

NRMP

National Resident Matching Program



Tomorrow's Doctors, Tomorrow's Cures®

Charting Outcomes in the Match

Characteristics of Applicants Who Matched to Their Preferred Specialty in the 2009 Main Residency Match

3rd Edition

Prepared by:

National Resident Matching Program
and Association of American Medical Colleges

August 2009

Table **Summary Statistics**
ORS-1 **Orthopaedic Surgery**

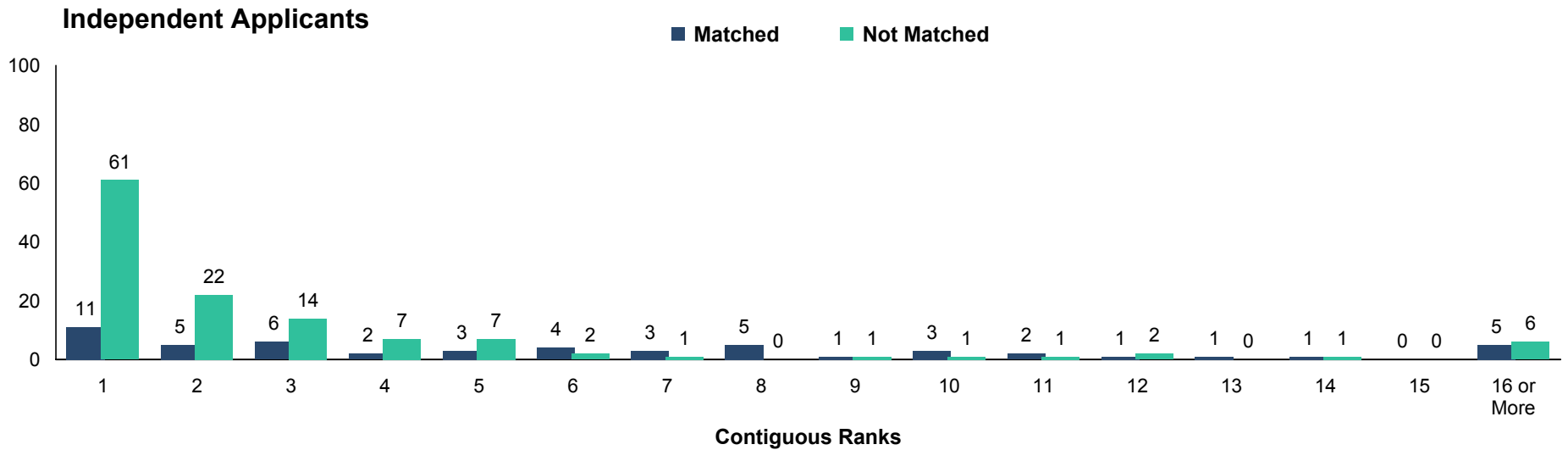
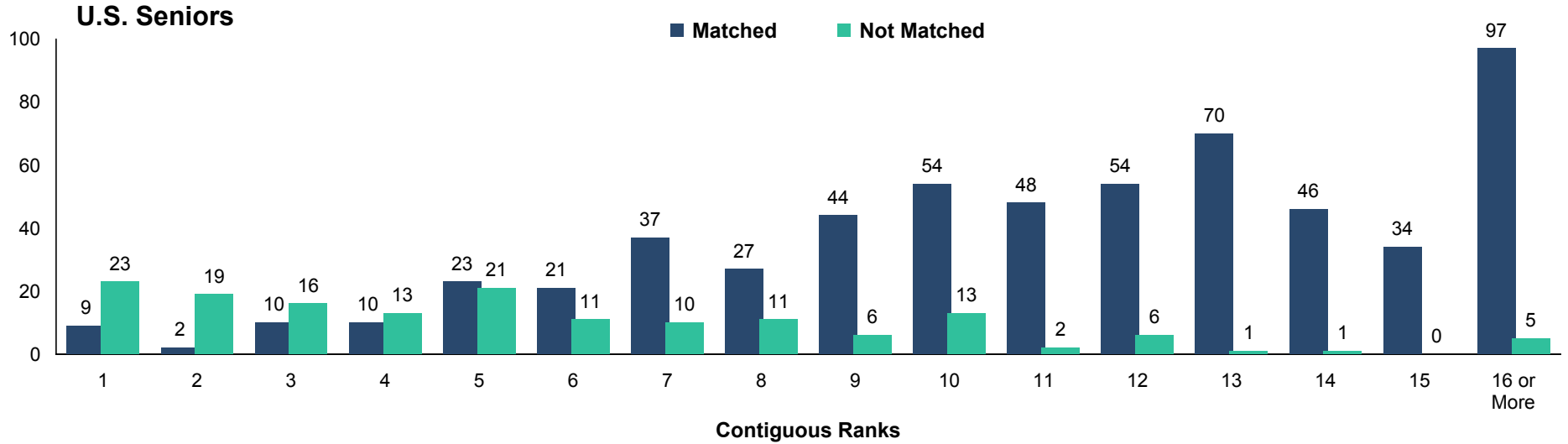
Measure	U.S. Seniors		Independent Applicants	
	Matched (n=586)	Unmatched (n=158)	Matched (n=53)	Unmatched (n=126)
1. Mean number of contiguous ranks	11.5	5.6	6.4	3.7
2. Mean number of distinct specialties ranked	1.1	1.4	1.2	1.5
3. Mean USMLE Step 1 score	238	221	226	217
4. Mean USMLE Step 2 score	241	222	228	215
5. Mean number of research experiences	2.7	2.5	3.0	2.0
6. Mean number of abstracts, presentations, and publications	4.1	2.7	7.3	4.3
7. Mean number of work experiences	2.5	2.8	3.2	3.2
8. Mean number of volunteer experiences	5.8	4.9	5.0	3.7
9. Percentage who are AOA members	27.8	3.8	n/a	n/a
10. Percentage who graduated from one of the 40 U.S. medical schools with the highest NIH funding	37.0	24.1	n/a	n/a
11. Percentage who have Ph.D. degree	2.6	1.3	n/a	n/a
12. Percentage who have another graduate degree	10.4	18.4	n/a	n/a

n/a: The measure either does not apply to, applies to only a small percentage of, or no reliable data were available for independent applicants.

Sources. Measures 1, 2, and match outcome are from the NRMP Data Warehouse; measures 3 and 4 are from the AAMC Data Warehouse and from the ECFMG, both by permission of the NBME and ECFMG; measures 5-9 are from the AAMC Data Warehouse; measure 10 is from the NIH website (<http://report.nih.gov/award/trends/AggregateDate.cfm> Medical Schools Only.xls); and measures 11 and 12 are from the AAMC Data Warehouse.

Note: USMLE Step 1 scores are not available for most osteopathic medical school graduates included in the independent applicant group. Approximately 30 percent of U.S. allopathic medical school seniors do not take the USMLE Step 2 prior to the Match.

