physicians versus that of specialists may not be as significant a deterrent to selecting primary care careers as students might think.[1,3]

Another aspect of remuneration that medical students often overlook is the practice environment. Average gross incomes by subspecialties as reported in some national surveys[4] may be misleading since there is great variability in these estimates, which largely depend on practice location, type of practice, and the number of physicians in a given practice. Generally, these factors have substantial effects on malpractice insurance premiums, overhead costs, receipt of referrals, size of patient pool, and actual number of patients seen (productivity).[4] In our experience, medical students frequently do not consider these factors when choosing their specialties.

In spite of some recent decline in popularity and potential student misperceptions, the future outlook for family medicine and other primary care specialties remains bright. Anticipated changes from the recent national health care reform effort will likely transform the landscape of how several health services are provided and reimbursed. These changes may favor primary care by emphasizing prevention and chronic disease management over specialty procedures.

Even in this new environment, family medicine should remain proactive in its recruitment and training efforts. The profession should continue its ongoing efforts to improve outreach to medical students, especially early in their education; to support career development of young, talented junior faculty at academic institutions; and to encourage or provide incentives for successful senior faculty to mentor junior house staff.[1,3] These elements of professional development are key drivers of career growth and remain attributes that are critical for making family medicine a unique, viable career among the medical specialties.[3]

Positive progress has been made by several mission-driven institutions over the past several years. For example, at the Charles Drew University/UCLA Medical Education Program, 56% of the graduating class of 2009 matched in a primary care specialty residency program. Although it is difficult to determine which factors ultimately contributed to increased Match rates in primary care, there is hope that with continual efforts that focus on recruiting and training doctors for underserved communities, the pool of practicing primary care physicians will grow to match the needs of the US population.

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Comment

Obstacles to Rolling Out an EMR in a Residency

To the Editor:

Rolling out an electronic medical record (EMR) is a complicated event that requires extensive planning and the willingness to change plans quickly when things do not work as anticipated. EMRs have been rolled out in many clinics, but they are typically designed for traditional medical practices that do not have a residency. Our vendor had limited experience working with residency programs so we had to create workflows from scratch to handle some actions that are required in a residency.

The UAB-Huntsville campus rolled out an EMR in August 2006. Since the EMR was integrated into the practice, the volume of patients seen has increased, and billing levels have been raised. In addition to these benefits, the EMR also allows us to continue our mission of educating medical students and family medicine residents, but it did require a large amount of work on the front end. We had to develop specialized workflows to handle resident prescribing, note and encounter signing, and lab orders.

One of the most challenging obstacles we encountered stemmed from creating an e-prescribing system that satisfied regulations from various entities including the State Pharmacy Board, Medicare, and Medicaid. Our system was flexible enough to limit prescribing rights to residents based on drug class. We also had the ability to suppress their signatures on controlled drugs. This was accomplished by requiring prescription authorization by the attending physician and by disabling digital signatures. Another thing to keep in mind is that these regulations change frequently and need to be monitored by the EMR team.

Scheduled appointments are automatically linked to a charge statement and to an encounter note. Both must be signed separately. An attending signature is required on all charge encounters and notes. So, for resident patient appointments an attending must sign off on the note and charge encounter. We handled this workflow by creating signature authorization levels and using built-in tasking functionality.

Only an attending has the ability to finalize a note. An example on this workflow would be: a resident sees a patient and signs the note and charge encounter, then an automatic pop-up is generated to send a task to the appropriate attending physician. Because of this workflow, it was important to design an attending physician statement that would be easy to utilize for the attending physicians who oversee the residents. We created a separate section of each note type for this statement labeled "attending" and added three templates that included all elements that are required by federal regulations.

Order entry caused another obstacle as our residents are allowed to place lab and radiological orders, but ancillary facilities cannot charge under the resident's name. So, our challenge was to create a workflow to ensure that an attending is identified on all resident orders. This was mostly accomplished by continued education of residents, because the resident has to manually add the attending to the order. This workflow captures both physicians' names so the result is sent to the resident, and the order is billed under the attending.

The EMR at the UAB Huntsville Regional Medical Campus has been a major success. Income levels of the practice have increased because we see more patients, and we code charges at a higher rate. In general, the residents have adapted to the system well. It is likely that different EMRs will either need different workarounds or they may handle these workflows well. However, we believe that any residency in the market for the EMR should do their due diligence when it comes to resident workflows.

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International Health Electives: What Is the Impact on Primary Care Recruitment?

To the Editor:

As a family medicine resident, I often reflect on the significant life experiences that led me to primary care. As I've shared my journey toward family medicine with peers, a common theme often surfaces—the influential role of International Health Electives (IHE). With the current health care debate in Washington, DC, it is clear that recruiting primary care physicians within the United States remains challenging. Is it possible that medical student and resident experiences outside of the current health care system may paradoxically create more primary care doctors within it?

While interest in primary care continues to decline, interest in global health activities among medical students has increased.[1,2] Explanations for this phenomenon include the growing diversity of the US population and the increasing global interdependence of health.[3] Although a variety of individual factors contribute to a medical student's choice of specialty, one should not overlook the powerful effect of hands-on clinical rotations in underserved and/or international environments. These experiences provide tangible ways to improve one's history and physical exam skills and increase awareness of the important role of public health and proper patient education.[5] They also enhance the student's ability to consider the many cultural factors involved in patient care and lead to an increased interest in volunteerism.[3,5] By removing the student from the all too common domestic environment of immediate specialty consultations and state-of-the-art technologies, students come to appreciate the importance of holistic patient-centered care in resource-limited conditions.[6]

Following international experiences, students return with a deeper understanding of what we often superficially refer to in our daily clinics as "a patient's health." A 2003 study at the University of Massachusetts Medical School found that third-year medical students participating in IHEs reported a stronger desire to know about the living and working situation of their patients (P=.047), with 80% of participants eventually entering the primary care specialties of family medicine, pediatrics, and internal medicine, compared to 66% of all other graduates.[7] In a recent multi-institution Canadian study, students who ranked rural family medicine as their first choice were more likely to have undertaken volunteer work in developing nations than those choosing a specialty outside of primary care (P=.008).[8]

Further studies have confirmed the influential effects of IHEs on the primary care workforce. In a 15-year study involving the Yale internal medicine residency program, participants in IHEs were more likely than nonparticipants to switch from a planned career in a subspecialty field to general internal medicine (P=.02).[9] A 10-year University of Arizona study of 139 students participating in the international health course showed that the percentage of graduates entering family medicine and pediatrics were well above their nonparticipant peers and was shown to at least promote career choices for primary care.[10] This was reinforced by a 2004 study that followed participants of the International Health Fellowship Program. Surveys conducted 4–7 years later revealed that 74% of participants were practicing primary care, compared to 43% of US physicians, with more than half of those working within family medicine.[11]

Many individual factors influence the choice of a specialty; however, it appears there is an association between IHEs and choosing