Recent NRMP Examinations of Internal Medicine Data: Signaling and Ranking Behaviors in Relation to Match Outcomes of Applicants Pursuing IM Residency Positions

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Agenda

1. Impact of program signaling on ranking and matching outcomes

2. Ranking behaviors of residency applicants who ranked IM and/or received a position in IM

Impact of program signaling on ranking and matching outcomes

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Background—IM Program Signaling

- Started signaling with the 2023 Match cycle
- Allotted 7 signals for the 2023 and 2024 Match cycles
- Adopted a tiered approach [3 (gold), 12 (silver)] for the 2025 Match cycle

Methods

Sample

- 2025 Match cycle applicants to Internal Medicine
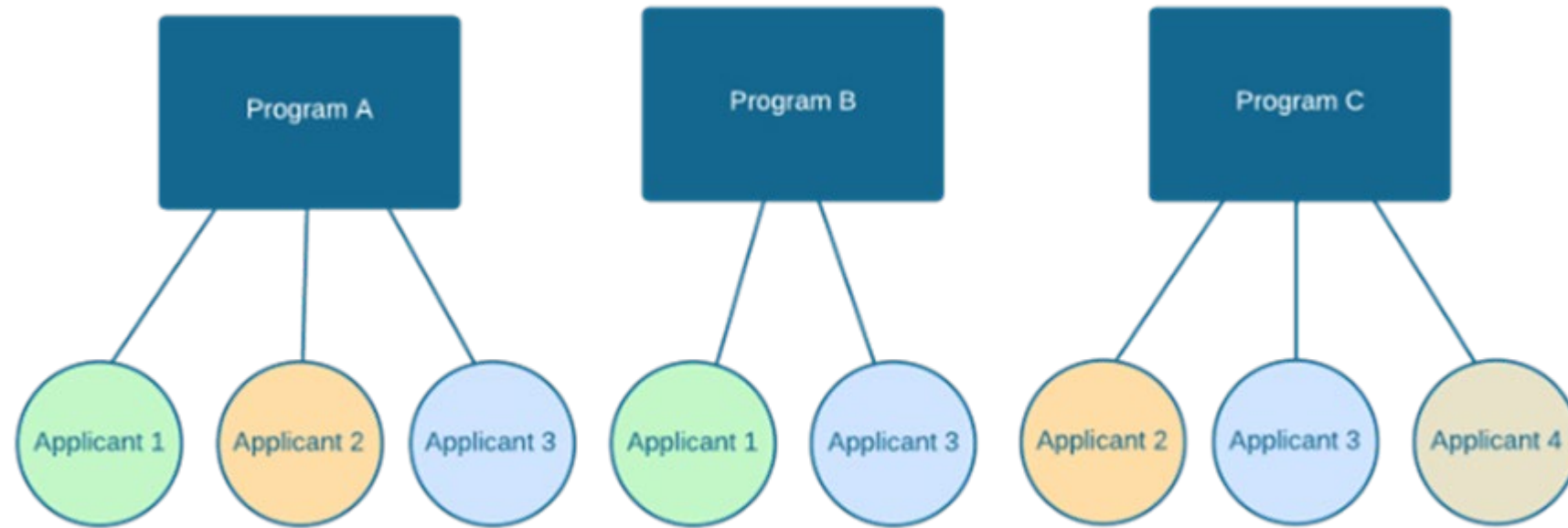- 566 programs
- 23,978 applicants

Analyses

- Descriptives (counts, boxplots)
- Program n≥30 ranks to be included
- Multi-level model (MLM)
  - Signal, applicant type, school-program state alignment, affiliate/sponsor institution, ever failed Step 1, ever failed Step 2, Step 2 CK score, signal-to-application ratio