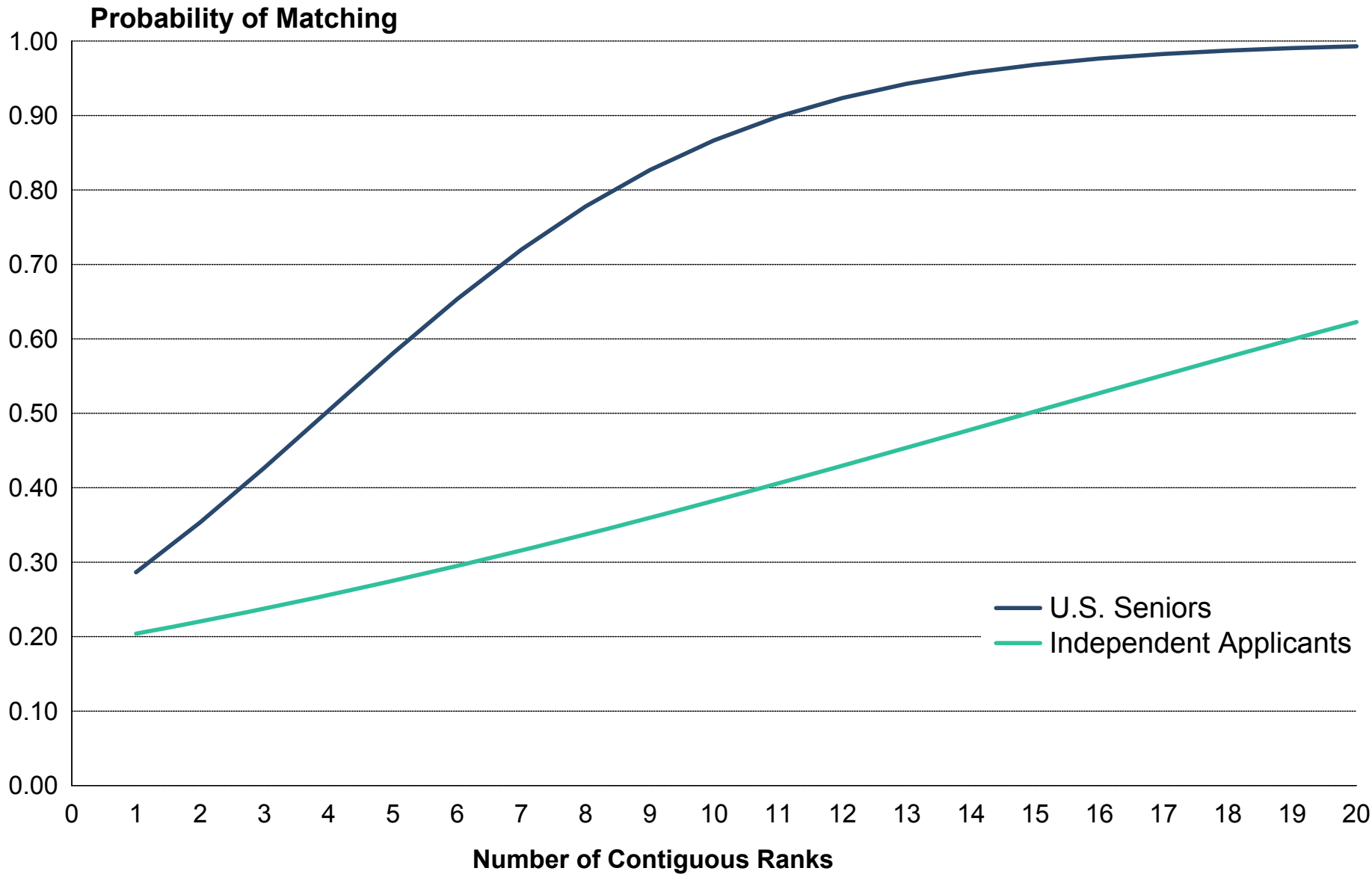
**Number of Contiguous Ranks Within Preferred Specialty
Orthopaedic Surgery**



Source: NRMP Data Warehouse

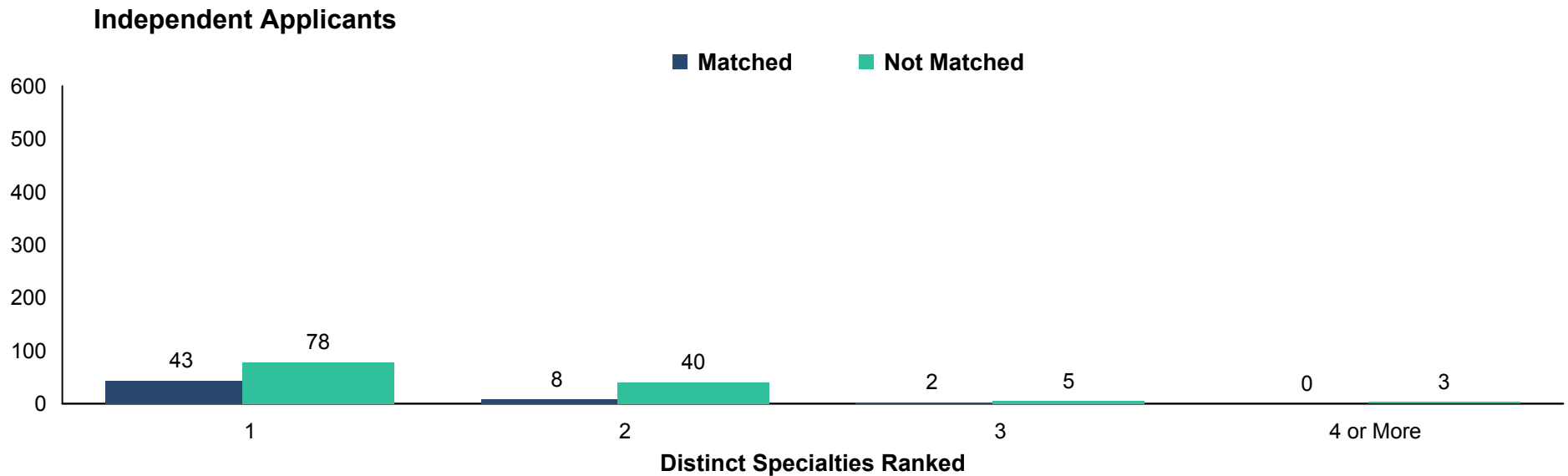
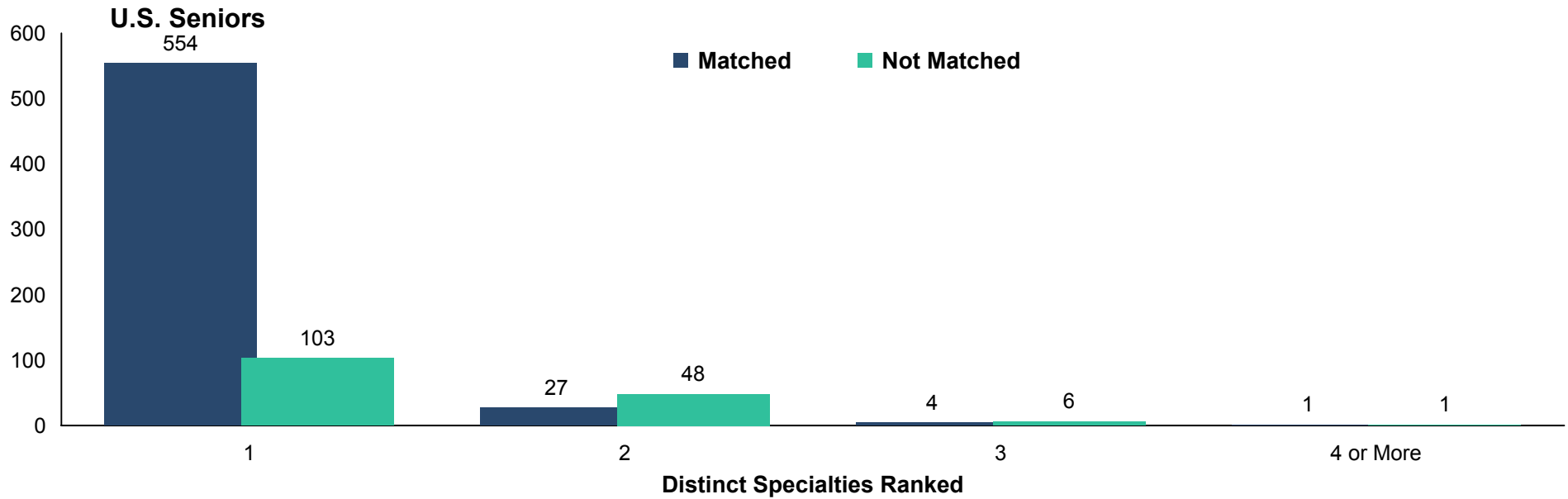
Probability of Matching to Preferred Specialty by Number of Contiguous Ranks

