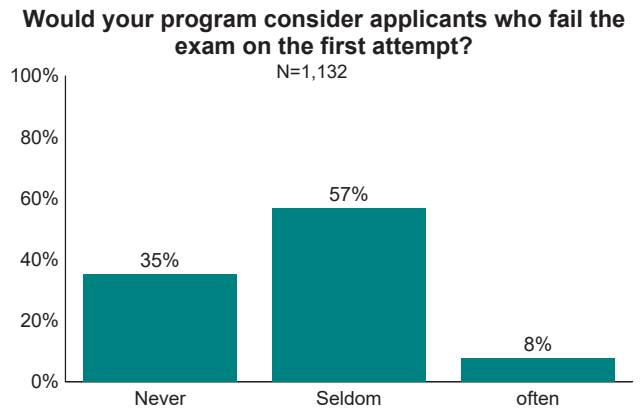
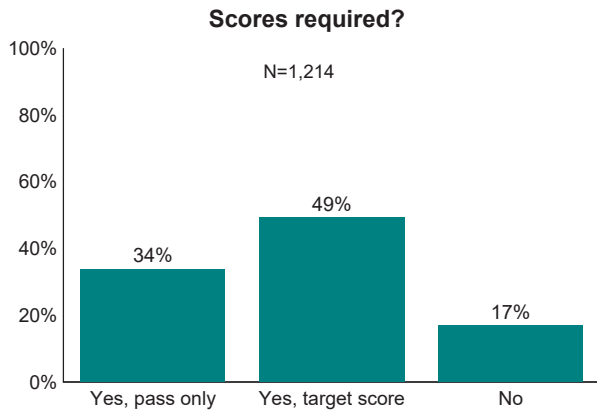
Figure 3

**All Specialties
Programs That Use USMLE Step 1 and Step 2 Clinical Knowledge (CK) Scores When
Considering Which Applicants to Interview**