Outcomes

- Placement on ROL, Competitive Placement on ROL, Matched

Multi-level Model (MLM) Methodology

Why MLM?
- Comprehensive Inclusion: Incorporates all key variables without excluding due to sample size constraints
- Retention of Programs: MLM allows for a larger number of programs in the analysis compared to traditional linear regression
- Between-Program Effects: Enables examination of factors like the signal-to-application ratio across programs.
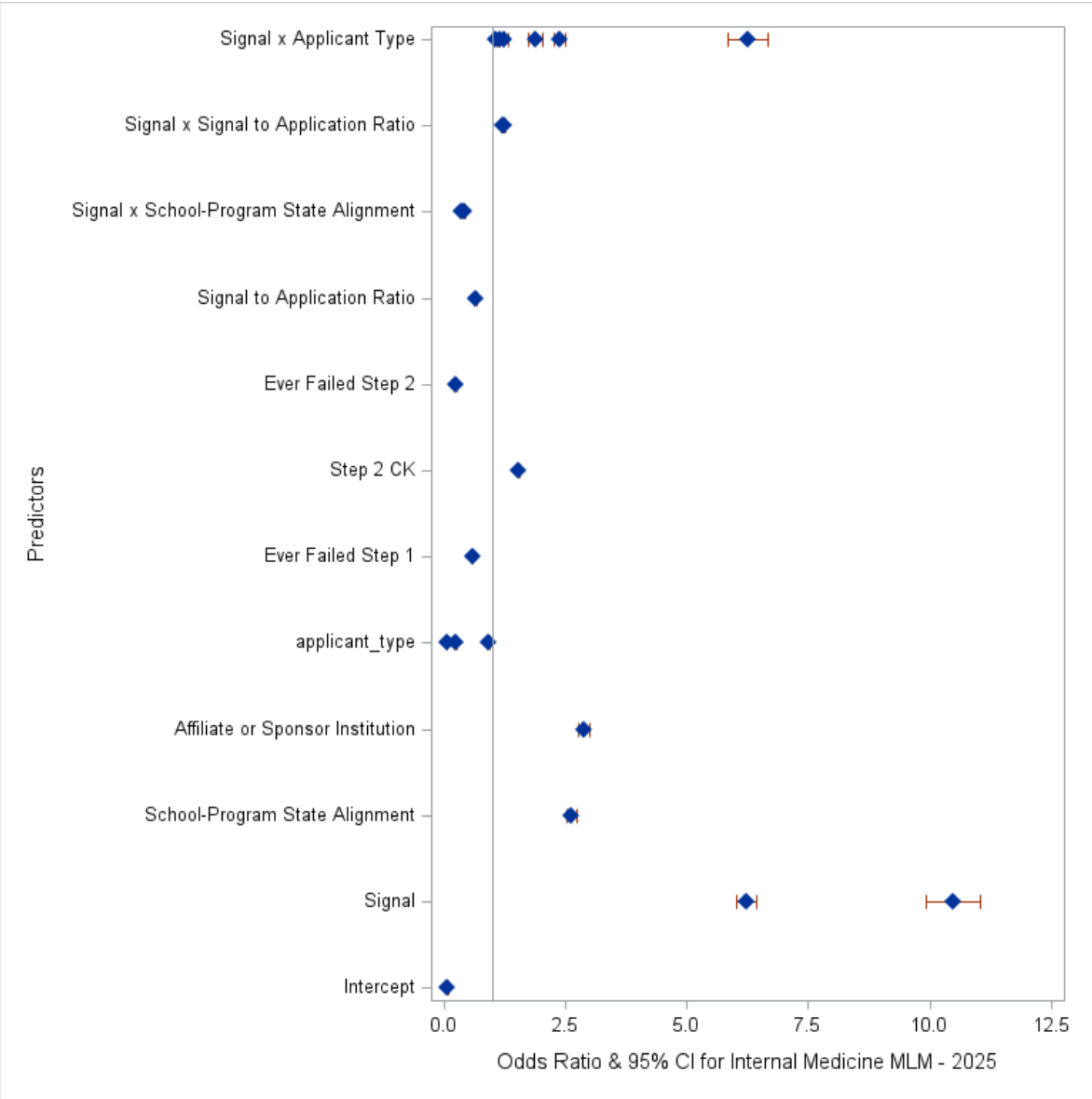
Descriptive Analyses: Ranked, Competitively Ranked & Matched
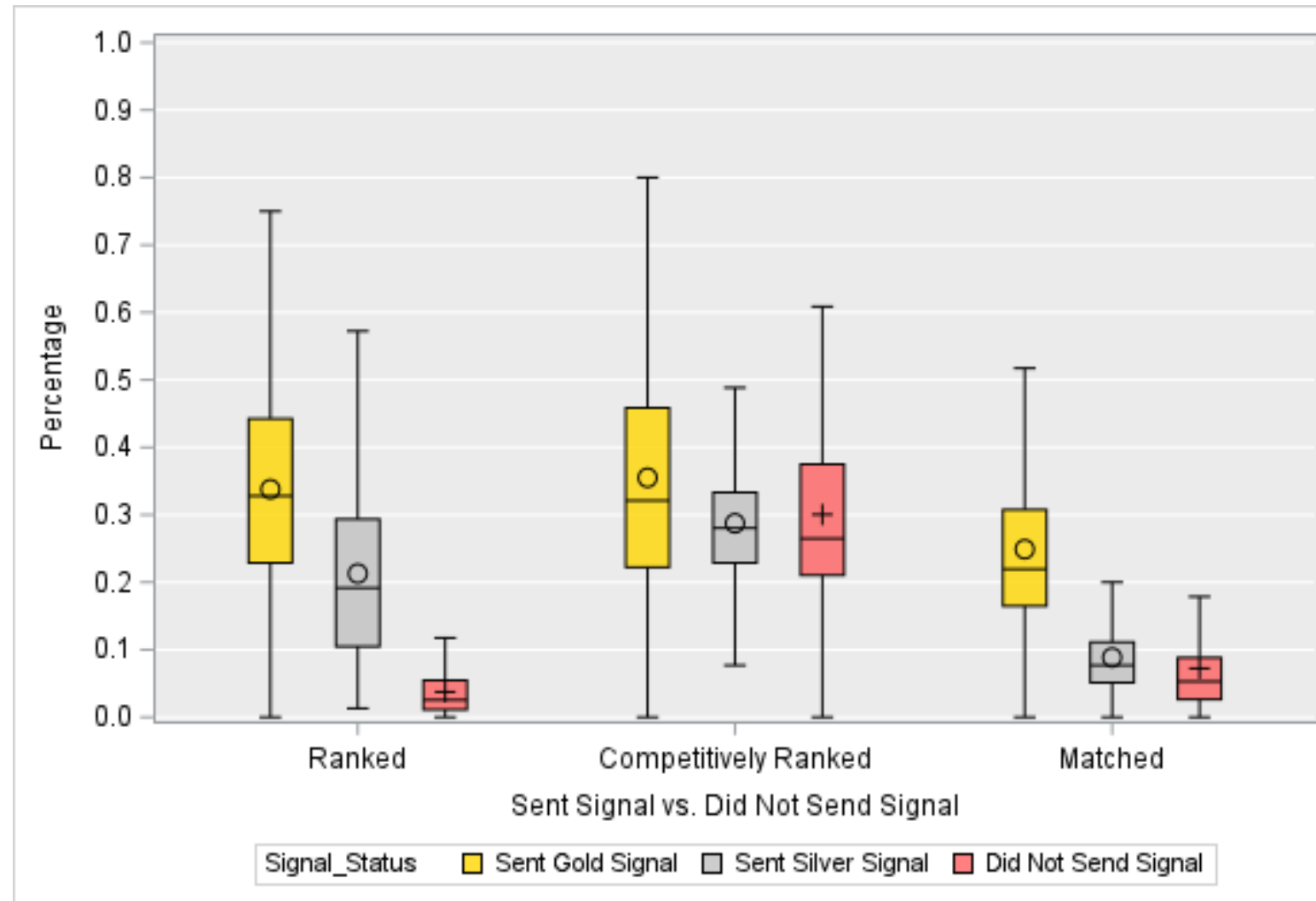
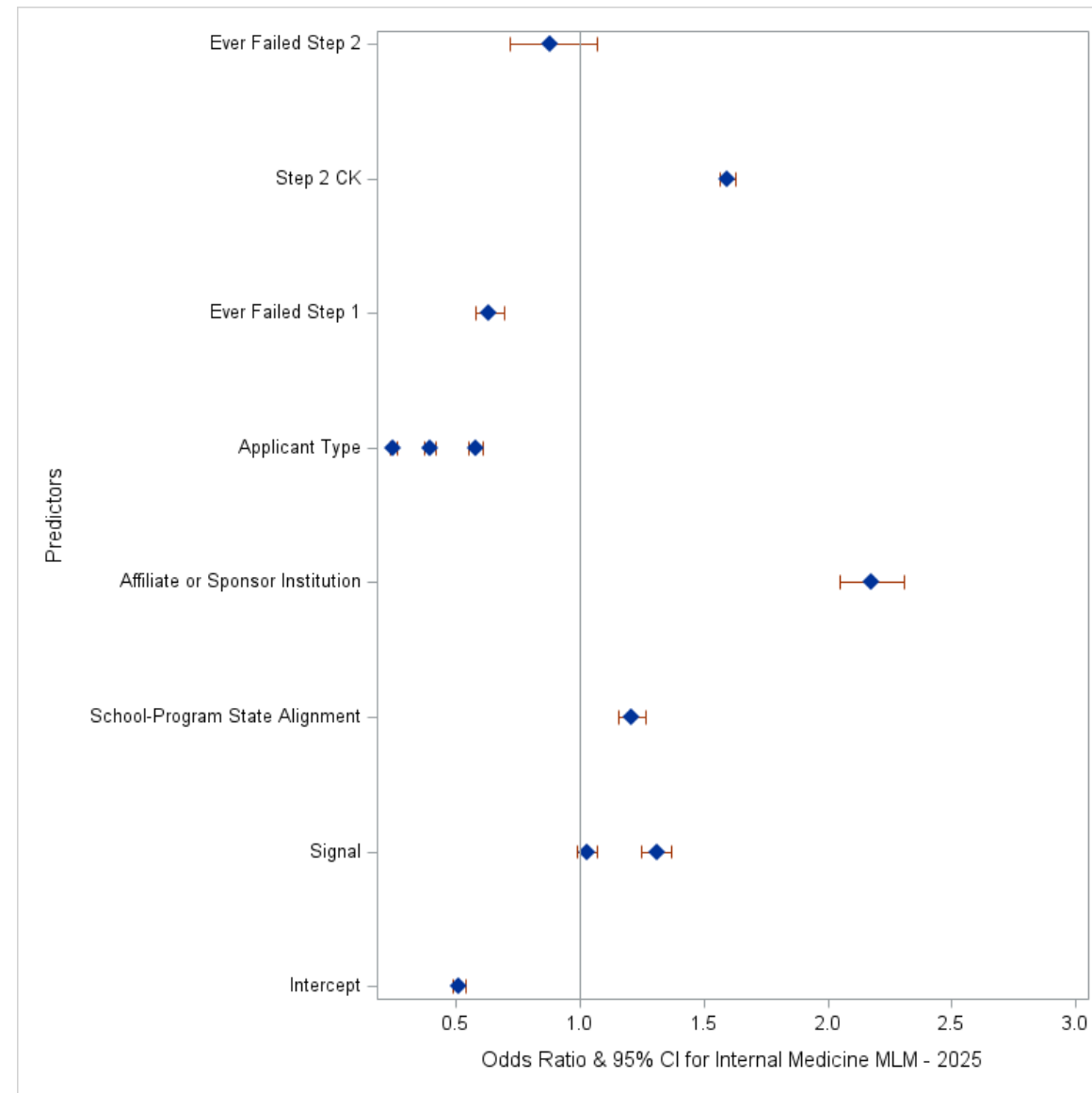# Descriptive Analyses: ROL, Top 25, and Match Composition

