

AMERICAN GASTROENTEROLOGICAL ASSOCIATION

What Will Be Needed for the New Gastroenterology Fellowship Match to Succeed?

As a group, the national gastroenterology (GI) societies, the American Gastroenterological Association (AGA), the American College of Gastroenterology (ACG), the American Society for Gastrointestinal Endoscopy (ASGE), and the American Association for the Study of Liver Diseases (AASLD), decided in May 2005 to reintroduce a GI fellowship match, starting in 2006, for positions beginning in July 1, 2007.^{1,2} We review the state of the most recent, decentralized GI fellowship market for positions beginning in July 2006, based on a survey of GI fellowship directors conducted in January 2005. Then we consider what is required for the new match to be successful and how the transition from the current decentralized market to a match can be facilitated. In this we draw on the experience of other markets, both medical and nonmedical.

A Brief History of the Previous Match and Its Demise

From 1986 to the late 1990s, the market for GI fellows was organized through the National Resident Matching Program/Specialty Matching Services (NRMP/SMS). This resolved a number of problems the market had earlier experienced, in the same way that similar problems had been resolved in the market for residents by the introduction of the NRMP.^{3,4} Starting in 1996, participation in the GI match declined precipitously, and the match was formally abandoned in 1999.^{5–9} Following the abandonment of the match, the interviewing and hiring of prospective GI fellows became earlier and more dispersed in time. Consequently, many potential fellows were faced, early in their careers as residents, with a decision about whether to accept an offer from a particular fellowship program, to which they needed to respond before they could learn what other opportunities might be available.^{10–12} One result of this was that the mobility of potential GI fellows was substantially reduced, as many local markets replaced the national market that had existed under the match, so that GI fellows more often started to work at the same hospital at which they had done their residency or at a nearby hospital.¹³

Before the decision to reinstitute the GI match, there was active discussion of whether this would be desirable and feasible.^{1–18}

In the meantime, in 2002, an antitrust suit was filed against the NRMP.¹⁹ Congress passed legislation clarifying that the NRMP does not violate antitrust laws (Public Law No. 108-218, 2004),²⁰ which included language stating the sense of the Congress was that the NRMP is a procompetitive form of market organization, that is, that it helped create a thick market and did not reduce wages.^{4,21,22} The case was dismissed.^{18,23} Consequently, it appears that there is no legal cloud of any sort over the new GI match.

The Market for GI Fellows in 2004–2005 (for 2006 Positions): Survey of GI Fellowship Directors

In January 2005, in preparation for the biannual GI Fellowship Program Directors' meeting, and before the decision to reintroduce a GI fellowship match was made, a questionnaire was e-mailed to the 154 GI fellowship programs that are accredited by the Accreditation Council for Graduate Medical Education and eligible to participate in a match (this excludes 3 military programs; see <http://www.acgme.org/adspublic/> for a list of the Accreditation Council for Graduate Medical Education–accredited programs and Appendix 1). If no reply was received, the request was e-mailed to the fellowship program a second time. Sixty-six program directors replied, including 2 from Puerto Rico who were subsequently excluded from analysis due to interest in focusing on US-based programs. The 64 US-based programs offered a total of 215 positions, of which 40 were basic science research positions and 54 were clinical science research positions. On average, the programs that responded were the larger ones. Overall, 203 GI fellows were hired by these programs.

The survey focused on the mechanics of how fellows are hired. We paid particular attention to timing, because the kind of market failure that originally led to the creation of the NRMP and SMS matches involved the “unraveling” of the hiring process.^{3,4} When a market

Abbreviations used in this paper: AGA, American Gastroenterological Association; GI, gastroenterology.

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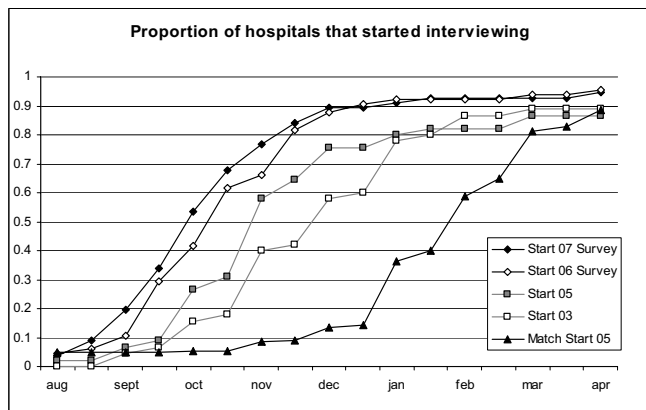