Percentage of Programs That Use USMLE Step 1 Score

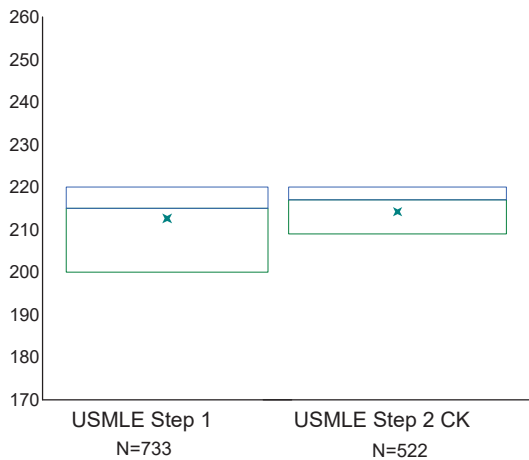


Percentage of Programs That Use USMLE Step 2 (CK) Score

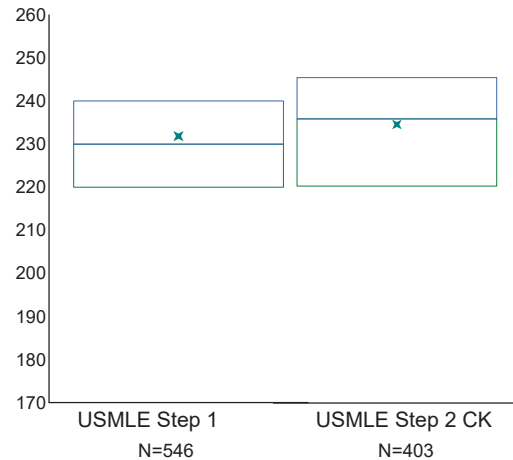


**USMLE Step 1 and Step 2 CK Scores
Programs Consider When Granting Interviews**

Scores Below Which Programs Generally Do Not Grant Interviews



Scores Above Which Programs Almost Always Grant Interviews

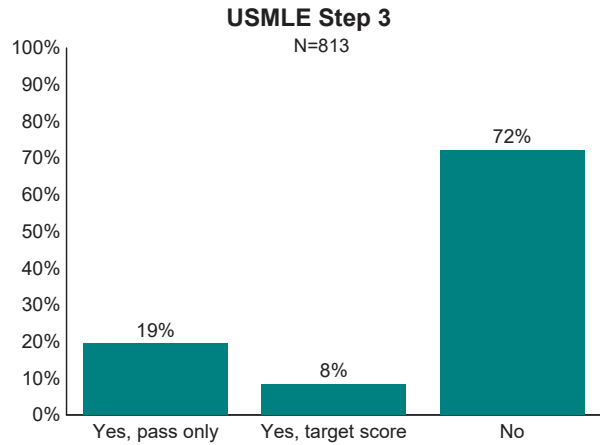
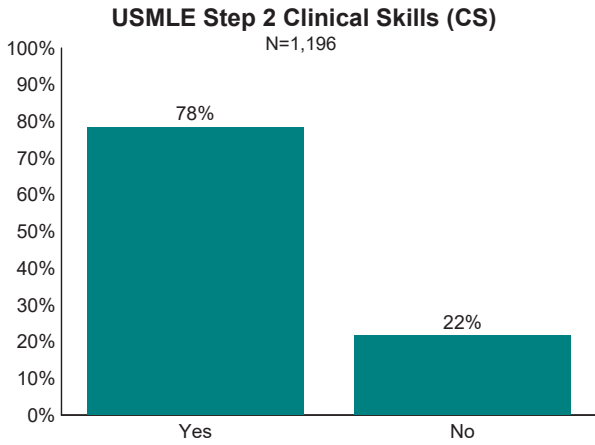


The boxes in the boxplots above represent the interquartile range (or IQR, which is the range between the 25th and 75th percentiles) and the line in the box is the median. The x-shaped symbol in the box represents the mean.

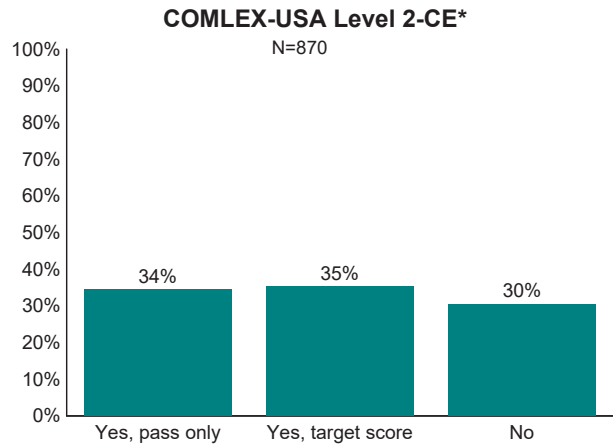
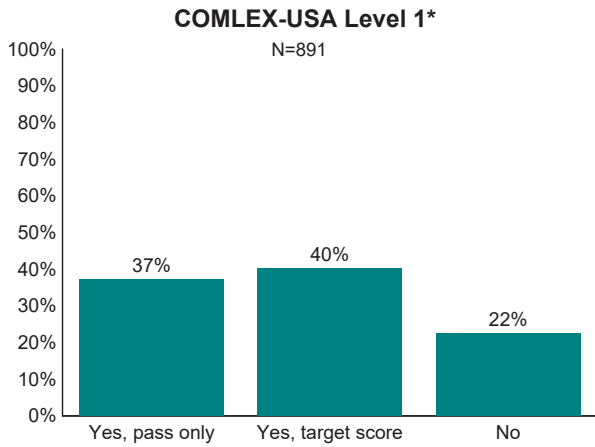
Figure 4

All Specialties
Percentage of Programs That Use USMLE Step 2 Clinical Skill (CS), Step 3, and COMLEX-USA Scores* When Considering Which Applicants to Interview

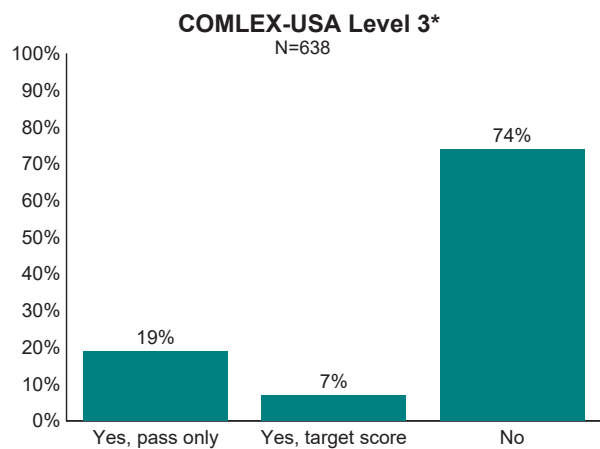
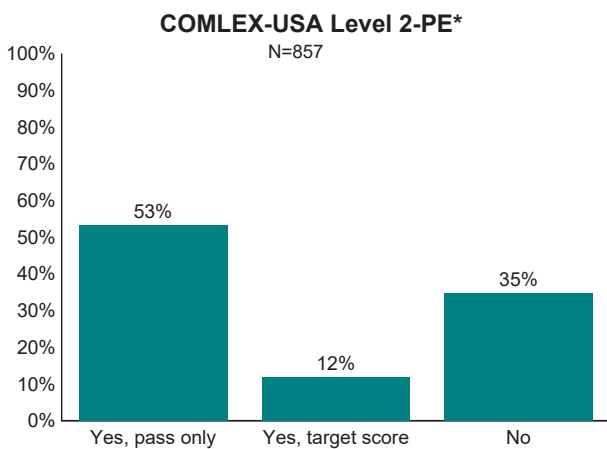
Percentage of Programs That Use USMLE Step 2 CS and Step 3 Scores



