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METHODS

In 1999, we conducted critical incident interviews with 10 general surgery residents at our institution, who were selected for diversity in level of training, clinical performance ratings, and academic performance. Each training year was represented.

During audi-taped interviews, residents described specific incidents that either helped or impeded their learning. All described at least 2 positive and 2 negative learning experiences. The transcribed interviews were independently read and coded by both investigators for factors related to resident learning. Intercoder agreement exceeded 95%. Consistent with grounded theory method, interviews continued until analysis of the most recent interview provided no additional data or themes.

RESULTS

Representative excerpts from the interviews illustrate the central themes about learning during internship. Interns seemed to learn best when faculty, fellows, or senior residents structured and directed their learning: “I learn best by being told what’s expected of me. . . . Usually if you teach me how to do something one time, it saves me from trying to learn it on my own. . . . several times.”

For one intern, directed instruction about Swan-Ganz catheters reduced insecurities about being “left alone” with critically ill patients. Every interviewee recalled incidents during internship when faculty support was critical and empowering. One resident described how a faculty member’s stepwise instructions provided the confidence to treat a seriously injured patient: “That’s about as scared as I’ve been in my life. I felt very unsure and very scared that anything I might do—this kid could die. It was a huge responsibility and I didn’t feel ready for it, but he was just such a confident, good teacher.”

CONCLUSIONS

Conversely, novice residents learned little when forced to act autonomously. Without skills or faculty support, interns relied on trial and error learning, which, according to one resident, “produced at least some sort of anxiety.” One resident underscored this problem in discussing an overmedication error: “Luckily nothing happened. . . . I’ll never make that mistake again, but maybe somebody could have pointed it out to me. . . .”

Lack of faculty support also isolated first-year residents. All residents described their intern experiences with overnight calls in terms such as “being left alone” and having “no backup.”

In turn, isolation created anxiety about patient care. Severe anxiety almost paralyzed novice residents, who feared making mistakes with critically ill patients, and generated resentment toward faculty “for not being there.”

Discussion

Our interviewees described faculty members’ failure as role models who teach by example. Residents at all training levels perceived that faculty had hindered their learning during internship by delegating too much responsibility and forcing too much autonomy too soon. For most, dependent relationships with faculty and senior residents enabled them as interns to overcome anxiety in decision making and contributed to positive learning experiences. Although our request to describe teachers who had “significantly and positively influenced their clinical education” may have prompted graduating medical students to identify role models, we were unable to elicit similar descriptions of role models in this study. Similarly, Wright found that surgery residents recalled 4 times the number of positive role models during medical school than during residency. The relative absence of role models deprives interns of learning from example.

As they take their first steps toward clinical independence, interns may be wondering where the role models are who provided the enthusiasm, passion, and support for the specialties they selected. Based on this study, we intend to encourage and reward faculty members who teach and lead by example.

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THE CHOICE OF A SPECIALTY BY THE NEW PHYSICIAN IS IMPORTANT on many levels. The student's career satisfaction and personal fulfillment will be affected by the specific attributes of his or her work. Physician satisfaction has been found to be correlated with both patient satisfaction and clinical outcomes. Society also has an interest in medical student career choices. The efficiency of the US health care system and access to care for urban poor and rural populations depend on the number and ratio of generalist and specialist physicians. Unfortunately, the current process of specialty selection by medical students serves neither the student nor society optimally.

Most future physicians make their final specialty choice during the third year and early part of the fourth year of medical school, after only 2 or 3 years of professional socialization. Choosing a specialty has been described as assessing one's fit with the perceived attributes of potential specialties, which might include personality, income, lifestyle, intellectual challenge, technological orientation, clinical skill, geographic options, and potential for research or leadership. Students must accurately understand both their own needs and the characteristics of the specialty they are considering.

For some students, preexisting impressions of their preference for a particular specialty are confirmed, while others may reject early preferences when they acquire new or refined images of specialties or discover some they had not previously considered. Other students may develop a new understanding of themselves that no longer seems compatible with earlier preferences. Additional predictors of specialty choice may include demographic characteristics, aspects of the medical school experience, and personality traits. For example, an older female student from a small town who attends a publicly funded medical school with a required third-year family medicine clerkship is likely to choose a primary care residency. A younger male from a suburban upbringing who values technology over humanism and attends a privately funded school is more likely to choose a hospital-based specialty.

These characteristics may predict choice, but may not always lead to goodness of fit. Students are pressed to decide early, usually after only slightly more than a year of brief exposure to specialties in clinical clerkships. Gaining insight into one's aptitudes and professional priorities, especially at a young age, is a difficult task. Guessing how those interests will evolve over a lifetime is a difficult task. One study concluded that as some students gain a more accurate perception of lifestyle and practice characteristics, their level of preference because of practical barriers such as grades, family preferences, and finances.