Ranked Multi-level Model
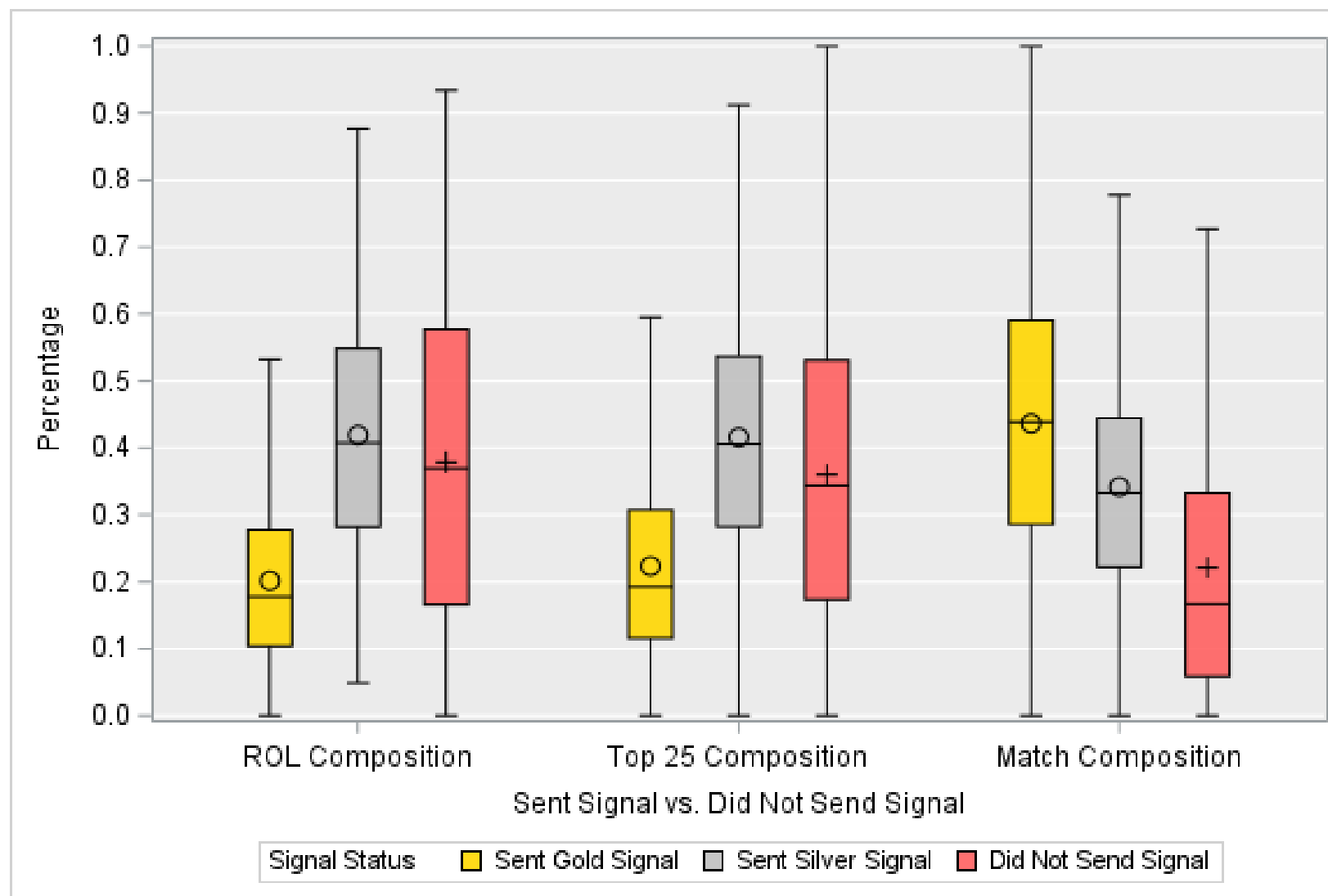
Competitively Ranked Multi-level Model

