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Assessment of the Neuroradiology Fellowship Match: Year 3

David M. Yousem and Dima A. Hammoud

BACKGROUND AND PURPOSE: When the fellowship match for trainees entering neuroradiology programs was first proposed in 2001, the program directors in neuroradiology agreed to a 3-year trial utilizing the National Residency Match Program (NRMP) for selecting fellows. A decision as to whether to continue with the neuroradiology fellowship match was to be assessed at the 3-year mark in 2004.

METHODS: A Web survey designed through the offices of the ASNR was distributed to neuroradiology fellowship program directors after the results of the most recent fellowship match were tabulated in June 2003. The questionnaire included items about the current sentiment about the fellowship selection process.

RESULTS: Most (52 of 61 = 85%) neuroradiology program directors favored continuing the match system for selecting fellows. Most believed that the match 1) had little impact on their success in recruiting fellows (43 of 62 = 69%), 2) was fairly administered (100%), and 3) was appropriately timed from February to June in the third year of residency (56 of 65 = 86%). The number of candidates entering the neuroradiology match increased from 71 in 2001 to 124 in 2003.

CONCLUSION: Support for continuing a match system for selecting fellows remains high (85%) among neuroradiology program directors. The system is considered fair and does not harm many programs. The recruitment of fellows to neuroradiology via the match has increased over the 3 years of its existence.

The fellowship selection match for trainees entering neuroradiology programs beginning in July 1, 2004, has recently been completed. This marks the third year of the Neuroradiology fellowship match as the system for selecting neuroradiology trainees and the first year that all fellowship programs in radiology were included in the match system. When first proposed in 2001, the program directors in neuroradiology agreed to a 3-year trial of utilizing the National Residency Match Program (NRMP) system to select neuroradiology fellows. A decision as to whether to continue with the neuroradiology fellowship match was to be assessed at the 3-year mark. To evaluate current satisfaction with the NRMP match system in neuroradiology, an online survey was conducted. The results of that survey and the statistics for the most

recent match for neuroradiology fellows provide an opportunity to determine the future of the match-based fellowship selection process.

Methods

Match Results

The 2003 neuroradiology match for fellows beginning July 1, 2004, was completed on June 4, 2003, when the results were distributed to program directors. This followed an interview period that began on February 1, 2003, and ended on May 1, 2003. The last date for entering the rank order list for both the candidates and the fellowship program directors in neuroradiology was May 14, 2003. The results of the match were published online (at www.nrmp.org) and also delivered electronically to the program directors and the candidates on June 3–4, 2003. The results of the neuroradiology fellowship match were obtained from the National Residency Program Web site and were compared with previous years' results also obtained from the NRMP.

Web Survey

A Web survey designed through the offices of the ASNR was developed in July 2003, approximately 6 weeks after the results of the match had been disseminated (at www.surveymonkey.com/s.asp?A=12497260E62). Notification of the Web survey to the program directors in neuroradiology was made on July 15, 2003, and five separate reminders were sent to the program directors between July 15, 2003, and August 16, 2003. The

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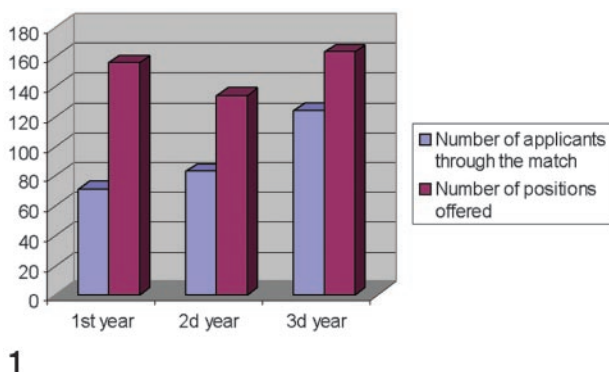


FIG 1. The July 1, 2004, fellowship match showed an increase in the number of candidates.

