Exploring the Relationship Between Program Signaling & Interview Invitations Across Specialties

2024 ERAS® Analysis

Data as of 2/28/2024

Association of
American Medical Colleges

Program Signals: Overview

What is a program signal?

- Program signals *offer applicants the opportunity to express interest* in a residency program at the time of application.

- Program signals are *intended to be used by programs as one of many data points* in deciding whom to invite to interview.

Program Signals

AAMC

Goals of Signal Approaches

	Small	Large	Two-Tier
Goal	• Top Programs only.	• Distributes signals more evenly.	• Distributes signals more evenly. • Greater flexibility for applicants.
Example(s)	• General Surgery (5). • Internal Medicine (7).	• Orthopedic Surgery (30). • ENT (25).	• OBGYN (3 Gold, 15 Silver). • Dermatology (3 Gold, 25 Silver).

AAMC

Pros & Cons of Signal Approaches

	Small	Large	Two-Tier
Pros	• True top programs. • Guards against use of signals as interview invitation criteria.	• Distributes signals more evenly.	• Distributes signals more evenly. • Gold identifies top programs & silver gives flexibility.
Cons	• May be insufficient for accurately representing all applicant preferences. • High concentration in a small # of programs.	• Tempting to use as threshold. • Value of signal may be diluted.	• Tempting to use as threshold. • Explanation more challenging.

AAMC

Consider Key Questions & Review Data
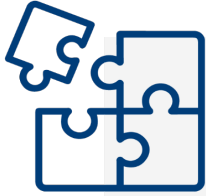
Conceptual

- What are we trying to learn from signals?

- What goals are we trying to accomplish with signals?

- How much risk do we want to ask applicants to bear?

- How much change can our community tolerate?

- How much evidence do we need to support a change?

Data

- Did we accomplish our goals? Were there any unintended consequences?

- How did applicants react to small, 2-tiered, and large number signals?

- Did specialties that used a different approaches accomplish goals that we didn't?

- Did specialties use signals similarly regardless of # of signals?

Sample of 2024 ERAS Applicants in the Following Specialties:

- Anesthesiology.
- Child Neurology.
- Dermatology.
- Diagnostic Radiology.
- Emergency Medicine.
- Family Medicine.
- General Surgery.
- Internal Medicine.
- Internal Medicine/Psychiatry.
- Interventional Radiology.
- Neurodevelopmental Disabilities*.

- Neurological Surgery.
- Neurology.
- Obstetrics & Gynecology.
- Orthopedic Surgery.
- Otolaryngology.
- Pathology.
- Pediatrics.
- Physical Medicine & Rehabilitation.
- Psychiatry.
- Public Health and General Preventive Medicine*.
- Thoracic Surgery.

* Results not included due to sample size.

Analysis

- **Predictors:**
  - Program signal.

- **Outcome:**
  - Scheduled to interview PDWS or Thalamus Interview Scheduler as of February 28, 2024 (Main Residency Match® only).

- **Analysis:**
  - Results analyzed separately by program.
  - Computed signal to interview conversion rates by program.
  - Summarized the distribution of conversion rates programs using boxplots.

AAMC

What information is provided by a boxplot?

Boxplots show the distribution of signal to interview conversion rates for all programs in a specialty.

The colored box shows the signal to interview conversion rates for the bulk of the programs. The bottom of the box is the 25th percentile, the horizontal line is the median or the 50th percentile, and the top of the box is the 75th percentile.

The whiskers represent the 10th and 90th percentile of programs' interview invitation rates.
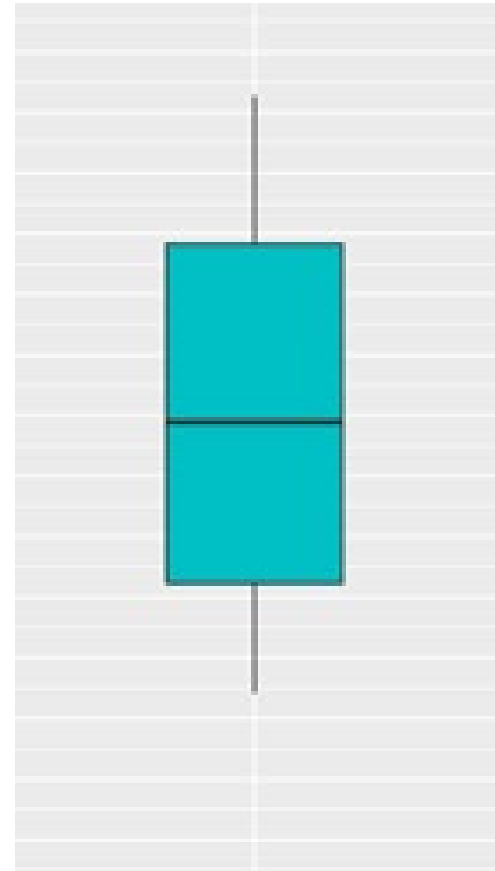
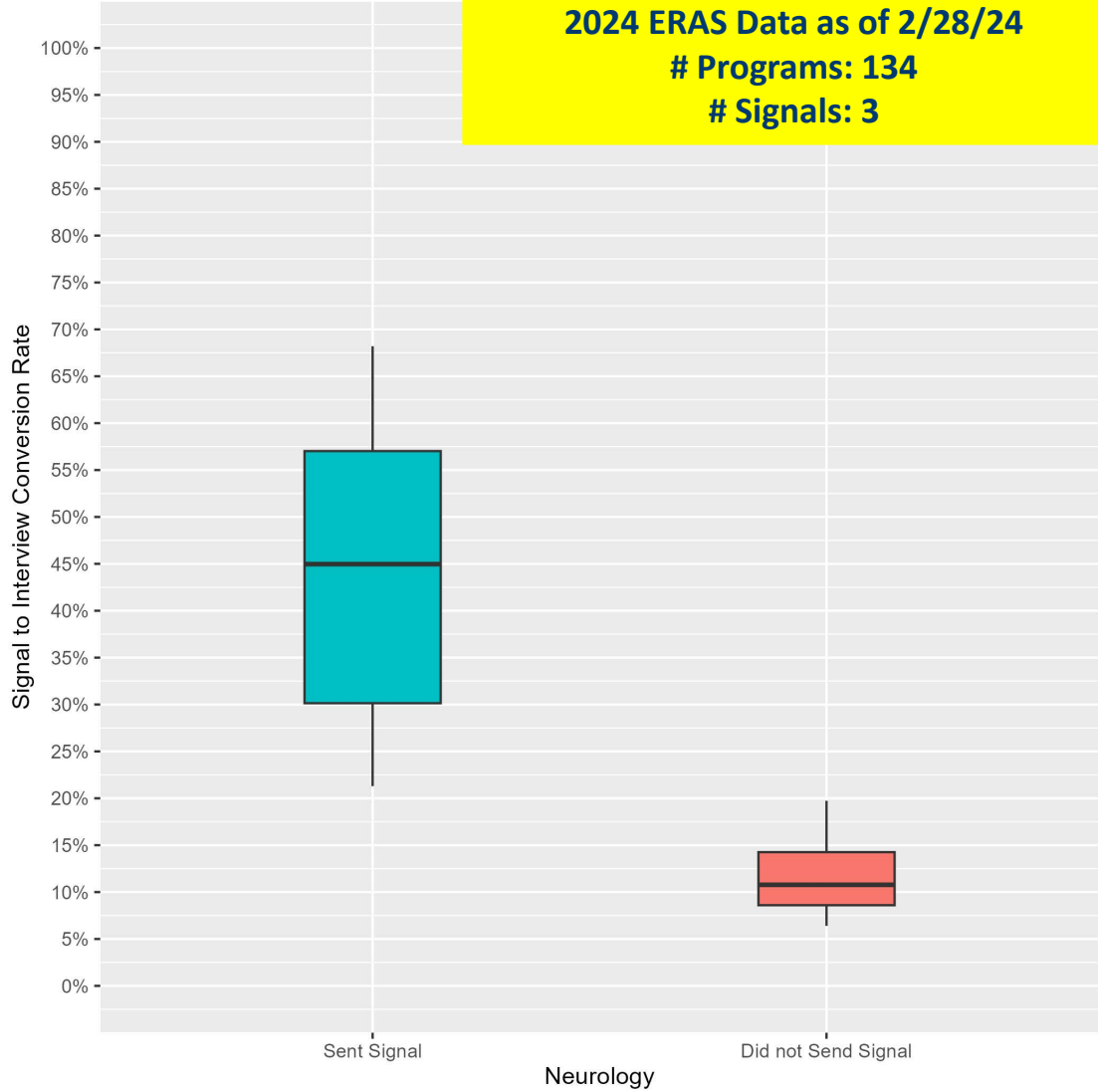# Adult Neurology: Program Sample & Inclusion Criteria

	N of Programs for Program Signals
Total programs	176
Total programs participating in program signaling	165
Met inclusion rule equal to or larger than 7:1; Provided PGY1 info in GME track; Provided interview offer data by February 28, 2024	134
Total analytic sample	**134**
Total % of programs participating in program signaling	**81%**
Total % of all Adult Neurology programs in 2024 ERAS® cycle	**76%**

AAMC

Adult Neurology: Interview Rates by Program Signal Status Year-Over-Year Comparison

2023 ERAS Data as of 3/15/23
Programs: 117
Signals: 3
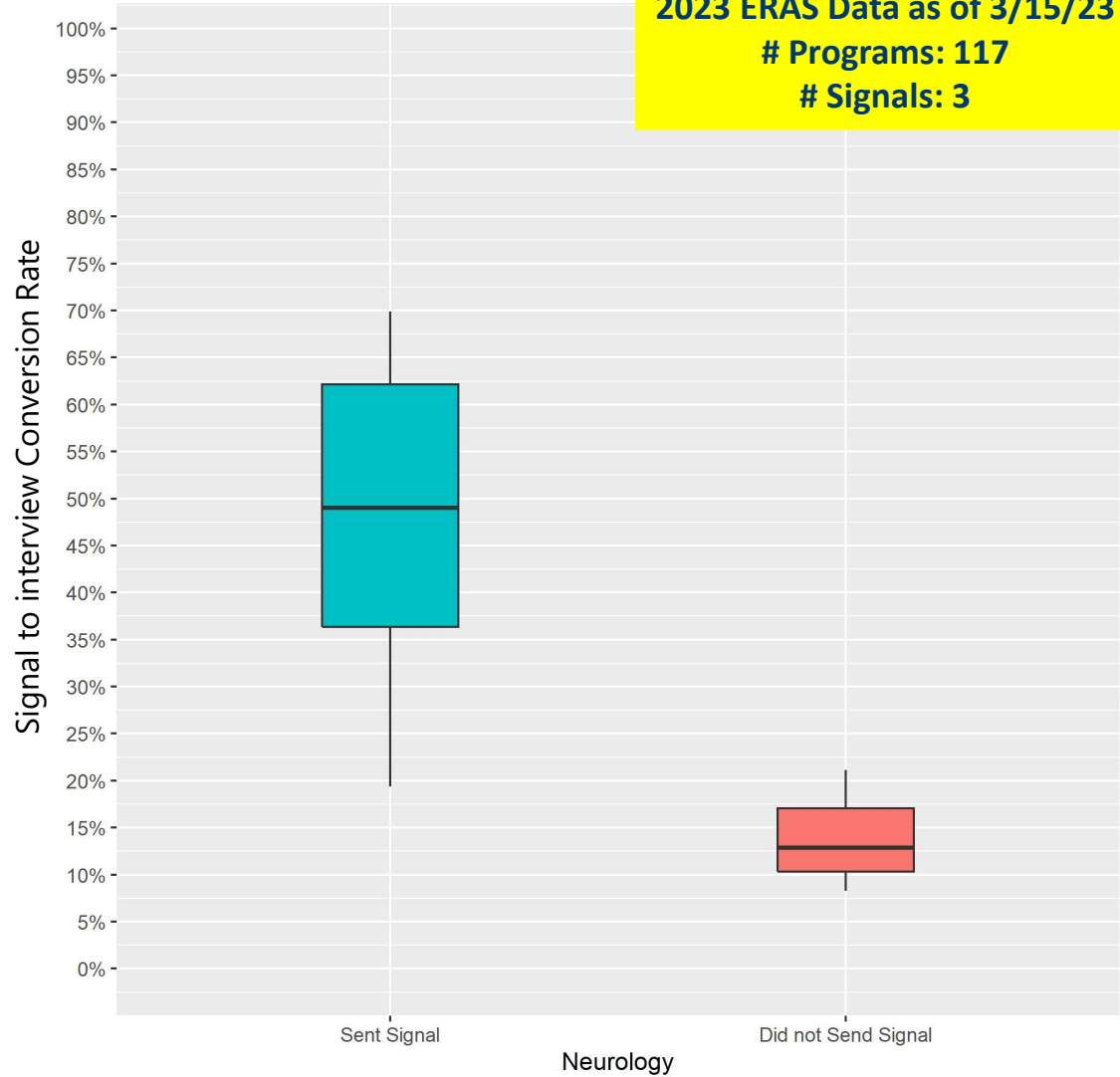
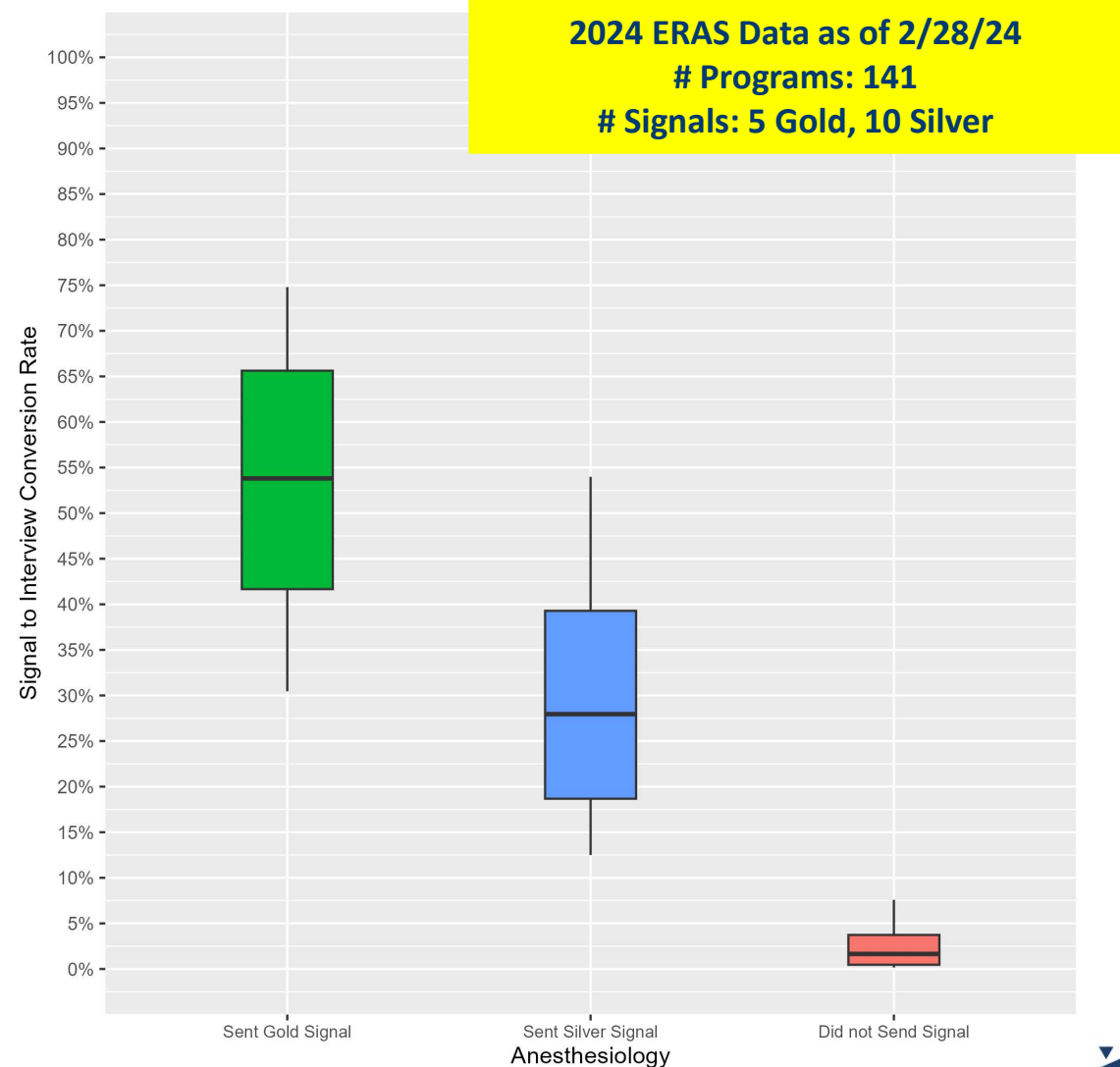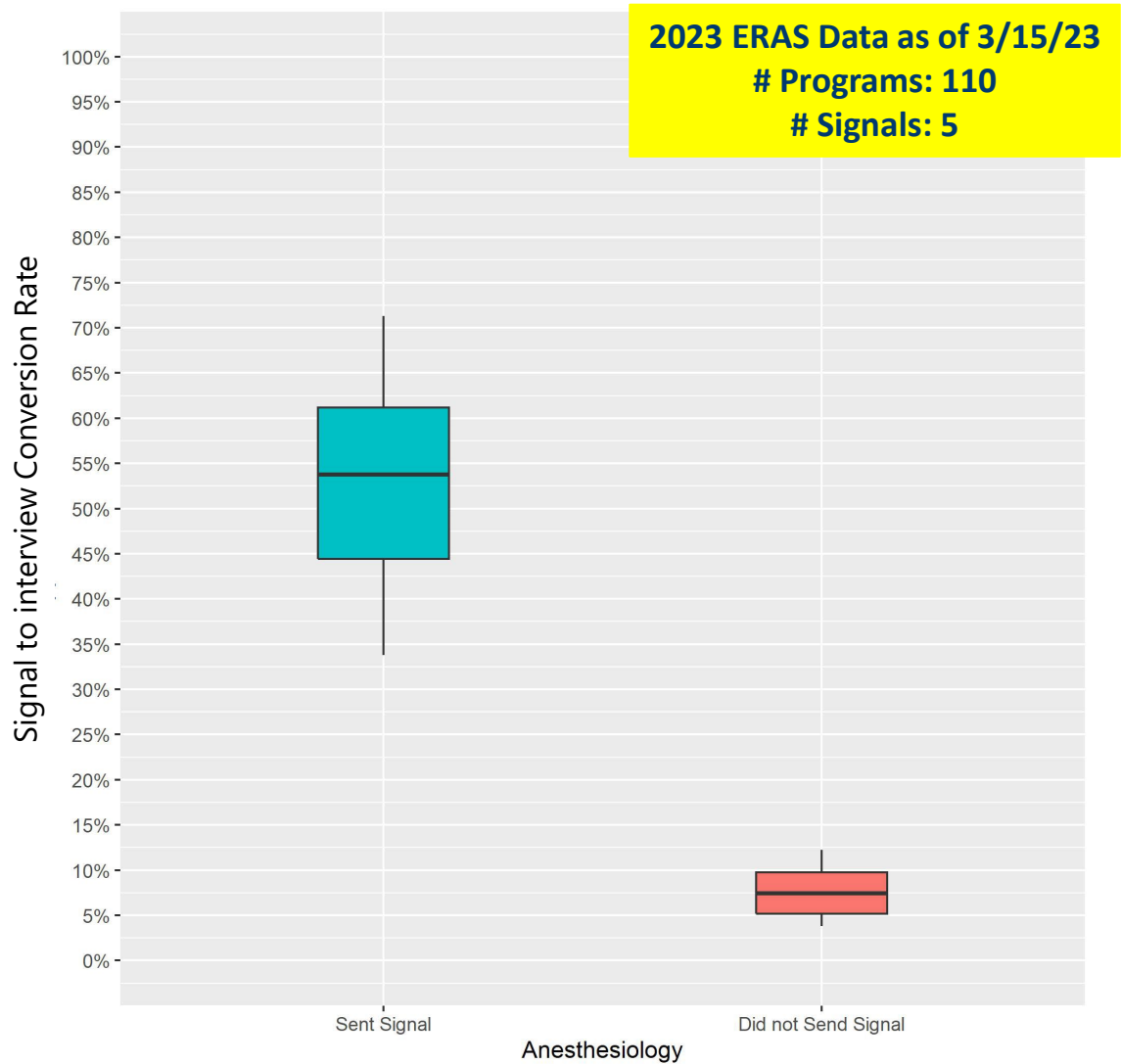2024 ERAS Data as of 2/28/24
Programs: 134
Signals: 3