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Key Takeaways—Descriptives/Boxplots

- ↑ odds of being ranked and matching
  - Both tiers ↑ non-signalers
  - Gold ↑ silver
- Negligible effect of signaling on competitive ROL placement
- ROL & top 25 composition ↑ silver & non-signalers (compared to gold)
- Match composition ↑ gold
- Wide boxplots indicate variability among programs within IM

Key Takeaways—Multi-level Models

- Odds of being *ranked*

  - Sending a signal ↑ effect (and greater for gold than silver)

  - Other factors are still predictive of the odds of being *ranked* when accounting for sending a signal:

    ◦ ↑ UME and program state alignment, applications to an affiliate/sponsor institution, and higher Step 2 CK scores.

    ◦ ↓ having an applicant type other than US MD (DO and IMGs), having ever failed Step 1 or Step 2, and applications to programs with a higher signal:application ratio.

- Odds of being *competitively ranked*

  - Results largely mirror the previous outcome

Limitations

- Lack of data on DOs who did not take USMLE
- Lack of data on away rotations
- Did not model all variables
  - Do not account for the impact of the interview experience, professional characteristics, and applicant demographics on the relationship between signaling and ranking/matching
  - Advice applicants receive on signaling and ranking behaviors
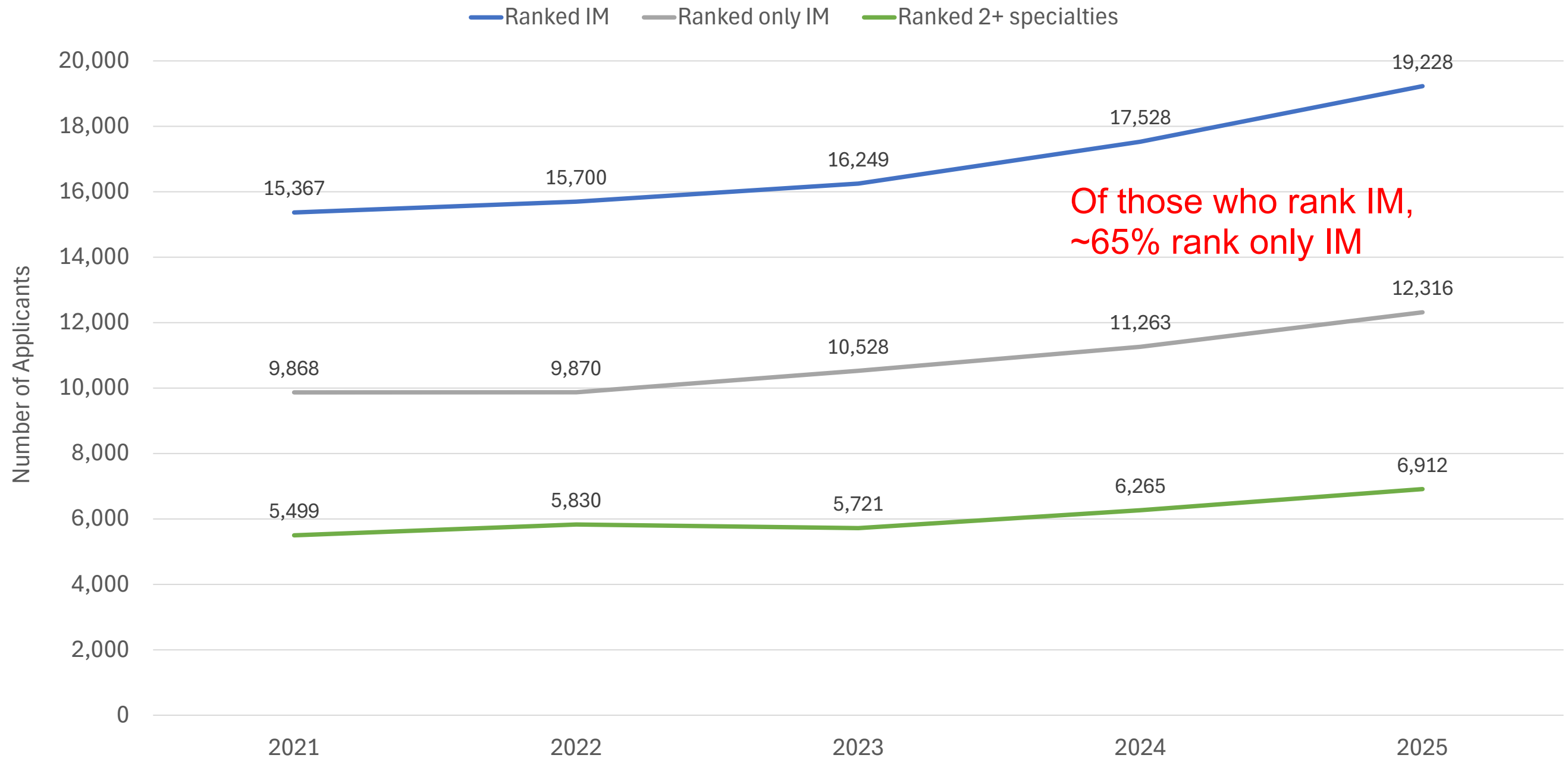- Applicants that don't use signals as intended