Orthopaedic Surgery

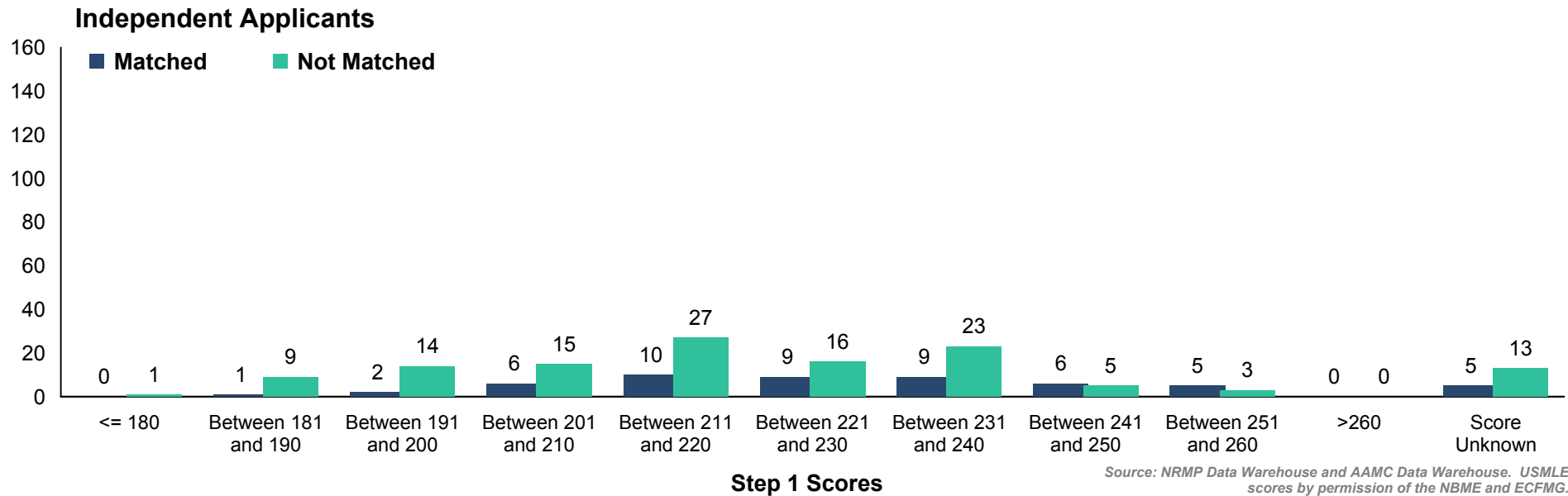
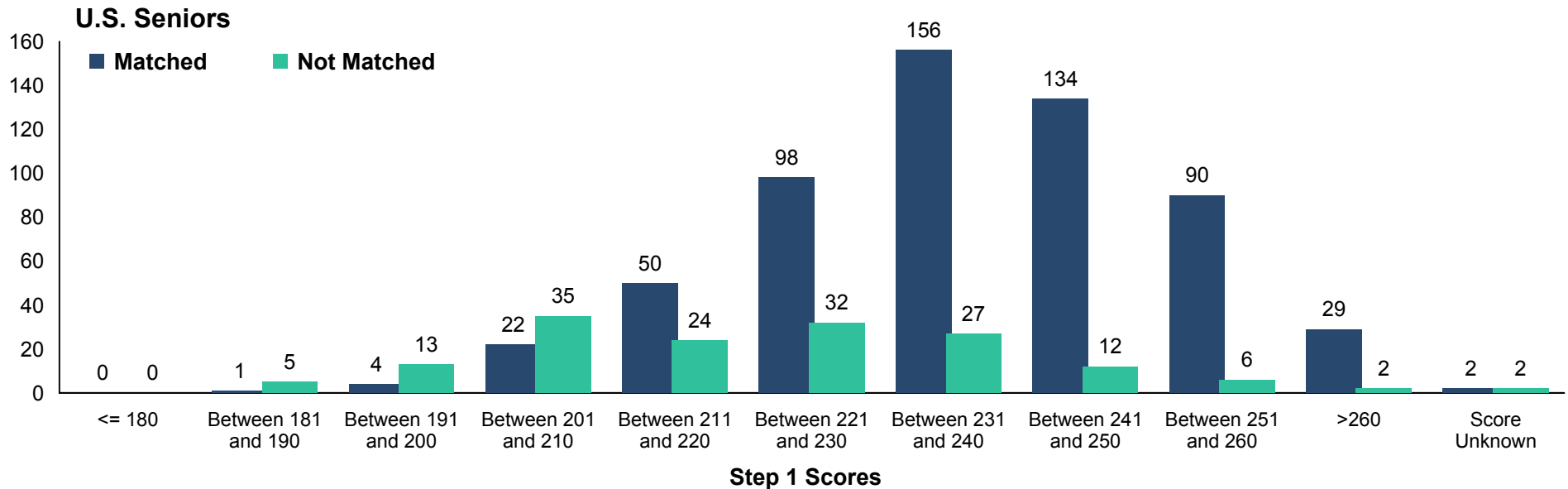


Source: NRMP Data Warehouse. Note: Probabilities calculated based on 2007-2009 applicants.

