**Supplemental Appendix A**

**Combined Advanced and Categorical Programs**

Programs with both categorical and advanced positions present an additional variable that must be addressed when interpreting whether a candidate misled a program when they reported ranking them #1. While categorical residents begin their first post graduate year (PGY-1) at the same institution where they receive their anesthesiology training, advanced program residents typically receive their PGY-1 training at another institution and join the institution that will provide them with anesthesiology training one year later as PGY-2 residents. Prior to the match, programs that maintain both types of positions create two separate rank lists while applicants make only one rank list that includes all positions for which they interviewed. For programs with two types of positions that submit two rank lists, programs may use the same order for both advanced and categorical rank lists. Alternatively, a program could create two rank lists with different orders. Truthful Guaranteed Commitment statements can appear to be untruthful in some instances where the candidate is ranked above the last candidate to match on one list but not the other. For example, if a program has 10 categorical spots and only 4 advanced spots, they may not fall to the same number on their rank list to fill the 4 advanced spots as they do to fill the 10 categorical spots. If a candidate who is planning to preferentially rank advanced spots tells a program “I will rank you #1”, he or she may submit their advanced position as the number one spot on their rank list. However, instead of putting that program’s categorical position as #2 on their rank list, they may elect to list all of the advanced positions they interviewed with as a priority, or even refrain from ranking categorical programs at all (Example 1).

Imagine that medical student “A” tells program “X” that “I will rank you #1,” but doesn’t specify if she is referring to the advanced or categorical position. It’s also not clear if she will rank the advanced and categorical programs #1 and #2, or if she will even rank both programs.

Example 1: Rank List with Advanced Position Bias (Submitted by Medical Student “A”)

1. Program “X” Advanced (with associated PGY-1 year requests)
2. Program “Y” Advanced (with associated PGY-1 year requests)
3. Program “Z” Advanced (with associated PGY-1 year requests)
4. Program “X” Categorical
5. Program “Y” Categorical
6. Program “Z” Categorical

Rank List Example for Program “X” (Same order for advanced and categorical lists)

1…

 62. Lowest “ranked-to-match position” for advanced spots…

65. Medical student “A”…

70. Lowest “ranked-to-match” position for categorical spots…

In the example given above, medical student “A” ranked program “X” #1 on her rank list for an advanced spot. However, she preferentially ranked all advanced spots and didn’t list the categorical position for program “X” until later on her rank list. Program “X” ranked medical student “A” in position 65, which was above the cutoff to match for a *categorical spot* (70), but below the cutoff for an *advanced spot* (62). In this example, after failing to match at her first choice of program “X” advanced position, if student “A” matches at any of her other subsequent choices before falling to the position for program “X” categorical, she will match to another program despite honestly stating that she ranked program “X” #1. This example demonstrates how a candidate may truthfully say she is ranking program “X” #1, but doesn’t end up matching there despite being in a “ranked-to-match” position on one of the two rank lists (categorical only). If a program looks at the two rank lists as a combined identical list, unaware that the candidate only ranked them #1 for the advanced spot, they may incorrectly assume that the candidate “should have matched”, and erroneously assumed that the #1 commitment statement was dishonest.

For the three programs in the study with both advanced and categorical positions that create two rank lists, the rank list cutoff for determining if a candidate “should have matched” was set as the last ranked-to-match position for the program (categorical or advanced) that fell the shortest distance down their rank list. For the example given above, since program X filled their program with #70 on their categorical list and #62 on their advanced list, we can only be certain that the candidates who were ranked above #62 on both lists should have matched after providing a commitment guarantee that did not specify if they meant one or both tracks. This becomes even more complicated when dual advanced and categorical programs use different rank orders for each rank list. For this study, two of the three institutions submitted identical rank lists for advanced and categorical positions for their respective institutions. One of the institutions made two different rank lists. Fortunately, when the two lists were compared for this institution, all candidates on the categorical list above the described cutoff also existed above the same cutoff number on the advanced list despite having a slightly different order. For data from programs with advanced and categorical positions, candidates below this described cutoff were not included in the data analysis of match frequency since not matching may have been attributable to only ranking one of the advanced or categorical positions #1 but not both.

**Couples Match**

In the NRMP system, candidates who wish to ensure they will matched at the same location as their significant other can designate themselves as a couples match. In this scenario, both candidates must be ranked-to-match in their respective programs for a couples match to successfully occur. Frequently, the couples are applying to separate fields of medicine and are matching in different departments even when applying to the same institution. While a couples match candidate may have ranked a program number one, and be ranked-to-match by that program, their significant other may be less competitive as a candidate resulting in an unsuccessful match. In these instances, an applicant may appear to have misled the program by providing a Guaranteed Commitment statement despite truthfully ranking them #1. For the analysis of match frequency for each level of commitment statement, statements from couples match candidates were excluded from the evaluation.

 **“R” Positions**

The NRMP has also provided a match pathway for residents who are completing or have completed a PGY-1 year, but wish to reenter the match for their PGY-2 year. This may occur if candidates don’t match into their desired specialty in a previous match or wish to change specialties. Since these candidates will have already successfully completed their first year of training, they have the ability to match directly into a PGY-2 position that starts in the July immediately following the most recent match. This is in contrast to an advanced position that brings a candidate to an institution to begin as a PGY-2 the following completion of a PGY-1 year at another location. In 2014, the NRMP offered 98 “R” positions from 49 institutions1. Residency programs sometimes intentionally maintain available “R” positions each year. One program included in this study offers categorical, advanced, and “R” positions every year. Another program had “R” positions available because the ACGME approved an increase in resident component, allowing the program to increase the number of residents in the incoming PGY-2 class. Other programs may use “R” positions to fill a resident vacancy due to attrition or failure to fill the program through the match in the preceding year. Programs must compose a separate rank list specifically for “R” positions. Candidates may simultaneously interview for advanced, categorical, and “R” positions at the same program. Following their interviews, candidates make only one rank list, but can put “R” positions, categorical positions or advanced positions in any order on that list. For example, a candidate could list all of the “R” positions first, followed by categorical and advanced positions as backups (Example 2). Because candidates typically offer commitment statements without specifying which pathway they are referring to, it is possible that a candidate made a commitment statement to Program X and ranked program X #1 on their rank list for an “R” position, but listed all other programs’ “R” positions before listing the categorical or advanced positions for program X.

Example 2: Rank List with “R” position bias (Submitted by a Trainee)

1. Program “X” “R” position
2. Program “Y” “R” position
3. Program “Z” “R” position
4. Program “X” Categorical position
5. Program “ X” Advanced position

In Example 2, the candidate ranked institution X’s “R” position #1 on their rank list, and institution X’s categorical and advanced positions #4 and #5 respectively. This candidate could honestly tell program X that they ranked them #1. However, if they weren’t ranked-to-match on institution X’s “R” position rank list but successfully matched into institutions Y or Z’s “R” position, they would not match to institution X’s advanced or categorical positions even if institution X had them ranked-to-match on their respective rank lists. In this scenario, institution X may perceive the commitment statement as misleading since the candidate stated they would rank them #1 without specifying if they meant R, categorical or advanced positions or committing to rank them #1, #2 and #3. For the analysis of match frequency for each level of commitment statement, all candidates who applied to “R” positions were excluded.

1. National Resident Matching Program, Results and Data: 2014 Main Residency Match. 2014; <http://www.nrmp.org/wp-content/uploads/2014/04/Main-Match-Results-and-Data-2014.pdf>.