Figure 1. The cumulative distribution of programs that started interviewing by the time of any given 2-week period. Match Start 05, interview dates of internal medicine subspecialties that participate in the SMS match for positions starting in 2005; Start 03 and Start 05, start dates of interviewing for GI fellowship positions beginning in 2003 and 2005, respectively (data from Freida online [<http://www.ama-assn.org/ama/pub/category/2997.html>] and from Niederle and Roth¹¹); Start 06 Survey, the replies from the survey of GI program directors to the question of when they started interviewing for 2006 positions; Start 07 Survey, the answers to the question of when GI program directors expected to start interviewing for 2007 positions (without a centralized match, for programs that do not start interviewing before August).

unravels, hiring by different programs occurs earlier and earlier, and more dispersed in time, and applicants are frequently faced with the need to respond to offers before being able to find out what other programs might be interested in them; at the same time, program directors find that if they delay, desirable applicants may go elsewhere. This is the kind of problem that led to the adoption of the original GI match in 1986.¹¹ Indeed, this is a problem that has afflicted a number of markets, not just medical markets.²⁴ Thus, we inquired in the survey about when interviews were conducted, when offers were made, and how long offers remained open. We also asked how program directors' decisions were influenced by market conditions.

Timing of Interviews

We asked when program directors conducted their first and last interviews for positions beginning in July 2006. We also asked when they expected to start interviewing for positions beginning in July 2007 (because no decision had yet been made to reintroduce the GI fellowship match, this was a question about what they expected to do if the market remained decentralized [ie, in the absence of a match]).

Figure 1 shows the cumulative distribution of programs that started interviewing by the time of any given 2-week period. Programs that start their interviews, for example, from December 23 to January 6 are coded as starting in January, and those that start between January

7 and January 22 are coded as starting in mid-January. This way, programs that start interviewing on the last day of a month or the first day of the next month (both common dates) are coded as starting at the same time.

Note that not only do GI fellowship programs interview substantially earlier than do programs in internal medicine subspecialties that use the SMS match, but the GI interviews have moved earlier and earlier each year. For example, Figure 1 shows that only 60% of programs had started interviewing for 2003 positions by mid-December, but this percentage had already been reached by November for 2005 positions and by mid-October for 2006 positions. Interviews later in program year 2 would give applicants more time to complete GI electives, conduct research, and secure letters of recommendation for their work done during program year 2.

The 51 programs that provided both a start date for interviews for 2006 positions and an anticipated start date for interviews for 2007 positions and do not start interviewing before August plan to start significantly earlier for 2007 positions ($P < .01$, Wilcoxon matched-pairs signed rank test). Of these 51 programs, the programs that plan to interview earlier for 2007 positions are the programs that started interviewing later for 2006 positions. A regression on the amount of time the program wants to move its interviews ahead (ie, predicted interview begin next year minus interview begin this year), as a function of when the program started to interview, yields a coefficient of -0.17 (SE, 0.07; $P = .02$). The relationship holds even when we control for the number of positions the program is trying to fill or the length of the interview period. This is consistent with the view that programs that interview later find that many of the applicants they would have liked to interview have already accepted positions.^{25,26}

A total of 33% of the 63 programs (ie, 21 programs) interviewed from 1 to 10 candidates, and 51% (32 programs) interviewed 15 or fewer. Only 2 programs interviewed 25–30 candidates. The median number of interviewed candidates is 11–15. The number of candidates interviewed is significantly correlated with the number of candidates the program seeks to hire, although not with whether the interviews begin early or extend over a long period. Regression analysis shows that the timing of interviews (namely the date of the first interview) is not correlated with the size of the program, but programs that interview earlier also interview for less time.