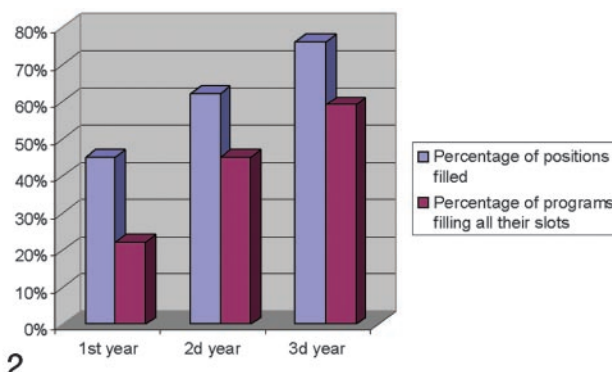


FIG 2. The July 1, 2004, fellowship match also showed an increase in the number of programs filling their positions.

survey results were closed on August 22, 2003. Any messages left on the survey by the program directors were also reviewed for similar themes with respect to suggestions for improving the neuroradiology match process.

Results

Match Results

Current Year.—The results of the NRMP Neuroradiology Fellowship system for candidates beginning July 1, 2004, showed that 124 positions were filled among 73 active programs in the match. Therefore, this survey included results from programs representing 102 (82%) of 124 matched candidates and 54 (74%) of 73 programs participating. The NRMP Web site noted that 43 (59%) of 73 programs filled their matches, whereas 30 (41%) did not. A total of 124 (76%) of 163 positions offered were filled, and 39 (24%) were unfilled. When the candidates matched through the NRMP Web site ($n = 124$) were added to the survey's result of 66 internal candidates, it is noted that at least 190 fellows will enter a neuroradiology fellowship on July 1, 2004. This figure does not include any positions being filled outside the match or outside the internal candidate route.

Past Years.—The July 1, 2004, fellowship match showed an increase in the number of candidates (Fig. 1), as well as an increase in the position fill rate and number of programs filling their slots (Fig 2). Over the 3-year period, the fill rates increased from 45% of positions and 22% of programs in 2001 to 76% and 59%, respectively, in 2003.

Web Survey Results

Demographics.—Sixty-six program directors responded to the match survey, representing 75% (68 of 88) of all listed program directors in the ASNR fellowship program master list. Of these 68 program directors, 54 (82%) participated in the match, and 14 did not. The program directors who responded represented 171 current neuroradiology fellows (who began on July 1, 2003) and 173 positions offered (both through the match and internally) for the July 1, 2004 fellowship. The respondents to the survey represented

102 positions filled via the 2004 match and 69 internal candidates; therefore, they represented 171 neuroradiology fellows who will begin on July 1, 2004. Two offered positions went unfilled. Of their 171 current fellows for 2003, the program directors reported that 34 (19%) were fellows that came from outside the match and from outside the internal candidate route. Thus, of the 134 positions offered for July 1, 2003, 83 were filled through the match (see previous section), and 34 were filled outside the match and outside the route of internal candidates. We can therefore assume that approximately 54 candidates entered via internal positions (171 total beginning on July 1, 2003 minus the 83 via the match and 34 via outside the match). Over 38% (24 of 63) of program directors reported that they have been approached by individuals after the most recent match for openings in their fellowships.

Sentiments

From the Web survey, 100% of the program directors responded that the 2004 Match was administered fairly and that the period from February 1 to May 1 was adequate for interviewing candidates. The timing of the match was viewed to be optimal by 86% (56 of 65 respondents) of the program directors with 8% (five of 63) saying it was too early and 6% (four of 63) saying it was too late.

Eighty-five percent of program directors (52 of 61) favored continued use of the match system for selecting neuroradiology fellows. Nine (15%) directors wished to use an alternative method for selecting fellows, but of these nine, eight responded that if the neuroradiology match system continued, they would participate in it. This left only one respondent (1.7%) stating that he or she would not participate in the match if it were continued. Therefore, more than 98% of responding program directors (59 of 60) agreed to continue in the match. As to the inclusion of other radiology subspecialty fellowships in the match program, most directors (51 of 61 = 84%) found this to be a favorable development.

A near-equal number of fellowship directors reported that the match program benefited (11 of 62 =

18%) rather than harmed (eight of 62 = 13%) their selection of fellows. Most program directors (43 of 62 = 69%) believed that the match system had no impact on their success in recruiting fellows. Fifty-two (88%) of 59 respondents were satisfied with the results of the 2004 match. This was an increase from a previous satisfaction rate of 60% in 2002. The program directors deemed that the quality of the candidate pool was better (46%), worse (16%), or unchanged (38%) compared with the pool in 2002.