Furthermore, except for those students who will choose an academic career, the image of a specialty may be distorted by the filter of the traditional academic setting. This is because most teachers and role models in medical school have careers that are quite different from their more numerous nonacademic counterparts. Clearly, the rewards and pressures are different in community practice and academic medicine. Also, the prevalence and acuity of disease at academic medical centers is different from that in the community. In our university hospital, for example, pituitary surgery and liver transplants are performed more often than appendectomies. This can hardly give an accurate picture of the life of a typical surgeon.

A popular book devoted to familiarizing current and prospective medical students with medical careers advises "...when contemplating your choice, familiarize yourself with the common, daily tasks that are a part of the job and ask yourself whether doing them day in and day out will engage you and keep you happy. It may be fun and challenging to repair the weekend athlete's ruptured tendon, but you may find that you cannot stand evaluating low back pain ten times each day." Unfortunately, most students do not have the opportunity during the critical third and early fourth years to experience in representative ways the life and work of community-based physicians, they general surgeons, family physicians, pathologists, or any other specialist.

There is evidence that a more accurate perception of the lifestyle and work of a given specialty can alter the types or numbers of students choosing that specialty. Most of this research has been conducted in family practice. Prospective studies indicate that requiring participation in a third-year family practice clerkship or longitudinal clinical placement increases the likelihood of selecting that specialty. In New Mexico, students assigned to a primary care curriculum that included long-term community-based clinical placements beginning in the first year were more likely to retain prior interest in family practice than their colleagues in a traditional curriculum.

Greater exposure to family practice does not always increase student interest in the specialty. Many students who enter medical school interested in family practice are discouraged by the relatively low prestige of that specialty in the academic environment. One study concluded that as some students gain a more accurate perception of lifestyle and practice characteristics, their level of preference...
for family practice declines. But whether more knowledge and exposure results in more or fewer students choosing the specialty, it is likely to be beneficial if the chance of a better fit is enhanced. Selection of other specialties has been less well studied, but there is also evidence that the academic medical center distorts images of daily life in specialties other than family practice.

The stakes for choosing the right specialty are high. Physician dissatisfaction and frustration are common and appear to be increasing. At least 1 of 3 physicians leaves or changes practice within 5 years of completing training. Approximately one quarter of medical school graduates change specialty or make a major career change after graduation. Among women physicians, 31% would “maybe, probably, or definitely” decline to enter medicine again if given a second opportunity and 38% would “maybe, probably, or definitely” change their specialty. While this is commonly attributed to the stress of practicing under managed care, increasing threat of litigation, and downward salary pressures, it is also possible that some of the dissatisfaction comes from mismatches of physician and specialty that may have their origin in distorted images of the specialty from medical school.

Students facing tough choices between specialties can benefit greatly from the opportunity to work with physicians outside the academic medical center environment before making their final decision. Individual students should aggressively seek such opportunities, and medical schools should do everything they can to assist them. We believe that renewed consideration should be given to delaying specialty selection for all students, perhaps by returning to a universal internship that could include practice in community settings and rotations in areas such as public health and preventive medicine.

More research on specialty selection increases the likelihood that students will have sufficient information to make the best choice for themselves and society. Meanwhile, providing students with better opportunities to form realistic impressions of their potential future careers would be a good first step.
Residency Selection Process and the Match: Does Anyone Believe Anybody?

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The National Resident Matching Program (NRMP) provides a system for the confidential ranking and subsequent matching preferences of both applicants and residency programs (the Match). The sole purpose of the NRMP is to allow both applicants and programs to make selection decisions on a uniform schedule and without pressure. Over the years, the Match process has developed many explicit and implicit rules. While both applicants and programs may try to influence decisions in their favor, any verbal or written contracts prior to the submission of rank order lists is a violation of NRMP rules.

The NRMP expects all participants to conduct their affairs related to the Match in an ethical and professionally responsible manner. Examples of violations of NRMP rules would include agreements made by participants before the Match, violations during Match week, and failure to honor results of the Match.

In 1992, the Association of Family Practice Residency Directors (AFPRD) presented guidelines for the ethical recruitment of family practice residents. These guidelines were developed in the early 1990s to address concerns that a decline in the number of applicants entering family practice residencies through the NRMP might escalate a possible recruitment war between family practice residency programs (the Match). The sole purpose of the NRMP is to allow both applicants and programs to make selection decisions on a uniform schedule and without pressure. Over the years, the Match process has developed many explicit and implicit rules. While both applicants and programs may try to influence decisions in their favor, any verbal or written contracts prior to the submission of rank order lists is a violation of NRMP rules.