Timing of Offers

Figure 2 shows, for each of the 44 fellowship programs that supplied these data, the dates on which first and last offers were made and the duration for which

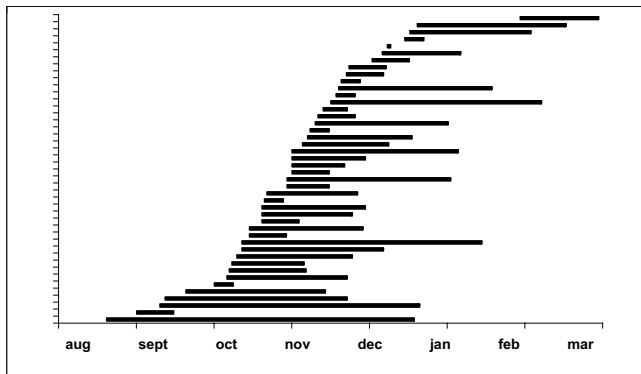


Figure 2. Dates of open offers by fellowship program. Each program is represented by one of the horizontal lines, indicating the dates during which it was making offers.

the longest offer was left open. Thus, the figure shows, for each responding program, a line that begins on the day when the first offer was made and ends when the last offer made would have expired if it was the offer with longest duration. This provides an upper bound on the period in which that program had offers outstanding.

The graph shows that by November 15, 11 programs (27%) had already finished making offers, 12 (25%) had not yet started, and 21 (48%) were in the midst. Thus, offers were dispersed in time, with programs that made offers early often requiring answers before many programs had begun to make offers.

Figure 3 gives another view of the timing of offers by showing, day by day, what proportion of programs are in the midst of interviewing, making offers (ie, have made their first offer but not yet their last offer), and having outstanding offers (as in Figure 2). We have 50 programs with interview data and 44 with data on offers. Fourteen programs that hired 2 or more fellows made all their offers in 1 day.

Figure 3 makes the point clear that applicants are unable to interview at all programs in which they might be interested, which further limits the prospects of “choosing the most appropriate fit” for fellows and programs. It also makes it clear that not only are many applicants confronted with the dilemma of an early offer that expires before many other offers can be considered, but in fact they may often have to reply even before other programs conduct interviews. At no point are even 60% of programs entertaining offers at the same time.

Market Pressure and the Scheduling of Interviews and Offers

We also asked how many programs had interviews cancelled because the candidate had already accepted an offer elsewhere. Only 13% (8 of 61) never had an interview cancelled. A total of 48% had 1–4 inter-

views cancelled, and 2 programs had 12 or more interviews cancelled.

Forty-five percent of programs (29 of the 64 programs that answered this question) made offers before they finished interviewing. Almost half of these (ie, 14 programs) reported that they did so because of pressure from the market. For example, 1 program director commented that, “To get the best candidates, we were forced to move earlier than we would have liked.” Forty-three percent of the respondents (28 programs) reported that they speeded up offers because the candidate had another offer, and many other programs reported that in such cases they provided feedback to the candidate about his or her chance of receiving an offer. Furthermore, 33% of programs (ie, 21) considered how likely it was that an applicant would accept their offer when deciding whether to extend an offer. More than half the programs (60%) extended at least 1 offer that required a reply in 1 week or less, and 95% required a reply to some offer in 2 weeks or less. In fact, 21% of programs indicated that the longest time a candidate took to respond to an offer was 1 hour, 60% reported 1 week, and 90% reported 2 weeks. Thus, the market moved fast. It is not a market in which program directors can interview all the candidates they might like to before making offers or one in which they can safely extend offers to risky candidates, because meanwhile more attainable candidates may take other offers.

Furthermore, 26% of programs (ie, 17) at some point had more outstanding offers than positions, although only 1 of them had to rescind an offer due to too many acceptances. Even 1 rescinded offer reflects one of the hazards of the decentralized market, in which program

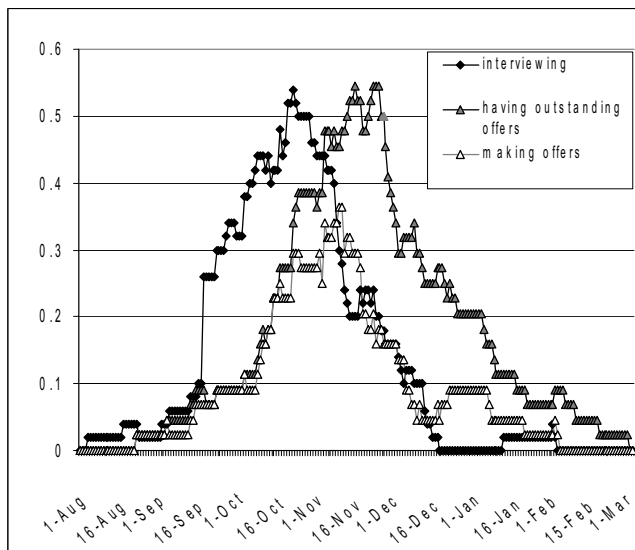


Figure 3. Proportion of programs at different stages of the hiring process.

directors may feel that to fill all their positions, they need to make multiple simultaneous offers and rely on the fact that not all will be accepted. Needless to say, a rescinded offer to an applicant may cause him or her considerable harm, if it comes after he or she has rejected other offers. One of the advantages of a match is that it frees program directors from any need to extend more offers than they have positions.