Ranking behaviors of residency applicants who ranked IM and/or received a position in IM

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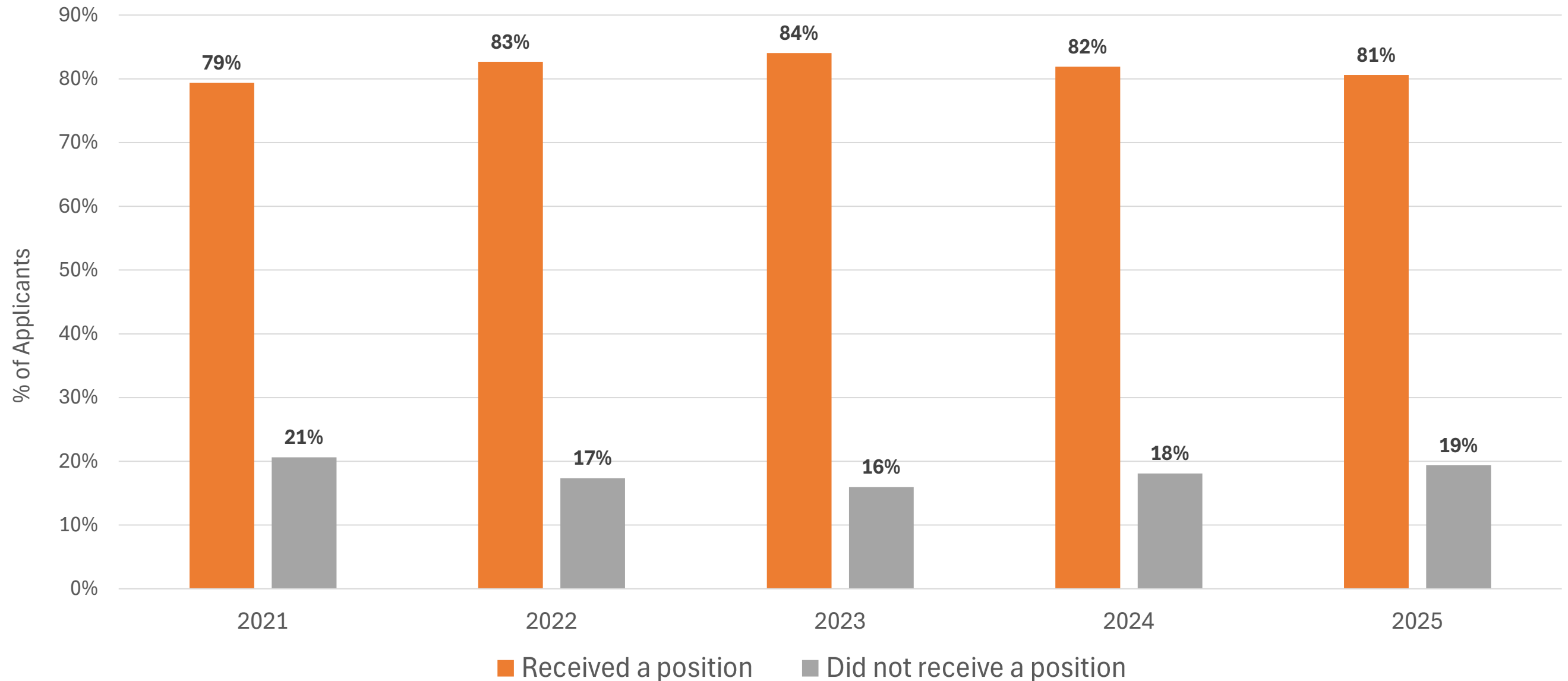NATIONAL RESIDENT MATCHING PROGRAM®

Methods

- 2021-2025 Main Residency Match (MRM) data
- Exclusion criteria:
  - o Canadian and Fifth Pathway applicants
  - o Applicants who ranked only Preliminary Ophthalmology programs and/or who received a Preliminary Ophthalmology position
  - o Combined IM specialties excluded
- All position types were considered (i.e., Preliminary positions were included in analyses)
- Receipt of a position (through algorithm and/or SOAP)
  - o Received a full set of training in a single Match cycle (i.e., Categorical, Primary, or Preliminary + Advanced position)
  - o Received only partial training in a single Match cycle (i.e., Preliminary only, Advanced only, Reserved)

IM Ranking Behaviors

— Ranked IM   — Ranked only IM   — Ranked 2+ specialties

Of those who rank IM, ~65% rank only IM

Ranked IM: 2021: 15,367 | 2022: 15,700 | 2023: 16,249 | 2024: 17,528 | 2025: 19,228

Ranked only IM: 2021: 9,868 | 2022: 9,870 | 2023: 10,528 | 2024: 11,263 | 2025: 12,316