Anesthesiology: Program Sample & Inclusion Criteria

	N of Programs for Program Signals
Total programs	166
Total programs participating in program signaling	156
Met inclusion rule equal to or larger than 5:1; Provided PGY1 info in GME track; Provided interview offer data by February 28, 2024	141
Total analytic sample	**141**
Total % of programs participating in program signaling	**90%**
Total % of all Anesthesiology programs in 2024 ERAS cycle	**85%**

AAMC

Anesthesiology: Interview Rates by Program Signal Status Year-Over-Year Comparison

Child Neurology: Program Sample & Inclusion Criteria

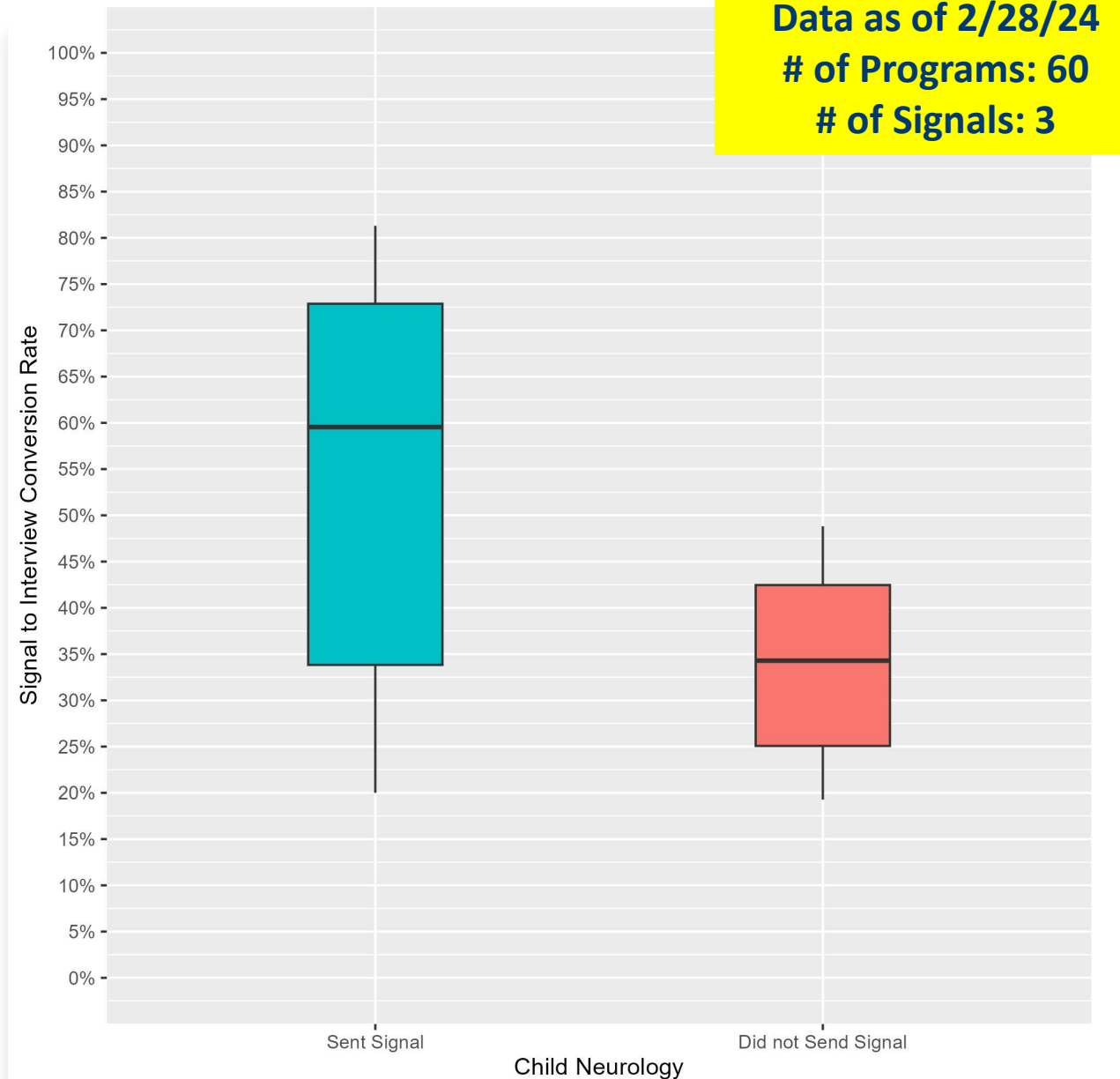|	N of Programs for Program Signals
Total programs	77
Total programs participating in program signaling	74
Met inclusion rule equal to or larger than 7:1; Provided PGY1 info in GME track; Provided interview offer data by February 28, 2024	60
Total analytic sample	**60**
Total % of programs participating in program signaling	**81%**
Total % of all Child Neurology programs in 2024 ERAS cycle	**78%**

AAMC

Child Neurology: Interview Rates by Program Signal Status

Applicants who sent a signal:
- Median of interview offers: 60%.
- 10th percentile: 20%.
- 90th percentile: 81%.

Applicants who did not send a signal:
- Median of interview offers: 34%.
- 10th percentile: 19%.
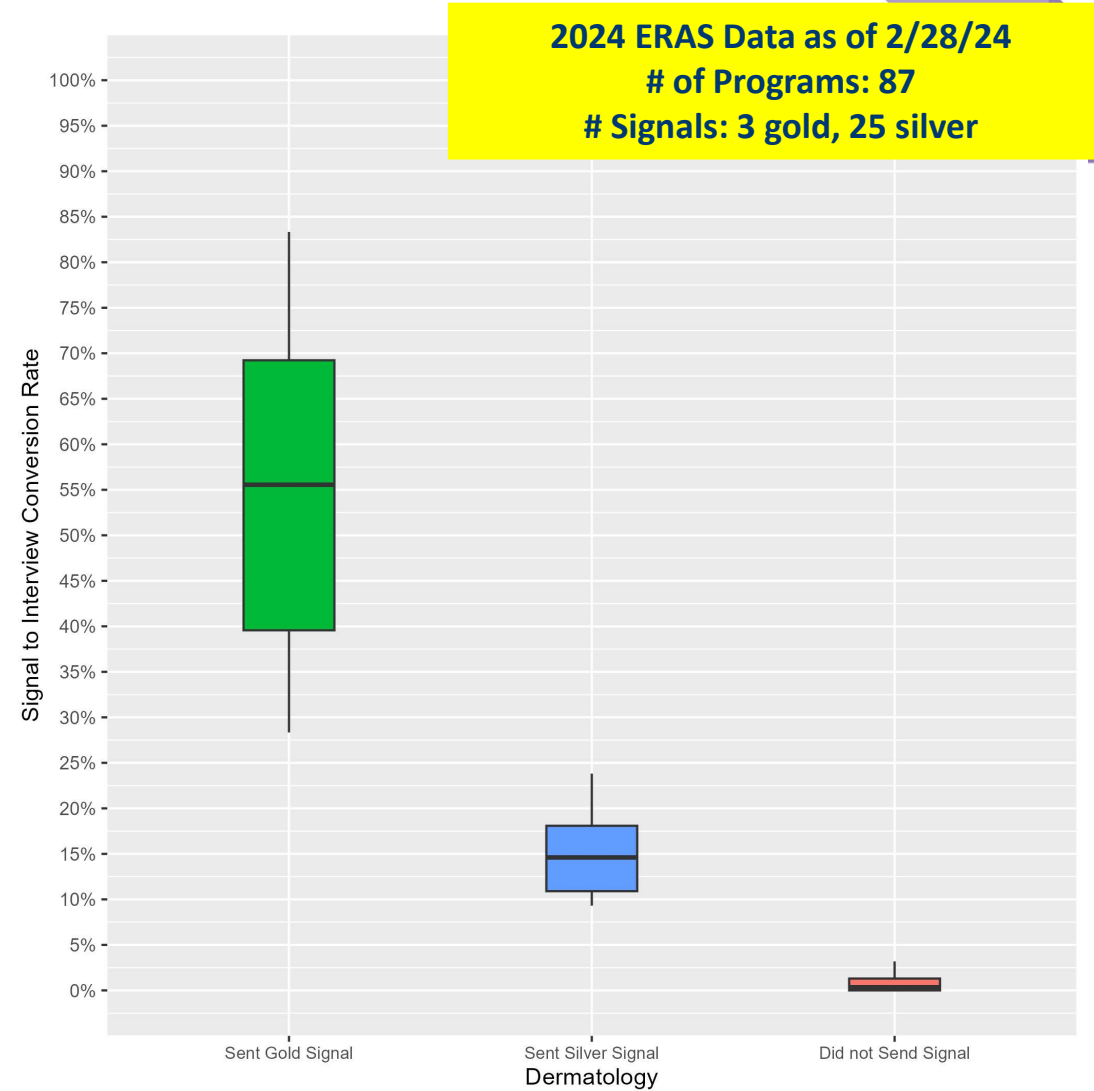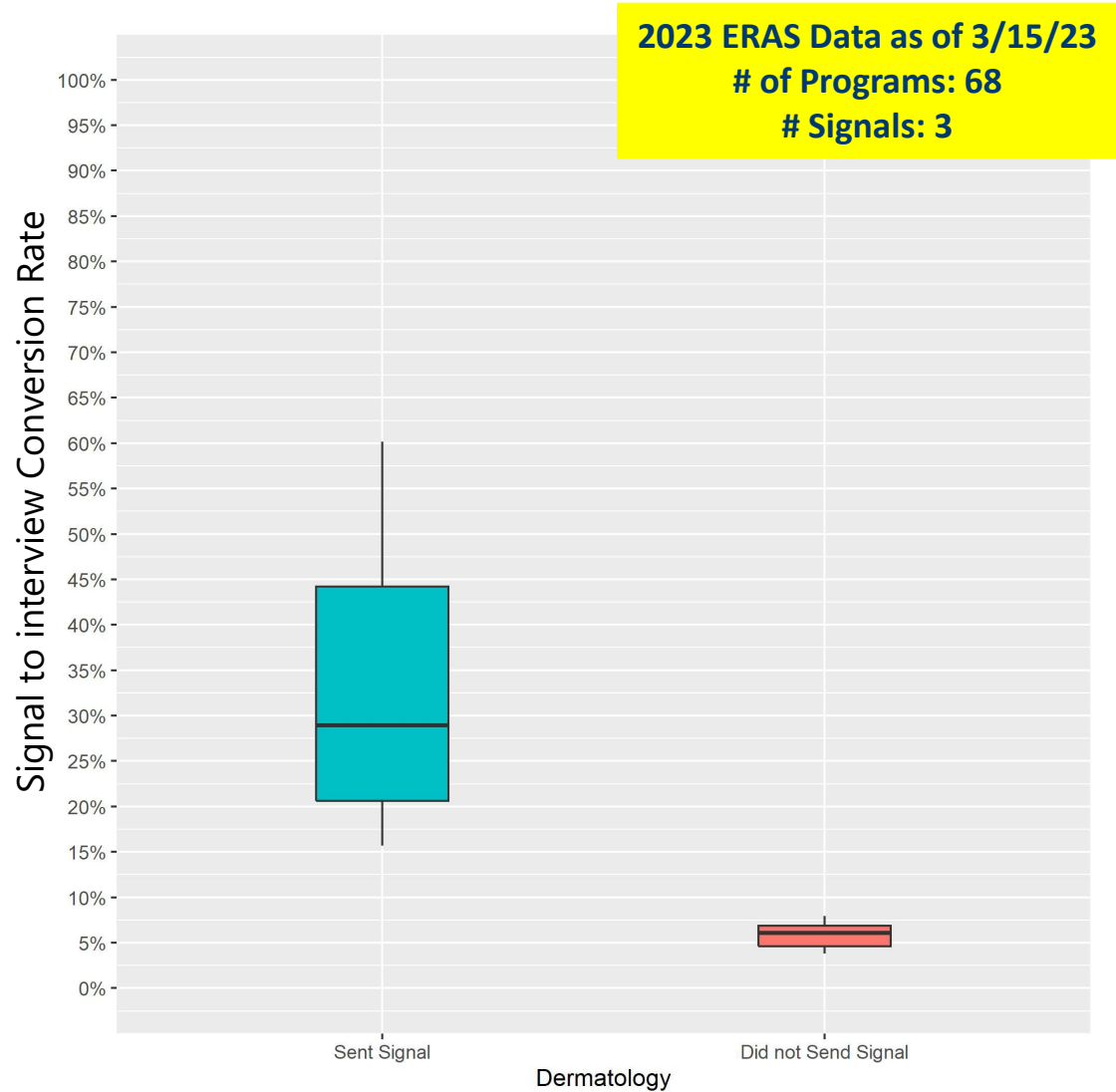- 90th percentile: 49%.

Dermatology: Program Sample & Inclusion Criteria

	N of Programs for Program Signals
Total programs	138
Total programs participating in program signaling	128
Met inclusion rule equal to or larger than 7:1; Provided PGY1 info in GME track; Provided interview offer data by February 28, 2024	87
Total analytic sample	**87**
Total % of programs participating in program signaling	**68%**
Total % of all Dermatology programs in 2024 ERAS cycle	**63%**

AAMC

# Dermatology: Interview Rates by Program Signal Status Year-Over-Year Comparison

2023 ERAS Data as of 3/15/23
# of Programs: 68
Signals: 3

2024 ERAS Data as of 2/28/24
# of Programs: 87
Signals: 3 gold, 25 silver

AAMC

Diagnostic Radiology: Program Sample & Inclusion Criteria

	N of Programs for Program Signals
Total programs	187
Total programs participating in program signaling	184
Met inclusion rule equal to or larger than 10:1; Provided PGY1 info in GME track; Provided interview offer data by February 28, 2024	150
Total analytic sample	**150**
Total % of programs participating in program signaling	**82%**
Total % of all Diagnostic Radiology programs in 2024 ERAS cycle	**80%**

