

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 non-participant 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

a career in primary care. Whether one is involved in primary education or practicing clinically, this information should be a reminder of the potential impact of these activities. If more medical students and residents within the United States are encouraged to gain international experience in health care, could it decrease the shortage of primary care physicians?

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REFERENCES

1. Thompson MJ, Huntington MK, Hunt D, Pinsky LE, Brodie JJ. Educational effects of international health electives on US and Canadian medical students and residents: a literature review. *Acad Med* 2003;78:342-7.
2. Association of American Medical Colleges. 2007 Graduation questionnaire. www.aamc.org/data/gq. Accessed August 27, 2009.
3. Haq C, Rothenberg D, Gjerde C, et al. New world views: preparing physicians in training for global health work. *Fam Med* 2000;32(8):566-72.
4. Bissonette R, Route C. The educational effect of clinical rotations in nonindustrialized countries. *Fam Med* 1994;26(4):226-231.
5. Smith JK, Weaver DB. Capturing medical students' idealism. *Ann Fam Med* 2006;4:S32-S37.
6. Drain PK, Primack A, Hunt D, Fawzi WW, Holmes KK, Gardner P. Global health in medical education: a call for more training and opportunities. *Acad Med* 2007;82:226-30.
7. Godkin M, Savageau J. The effect of medical students' international experiences on attitudes toward serving underserved multicultural populations. *Fam Med* 2003;35(4):273-8.
8. Feldman K, Woloschuk W, Delva D, Brenneis F, Wright B, Scott I. The difference between medical students interested in rural family medicine versus urban family or specialty medicine. *Can J Rural Med* 2008;13:73-9.
9. Gupta AR, Wells CK, Horwitz RI, Bia FJ, Barry M. The international health program: the fifteen-year experience with Yale University's internal medicine residency program. *Am J Trop Med Hyg* 1999;61:1019-23.
10. Pust RE, Moher SP. A core curriculum for international health: evaluating ten years' experience at the University of Arizona. *Acad Med* 1992;67:90-4.
11. Ramsey AH, Haq C, Gjerde CL, Rothenberg D. Career influence of an international health experience during medical school. *Fam Med* 2004;36(6):412-6.

New Research

Effect of Weekly Fasting on Blood Lipid Levels

To the Editor:

Residency programs with research mentors are more likely to have high overall research productivity.¹ This letter presents clinical research done by faculty within a residency program modeling research behavior for residents. The work was based on a clinical question posed by a faculty member and discussed within the residency: How does abstaining from food and drink in a regular pattern impact blood lipids? Evidence suggests that fasting has favorable effects on blood lipid levels, based on research performed on subjects participating in fasting as a part of the Muslim observance of Ramadan.²⁻⁶ Based on a review of the literature, there are no studies on the physiological or biological effects of abstaining from food for ≥ 24 -hour periods on a regular basis. This form of fasting is practiced within some religious circles as a discipline of their faith, and there are weight loss diets that ascribe to such forms of fasting.

The specific aim of this prospective study was to measure lipid levels after regular fasting in healthy males ages 35-55 years. We hypothesized there would be favorable changes in lipid profiles, primarily increases in high density lipoprotein (HDL).

Methods

We enrolled a total of 10 Caucasian males ages 40-54 who agreed to fast for a 24-hour period once a week for 8 weeks. Blood pressure and weight were recorded and blood was drawn at the initial visit, after 4 weeks of fasting and after a total of 8 weeks of fasting. Nine of the subjects had at least one set of complete lab results. Desirable lipid values are HDL ≥ 40 mg/dL, HDL-2 sub-class (large, buoyant, most heart protective) >10 mg/dL,

and HDL-3 sub-class (small, dense, less protective) >30 mg/dL.

We used unidirectional *t* tests to determine if the group improved over time. Where appropriate (ie, LDL levels), we tested the null hypotheses that difference in scores were greater than or equal to zero. That is, improvement was defined as a negative score. When improvement was reflected by a positive difference (HDL levels), we tested the null hypotheses that scores were less than or equal to zero.

Results

The mean age of participants was 46 years, mean weight at the start of study was 200 pounds, and mean BMI was 28.23 (range 22.32-33.23). There was no significant change in weight or blood pressure during the study. On average, participants began the study with lipid panel results mainly within the normal range. The total HDL (34.7mg/dL \pm 3.7), HDL-2 (7.9mg/dL \pm 1.6), and HDL-3 (12.9mg/dL \pm 1.3) were not within desirable range at the start of the study. LDL, VLDL, and triglycerides did show decreases during the study, but changes did not reach statistical significance. HDL-2 levels showed statistically significant increases during the first 4-week study period ($P=.04$) but only a trend upward overall ($P=.07$). The final HDL-2 value was 10.2mg/dL (± 3.7), a level in the desirable range for heart health. Total HDL trended upward as well ($P=.06$), going up to 39.8mg/dL (± 8.2). Overall, HDL increased 15%, HDL-2 increased 28%, and HDL-3 increased 11%, whereas LDL decreased 9%, triglycerides decreased 5%, and Lp(a) decreased a dramatic 43%.

Discussion

The lack of more statistically significant results in this study is related to several factors, including the general good health of the subjects, small sample size, and the consequential influence that any single individual's condition