Ranked 2+ specialties: 2021: 5,499 | 2022: 5,830 | 2023: 5,721 | 2024: 6,265 | 2025: 6,912
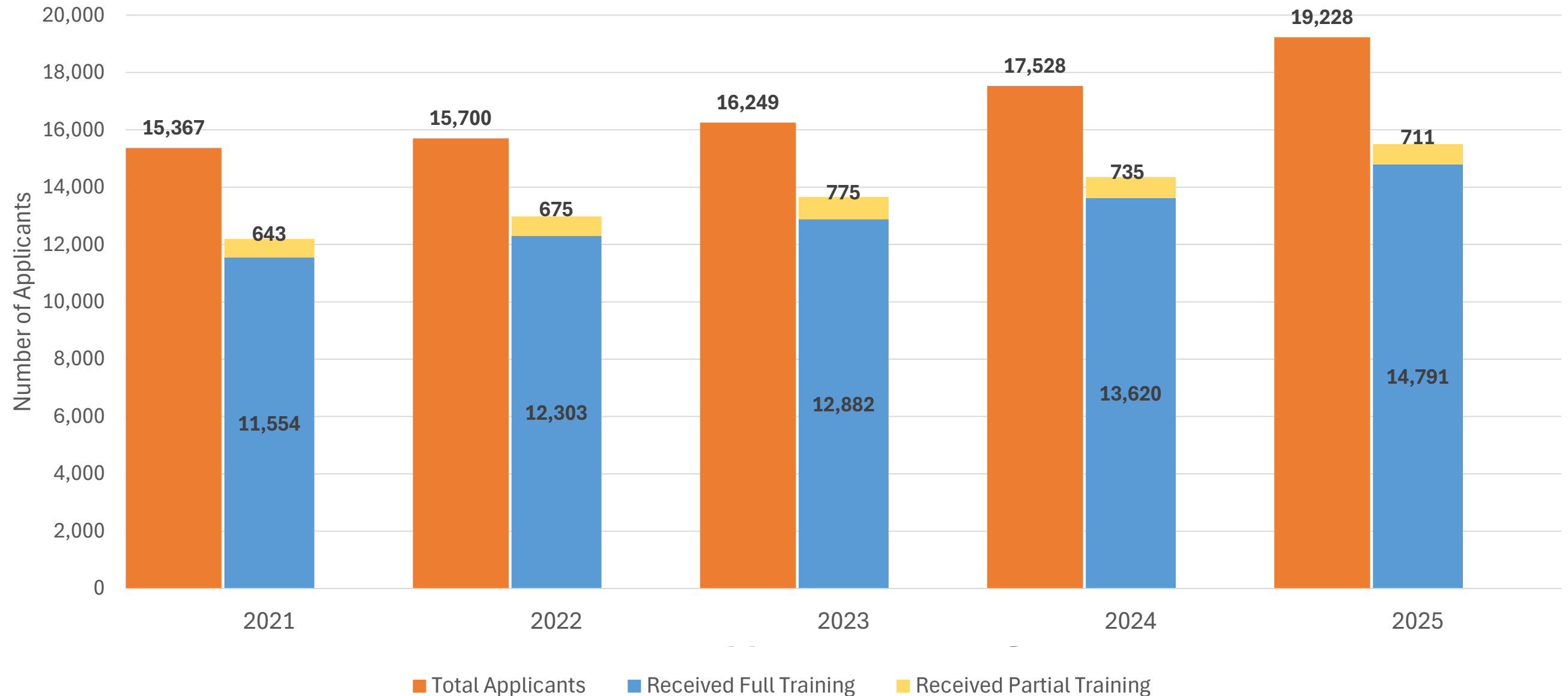
Number of Applicants

Receipt of a Position

Outcomes of Applicants Ranking IM

Receipt of a Position

Outcomes of Applicants Ranking IM

Legend: Total Applicants (orange), Received Full Training (blue), Received Partial Training (yellow)

Year	Total Applicants	Received Full Training	Received Partial Training
2021	15,367	11,554	643
2022	15,700	12,303	675
2023	16,249	12,882	775
2024	17,528	13,620	735
2025	19,228	14,791	711

