Challenges and Opportunities for Medical Education and Clinical Research in a Changing Healthcare Environment

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The current economic crisis in medicine has led to a restructuring of the way in which physicians utilize their time. Considerably more time is being spent on clinical services and less on teaching and clinical research. Multiple opportunities exist, however, for mentoring and clinical research in the current system. Academic behaviors can be integrated into the daily clinical experience. Scientific methodology can be used to address important questions that pertain to a large segment of their practice and, by so doing, lead to improved means of delivering healthcare and a reduction in healthcare expenditures. The inclusion of residents into such clinical research programs is to be encouraged. Should physicians continue to pay less and less attention to the maintenance of their professional diversity, future generations of physicians will be the recipients of a more dilute system of medical education.

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Today's economic crisis in medicine has significantly influenced the training of young physicians and led to a shift in emphasis away from traditional academic values. However, real opportunities for research and education exist during these difficult and changing times. While my personal comments on medical education do not bear the imprimatur of membership on subspecialty boards or national recognition in the field of graduate medical education, they are, nonetheless, based on a 25-year experience as a medical educator and a 6-year experience as the Alton Ochsner Medical Foundation's program director for Gastroenterology subspecialty training. From conversations with program directors in other medical subspecialties as well as directors of university-based gastrointestinal (GI) fellowship training programs, I can attest to the fact that my concerns are not peculiar to my field or reflective of the local situation at Ochsner. Instead, the issues are symptomatic of a disturbing and broadly reaching national trend likely to have an even more profound impact on medical education and clinical research in the future if left unchallenged.

About the Author

Prior to becoming the Section Head of Gastroenterology and Hepatology at Ochsner Clinic in 1994, I was a tenured professor of medicine in the Gastroenterology Division of Washington University in St. Louis, Missouri. Upon graduating from the Washington University GI fellowship program, I had secured a faculty position at the affiliated Veterans Affairs Medical Center (VAMC). This position provided an opportunity to teach medical students, residents, and GI fellows as they rotated in from the university medical center. My years spent at the VAMC provided a high level of independence and freedom to develop my clinical research career in the area of viral hepatitis. While caring for a large number of patients with chronic hepatitis B and C in the mid to late 1970s, I was able to study the epidemiology and prevention of these disorders. When effective antiviral agents became available for investigational use in the early 1980s, I was in an excellent position to become one of a very small number of clinical investigators working in the area of antiviral treatment.

In late 1993, I decided to relocate to a setting where I had not only greatly improved clinical facilities but also growth opportunities for my research program and control over the direction of the GI graduate program. In consideration of the relatively high prevalence of hepatitis C in the general population, the prospect of working in a managed care environment did not bother me but, in fact, reassured me that I would be exposed to a more than adequate base of patients to successfully continue my clinical research studies.

My time at Washington University School of Medicine gave me a broad clinical exposure and allowed me to develop the instincts necessary for training subspecialty residents. It did not provide me, however, with the skills necessary to deal with the rather profound changes in the medical marketplace that were already underway prior to my arrival at Ochsner. Instead, my career at the VAMC buffered me from the reality of what was occurring at a regional and national level with regard to increasing penetration of managed care, declining reimbursements, and changes in payer mix. Also, because the director at the main campus had largely overseen program criteria, I was little prepared for the changing standards in subspecialty residency training being put forth by the Accreditation Council of Graduate Medical Education (ACGME).

By the mid 1980s, a larger proportion of our GI residency graduates were entering into private practice. Even residents who participated in National Institutes of Health (NIH) training grants did not consistently choose academic career pathways after leaving the program. Although the cost of medical education was a potential factor (*vide infra*), my discussions with a number of residents led me to believe that this was not the only or even the predominant factor in their decisions. Instead, residents, particularly those who had not been exposed to strong mentors, were often concerned with the difficulties in obtaining grant money. Also, without the reassurance of someone who had been through the process, they seemed to lack confidence in their abilities to carry ideas to successful completion. When I reflected on my own academic career, this was easily understood. I had little inkling at the time that the changing economic forces in medicine would make the need for academic role models an even more critical issue in the future.

Expansion of Opportunities for NIH Funding and Decline in Academic Career Pathways

It is a great paradox that the gap between funding opportunities for junior level physician-scientists and the accessibility to academic physician role models has widened in recent times. During the past 15 years, NIH funding for investigator initiated biomedical research, incorporating basic science and disease- and patient-oriented research, has steadily grown by 85%—from $4.2 billion in 1983 to $7.8 billion in 1998—and has led to the expansion of research opportunities for many scientists (1). Sadly, while research activity in the biomedical sciences has increased, the level of participation of physician-scientists has not kept pace with the overall growth in funding opportunities. Data collected by the American Medical Association on the major professional activity of physicians show a decrease in the number of U.S. physicians reporting research as their primary activity (Figure 1). The number of physicians reporting research as their primary career activity has fallen 6% over the last 17 years while those reporting patient care as their principal career activity has nearly doubled. The number of MD faculty members in basic science departments of medical schools has also declined, and while there has been a large increase in the number of MDs in clinical departments, this has not kept pace with the larger number of non-physicians such as PhDs in these departments.