AAMC

Diagnostic Radiology: Interview Rates by Program Signal Status Year-Over-Year Comparison
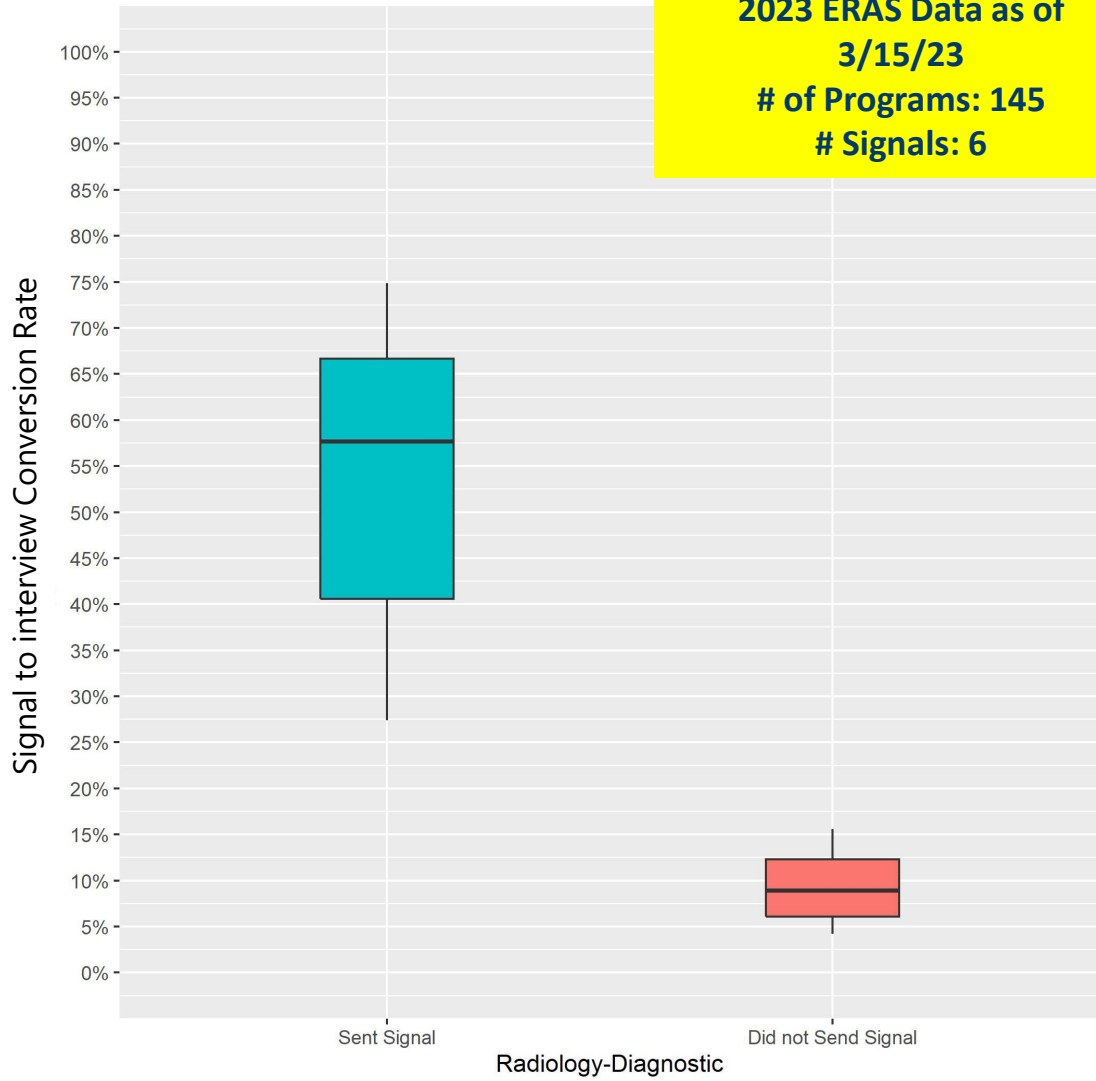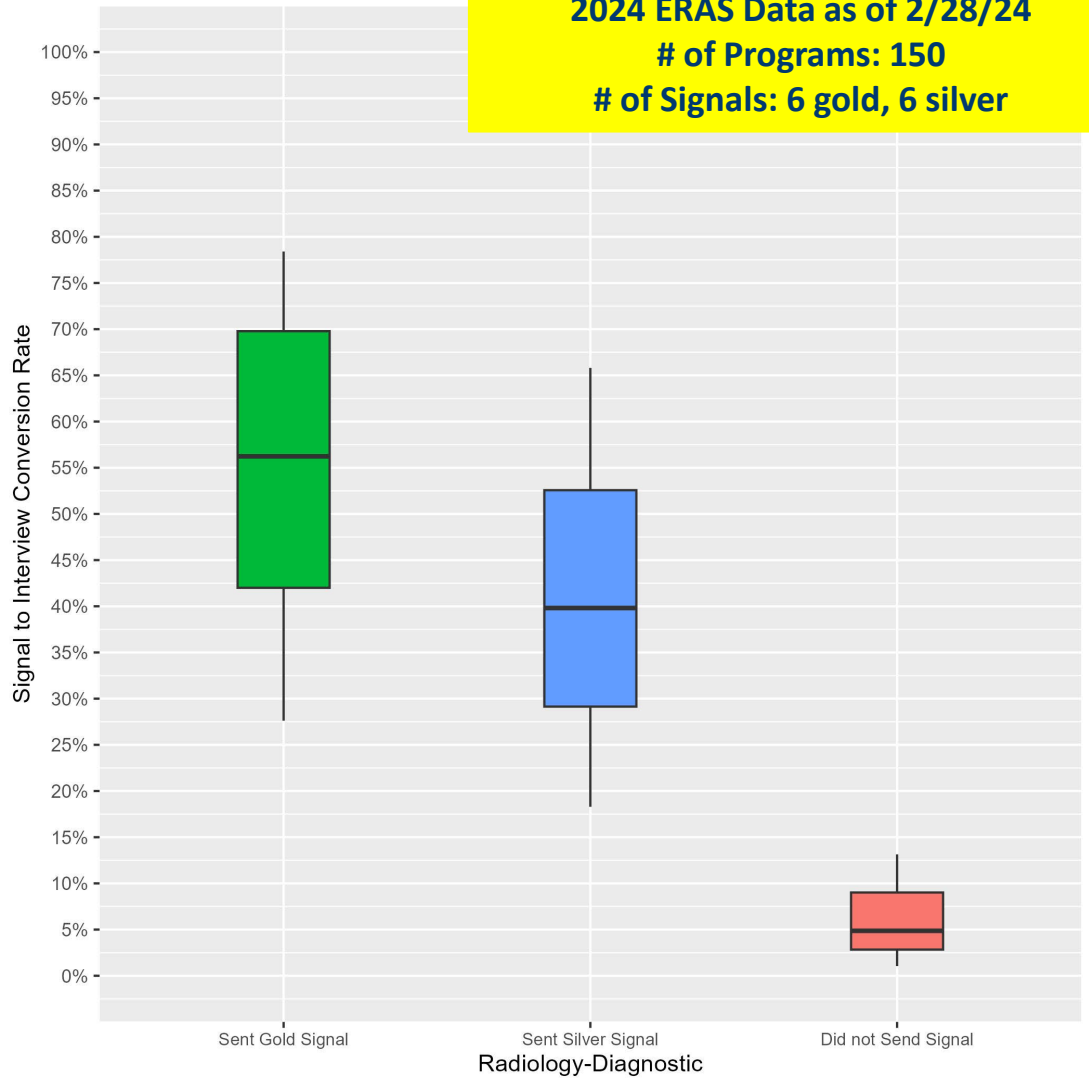
Emergency Medicine: Program Sample & Inclusion Criteria

	N of Programs for Program Signals
Total programs	280
Total programs participating in program signaling	278
Met inclusion rule equal to or larger than 7:1; Provided PGY1 info in GME track; Provided interview offer data by February 28, 2024	242
Total analytic sample	**242**
Total % of programs participating in program signaling	**87%**
Total % of all Emergency Medicine programs in 2024 ERAS cycle	**86%**

AAMC

Emergency Medicine: Interview Rates by Program Signal Status Year-Over-Year Comparison
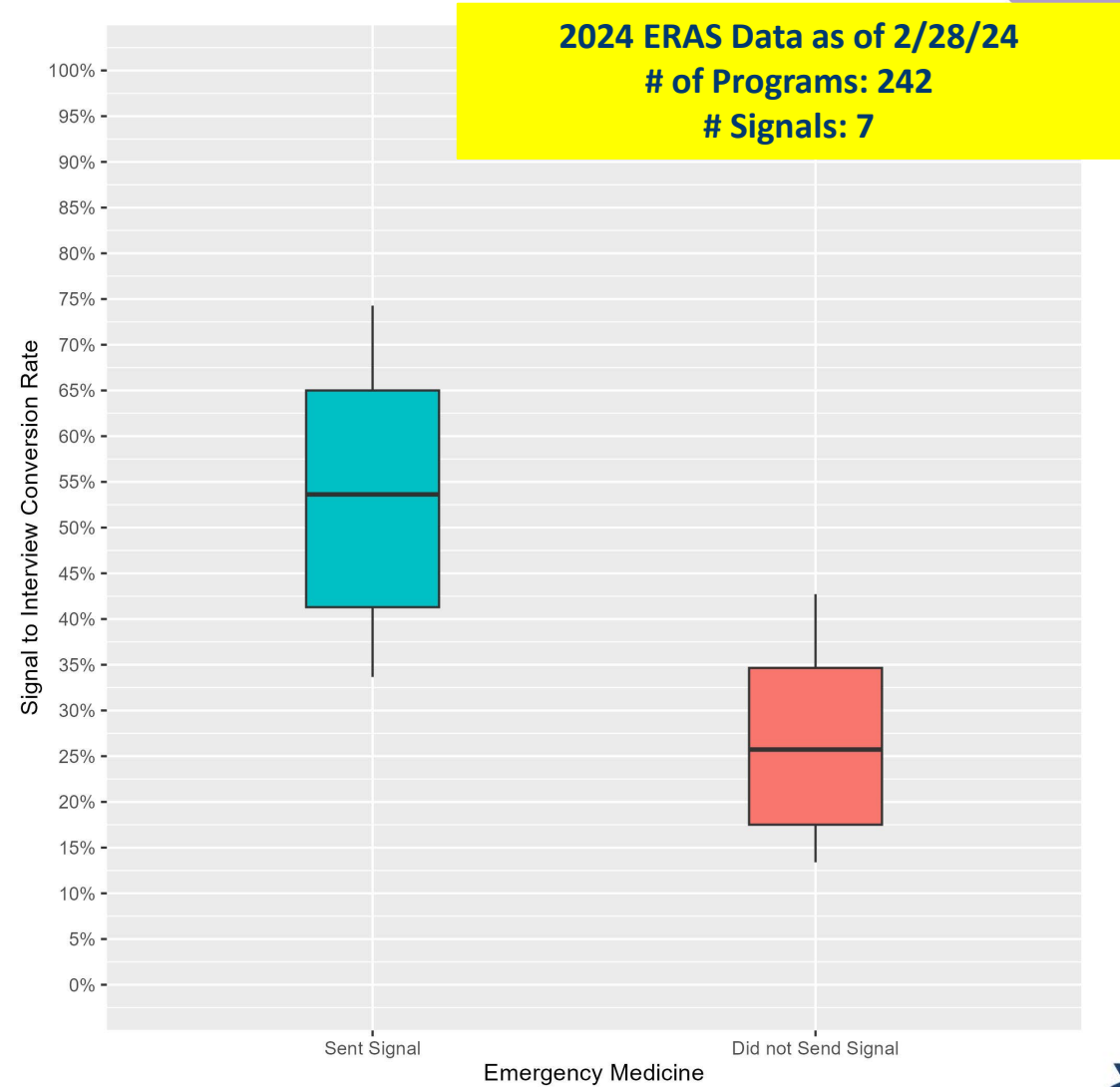
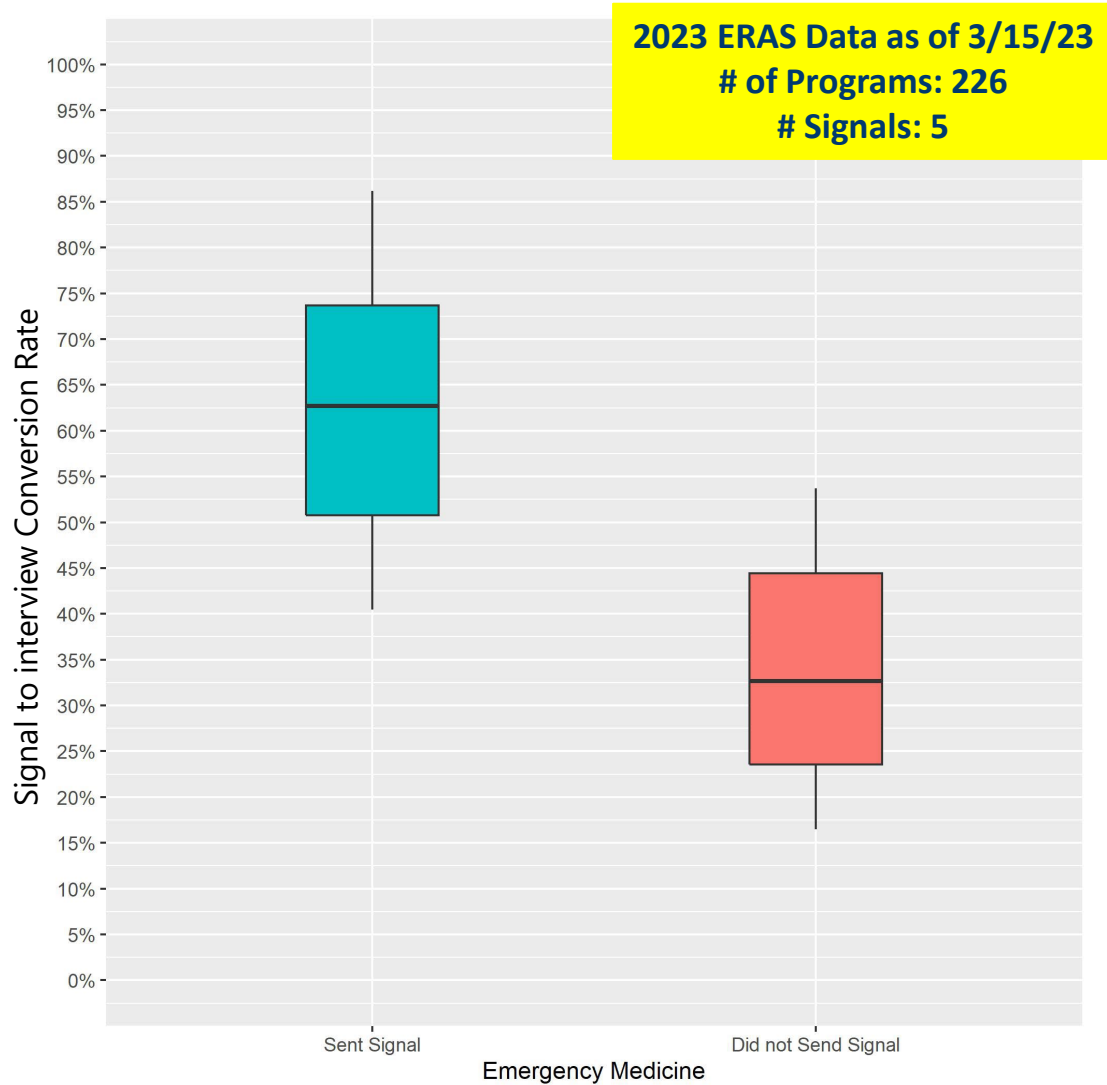2023 ERAS Data as of 3/15/23
# of Programs: 226
Signals: 5

2024 ERAS Data as of 2/28/24
# of Programs: 242
Signals: 7

Family Medicine: Program Sample & Inclusion Criteria

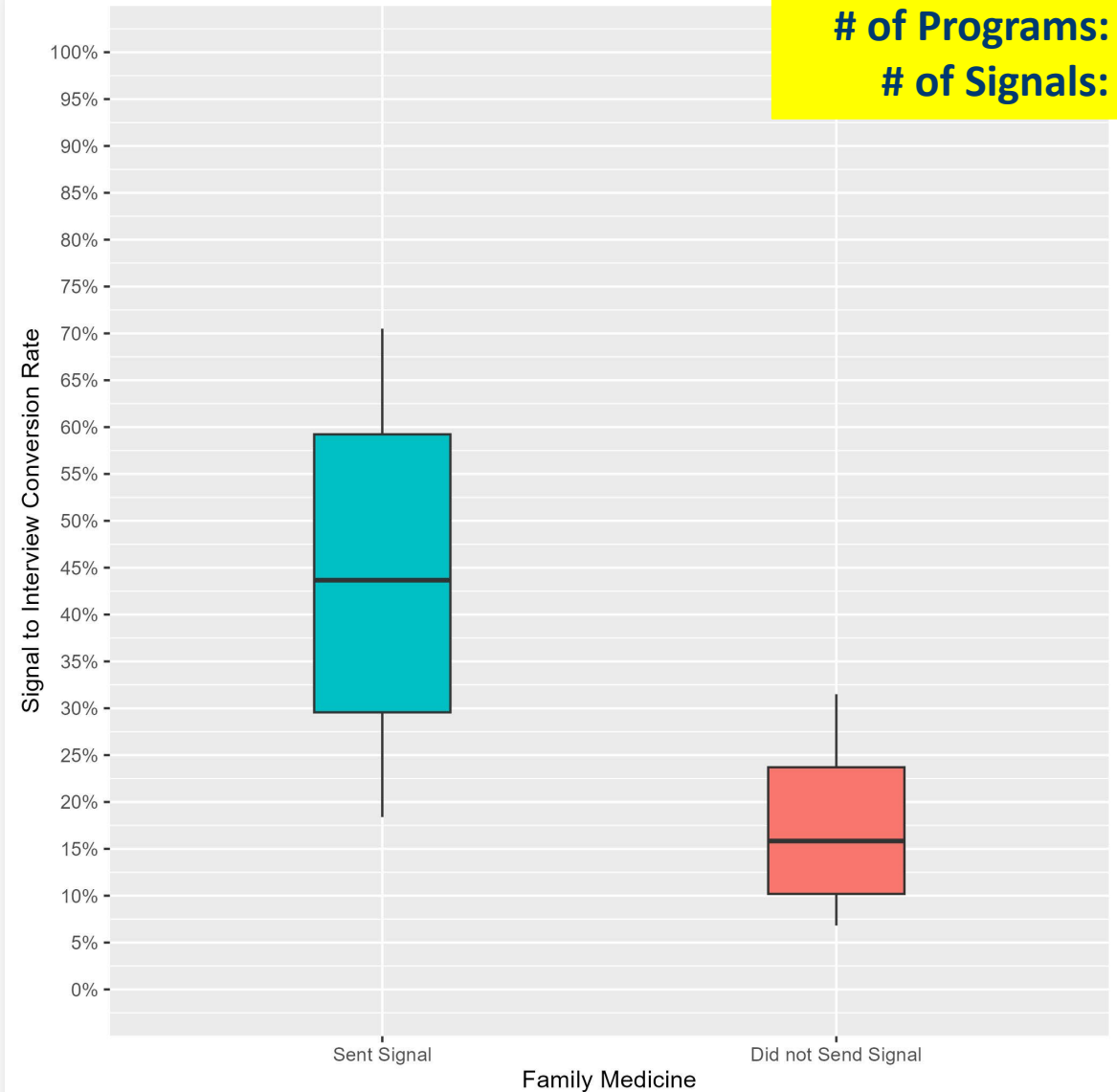|	N of Programs for Program Signals
Total programs	730
Total programs participating in program signaling	666
Met inclusion rule equal to or larger than 7:1; Provided PGY1 info in GME track; Provided interview offer data by February 28, 2024	586
Total analytic sample	**586**
Total % of programs participating in program signaling	**88%**
Total % of all Family Medicine programs in 2024 ERAS cycle	**80%**

AAMC

Family Medicine: Interview Rates by Program Signal Status

Applicants who sent a signal:
- Median of interview offers: 44%.
- 10th percentile: 18%.
- 90th percentile: 71%.