Percentage of Programs That Use COMLEX-USA Level 1 and Level 2-CE Scores



Percentage of Programs That Use COMLEX-USA Level 2-PE and Level 3 Scores

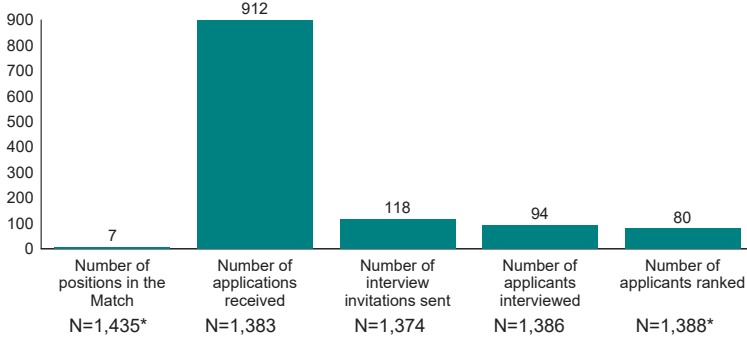


* Osteopathic applicants only

Figure 5

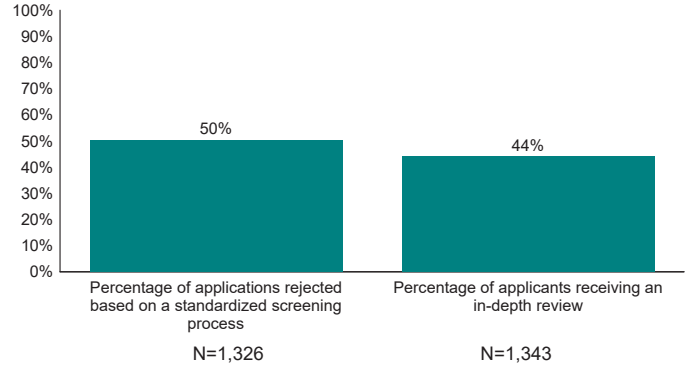
**All Specialties
Program's Interview Activities**

Average Number of Positions, Applications Received, Interview Invitations Sent, and Applicants Interviewed and Ranked

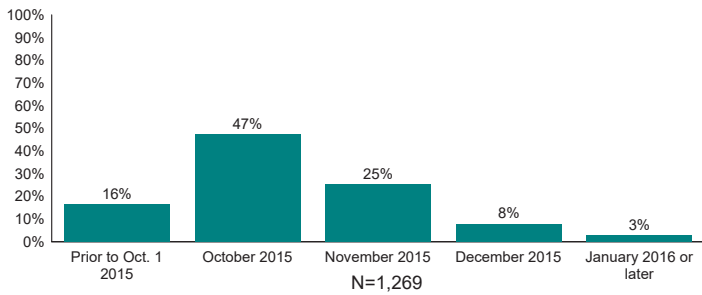


* Data from the NRMP database. All Responding programs included

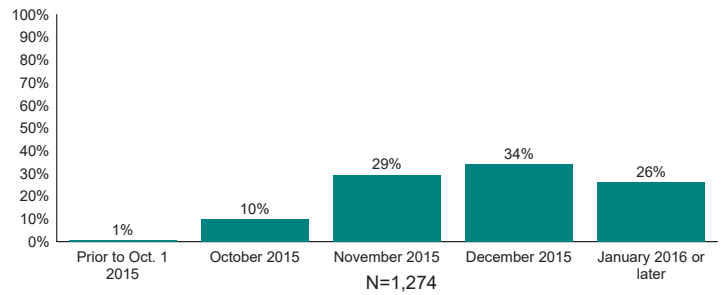
Average Percentage of Applicants Rejected and Reviewed