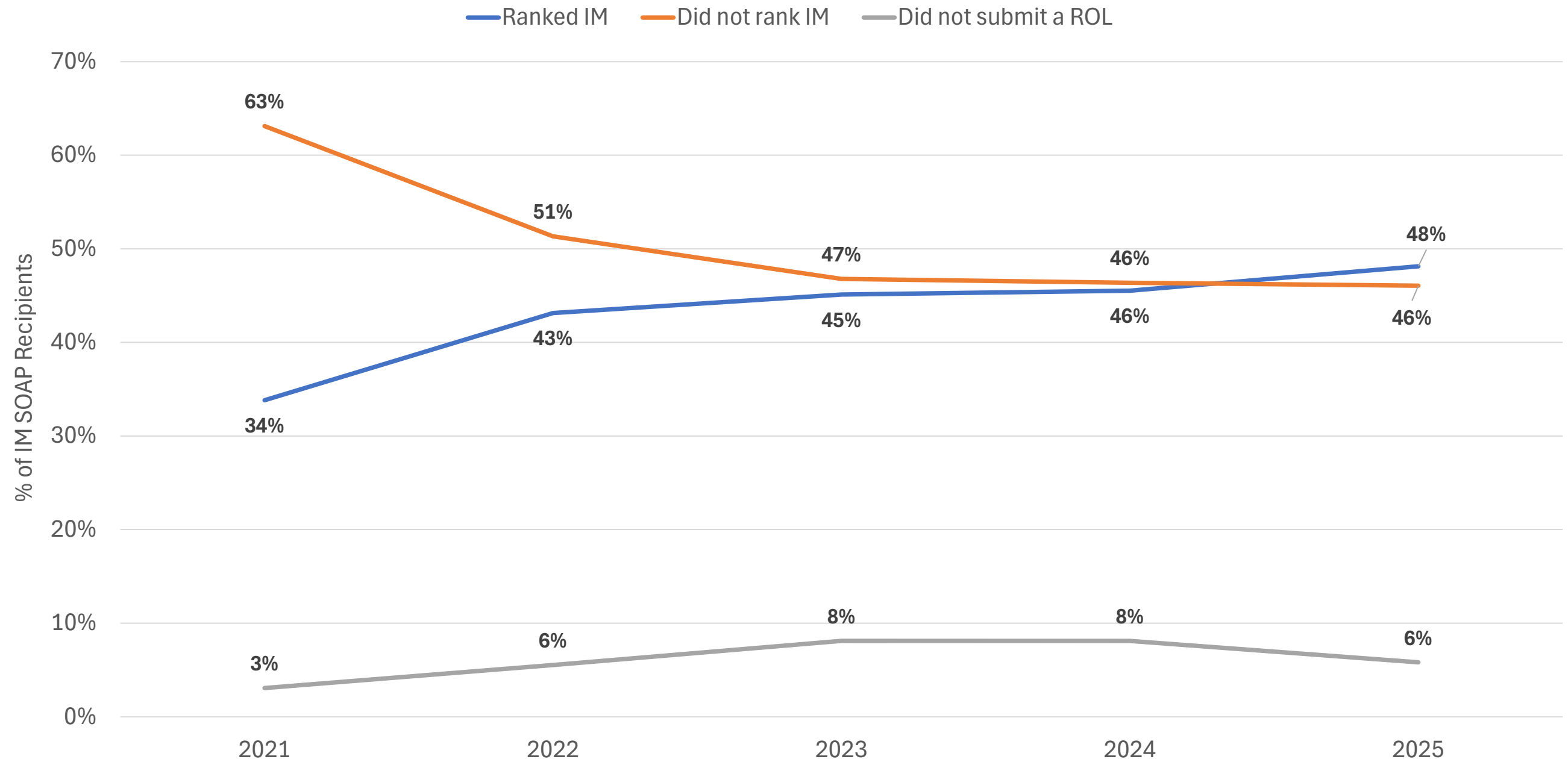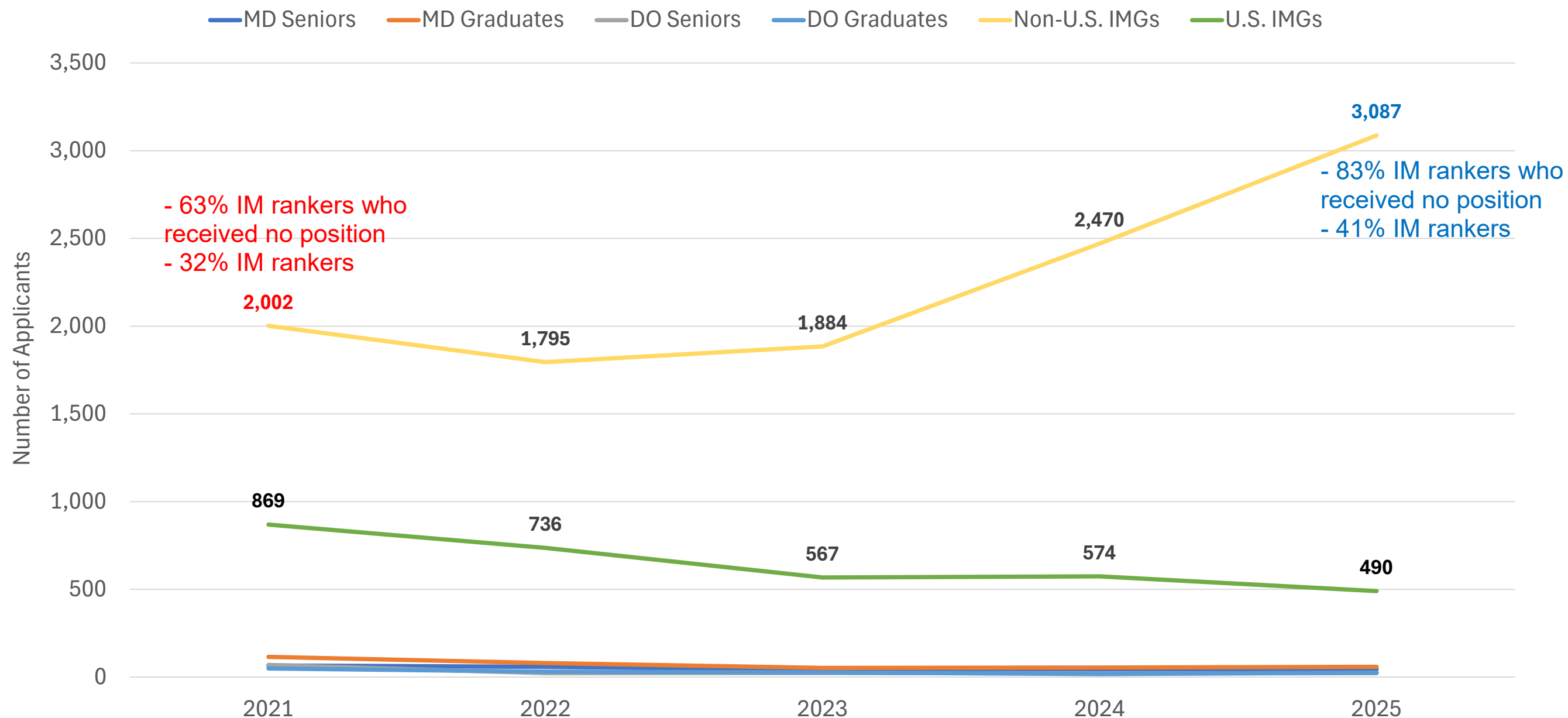Y-axis: Number of Applicants