Discussion

Historically, the interest in radiology fellowship training has increased, with the percentage of residents joining fellowship programs rising from 8% in 1984 (1) to 60% in 1988 (2), to 80% in 1999, and to 85% in 2000 (3). The trend of increased interest in fellowship training is due to multiple reasons, including the desire to be an expert in a specific field. This tendency toward subspecialization becomes more important in view of the continuous growth of radiology with new modalities and new applications being implemented every year. Other reasons for selecting fellowship training, as summarized by Gay et al (4), include a residents' feeling of incomplete exposure to a certain field during residency and their desire to prepare for an academic career and increase their prospects of getting a better job offer with better payment. In fact, there has been a recent change in the job market, with more medium-sized practices requiring fellowship training.

Since its inception in 2001, the Neuroradiology Fellowship Match Program has undergone several changes. From 1999 to 2002, before and after the match system, applicants to neuroradiology fellowship programs steadily decreased by approximately 25% (5). However, the number of fellow candidates applying to neuroradiology fellowships through the NRMP match system significantly increased from 71 in the first year of the match to 124 in the most recent match (Fig 1). This has led to an increase in the number of filled programs (from 22% to 59%) and filled positions (from 45% to 74%) as more candidates have entered neuroradiology (Fig 2). The increased number of candidates has led to greater satisfaction with the overall selection process by program directors (from 60% to 88%), likely because more programs received more fellows. Several biases may be present however: 1) Fewer positions may be offered now through the match. 2) Fewer directors who had a bad experience in the match may reply to the survey. 3) Fewer neuroradiology fellowship programs have survived the downturn in candidates from before the match system. 4) The survey may have been distributed too soon after the match before feelings crystallized, and 5) the number of candidates selected after and outside the match may be falsely buoying satisfaction with the match, as program directors fill their spots with "after-the-fact" candidates.

Initially, it was unclear whether the match system itself was reducing the number of candidates in the

pool or whether the number of residents interested in neuroradiology was decreasing. However, the recent increase in applicants argues against this theory (Fig 1). This new trend could be due to the fact that more residents are selecting neuroradiology as their field of choice. Another possible factor is the inclusion of other radiology fellowships in the match, thus leveling the playing field and making applying to neuroradiology (with its match selection process) the same "hardship" as applying to other fellowships.

Some program directors and candidates have noted an increase in the selection of internal candidates for neuroradiology fellowship positions. This is believed to result from the vagaries and uncertainties of the match selection process. One can be assured of a known entity by taking an internal candidate (or committing to staying at one's host institution) before the match. For the candidates, remaining at one's host institution without the uncertainty of where one might end up with a match system also has led to more people staying in their local programs. It is interesting to note that, of the 171 neuroradiology fellows beginning July 1, 2004, 69 are internal candidates. Over the 3 years of the NRMP match system, the internal candidate selection process has evolved to the point where the candidate must be selected before the match interview season. There has been debate as to whether internal candidates should also be included in the match; however, bureaucratic and financial issues associated with this practice have led them to be excluded from the match. In a similar fashion, combined programs such as diagnostic neuroradiology/interventional neuroradiology programs have also been excluded.

Neuroradiology alone selected their fellows via a match system in 2001. The Society of Interventional Radiology (SIR, formerly SCVIR) joined the match selection process in 2002. In their first year of the match, SIR also experienced low numbers of recruitment (89 of 217 or 41% positions filled) and a low percentage in filling programs (20%). (For 2004 candidates, these numbers were 37% and 15%, respectively, reflecting a decline in recruitment to this subspecialty). Despite this, SIR has continued to support the match system for selecting fellows and, by using neuroradiology and interventional radiology as the pilot program, the Society of Chairmen of Academic Radiology Departments (SCARD) and the Association of Program Directors in Radiology (APDR) pushed strongly for a universal radiology fellowship match for 2003. The combined efforts of members of SCARD and APDR led to the inclusion of many radiology fellowship programs across the country in the match system. Nonetheless, as opposed to the greater than 90–95% participation enjoyed by neuroradiology and interventional radiology, the enrollment of all radiology fellowship programs is estimated to be in the 80–85% range. Several programs in major institutions did not participate in the 2004 overall radiology fellowship match.

It is unclear to what extent including all of radiology fellowship programs has benefited or harmed the

neuroradiology match system. The program directors, however, believed that the match was a positive step. Unifying the application process for all fellowships theoretically removes the advantage of those fellowships over neuroradiology programs, which alone adopted the match system in the beginning. Applying outside the match system is generally easier for applicants who interview for fewer programs, saving them money and time and probably securing them a position earlier in the year. However, an advantage of including the other fellowships in the match system is that it gives residents more time to decide on their field of choice by advancing the interview dates to the second half of the third year of residency. By allowing more exposure to different fields in radiology, including neuroradiology, the match system provides the fellowship programs with better-informed candidates. This process might also result in fewer candidates reneging on commitments, though this outcome has yet to be surveyed.