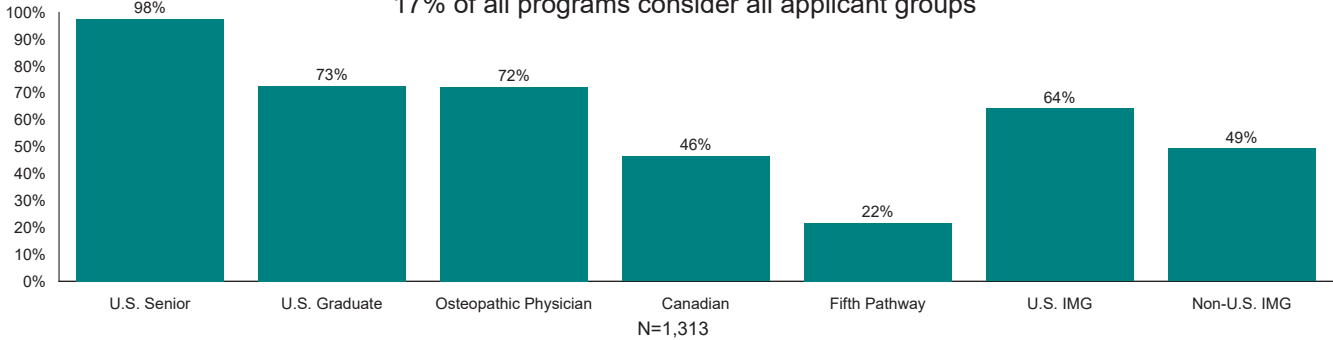
Percentage of Program's Interviews Extended During Each Time Period



Percentage of Program's Interviews Conducted During Each Time Period



Percentage of Programs that Typically Interview and Rank Each Applicant Type
17% of all programs consider all applicant groups



Frequency of Programs Interviewing and Ranking Candidates

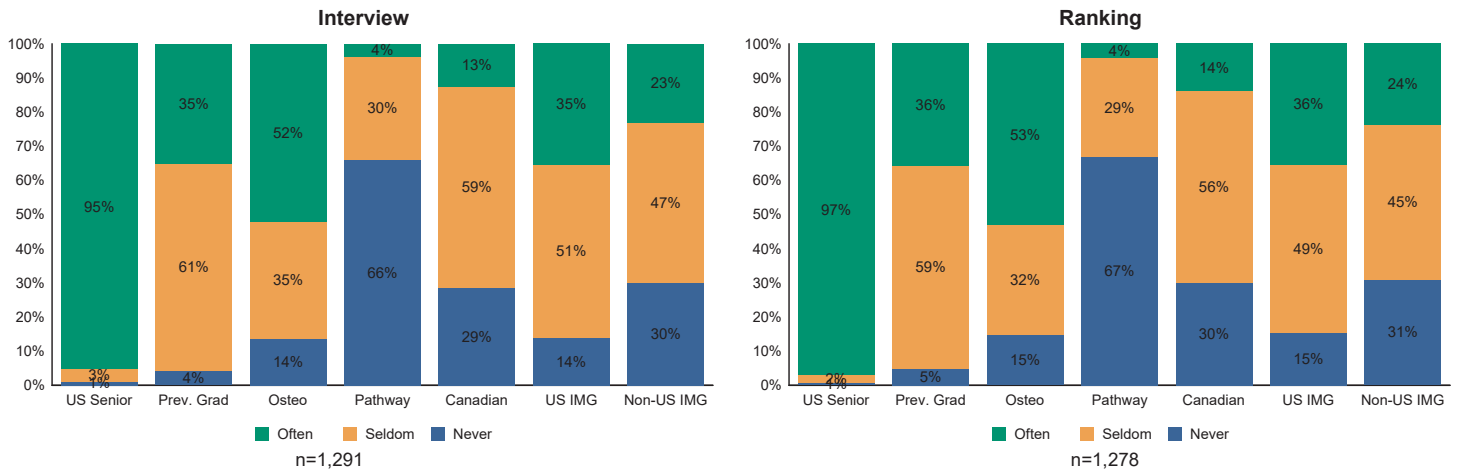


Figure 6

**All Specialties
Other Topics**

Preferred Type of Communication About Applicants During SOAP



N=1,141

Importance of Factors in Assessing Residents' Success

Average rating on a scale of 5 (5=very important)