Applicants who did not send a signal:
- Median of interview offers: 16%.
- 10th percentile: 7%.
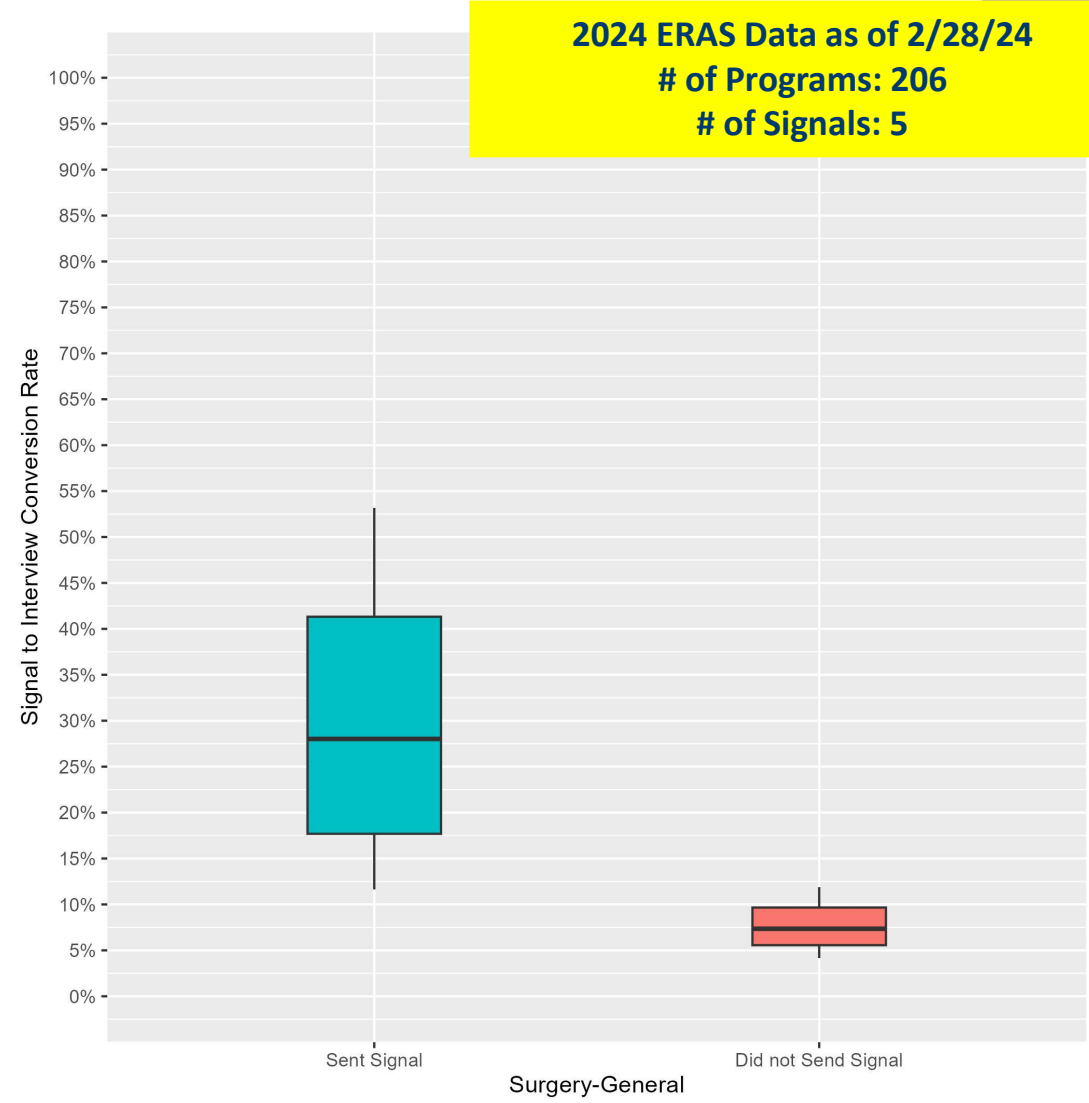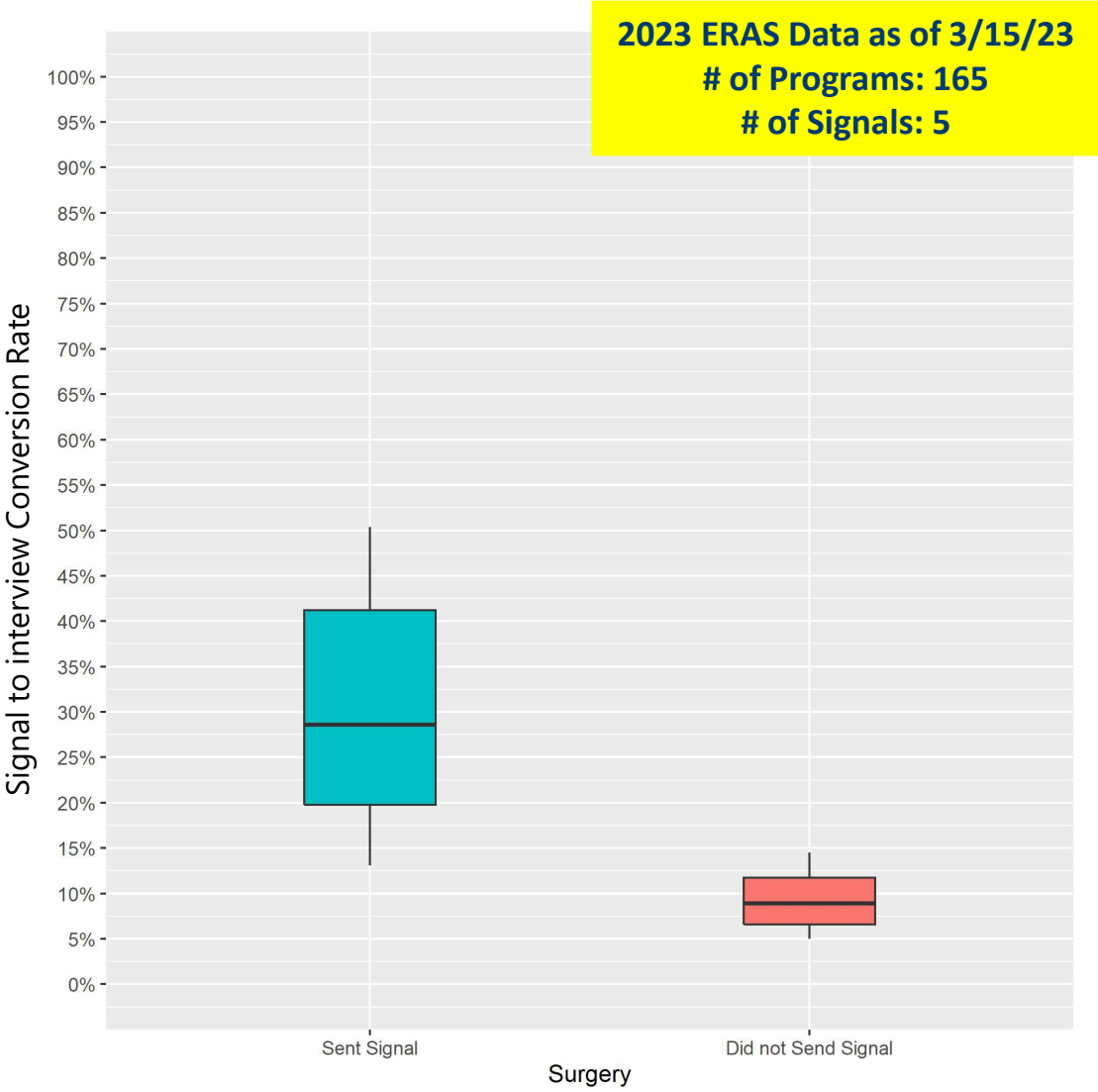- 90th percentile: 31%.

General Surgery: Program Sample & Inclusion Criteria

	N of Programs for Program Signals
Total programs	344
Total programs participating in program signaling	308
Met inclusion rule equal to or larger than 8:1; Provided PGY1 info in GME track; Provided interview offer data by February 28, 2024	206
Total analytic sample	**206**
Total % of programs participating in program signaling	**67%**
Total % of all General Surgery programs in 2024 ERAS cycle	**60%**

AAMC

General Surgery: Interview Rates by Program Signal Status Year-Over-Year Comparison

2023 ERAS Data as of 3/15/23
# of Programs: 165
# of Signals: 5

2024 ERAS Data as of 2/28/24
# of Programs: 206
# of Signals: 5

Internal Medicine: Program Sample & Inclusion Criteria

	N of Programs for Program Signals
Total programs	626
Total programs participating in program signaling	573
Met inclusion rule equal to or larger than 5:1; Provided PGY1 info in GME track; Provided interview offer data by February 28, 2024	504
Total analytic sample	**504**
Total % of programs participating in program signaling	**88%**
Total % of all Internal Medicine programs in 2024 ERAS cycle	**81%**

AAMC

Internal Medicine: Interview Rates by Program Signal Status Year-Over-Year Comparison
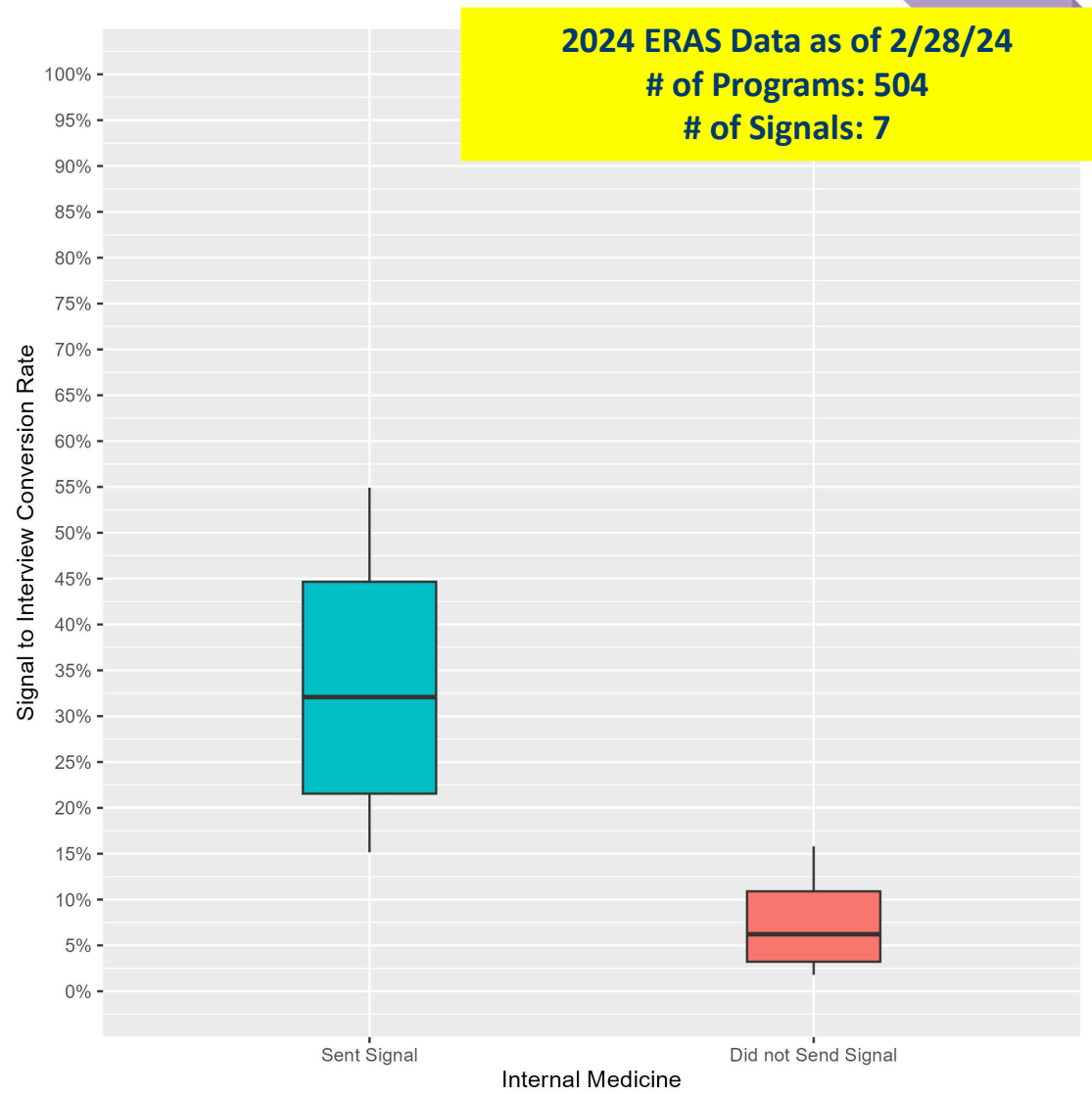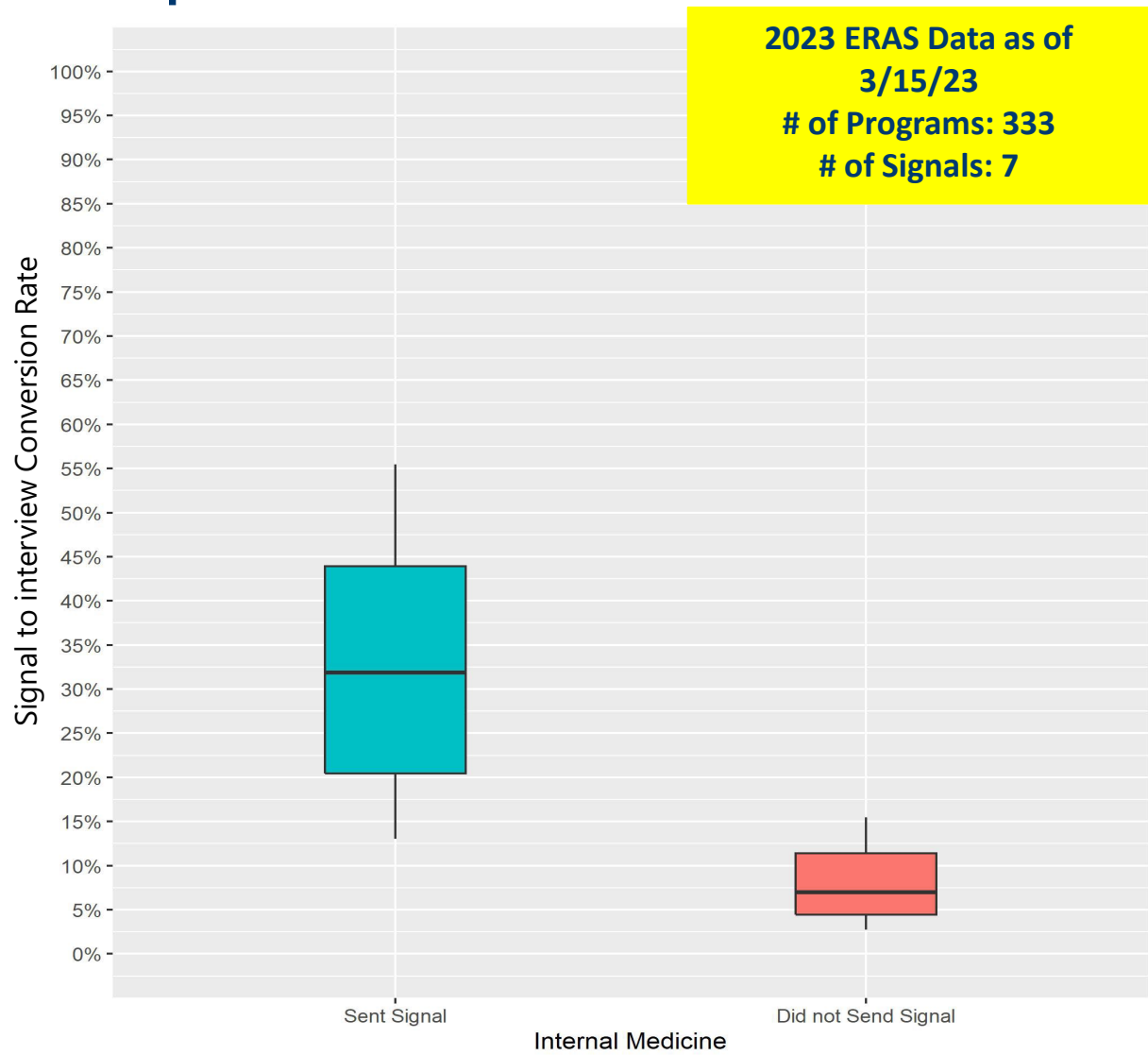
Internal Medicine/Psychiatry: Program Sample & Inclusion Criteria