Several disadvantages of using a match system for selecting fellows have yet to be overcome in neuroradiology. Both program directors and candidates complained of the added time and expense required to select fellows in this matter. For some program directors, it meant setting aside time and resources to interview many more candidates than they used to. Previously, they could stop interviewing as soon as they had reached their desired number of positions filled by committed candidates. Now, most programs interview far more candidates to ensure success in the match. Many programs are more concerned about going unfilled and the resultant stigma. This concern leads to the interviewing of more candidates to be sure that the program is filled. In a similar fashion, fellowship candidates used to be able to get a well-defined commitment early in the interview process, particularly if they were strong candidates. Now, because of the code of silence invoked by the NRMP, the candidates cannot receive reassuring feedback as to whether they will be accepted by their top choice; therefore, they are pressured to interview at more institutions. The scenario of a strong candidate interviewing at his or her top choice and receiving an offer on the spot and thereby ending the interview season early can no longer securely exist in the match process, except for internal candidates.

Some program directors believe that a match system favors large programs, which have many more spots to fill than smaller programs. With a match system, many candidates that would not otherwise be interviewed by the large programs, particularly if they come from smaller residencies, are now interviewed for the reasons described earlier. Directors of smaller residencies and fellowship programs had a good chance of keeping their own candidates in the past, when they could make an early and definitive commitment; they believe that the match program now allows the larger institutions to lobby for these same candidates. Nonetheless, the survey results suggest that most program directors (43 of 62 = 69%) believe that the match has little impact in their success in securing fellows.

The advantages of using a match system are also numerous. These include an organized system for selecting fellows in a time frame that allows adequate decision making with less chance of reneging on commitments. For program directors and chairpersons, having a match system that is closer to the start date allows better assessment of resources for "just-in-time delivery." All program directors noted that using the match system was a "fair" system for selecting fellows. This is clearly an advantage. Fellowship candidates are no longer pressured to make snap decisions as they had been in the past, before the match system, and they have adequate time to make a wise decision for their future.

Some view the ability to see more candidates and to have the candidates see more programs as an advantage because it means that candidates are better informed when they make their selections. The use of the NRMP match system and its code of ethics and rules may lead to fewer candidates reneging on commitments to fellowships. In the past, this problem reportedly occurred in over one-third of all neuroradiology fellowship programs.

The NRMP resident match system was started 50 years ago for the selection of internship positions. It faced multiple obstacles similar to those encountered with the current neuroradiology fellowship match. Despite these problems, this system was and is still updated constantly to accommodate the changing needs of applicants and training programs. It has proved to be of utmost value in alleviating the chaos of internship application and in organizing the selection process to serve the function for which it was designed (6).

Conclusions

Despite the advantages and disadvantages of using the match system, it is clear that most (52 of 61 = 85%) neuroradiology fellowship program directors favor continuing the match system for selecting fellows and that more than 98% would participate in it if the program is continued for fellows beginning on July 1, 2005. This level of endorsement 3 years after the start the match system seems to warrant continuation of this system in the selection of neuroradiology fellows in the future.

References

1. Brogdon BG. **Perspective on the four-year residency.** *Invest Radiol* 1989;24:434-436
2. Sunshine JH, Simon C, Bushee GR, et al. **1997 Graduates Speak: initial employment experiences of residency and fellowship graduates.** *AJR Am J Roentgenol* 2000;175:1225-1232
3. Goodman CJ, Lindsey JI, Whigham CJ, et al. **Diagnostic radiology residents in the classes of 1999 and 2000: fellowship and employment.** *AJR Am J Roentgenol* 2000;174:1211-1213
4. Gay SB, Resnik CS, Harolds JA, et al. **The radiology fellowship and fellowship match: current status.** *Acad Radiol* 2003;10:303-308
5. Yousem DM, Hammoud D, Russell EJ, et al. **Results of the neuroradiology fellowship match for July 1, 2002 candidates.** *AJNR Am J Neuroradiol* 2001;22:1654-1658
6. Roth AE. **The origins, history, and design of the resident match.** *JAMA* 2003;289:909-912