Number of Distinct Specialties Ranked
Orthopaedic Surgery



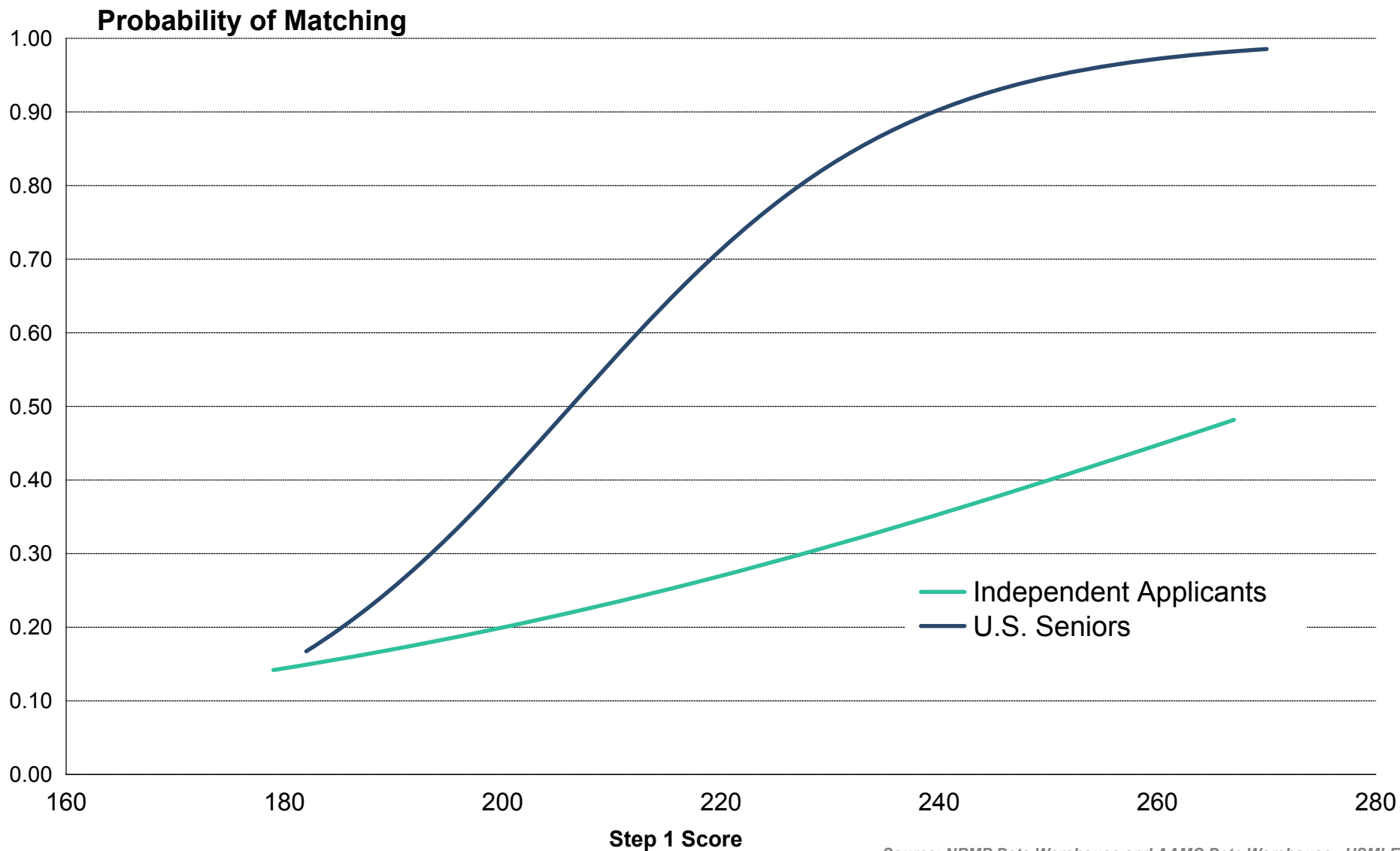
Source: NRMP Data Warehouse



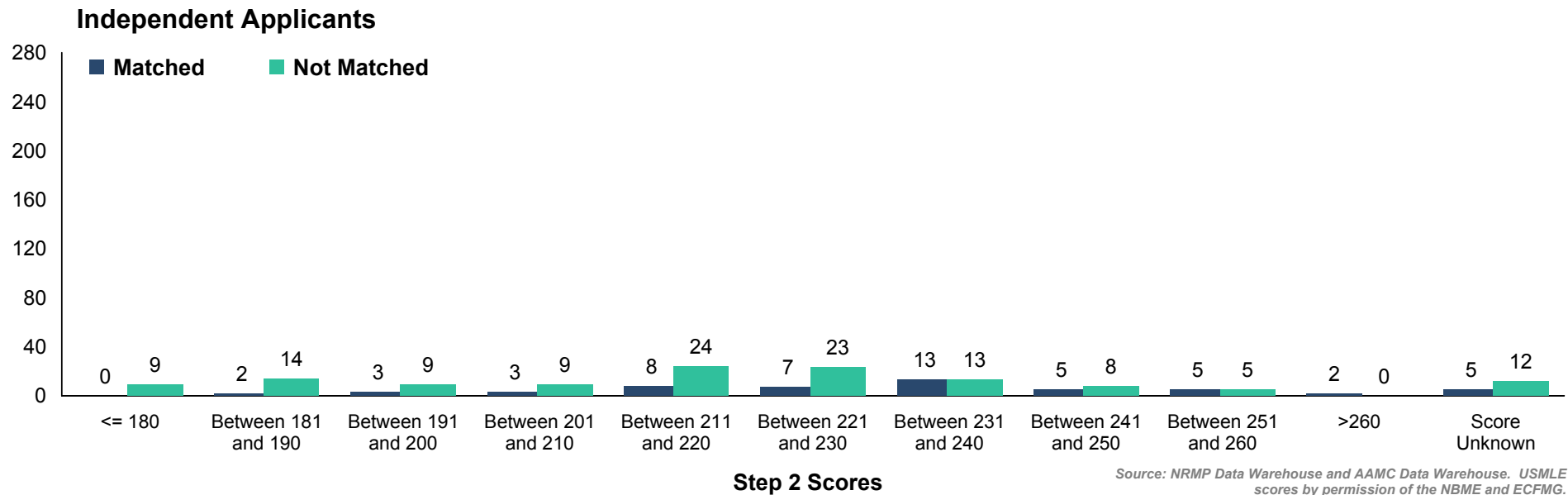
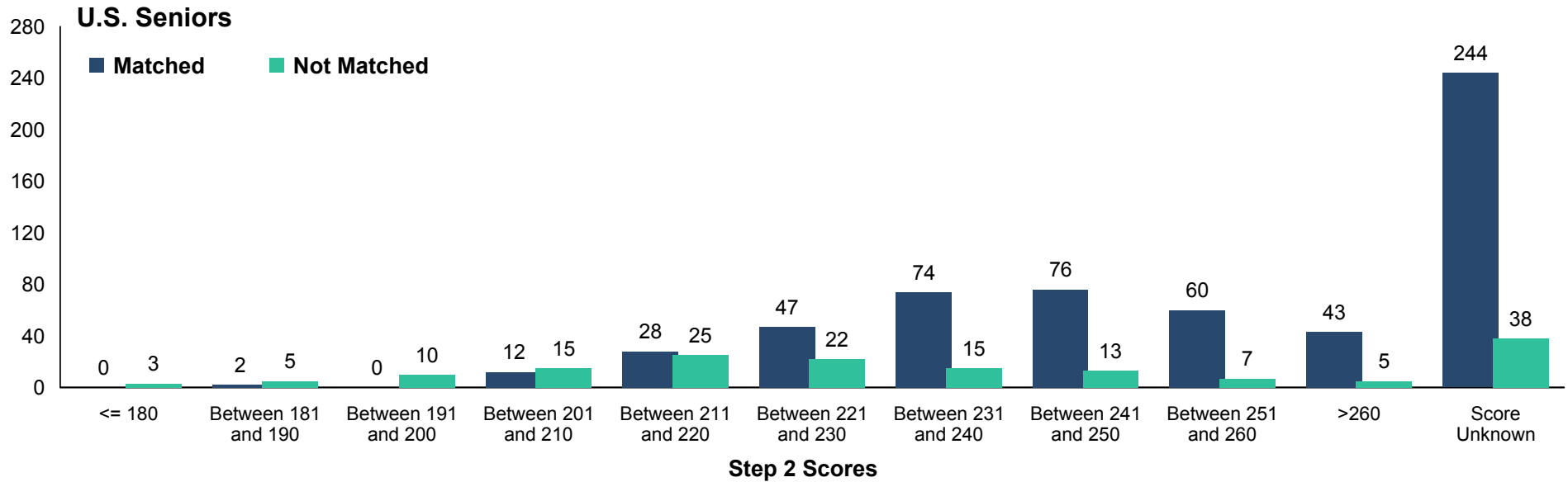
Source: NRMP Data Warehouse and AAMC Data Warehouse. USMLE scores by permission of the NBME and ECFMG.