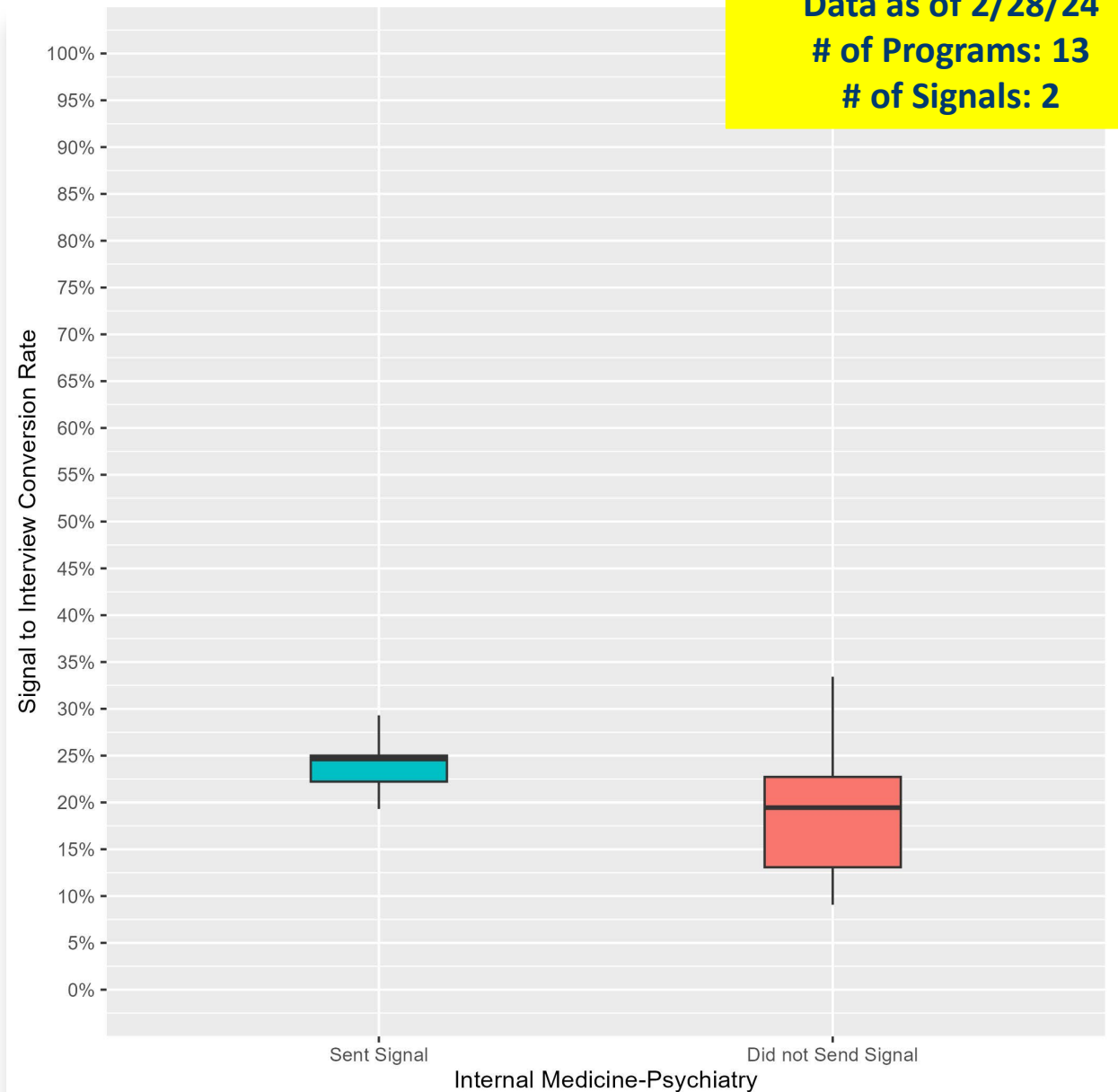|	N of Programs for Program Signals
Total programs	13
Total programs participating in program signaling	13
Met inclusion rule equal to or larger than 7:1; Provided PGY1 info in GME track; Provided interview offer data by February 28, 2024	13
Total analytic sample	**13**
Total % of programs participating in program signaling	**100%**
Total % of all Internal Medicine/Psychiatry programs in 2024 ERAS cycle	**100%**

AAMC

Internal Medicine/Psychiatry: Interview Rates by Program Signal Status

Applicants who sent a signal:
- Median of interview offers: 25%.
- 10th percentile: 19%.
- 90th percentile: 29%.

Applicants who did not send a signal:
- Median of interview offers: 19%.
- 10th percentile: 9%.
- 90th percentile: 33%.

Interventional Radiology: Program Sample & Inclusion Criteria

	N of Programs for Program Signals
Total programs	96
Total programs participating in program signaling	92
Met inclusion rule between 10:1 & 40:1; Provided PGY1 info in GME track; Provided interview offer data by February 28, 2024	55
Total analytic sample	**55**
Total % of programs participating in program signaling	**60%**
Total % of all Interventional Radiology programs in 2024 ERAS cycle	**57%**

AAMC

Interventional Radiology: Interview Rates by Program Signal Status

Applicants who sent a GOLD signal:

- Median of interview offers: 67%.
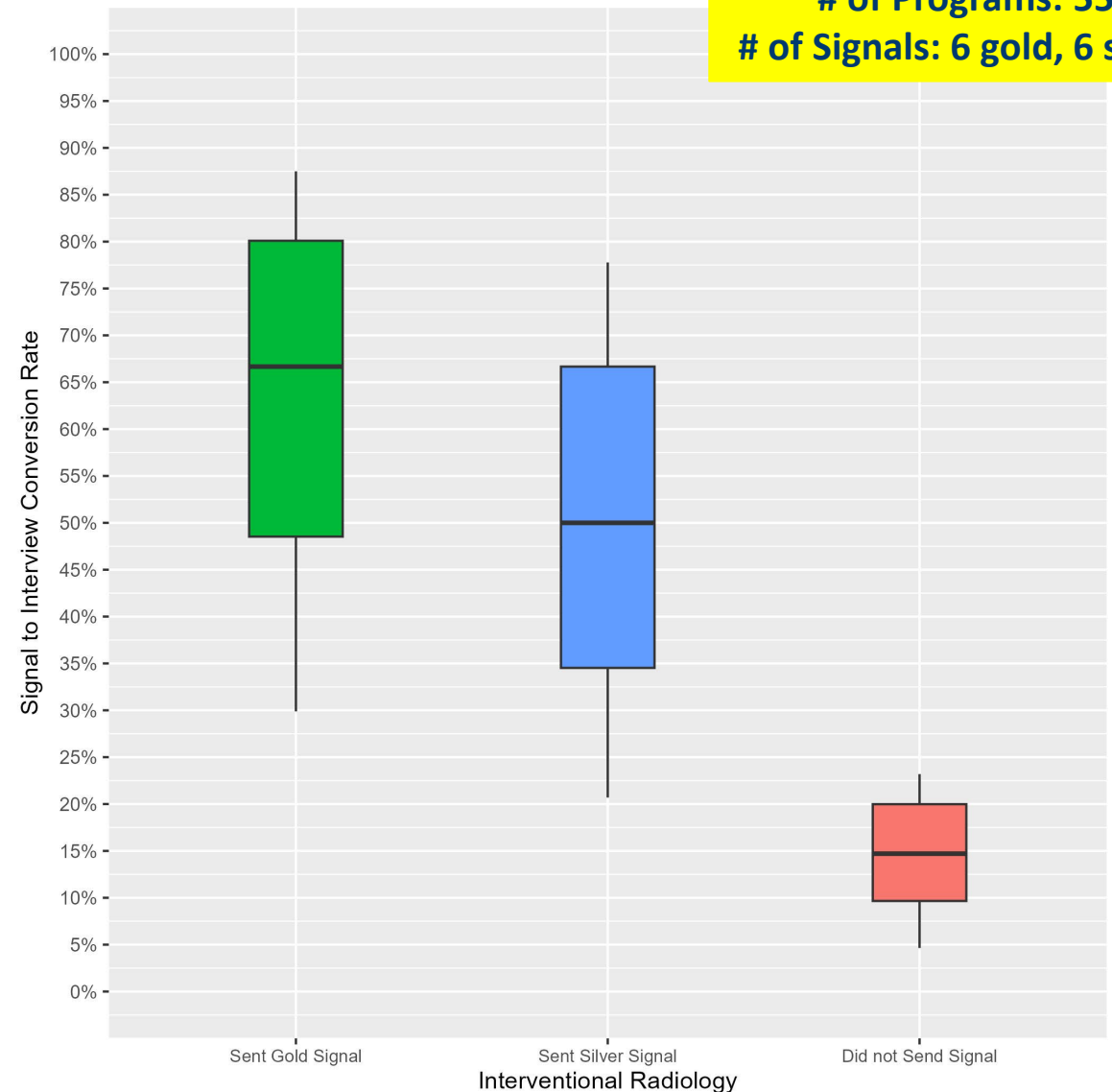- 10th percentile: 30%.
- 90th percentile: 88%.

Applicants who sent a SILVER signal:

- Median of interview offers: 50%.
- 10th percentile: 21%.
- 90th percentile: 78%.

Applicants who did not send a signal:

- Median of interview offers: 15%.
- 10th percentile: 5%.
- 90th percentile: 23%.

Neurological Surgery: Program Sample & Inclusion Criteria

	N of Programs for Program Signals
Total programs	116
Total programs participating in program signaling	109
Met inclusion rule equal to or larger than 7:1; Provided PGY1 info in GME track; Provided interview offer data by February 28, 2024	87
Total analytic sample	**87**
Total % of programs participating in program signaling	**80%**
Total % of all Neurological Surgery programs in 2024 ERAS cycle	**75%**

AAMC

Neurological Surgery: Interview Rates by Program Signal Status Year-Over-Year Comparison
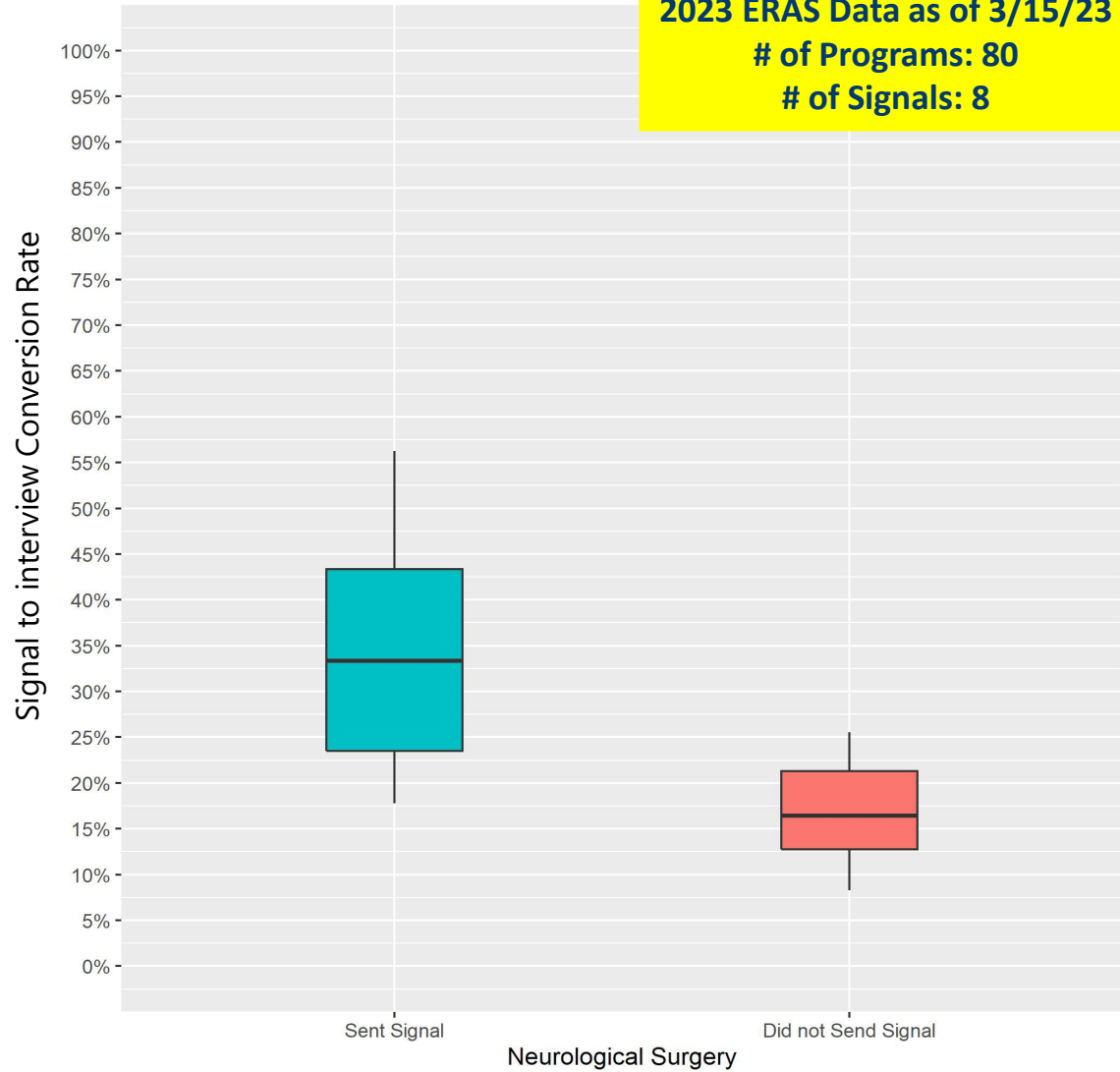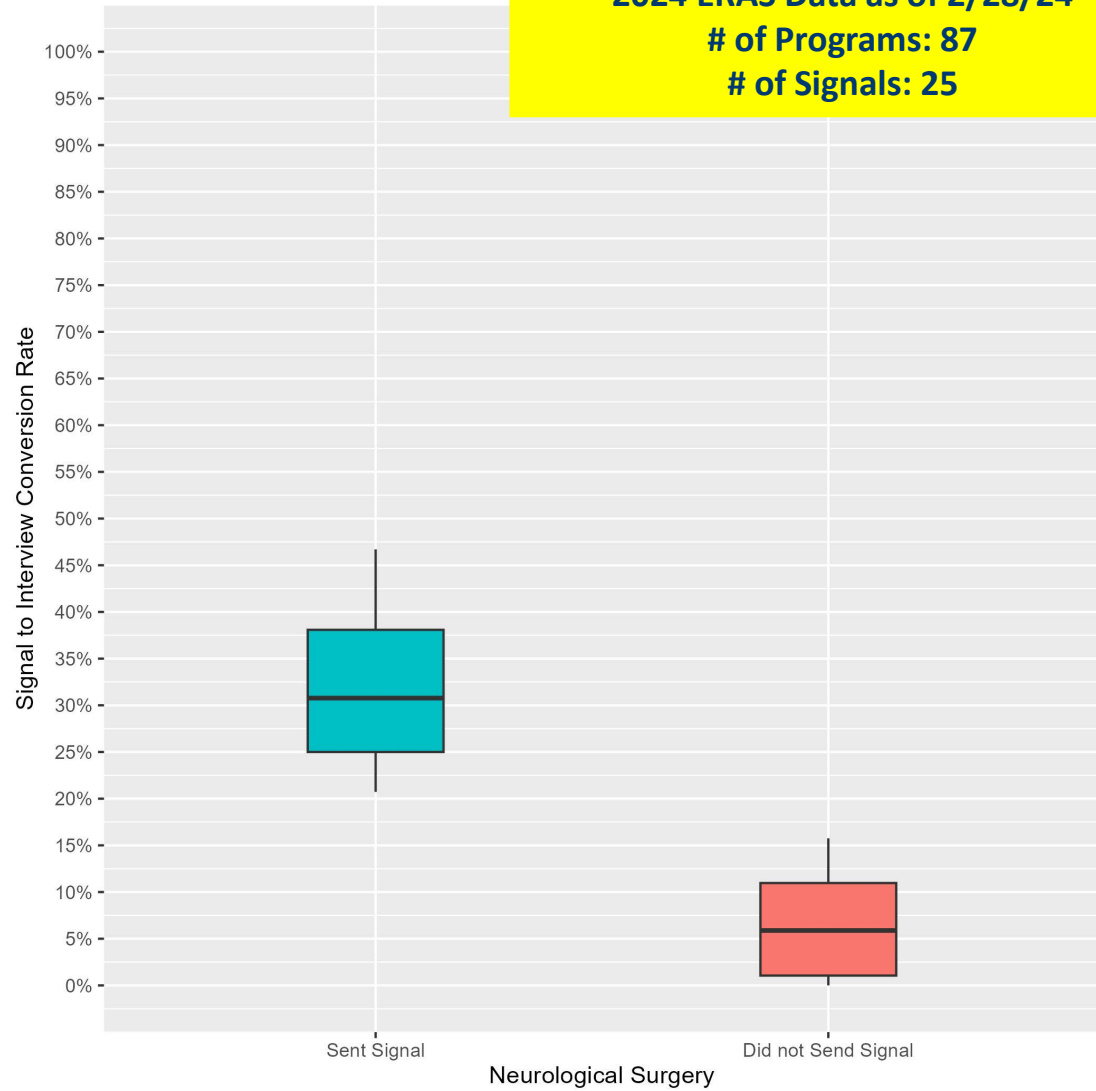
OBGYN: Program Sample & Inclusion Criteria

	N of Programs for Program Signals
Total programs	287
Total programs participating in program signaling	282
Met inclusion rule between 8:1 & 25:1; Provided PGY1 info in GME track; Provided interview offer data by February 28, 2024	221
Total analytic sample	**221**
Total % of programs participating in program signaling	**78%**
Total % of all OBGYN programs in 2024 ERAS cycle	**77%**