The Market Outcome

Recall that 215 positions were offered and 203 filled by the respondents to our survey. The 40 basic science research positions were only 73% filled, with 29 fellows. Fifty-eight clinical research fellows were hired (a 107% fill rate compared with the 54 positions initially intended for clinical research fellows) and 116 clinical fellows (a fill rate of 96%). Of the 9 programs that did not fill their basic science positions, 4 hired more clinical science fellows (beyond their original demand). Thus, there is some substitution between basic science and clinical research fellowships. In a match, this can be accomplished by having multiple classes of positions and letting unfilled positions from one class "revert" or be "donated" to the other in case they are not all filled.²⁷

Overall, 43% (ie, 87) of the 203 fellows who were hired were internal candidates, that is, they came from residency programs at the same hospital. A total of 88% of programs (ie, 53) hired at least 1 internal candidate, and 17% (ie, 10) hired only internal candidates.

Out of 63 program directors, all but 4 (94%) offered the same wage to all their fellows. Furthermore, all but 4 (although not all the same 4 programs) offered the same hours on call. Eighteen of the 63 programs (29%) offered different fellows different amounts of time for research; all but 3 of these programs formally differentiated the kinds of fellows doing different jobs (ie, they had at least 2 kinds of fellows). All program directors responded that offers are not adjusted in response to outside offers and terms are not negotiable. Thus, while different programs offer different wages and terms,²¹ and while program directors respond in many other ways to the contingencies that arise in the course of the hiring process, it does not appear that they adjust the terms of their offers to the situations of individual candidates.

Building Trust for a Smooth Reintroduction of the Match

One of the chief difficulties in moving from a decentralized market, in which many programs try to hire earlier than their chief competitors, to a centralized match, in which all programs hire at the same time, lies in fostering the confidence among program directors that

their competitors will also participate. Program directors who wish to participate in the match may nevertheless worry that if their competitors make early offers, then applicants may lose confidence that the match will work and accept those early offers, because that has been the practice in the decentralized market. That is, in the first year of a match, applicants may not yet feel that it is safe to reject an early offer to wait for the match. Program directors who worry about their competitors may thus be more inclined to make early offers themselves. Recall that, before the reintroduction of the match, many program directors sped up offers because they felt pressured by applicants who were disappearing from the market in response to the early offers of other programs.

There were 60 responses to the direct question, "Do you think a match would be better than the current system if most programs would adhere to it?" A total of 83% (ie, 50) said yes. Of the 10 who said no, several indicated that "most" would not be enough for them to have confidence in the match. Following the announcement of the new GI match, communications from program directors confirm that this is a lively concern, with some expressing concern about specific programs they regard as competitors.

These concerns can be partially addressed by the fact that the list of those programs that have signed up for the match is widely disseminated to program directors and applicants on the AGA Web site (<http://www.gastro.org> and Appendix 1). This list already (as of June 2005) meets the NRMP/SMS requirement of participation by 75% of programs and positions. However, it may be helpful to build confidence by taking additional measures.

One way that a lack of confidence in a late and orderly market is sometimes handled is to remove some of the temptation for early offers by making them less profitable. For example, there is a widespread agreement among PhD-granting institutions not to ask for replies to offers of graduate fellowships until April 15 for positions beginning in September of the same year. Virtually all American research universities subscribe to a resolution of the Council of Graduate Studies that contains the following statement.