Probability of Matching to Preferred Specialty by USMLE Step 1 Score

Orthopaedic Surgery

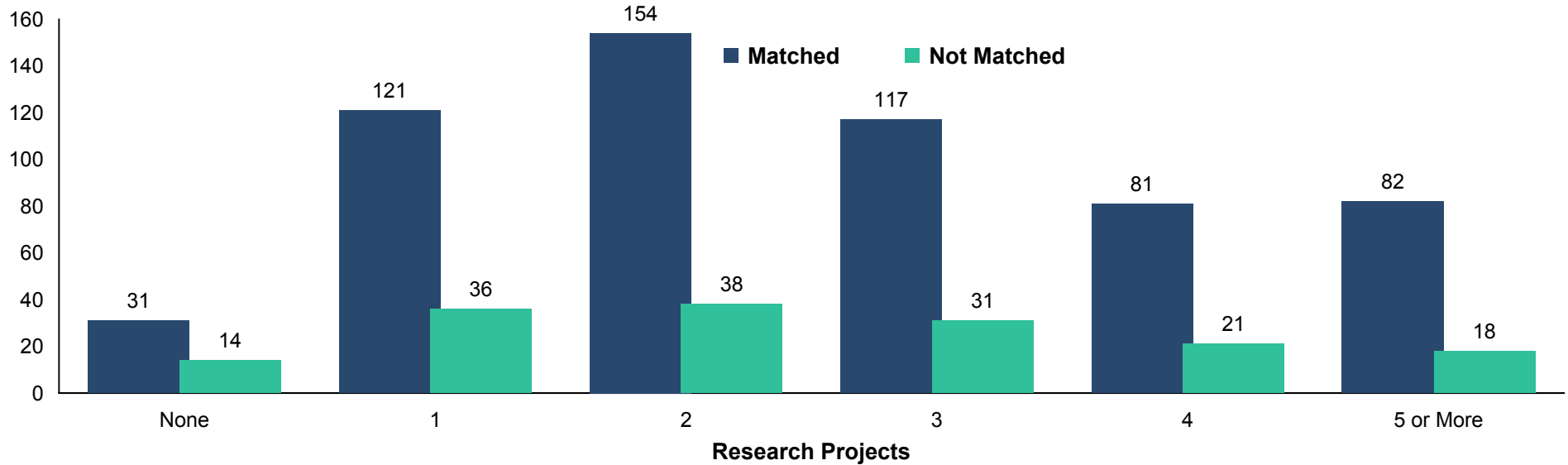


Source: NRMP Data Warehouse and AAMC Data Warehouse. USMLE scores by permission of the NBME and ECFMG. Note: Probabilities calculated based on 2007-2009 applicants.

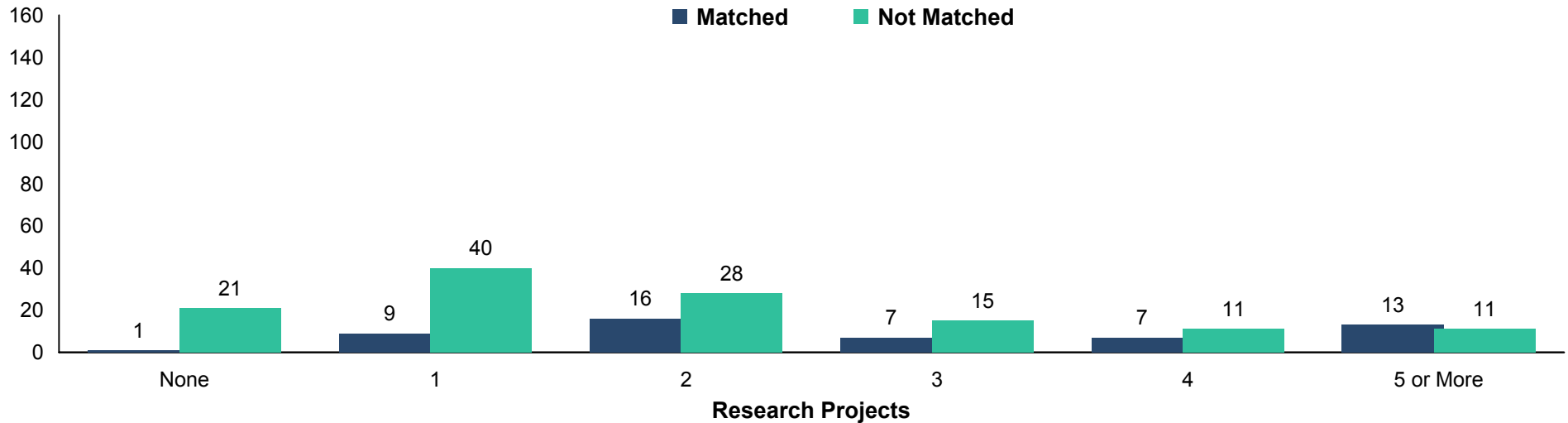


Source: NRMP Data Warehouse and AAMC Data Warehouse. USMLE scores by permission of the NBME and ECFMG.

U.S. Seniors

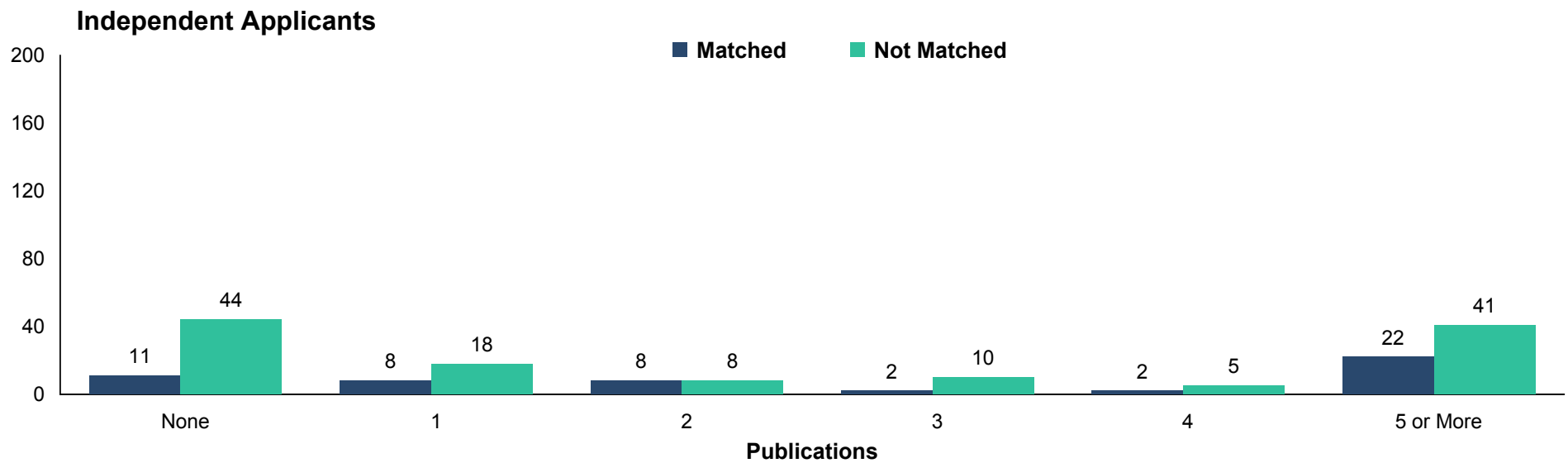
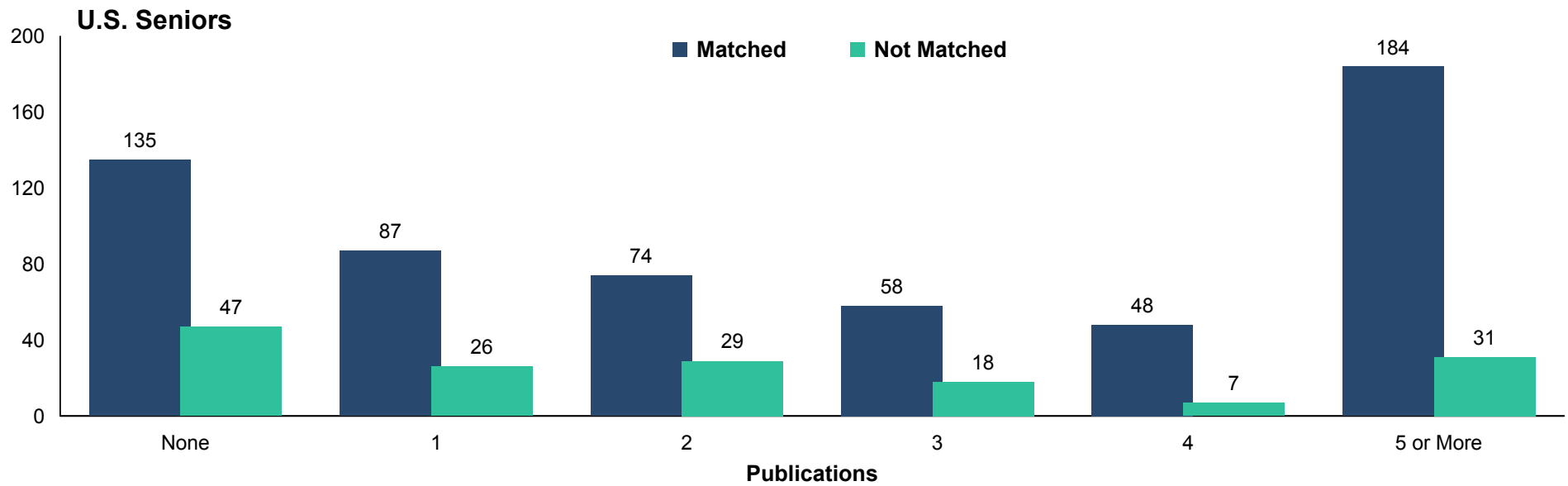