# OBGYN: Interview Rates by Program Signal Status Year-Over-Year Comparison
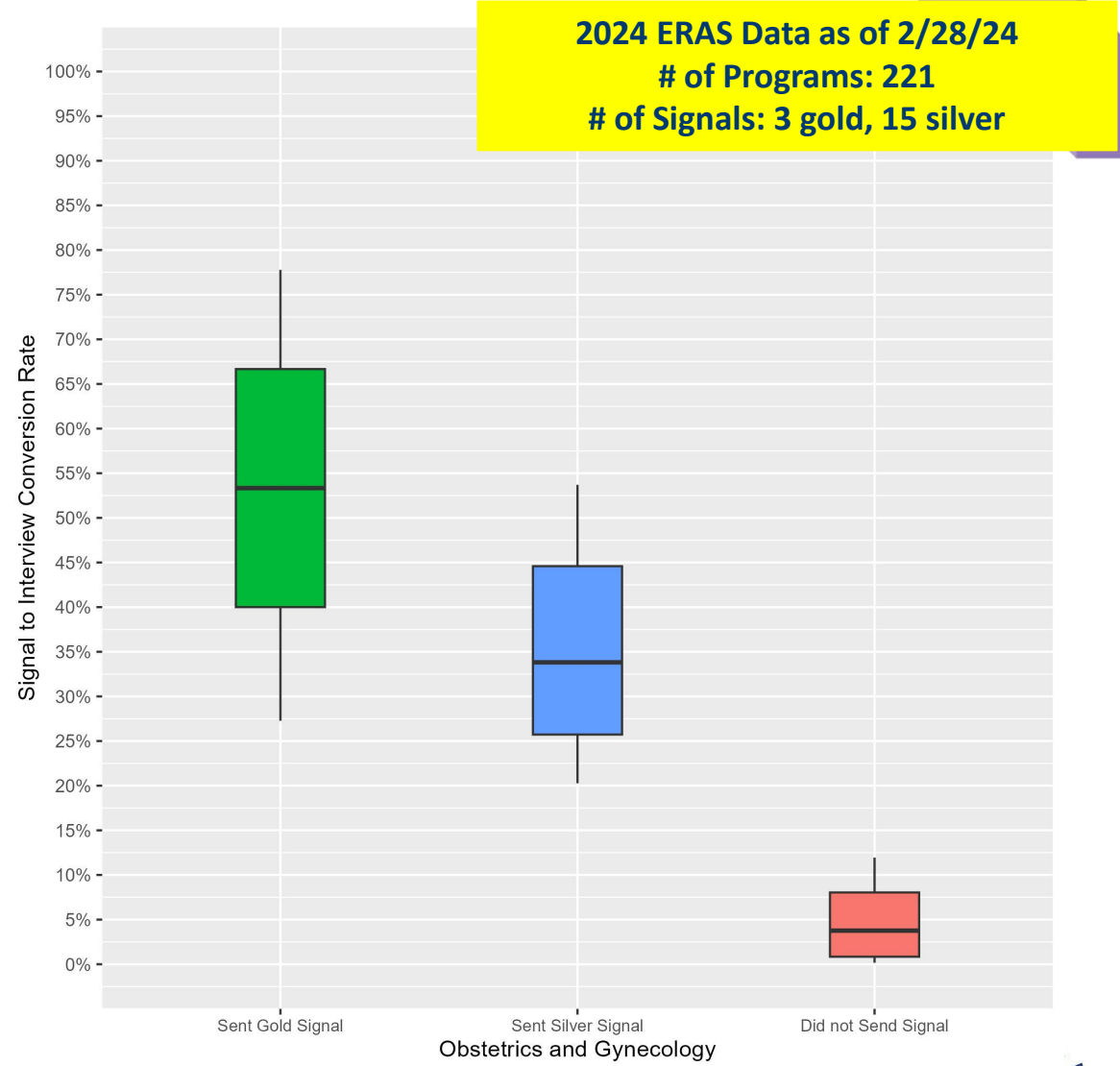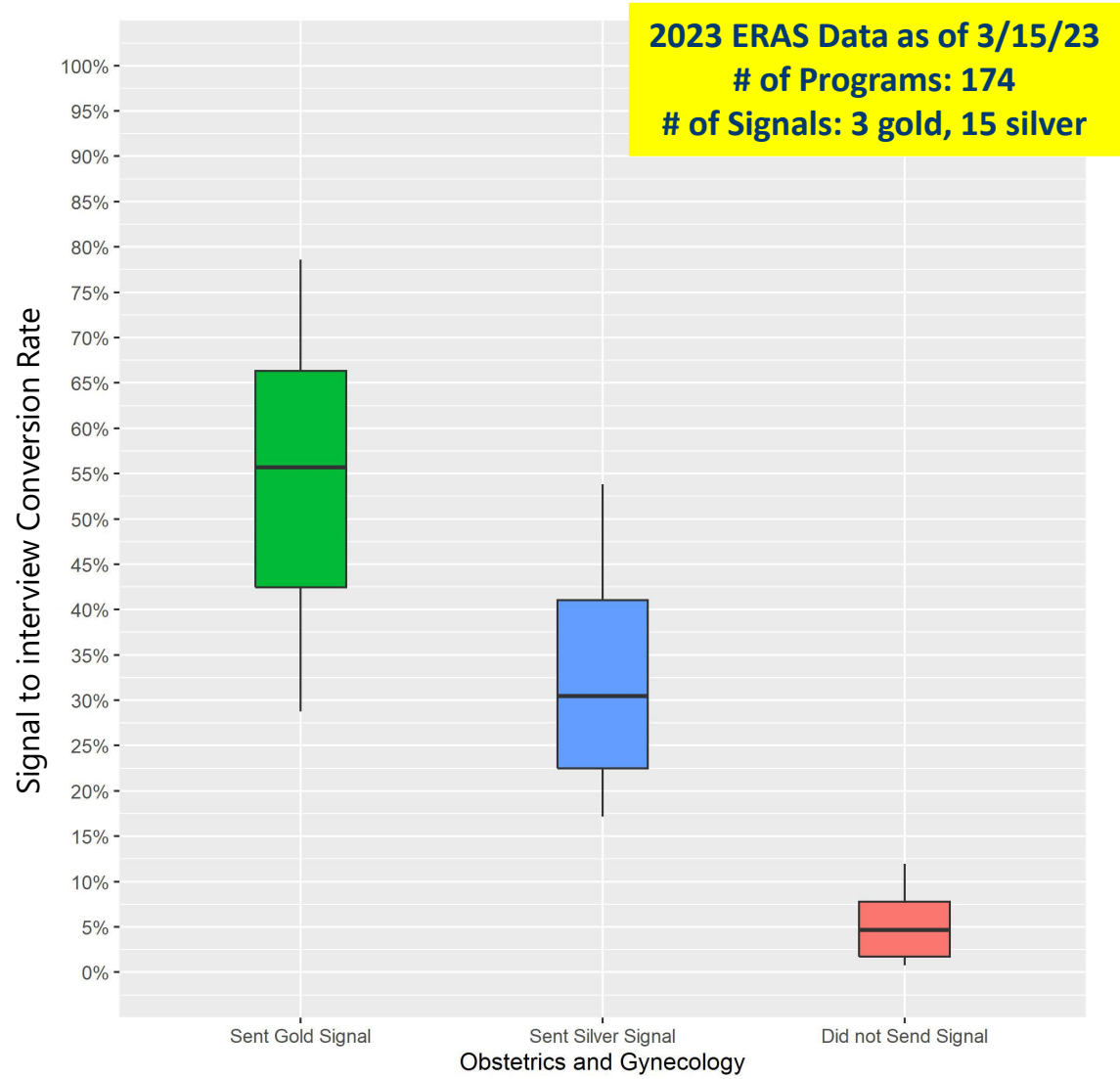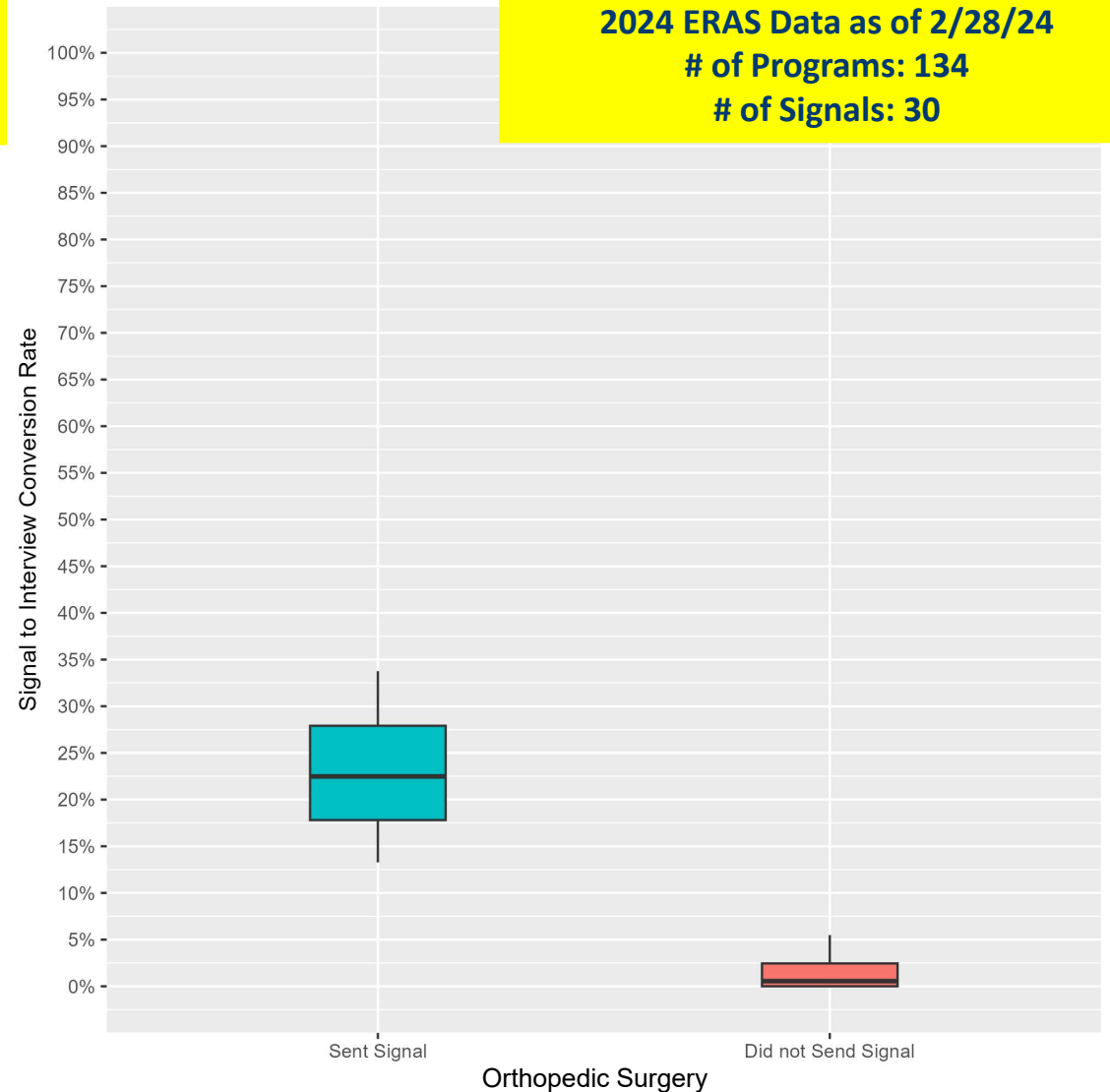
Orthopedic Surgery: Program Sample & Inclusion Criteria

	N of Programs for Program Signals
Total programs	201
Total programs participating in program signaling	190
Met inclusion rule equal to or larger than 5:1; Provided PGY1 info in GME track; Provided interview offer data by February 28, 2024	134
Total analytic sample	**134**
Total % of programs participating in program signaling	**71%**
Total % of all Orthopedic Surgery programs in 2024 ERAS cycle	**67%**

AAMC

Orthopedic Surgery: Interview Rates by Program Signal Status Year-Over-Year Comparison
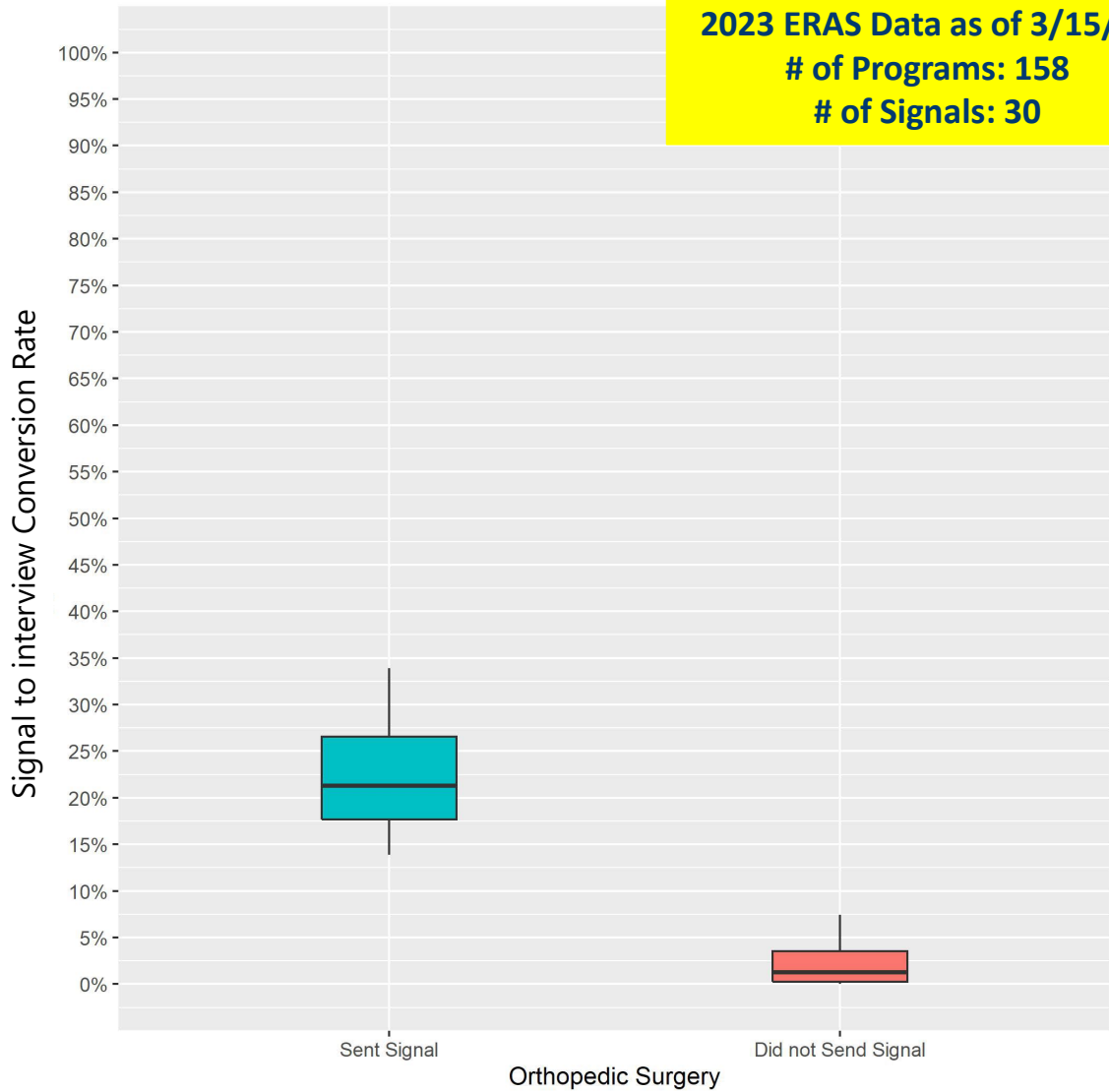
Otolaryngology: Program Sample & Inclusion Criteria

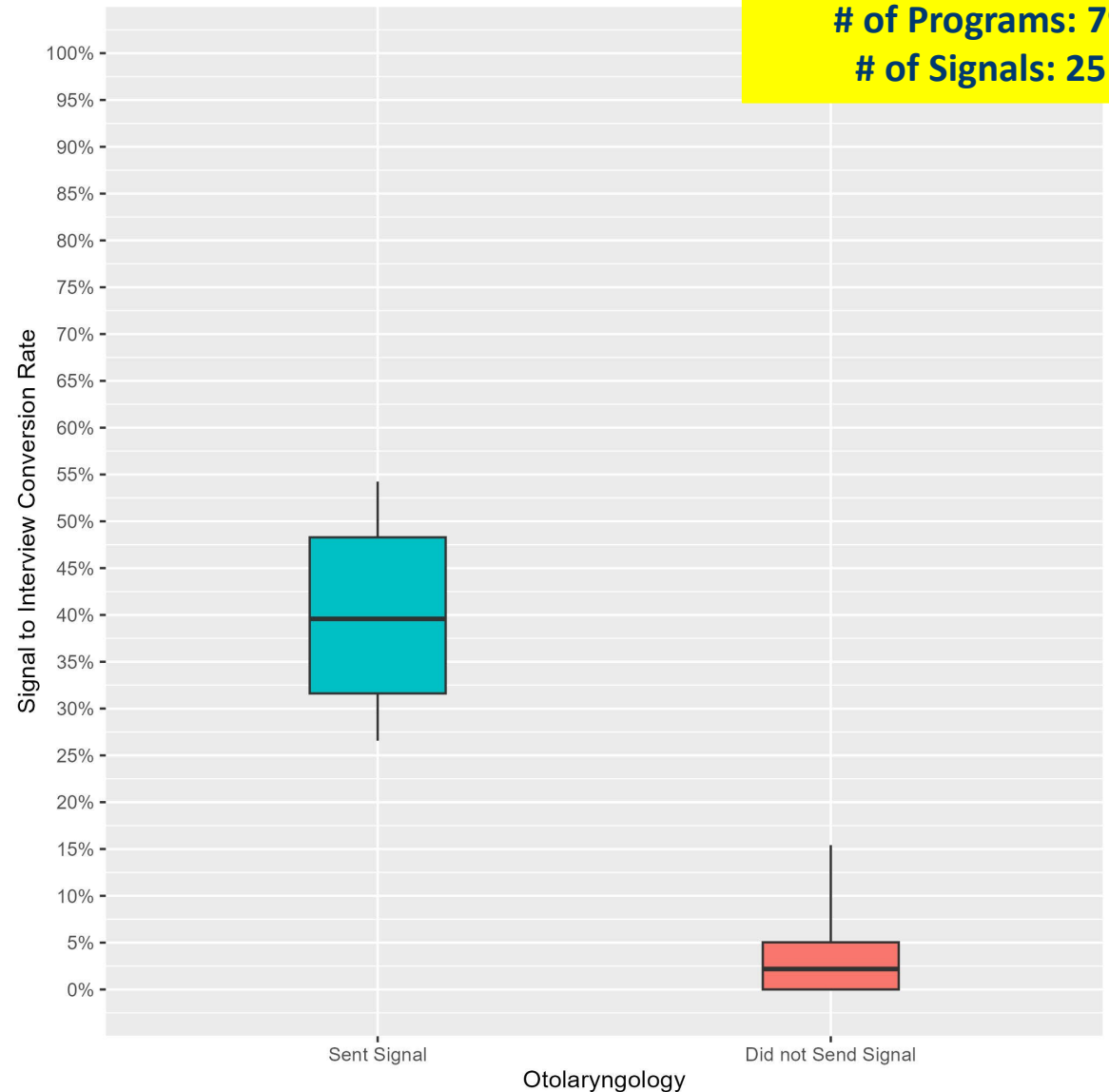|	N of Programs for Program Signals
Total programs	125
Total programs participating in program signaling	123
Met inclusion rule equal to or larger than 7:1; Provided PGY1 info in GME track; Provided interview offer data by February 28, 2024	79
Total analytic sample	**79**
Total % of programs participating in program signaling	**64%**
Total % of all Otolaryngology programs in 2024 ERAS cycle	**63%**

AAMC

Otolaryngology: Interview Rates by Program Signal Status

Applicants who sent a signal:
- Median of interview offers: 40%.
- 10th percentile: 27%.
- 90th percentile: 54%.