Students are under no obligation to respond to offers of financial support prior to April 15; earlier deadlines for acceptance of such offers violate the intent of this Resolution. In those instances in which a student accepts an offer before April 15, and subsequently desires to withdraw that acceptance, the student may submit in writing a resignation of the appointment at any time through April 15. However, an acceptance given or left in force after April 15 commits the student not to accept another offer without first obtaining a written release from the institution to

which a commitment has been made. Similarly, an offer by an institution after April 15 is conditional on presentation by the student of the written release from any previously accepted offer. It is further agreed by the institutions and organizations subscribing to the above Resolution that a copy of this Resolution should accompany every scholarship, fellowship, traineeship, and assistantship offer.²⁸

The first part of this statement says that all PhD programs will leave their offers open until April 15. The second part says that even if some program presses a student to accept an offer before April 15, the student may accept the early offer and then cancel his or her acceptance anytime before April 15 and accept another offer. That is, programs are free to make offers before April 15, even to students who may have accepted early offers, and so programs need not fear that students can be taken off the market beforehand. Acceptances after April 15 are binding. Note that a program that might be inclined to insist on an against-the-rules early response is discouraged from doing so in 2 ways. First, the chance of actually enrolling a student who is pressured in this way is diminished, because the student is not prevented from receiving and accepting a more preferred offer. Second, a program that has pressured a student to accept an early offer cannot offer that position to another student until after the early acceptance has been declined, at which point most of the students in the market have made binding agreements.

The widespread adoption of this resolution seems to have largely ended the problem of early offers to PhD programs in most academic disciplines. Niederle and Roth¹⁰ showed that in both naturally occurring and experimental markets, the ability of applicants to reconsider and decline offers that have been accepted before a certain time, without fear of facing either retaliation or experiencing an inability to receive future offers, reduces the incidence of these “exploding” offers to the point that they do not disrupt the market. Because, in general, it is very hard to enforce the time at which programs make offers and how long offers are left open, this policy helps the applicants themselves to deal with such early and short offers. Because applicants can accept these offers without compromising their availability for subsequent offers from programs they prefer, no program need feel pressured to make an early offer itself just because another program is doing so.

Consequently, applicants’ ability to “renege” on early acceptances does not disrupt the market, because there are few demands for early acceptance; the primary effect of such a resolution is not to punish, but rather to enhance the confidence of the whole community that positions will be filled at the agreed-on time.

It therefore makes sense for gastroenterologists to consider adopting a similar policy, adapted to the situation of the upcoming match. Ideally, such a policy would remove any temptation for fellowship programs to extend early offers and ask for a response before the match, by allowing applicants who had accepted early offers nevertheless to participate in the match. Under such a policy, an applicant who had accepted a prematch offer would be able to enter the match, listing only programs he or she preferred to the early offer. The match result would be binding, and if the applicant were successfully matched, he or she would then be freed from his or her prematch commitment and able to fulfill his or her commitment to the match. Under such a policy, programs would have little incentive to ask for prematch agreements, because doing so would give them no advantage in “capturing” candidates who would have preferred to consider all the options available in the match and await the match outcome. Note that programs would not lose in any way the ability to attract candidates who genuinely regarded them as their first choice, because any program and applicant who list each other first in the match are guaranteed to be matched to one another.

Current NRMP/SMS policy, however, does not allow applicants who have previously accepted an offer to submit rank order lists. However, current NRMP/SMS policies do not prevent applicants who have accepted early offers from nevertheless further exploring their opportunities in the match by continuing to interview for more desirable positions and then canceling their acceptance of a prematch offer if they wish to submit a rank order list.

Therefore, to enhance confidence in the match, the AGA has adopted the following resolution: all fellowship programs and applicants are strongly encouraged to participate in the match, and all programs are strongly encouraged to commit all of their positions. Early offers and acceptances are not in the spirit of this resolution. Applicants are expected to conduct themselves at all times in a professional manner and are discouraged from making commitments unless they intend to honor them. Any applicant who feels pressed into an early (prematch) agreement by a program, whether or not that program is participating in the match, can nevertheless enter the match; so that he or she can still interview and consider other programs. However, to comply with the NRMP/SMS policy, the applicant must either resign the accepted position or withdraw from the matching process before the rank order list certification deadline, which is usually during the first week in June. Offers outside of the match by programs participating in the match are in violation of the NRMP/SMS agreement, and sanctions may be levied against that program and applicant in

accordance with the NRMP/SMS violations policy. All match results are contractually binding. The spirit of this resolution is to make it unprofitable for program directors to extend early offers and ask for prematch agreements and to give applicants an opportunity to consider all offers.