Independent Applicants

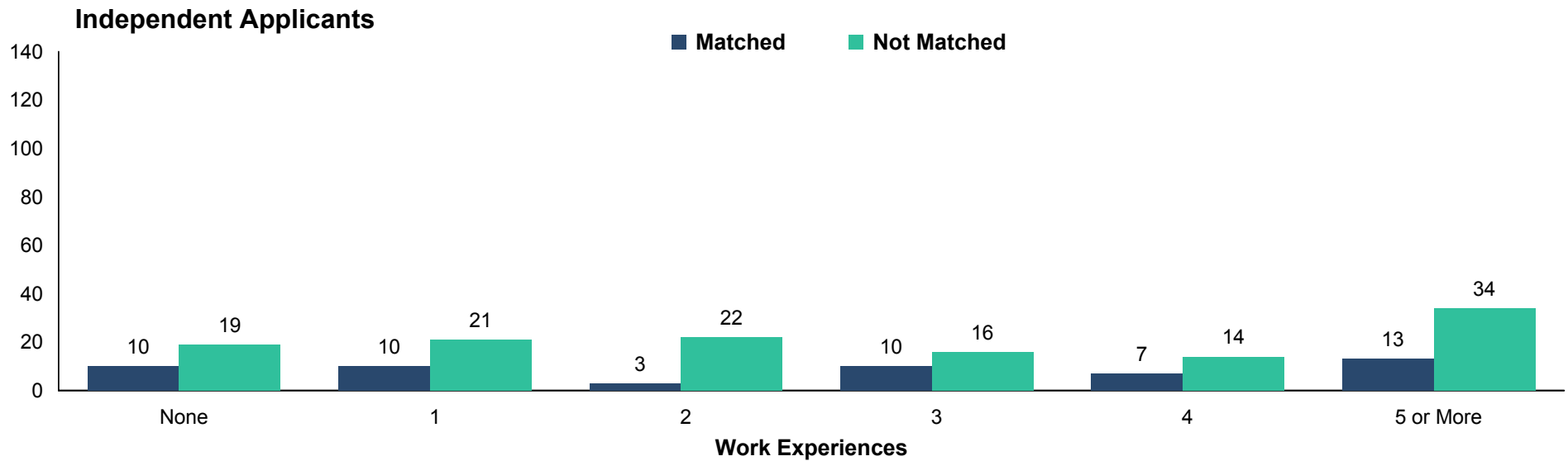
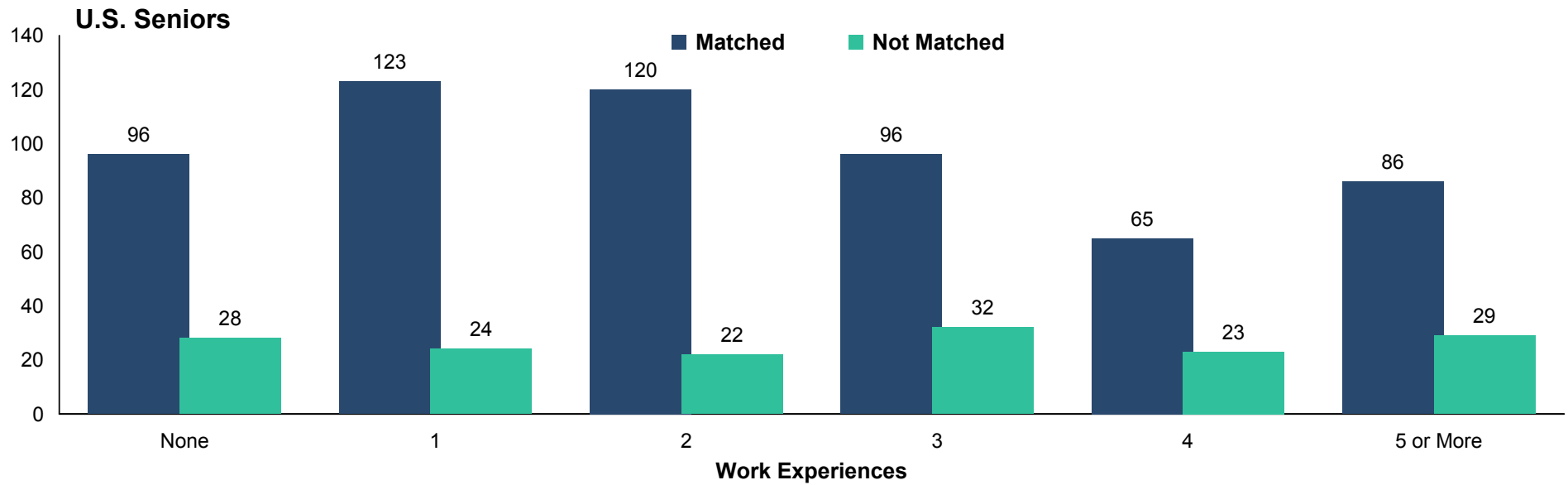


Source: NRMP Data Warehouse and AAMC Data Warehouse

**Number of Abstracts, Presentations, and Publications
Orthopaedic Surgery**



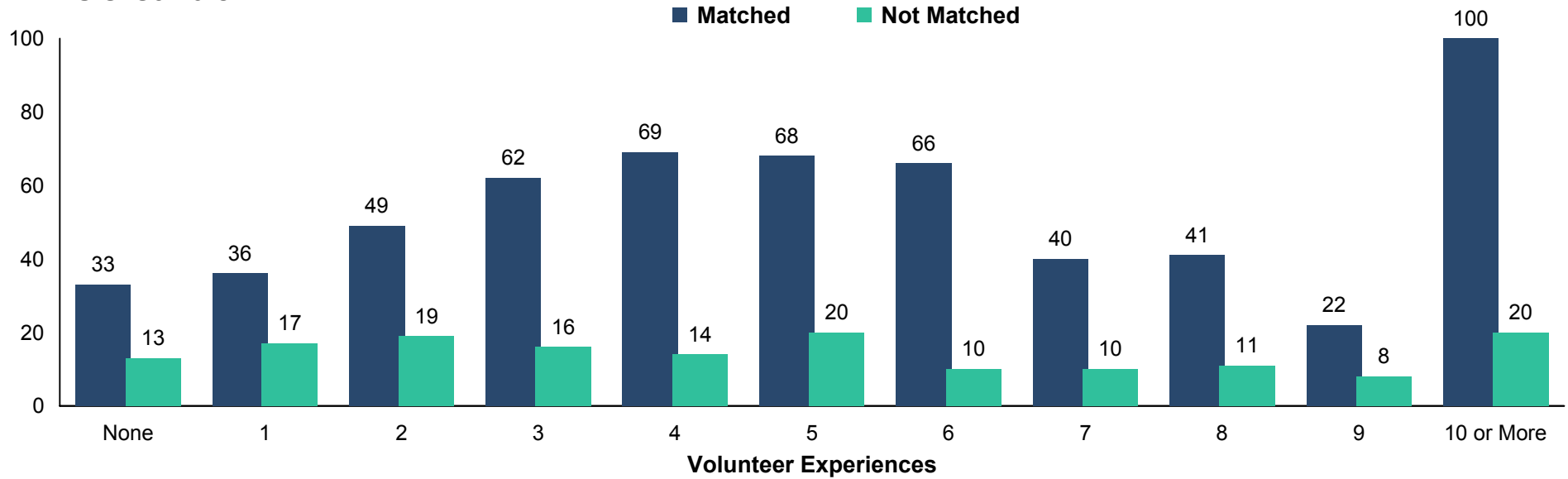
Source: NRMP Data Warehouse and AAMC Data Warehouse