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Research by Anderson and Jacobs indicates that applicants applying to many types of medical specialties perceive that residency programs engage in questionable ethical practices during the Match process. These practices may include lying to applicants, making informal commitments, and encouraging applicants to engage in unethical behavior. While 40% of the students felt the process was reasonable and needed no changes, more than half (52%) of respondents thought the process could be improved, 4% believed that it was unfair and needed a major overhaul, and 4% said it should be eliminated. Respondents also provided critical comments about the current process, such as “a matter of playing the game or running the risk of losing out completely.” Furthermore, the respondents also indicated that the NRMP handbook rules that neither programs nor applicants “must ask the other to make a commitment as to how one will be ranked before the match” may be broken by both applicants and programs. These responses indicate that the process can promote unprofessional behavior and gamestership.

Based on a study by Carek et al, many of these rules are broken and the behavior of both applicants and program directors often does not meet expected ethical standards. While most program directors (98%) reported that at least some applicants contacted them following the formal interview to inform them that the program was a “high” first rank-order choice. In general, most program directors (84%) were either skeptical or did not believe such statements. Sixty percent of the program directors reported that applicants asked how the program was ranking them. The overwhelming majority of program directors (94%) stated that the Match process placed their program in the position of having to be dishonest with applicants to match their top choices. A similar number of program directors (91%) felt that they were lied to by applicants at least some of the time. Approximately half of the program directors (47%) felt that informal commitments had been made to them by applicants. More than 65% of programs failed to match an applicant who they felt made an informal commitment to their program. Furthermore, the results of this study indicated that many actions of program directors and applicants may not be consistent with the highest professional standards necessary to maintain a fair Match process. The program directors’ recommendations included educating applicants and program directors in the process and ethics of the Match, allowing applicants and programs to provide honest feedback to each other, and enforcing the policies of the NRMP.

A similar study involving general surgery program directors found that 47% of program directors frequently or always told applicants to keep in touch if they were interested in matching at their program. However, when applicants contacted them after their interview to inform programs of their high rank order, 60% of program directors were skeptical and 31% did not believe their claims. More than two thirds (76.6%) of program directors stated that such overtures had no effect on the applicant’s rank order. Similar to family practice program directors, 91% of general surgery program directors believed that they were at least oc-
casionally lied to by applicants. More than half of these program directors (51.7%) stated the Match was a reason-
able process that needed no changes. The authors encour-
aged chairpersons and program directors to develop an un-
derstanding of funding issues and to realistically counsel students about programs and about their chances of match-
ing into surgery. They further encouraged program direc-
tors to communicate expectations in an honest manner with applicants.

Recently, urology residency program directors and ap-
plicants were surveyed to evaluate their behaviors and at-
titudes related to the residency matching program.2 Pro-
gram directors and resident applicants were skeptical of each other: dishonesty was acknowledged by 31% of program di-
rectors and 44% of applicants; 82% of program directors thought applicants “lied” while 67% of applicants thought that programs lied. The authors of this study suggested that programs adopt policies to enhance fairness and also adopt a code of limited or no communication after interviews.

Unfortunately, current research addresses neither the ad-
vantages of the current system nor other issues that may in-
fluence resident recruitment and the Match. Although many disadvantages have been noted, the current system may still benefit the majority of participants. While the recruiting aspect of the current system may not appeal to all participants, the ability of the current centralized system to successfully place applicants into programs has not been studied.

Several factors place pressure on both applicants and pro-
grams. In some specialty fields, the limited number of posi-
tions creates competition among applicants. For other pro-
grams, declining numbers of applicants fosters competition among programs to recruit the best candidates. Addition-
ally, reimbursement from state and federal agencies based on resident numbers may cause financial hardships for programs. A system that rein-
forces this objective by exposing documented agreements by participants outside the match and applicants who fail to honor the results of the Match (“no show”) would in-
crease the credibility of the current system.

At best, the NRMP should educate participants about their policies and the ethical recruitment of residents. NRMP poli-
cies currently allow communication between applicant and programs, and do not prohibit either an applicant or pro-
gram director from volunteering how each plans to rank the other. The NRMP reminds participants that statements should not be misinterpreted and that participants must un-
derstand that such statements are not binding and have no standing when final rank order lists are submitted. While the NRMP attempts to create a fair process, the Match and rank-order list is just a part of a larger recruiting system and many other factors are involved in the recruiting process (eg, program reputation, number of applicants, number of residency positions by specialty, location, and salaries). These factors would be better addressed by the sponsoring organi-
izations of the NRMP, as they are outside the jurisdiction of the Match.

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