Conclusions

As gastroenterologists prepare to reinstitute a match, several points are worth emphasizing. The first is that, if the match is not successfully restarted, there is every reason to believe that the troubles presently afflicting the decentralized market will get worse. The 2005 survey of program directors revealed that hiring for fellowships beginning in 2006 was even earlier and more dispersed than in previous years and that, if the market remained decentralized, directors felt pressured to move even earlier in the future. The resulting decentralized market, with dispersed and early offers of short duration, reduces mobility of fellows and is widely perceived as unfair to applicants and as discouraging entry into gastroenterology.

Matches run by the SMS have successfully solved such problems for a number of other internal medicine subspecialties. The new GI match would use the current NRMP/SMS matching technology, which has been improved in a number of ways since the last GI match, and now uses the Roth–Peranson matching algorithm.^{27,29}

Among the benefits of the match is that it allows programs to flexibly fill different kinds of positions. The GI fellowship match has been set up through the NRMP/SMS so that programs may offer 4 different tracks or categories through the match: (1) clinical, (2) clinical investigator research, (3) basic science research, and (4) research. Each track in every program is given a unique identifying code number by the NRMP/SMS. For each track, a program will submit a separate rank order list of applicants in preferred order. Furthermore, the program can specify that if it does not fill all of its available positions for one of its tracks, the position(s) can be reverted or donated to one of the other tracks. Positions are usually reverted or donated from a track that is least likely to be filled to a track that is more likely to be filled. In particular, by using the flexibility of the reversion algorithm, the match removes the pressure on programs to fill research positions early because, if a research position cannot be filled, it can automatically be converted into a clinical position.

For example, a program may wish to appoint 1 clinical investigator research fellow and 1 clinical fellow. If the research position is not filled when the matching algorithm is run, an option is for the fellowship program to

match 2 clinical track fellows. The program specifies this in the NRMP/SMS system by submitting a rank order list of suitable applicants for 1 clinical investigator research track position and a separate list for 1 clinical track position. The program director then creates a reversion in the NRMP/SMS system so that if the research position is not filled, this unfilled position will revert, that is, be added or donated to the clinical track, and the matching algorithm will attempt to fill 2 clinical track positions from the clinical track rank order list.³⁰

This is done in a way that if no suitable research fellow is allocated through the match, the program will receive the same clinical fellows as if 2 clinical positions were initially advertised. That is, there is no drawback for a program to submit its true preferences for hiring 1 research fellow and 1 clinical fellow or a second clinical fellow only if no research fellow is allocated through the match.

The main obstacle to a successful restart of the match is that unless program directors are confident that their competitors will participate in an orderly way, they may not have the confidence to do so themselves. Widespread publication of the fact that the large majority of programs and positions have agreed to participate in the new match will help alleviate such concerns. The AGA plans to conduct an annual review, at least initially, of match participation and performance and of the policies and procedures associated with the match. The NRMP/SMS also has a well-defined policy in effect since 2001 that addresses any violations of the match agreement (to build confidence that there will not be cheating). If, in addition, the GI community adopts the resolution that the AGA endorses and is discussed in this report, enabling applicants to preserve their ability to enter the match and continue to interview even if they have been pressed into an early reply, this will make such pressure less profitable, and hence less likely, and make such pressure less threatening to programs that participate in the match as promised. Consequently, the primary effect of such a resolution would be to enhance the confidence of the whole community that candidates will remain available and positions will be filled in the match.

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Appendix 1. Web Sites

Accreditation Council for Graduate Medical Educational Web site listing of accredited GI fellowship programs	http://www.acgme.org/adspublic/
Council of Graduate Studies resolution for early acceptance of financial assistance for graduate students, including graduate scholars, fellows, trainees and assistants	http://www.cgsnet.org/Publications/PolicyRes/resolutions.htm
AGA listing of programs participating in match	http://www.gastro.org/wmspage.cfm?parml=640 (link to Training Programs participating in the match)