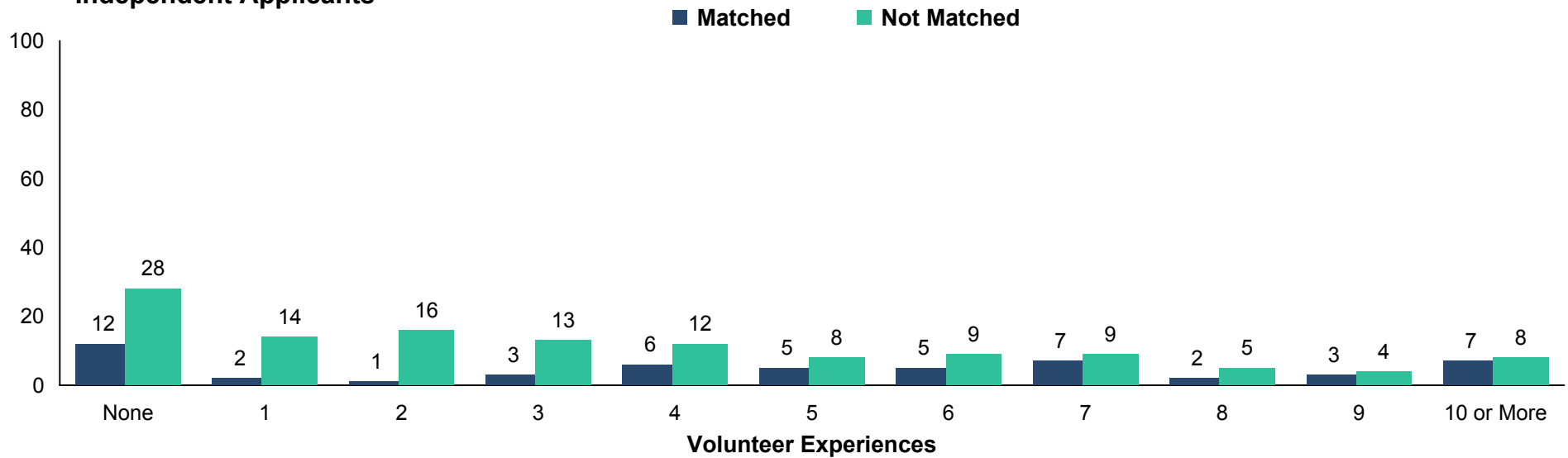
Source: NRMP Data Warehouse and AAMC Data Warehouse

**Number of Volunteer Experiences
Orthopaedic Surgery**

U.S. Seniors



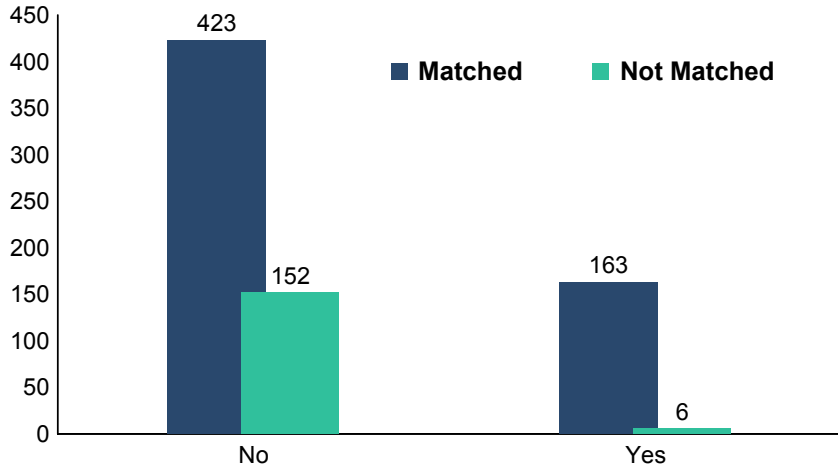
Independent Applicants



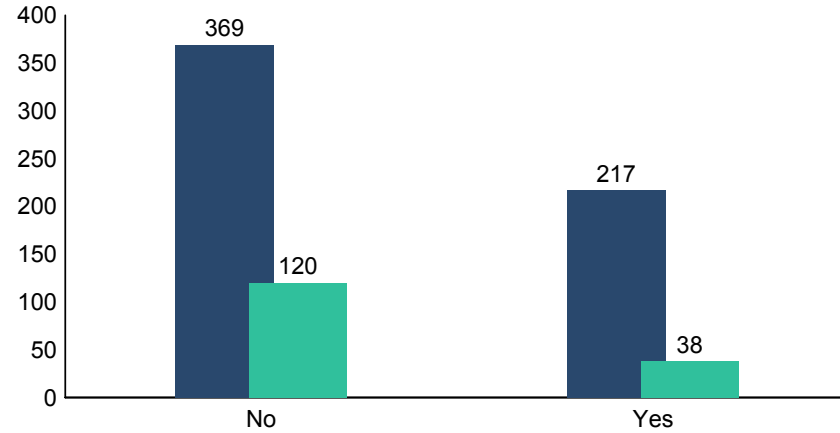
Source: NRMP Data Warehouse and AAMC Data Warehouse.