Applicants who did not send a signal:
- Median of interview offers: 2%.
- 10th percentile: 0%.
- 90th percentile: 15%.

Pathology: Program Sample & Inclusion Criteria

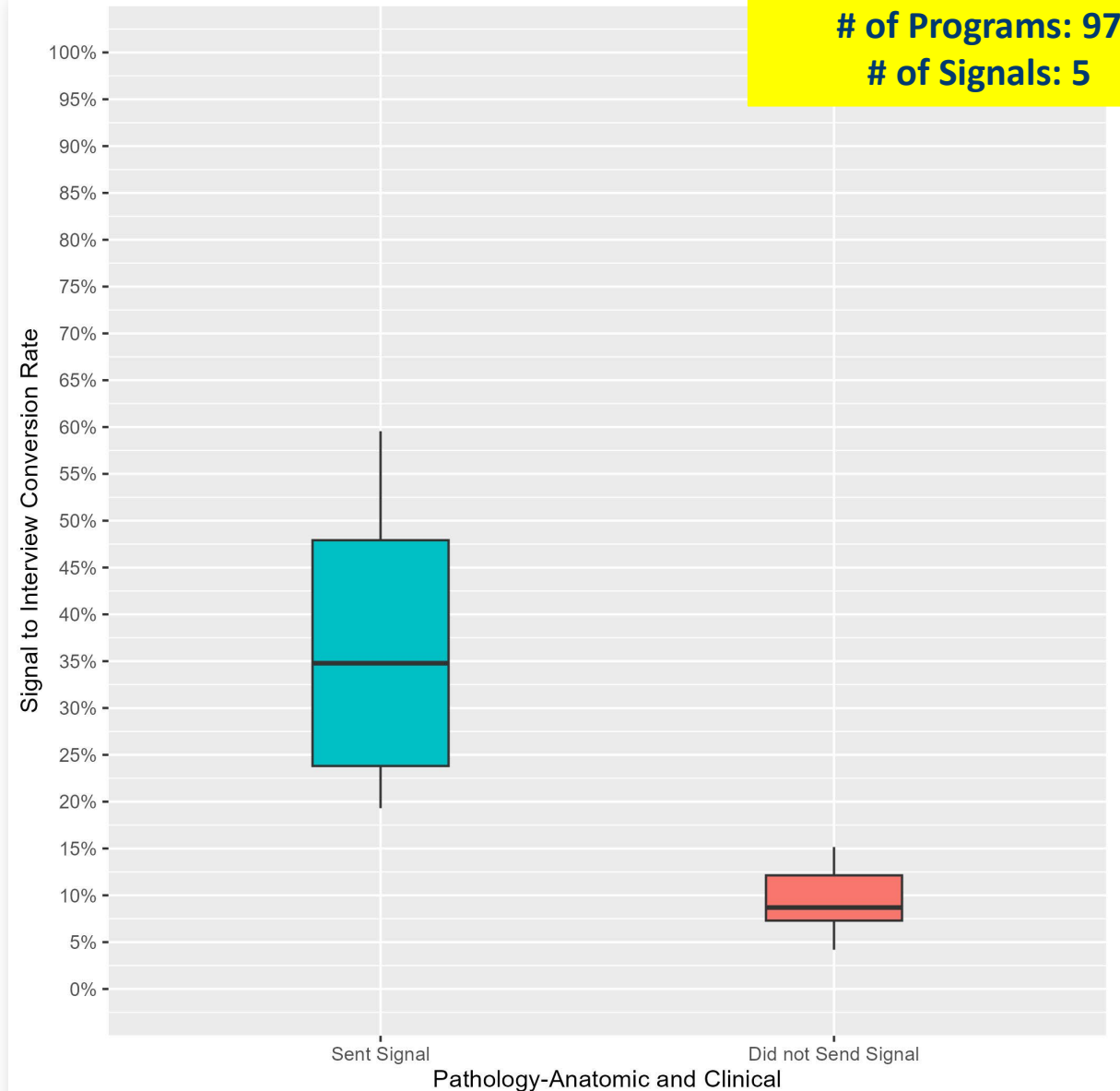|	N of Programs for Program Signals
Total programs	139
Total programs participating in program signaling	129
Met inclusion rule equal to or larger than 7:1; Provided PGY1 info in GME track; Provided interview offer data by February 28, 2024	97
Total analytic sample	**97**
Total % of programs participating in program signaling	**75%**
Total % of all Pathology programs in 2024 ERAS cycle	**70%**

AAMC

Pathology: Interview Rates by Program Signal Status

Applicants who sent a signal:
- Median of interview offers: 35%.
- 10th percentile: 19%.
- 90th percentile: 60%.

Applicants who did not send a signal:
- Median of interview offers: 9%.
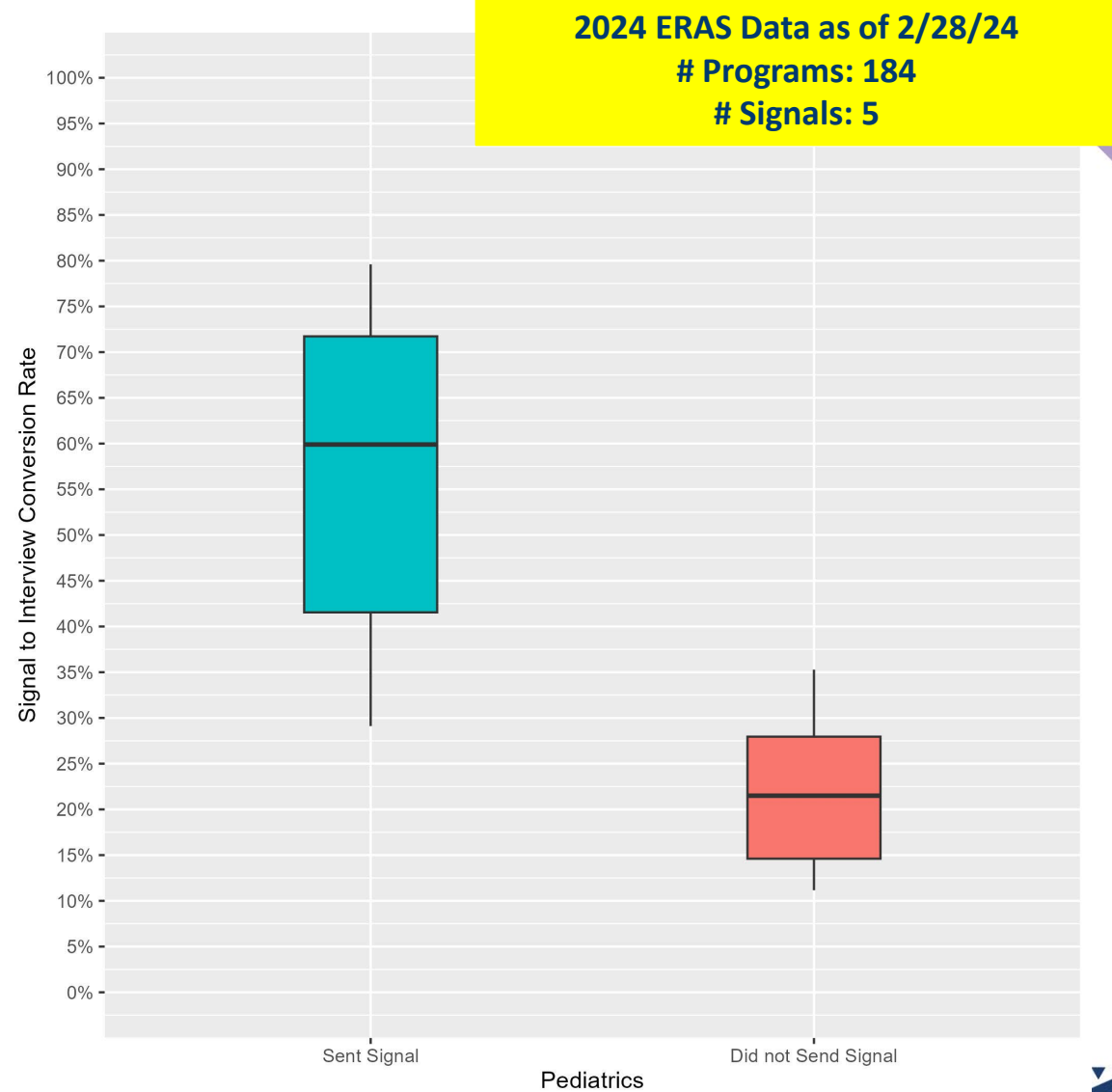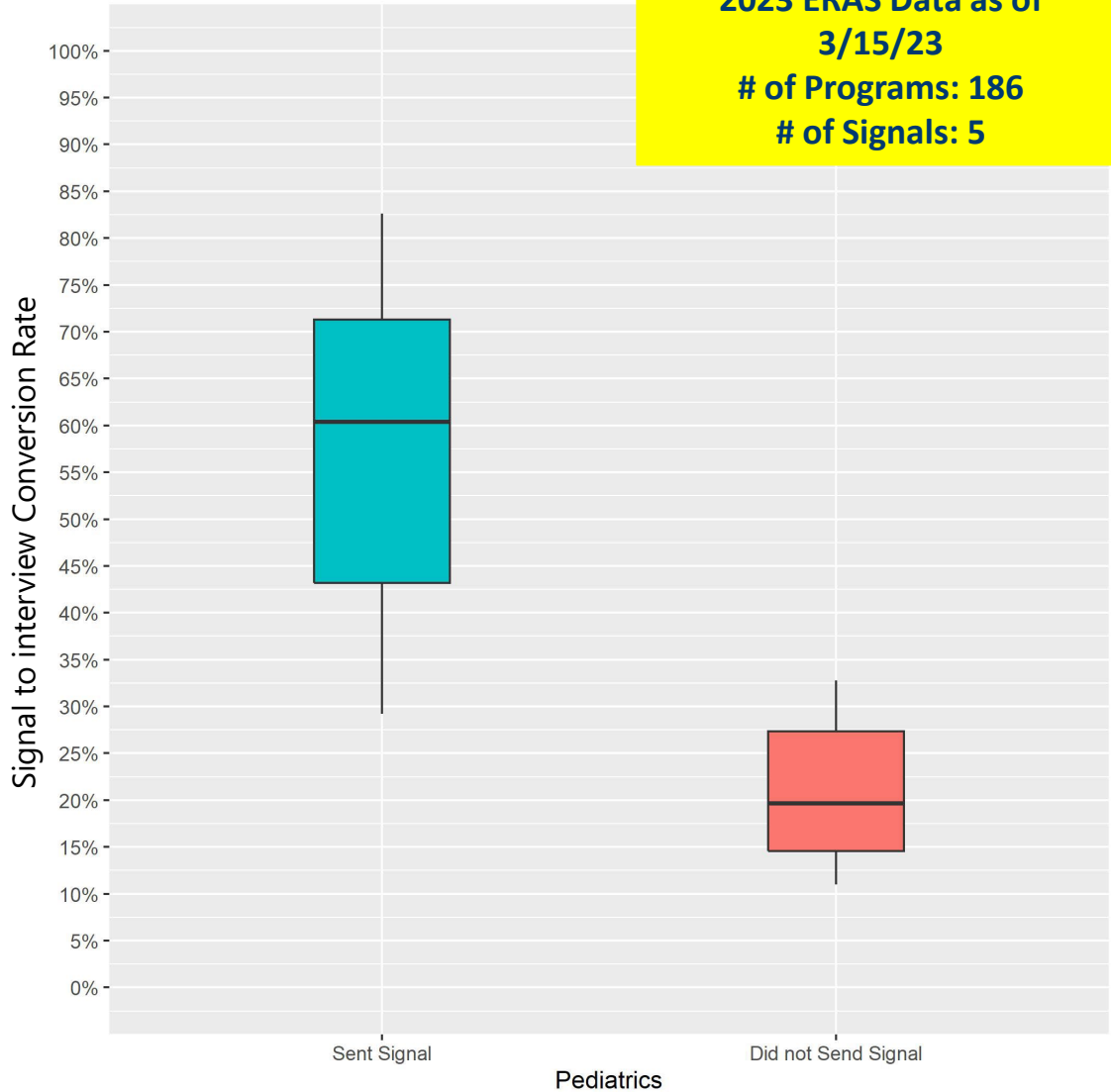- 10th percentile: 4%.
- 90th percentile: 15%.

Pediatrics: Program Sample & Inclusion Criteria

	N of Programs for Program Signals
Total programs	211
Total programs participating in program signaling	205
Met inclusion rule equal to or larger than 7:1; Provided PGY1 info in GME track; Provided interview offer data by February 28, 2024	184
Total analytic sample	**184**
Total % of programs participating in program signaling	**90%**
Total % of all Pediatrics programs in 2024 ERAS cycle	**87%**

AAMC

Pediatrics: Interview Rates by Program Signal Status Year-Over-Year Comparison
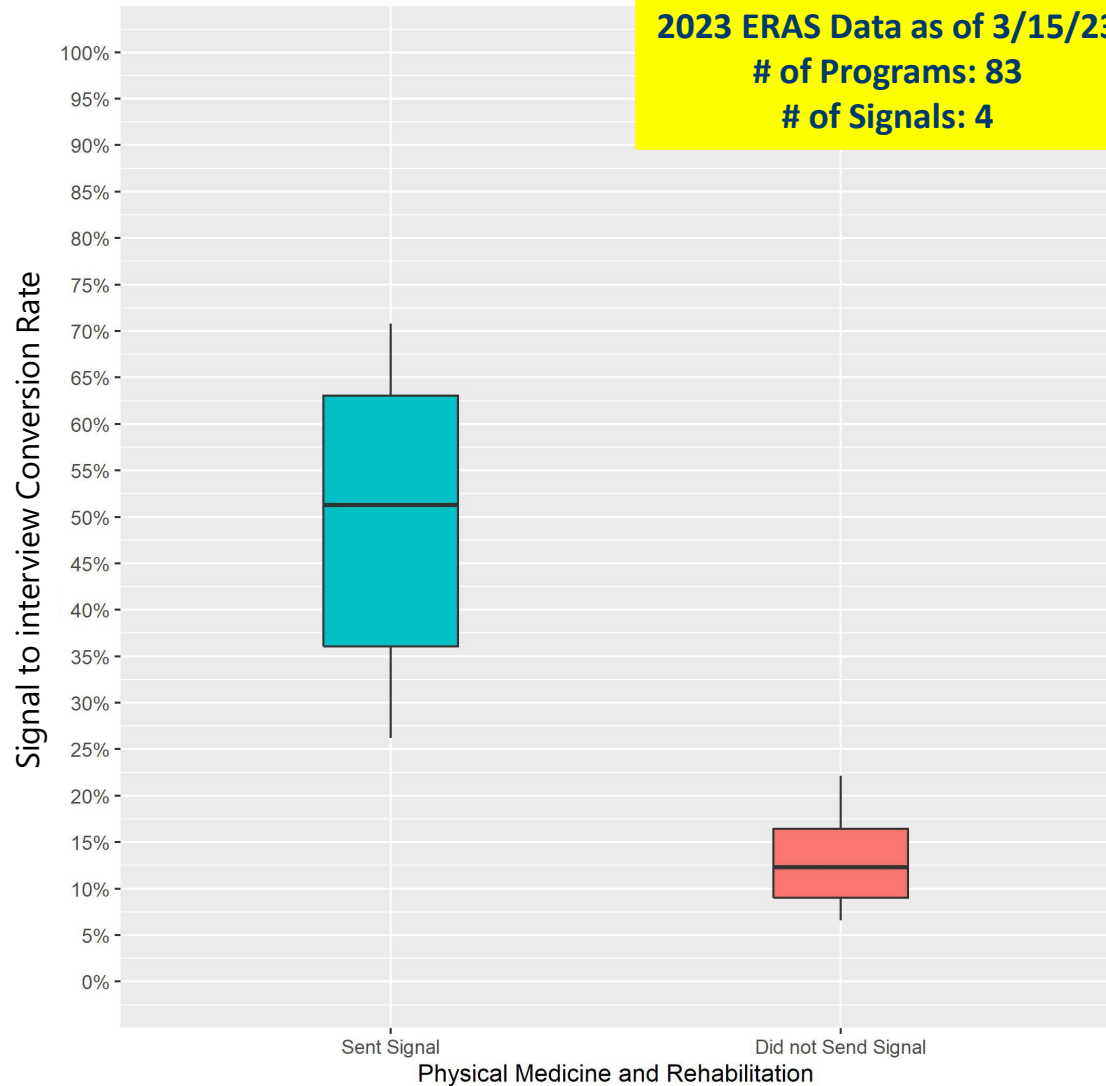
PM&R: Program Sample & Inclusion Criteria

	N of Programs for Program Signals
Total programs	107
Total programs participating in program signaling	105
Met inclusion rule equal to or larger than 7:1; Provided PGY1 info in GME track; Provided interview offer data by February 28, 2024	89
Total analytic sample	**89**
Total % of programs participating in program signaling	**85%**
Total % of all PM&R programs in 2024 ERAS cycle	**83%**