References

- Proctor DD. AGA task force recommends reinstating the national GI fellowship match. 2005. Available at: <http://www.gastro.org/wmspage.cfm?parml=329>. Accessed on July 7, 2005.
- Gastroenterology fellowship match. GI will rejoin the match in 2006. 2005. Available at: <http://www.gastro.org/wmspage.cfm?parml=989>. Accessed on July 7, 2005.
- Roth AE. The evolution of the labor market for medical interns and residents: a case study in game theory. *J Political Economy* 1984;92:991-1016.
- Roth AE. The origins, history, and design of the resident match. *JAMA* 2003;289:909-912.
- Gerson L. To match or not to match in gastroenterology: an interview with David Brenner, MD, Chair of AGA's Manpower and Training Committee. *AGA Trainee & Young GI News*, Spring 1999, Volume 5, Number 1. Available at: <http://www.gastro.org/trainee/trainee6.html>. Accessed Spring 2003.
- Bauer WT, Fackler W, Kongara K, Matteoni C, Shen B, Vaezi M. Comment to: it's time to bring the best and brightest back to gastroenterology. *Gastroenterology* 1999;116:1014.
- McKinney CN, Niederle M, Roth AE. The collapse of a medical labor clearinghouse (and why such failures are rare). *Am Econ Rev* 2005;95:878-889.
- Gorelick FS. Striking up the match. *Gastroenterology* 1999;117:295.
- Little RA. The best and the brightest. *Gastroenterology* 2002;122:851-852.
- Niederle M, Roth AE. Market culture: how norms governing exploding offers affect market performance. NBER working paper, February 2004.
- Niederle M, Roth AE. The gastroenterology fellowship match: how it failed, and why it could succeed once again. *Gastroenterology* 2004;127:658-666.
- Lim JK, Shah SB. Restoring a gastroenterology fellowship match: a trainee perspective. *Am J Gastroenterol* 2004;99:1412-1414.
- Niederle M, Roth AE. Unraveling reduces mobility in a labor market: gastroenterology with and without a centralized match. *J Political Economy* 2003;111:1342-1352.
- Achkar E. Balancing view. The GI match: what is in the balance? *Am J Gastroenterol* 2004;99:9.
- Ehrinpreis MN. Con: the gastroenterology fellowship match: R.I.P. *Am J Gastroenterol* 2004;99:7.
- Richter JE. Pro: gastroenterology match: good for all the players. *Am J Gastroenterol* 2004;99:6.
- Niederle M, Roth AE. Re-starting the gastroenterology match. *Am J Gastroenterol* 2005;100:1202-1203.
- Niederle M, Roth AE. The gastroenterology fellowship market: should there be a match? *Am Econ Rev Papers and Proceedings* 2005;95:372-375.
- Jung, et al. v. Ass'n of Am. Med. C., et al., Class Action Complaint, No. 02-CV-00873 (D.D.C. May 5, 2002).
- Pension Funding Equity Act of 2004, Public Law No. 108-218. Available at: http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=108_cong_public_laws&docid=f:publ218.108.pdf. Accessed November 17, 2005.
- Niederle M, Roth AE. Relationship between wages and presence of a match in medical fellowships. *JAMA* 2003;290:1153-1154.
- Niederle M, Roth AE. Effect of a match on salaries for medical fellows-reply. *JAMA* 2003;290:2408.
- Paul Jung, MD v. Association of American Medical Colleges, Civil Action No. 02-873, Opinion, Order & Judgment issued August 12, 2004, by Judge Paul L. Friedman. Available at: <http://www.dcd.uscourts.gov/02-873a.pdf>. Accessed on November 17, 2005.
- Roth AE, Xing X. Jumping the gun: imperfections and institutions related to the timing of market transactions. *Am Econ Rev* 1994;84:992-1044.
- Talley N, Richter JE, Achkar E. Editors' comments. *Am J Gastroenterol* 2004;99:1411.
- Pardi DS. Should the national GI fellowship matching program be restored? *Am J Gastroenterol* 2004;99:1411-1412.
- Roth AE, Peranson E. The redesign of the matching market for American physicians: some engineering aspects of economic design. *Am Econ Rev* 1999;89:748-780.
- Council of Graduate Schools. Resolution Regarding Graduate Scholars, Fellows, Trainees, and Assistants. Available at: <http://www.cgsnet.org/PublicationsPolicyRes/resolutions.htm>. Accessed November 17, 2005.
- Roth AE, Peranson E. The effects of the change in the NRMP matching algorithm. *JAMA* 1997;278:729-732.
- A guide for GI fellowship programs. How the match will work for gastroenterology. 2005. Available at: http://www.gastro.org/user-assets/Documents/Match/factsheet_training_programs.pdf. Accessed on July 7, 2005.

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