**Other Characteristics of U.S. Seniors
*Orthopaedic Surgery***

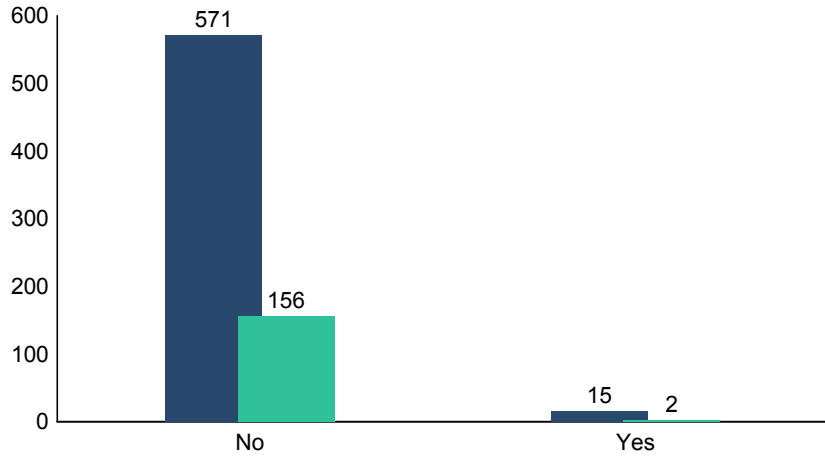
AOA Membership



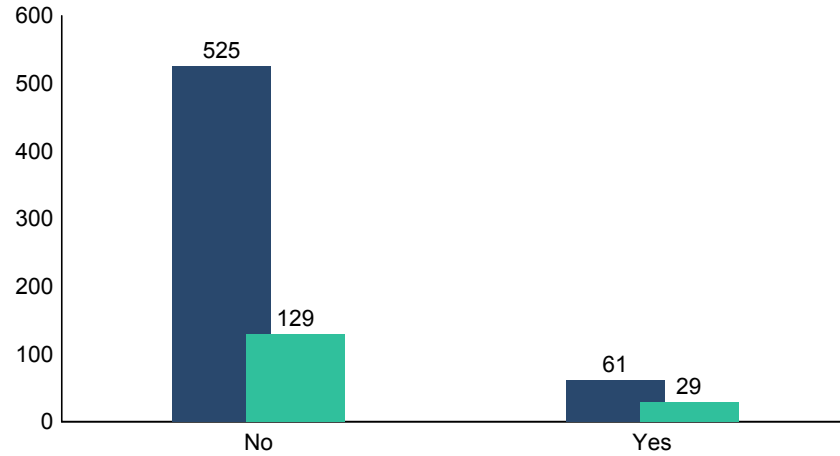
Graduate of One of the 40 U.S. Medical Schools with the Highest NIH Funding



Ph.D. Degree



Other Graduate Degree



Sources: AOA membership from the AAMC Data Warehouse, NIH awards from <http://report.nih.gov/award/trends/AggregateData.cfm> Medical Schools Only.xls, Ph.D. and other graduate degrees from the AAMC Data Warehouse

turned the questionnaires. The results from the twenty-six-item rating list and the multiple-choice questions in the ten-question survey are presented in Tables I and II, respectively¹³.

What Selection Criteria Do Orthopaedic Program Directors Value Most?

Academic Criteria

Wagoner and Suriano found that, as a

specialty becomes more competitive, its residency programs rely more heavily on academic credentials when screening applicant pools^{1,5,6,9}. Orthopaedics, which ranks among the most competitive surgical subspecialties, has been shown to place the highest value on objective criteria, such as United States Medical Licensing Examination (USMLE) scores, class rank, and membership in Alpha Omega Alpha, in

screening applicants for residency programs^{3,5,6,13}. Orthopaedic program directors are particularly prone to emphasize the value of the applicant's cognitive knowledge. This is demonstrated by the Residency Review Committee's requirement that, to maintain accreditation, orthopaedic surgery residency programs must have a pass rate of $\geq 75\%$ on the Part-I certification examination of the American Board of

TABLE I Ranking of the Twenty-six Resident-Selection Criteria According to the Results of the Questionnaire Completed by Orthopaedic Residency Program Directors

Rank	Score*	Resident-Selection Criteria
1	7.88 ± 1.71 (n = 109)	Rotation at director's institution
2	7.78 ± 1.48 (n = 109)	USMLE Part-I score
3	7.77 ± 1.34 (n = 108)	Rank in medical school
4	7.55 ± 1.57 (n = 109)	Formality/politeness at interview
5	7.35 ± 1.39 (n = 109)	Personal appearance of candidate
6	7.11 ± 2.12 (n = 102)	Performance on ethical questions at interview
7	7.01 ± 1.94 (n = 108)	Letter of recommendation by orthopaedic surgeon
8	6.92 ± 1.90 (n = 109)	Candidate is Alpha Omega Alpha member
9	6.47 ± 1.71 (n = 109)	Medical school reputation
10	6.25 ± 2.10 (n = 109)	Dean's letter
11	5.84 ± 2.26 (n = 108)	Personal statement
12	5.74 ± 2.56 (n = 107)	Failed first attempt at matching to an orthopaedic residency program
13	5.67 ± 2.46 (n = 106)	Telephone call placed on candidate's behalf
14	5.66 ± 1.97 (n = 109)	Candidate has published research
15	5.50 ± 2.14 (n = 108)	Candidate participated in a dedicated research experience
16	5.13 ± 1.89 (n = 108)	Letter of recommendation from nonorthopaedic surgeon
17	4.93 ± 2.20 (n = 109)	Candidate is MD/PhD
18	4.83 ± 2.13 (n = 109)	Reputation of undergraduate institution
19	4.61 ± 2.38 (n = 108)	Undergraduate grade-point average
20	4.44 ± 2.16 (n = 107)	Appearance of curriculum vitae
21	4.30 ± 2.15 (n = 109)	Letter of recommendation from a senior resident
22	3.94 ± 2.48 (n = 109)	Candidate has a relative affiliated with director's program
23	3.56 ± 2.12 (n = 108)	Candidate has an undergraduate engineering major
24	3.26 ± 2.41 (n = 108)	Thank-you letter from candidate
25	2.32 ± 2.22 (n = 66)	Performance on manual skills testing during interview
26	1.78 ± 1.76 (n = 64)	Evaluation by psychologist/psychiatrist during interview

*The values are given as the mean and the standard deviation. N = number of respondents.

Orthopaedic Surgeons by residents who take it for the first time^{12,15}. Our study supports the notion that program directors highly value candidates' academic credentials, because USMLE scores, medical school class rank, and Alpha Omega Alpha membership were all among their top ten selection criteria¹³ (Table I).

Clark et al. reported that membership in Alpha Omega Alpha was one of the strongest predictors of a successful application to an orthopaedic residency program; however, <20% of the successful candidates in their study were members⁵. Wagoner and Suriano concluded that membership in Alpha Omega Alpha is likely to

carry considerable weight with orthopaedic program directors in the initial screening of large candidate pools⁵. Simon remarked on the orthopaedic program directors' utilization of USMLE scores and Alpha Omega Alpha membership status when deciding on which applicants to select for interviews¹². Our study found that the majority (54%) of residents who matched to orthopaedic programs during the last three years were members of Alpha Omega Alpha. Furthermore, a majority (65%) of the responding program directors in our study reported that $\geq 50\%$ of their matching residents during the past three years were members of Alpha

Omega Alpha¹³. Membership in Alpha Omega Alpha continues to be highly valued by orthopaedic residency program directors, as is evident from these percentages and by its rating among the top ten selection criteria in the first part of our questionnaire¹³ (Table I). However, membership in Alpha Omega Alpha is certainly not a requirement for gaining admission to an orthopaedic residency program as 30% of the program directors in our study evaluated candidates regardless of their membership status¹³ (Table II).

The Medical Student Orthopaedic Clerkship

Performing a medical school rotation in

TABLE II Responses to the Four Multiple-Choice Questions on the Program Directors' Survey

	Distribution of Responses*
Question 1 (n = 105)	
The most important aspect of a letter of recommendation is that :	
The letter is written by an orthopaedic surgeon	2%
The letter is written by a well-known orthopaedic surgeon	10%
The letter is overwhelmingly positive	34%
The letter is written by someone whom I know	54%
Question 2 (n = 105)	
The most important aspect of a personal statement is:	
To gain insight into the applicant's decision to pursue orthopaedics	6%
To gain insight into the applicant's ability to write and to communicate effectively	32%
To learn more about the candidate's personal interests and background	43%
I do not feel that the personal statement is very important in candidate evaluation	19%
Question 3 (n = 107)	
The interview process at our institution can best be characterized as having:	
Emphasis on getting to know the applicant	99%
Emphasis on problem-solving and/or manual skills	0%
Emphasis on ethical issues	1%
Emphasis on psychological testing	0%
Question 4 (n = 107)	
How important is AOA membership when evaluating candidates?†	
Only applicants who are AOA members are offered an interview	1%
>75% of the candidates offered interviews are AOA members	26%
50% to 75% of the candidates offered interviews are AOA members	29%
<50% of candidates offered interviews are AOA members	14%
Candidates are evaluated regardless of their AOA status	30%

*N = number of program directors responding. †AOA = Alpha Omega Alpha.