AAMC

PM&R: Interview Rates by Program Signal Status Year-Over-Year Comparison

2023 ERAS Data as of 3/15/23
# of Programs: 83
# of Signals: 4

2024 ERAS Data as of 2/28/24
# of Programs: 89
# of Signals: 5
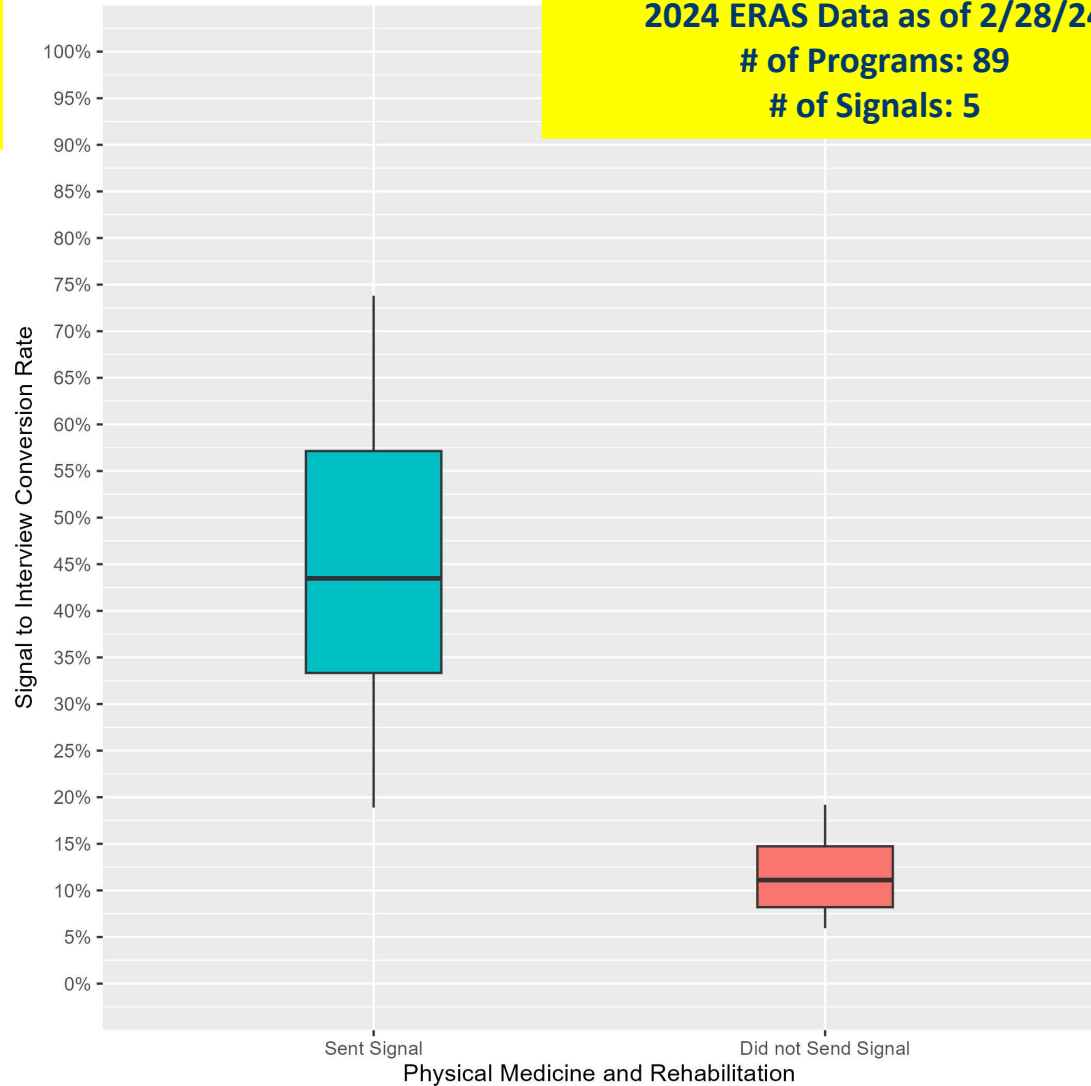
Signal to interview Conversion Rate

Sent Signal Did not Send Signal

Physical Medicine and Rehabilitation

Signal to Interview Conversion Rate

Sent Signal Did not Send Signal

Physical Medicine and Rehabilitation

AAMC

Psychiatry: Program Sample & Inclusion Criteria

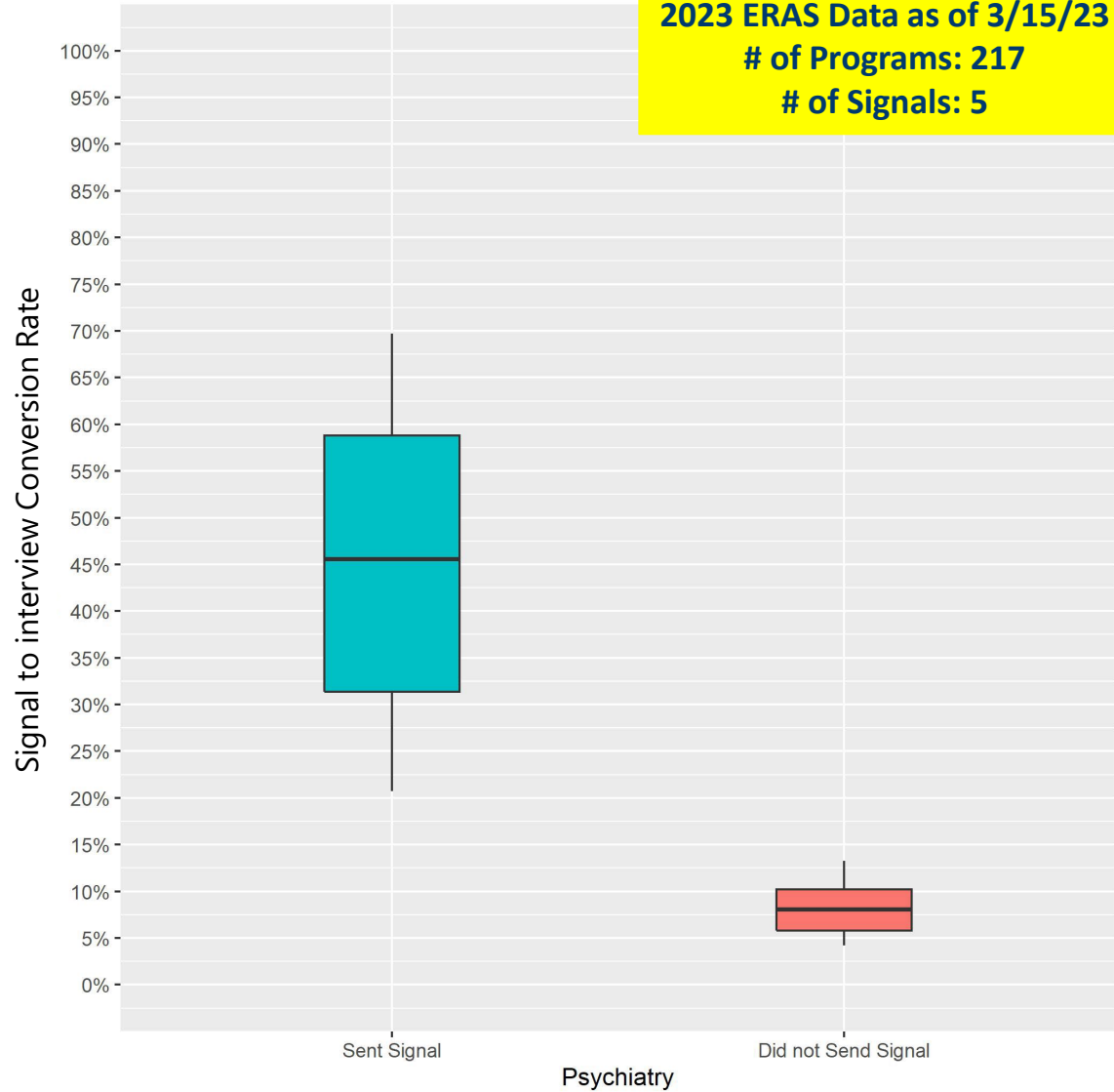|	N of Programs for Program Signals
Total programs	304
Total programs participating in program signaling	280
Met inclusion rule equal to or larger than 7:1; Provided PGY1 info in GME track; Provided interview offer data by February 28, 2024	226
Total analytic sample	**226**
Total % of programs participating in program signaling	**81%**
Total % of all Psychiatry programs in 2024 ERAS cycle	**74%**

AAMC

Psychiatry: Interview Rates by Program Signal Status Year-Over-Year Comparison

2023 ERAS Data as of 3/15/23
# of Programs: 217
# of Signals: 5

2024 ERAS Data as of 2/28/24
# of Programs: 226
# of Signals: 5
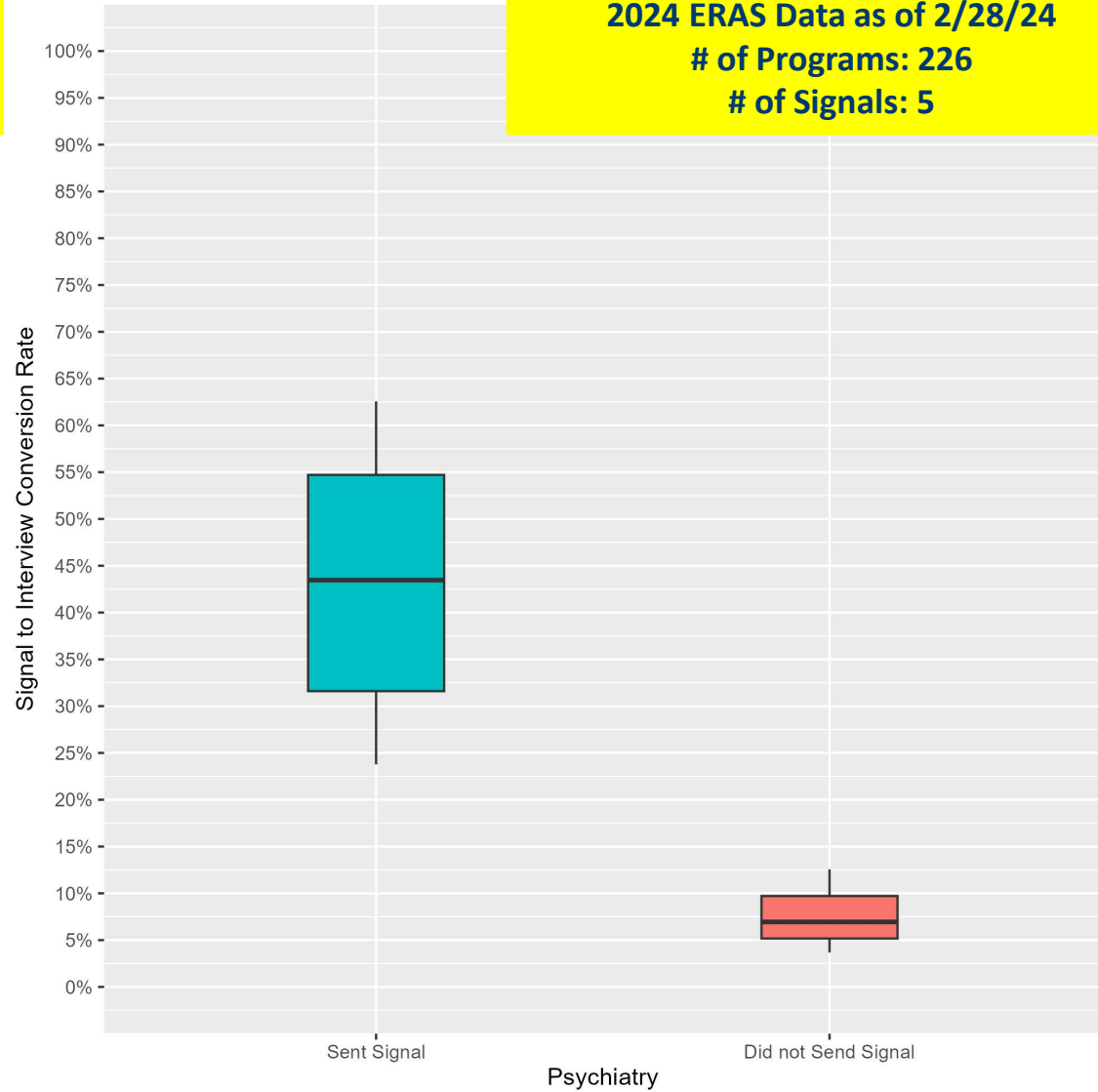
AAMC

Thoracic Surgery: Program Sample & Inclusion Criteria

|	N of Programs for Program Signals
Total programs	34
Total programs participating in program signaling	28
Met inclusion rule equal to or larger than 7:1; Provided PGY1 info in GME track; Provided interview offer data by February 28, 2024	14
Total analytic sample	**14**
Total % of programs participating in program signaling	**50%**
Total % of all Thoracic Surgery programs in 2024 ERAS cycle	**41%**

AAMC

Thoracic Surgery: Interview Rates by Program Signal Status

Applicants who sent a signal:
- Median of interview offers: 25%.
- 10th percentile: 15%.
- 90th percentile: 39%.

Applicants who did not send a signal:
- Median of interview offers: 20%.
- 10th percentile: 11%.
- 90th percentile: 30%.
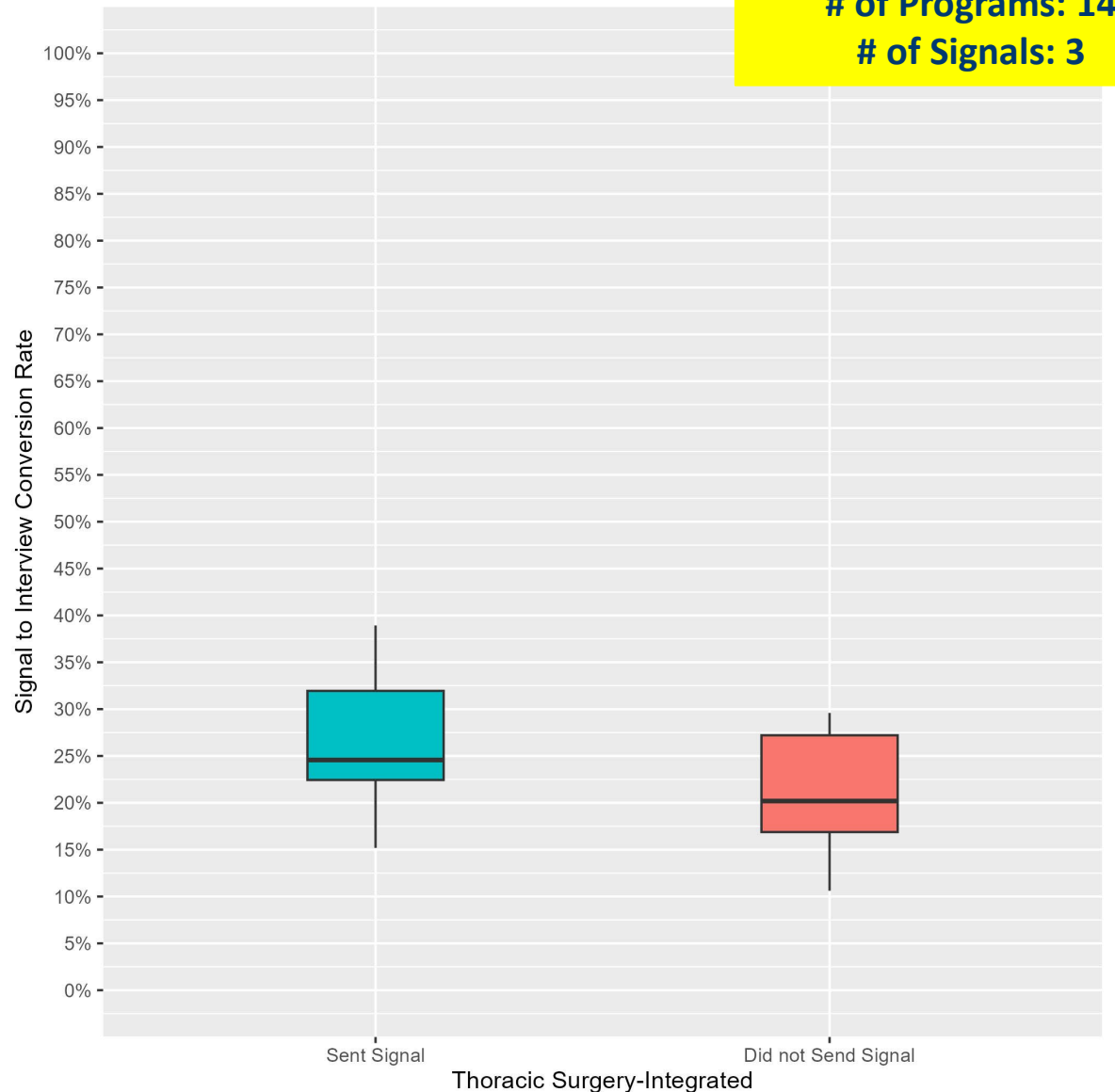
In Conclusion

Small
- Signalers experience higher interview rates.
- Non-signalers still receive interviews but at a lower rate.

Large
- Signalers have substantially higher interview rates.
- Non-signalers, in contrast, see almost no interviews.

Two-Tier
- Gold signals boost interview rates the most, and silver signals follow.
- Non-signalers have close to zero interview rates.

General Trends:
- Sending a program signal enhances applicants' chances of receiving interview invitations across all specialties and signaling approaches.
- Considerable variation in the level of enhancement, so programs may be using or emphasizing signals in varying ways.
- Specialties who changed their approach from small to large or two-tier witnessed a notable decline in interview rates for non-signalers.

AAMC

For more information:

- [ERAS Statistics](): This page contains current and historical data related to ERAS applicants and applications. It includes *Final End of Season Data*, *Specialty Specific Data*, *Program Signal Data*, and *Cross Specialty Applicant Data*.
- Publications:
  - *[The Relationship Between Program and Applicant Characteristics With Applicant Program Signals in the 2022 Residency Recruitment Cycle: Findings From Three Specialties]()*
  - *[Impact of Preference Signals on Interview Selection Across Multiple Residency Specialties and Programs]()*