Preferred Specialty of IM Recipients
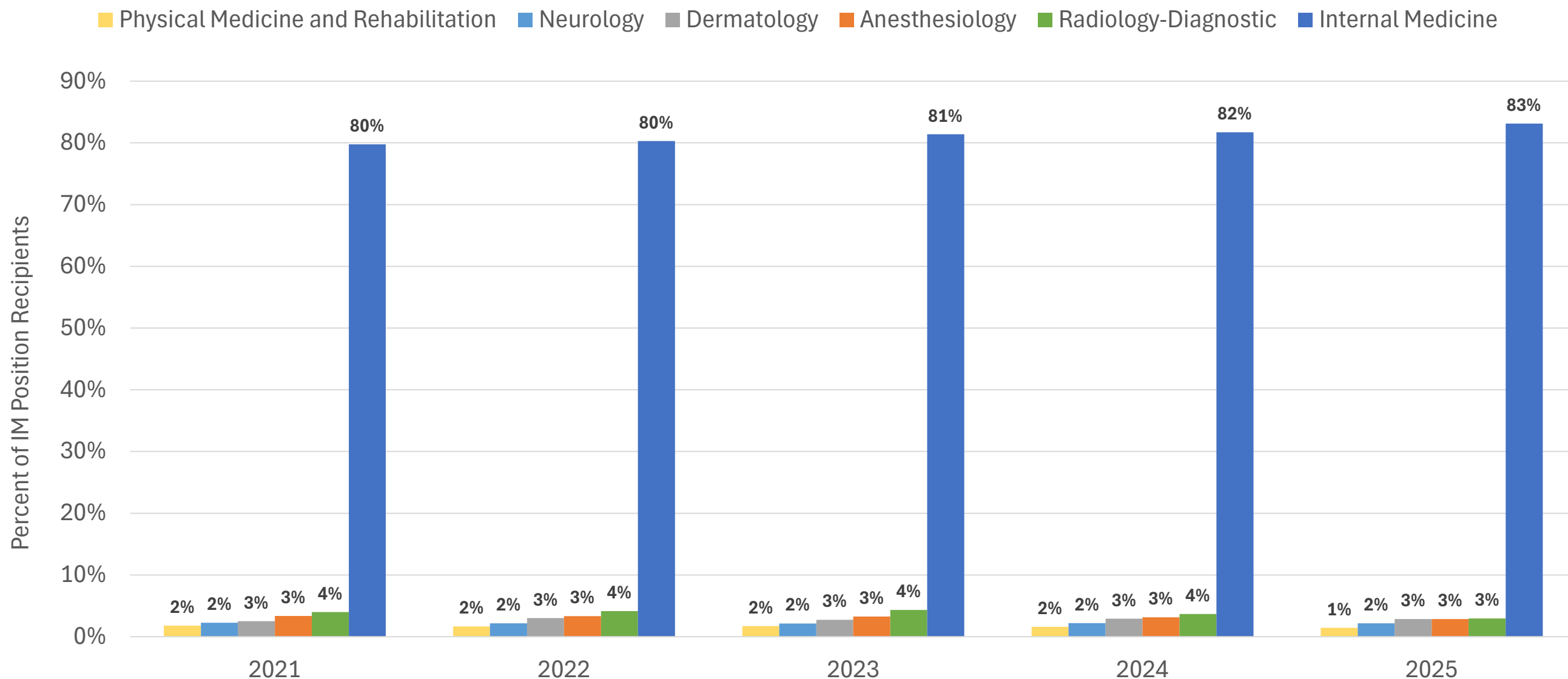
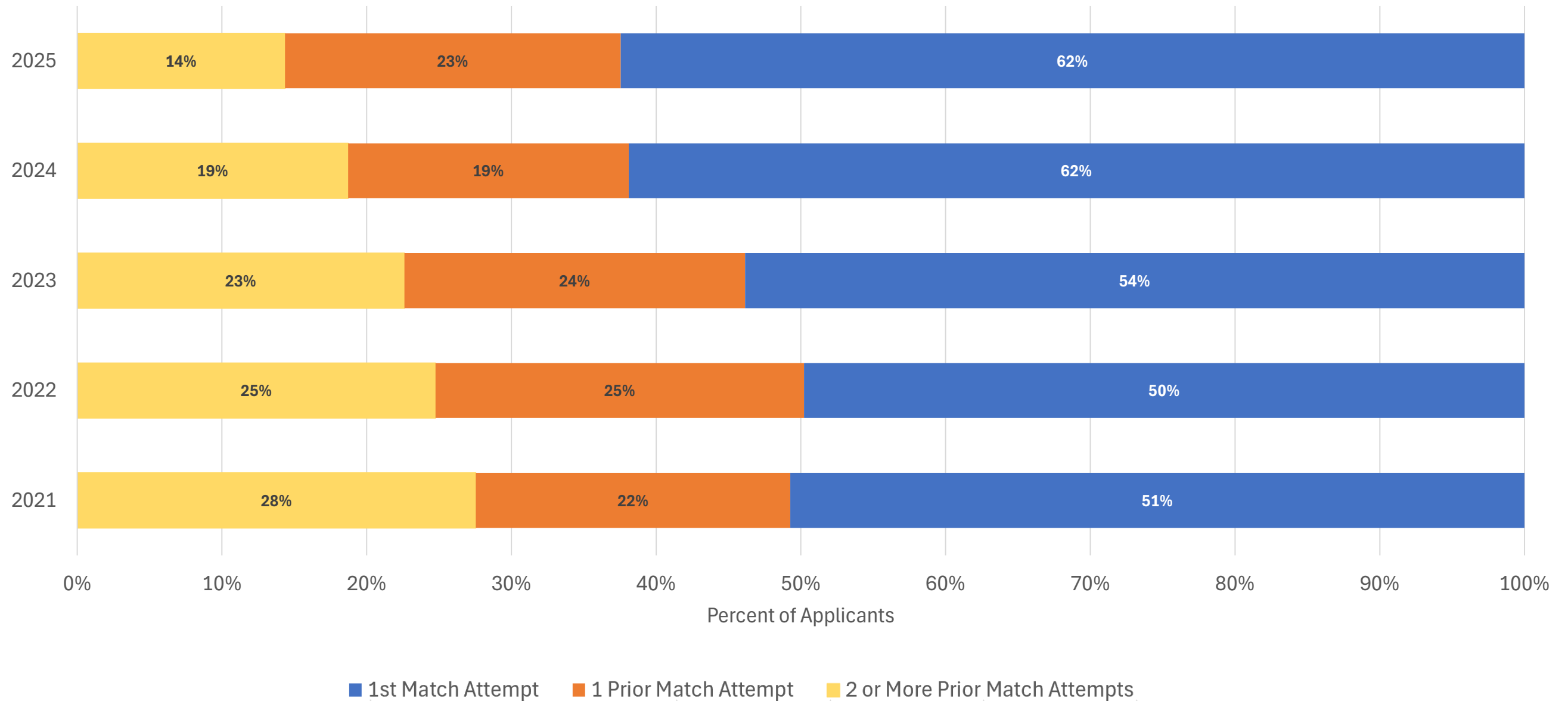# Ranking Behaviors of Those Who Accepted IM through SOAP

IM Rankers Who Did Not Receive a Position by Applicant Type

Prior MRM Participation of Applicants Who Did Not Receive a Position

Ranked Internal Medicine

Percent of Applicants

■ 1st Match Attempt ■ 1 Prior Match Attempt ■ 2 or More Prior Match Attempts

Key Takeaways

- IM rankers = consistent ranking behaviors over time
- IM applicants receiving a position fairly consistent over time
  - ~95% of applicants receiving a position receive full training
- ~95% of IM positions received via algorithm
- 2023-2025 about half of applicants who accepted an IM position via SOAP had ranked IM
- Non-U.S. and U.S. IMGs disproportionately represented among those who ranked IM and did not receive a position
- ↓ prior Match participation among applicants who did not receive a position

Thank you!

Questions? Comments?

Contact us at research@nrmp.org