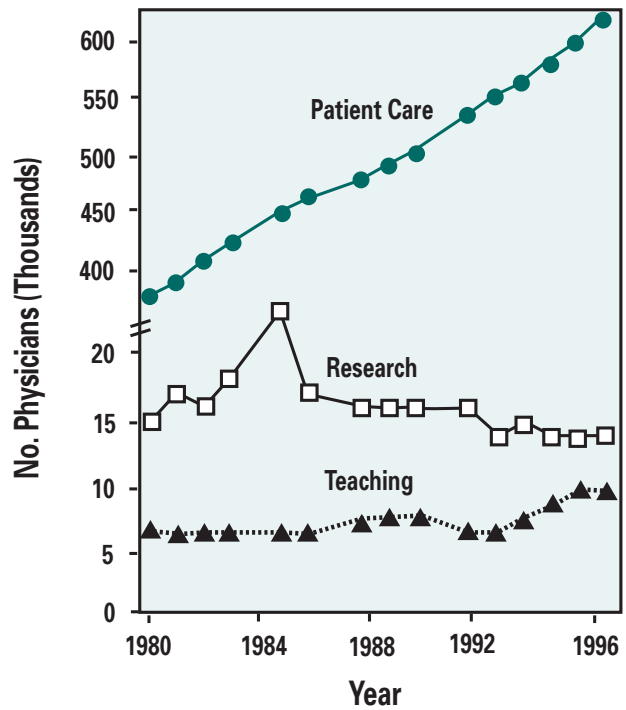

Figure 1. U.S. physicians by major professional activity. Patient care includes office-based practice and hospital-based practice. In addition to full-time staff, the data also reflect the primary activity of residents and clinical fellows. Data provided by the Department of Physician Data Services, Division of Survey and Data Resources, American Medical Association. [Reprinted from The FASEB Journal 2000; 14:221-230 (1) with permission from the Federation of American Societies for Experimental Biology.]

As indicated previously, one explanation that has been given for the decline in research pathways among young physicians is the tremendous debt incurred during medical school. In 1998, approximately half of all graduates from U.S. medical schools owed more than $75,000 (1). Large medical school debt and declining mentorship contribute significantly to the decisions of medical students and residents about career pathways. In meeting these challenges, the NIH has sponsored an increasing number of K awards, which are intended as Mentored Clinical Scientist Development awards. An increasing number of applications has not compensated for the absolute decrease in MDs supported by T32 (resident training grants) and F32 fellowship awards during the same period.

Anecdotal evidence suggests that the financial constraints brought on by managed care and other external financial pressures on academic health centers are forcing many physician-scientists to abandon research. Data suggest that there is a correlation between the market penetration of managed care and a decline in NIH awards to academic health centers (2). For those physician-scientists who are also involved in patient care, increasing clinical demands can lead to less time for research and grant writing. In addition, academically based physician-scientists usually earn less than physicians in full-time private practice. If current trends continue, the scientific contributions of physician-scientists and their mentoring of future medical researchers will be seriously threatened.

Impact of a Changing Medical Economy on the Physician's Role as Educator

There can be little doubt that the current economic crisis in medicine poses significant threats to the way we train our young physicians and impacts the way we encourage careers in academic medicine (3). Many staff physicians in teaching institutions have dramatically changed their priorities and spend less time actively engaged in teaching and research than ever before. A major factor behind this shift is declining reimbursements by governmental and non-governmental payers. A discussion of the changes in healthcare reimbursement are beyond the scope of this article, but suffice it to say that high clinical throughput has become extremely important to many physicians as a means of providing financial stability for their departments and, often, financial security for themselves.

Today, physicians seem more willing to conclude that "education and research do not pay" and time spent in these areas detracts from reaching institutionally derived financial targets. While a proportion of physicians' time spent in the education of residents is subsidized by the Health Care Financing Administration (HCFA) in the form of direct or indirect graduate medical payments to teaching hospitals and research foundations, declining reimbursements have recently forced such institutions to take a progressively greater share of physician salary expenses out of operational revenues. This situation is projected to worsen over the next 3-5 years as further changes in the payment structure are phased in (4). The idea that research, while having an accepted value, should be done on one's own time rather than built into the normal operating hours has become far more prevalent than ever before.

A major problem that results from this change in physician priorities is that senior physicians can no longer effectively serve as mentors and role models when medical residents are making critical career decisions. While this may be of great concern to medical educators and is a frequent topic of discussion among academically based physicians, relatively little has been accomplished at a national level to increase federal payments for residency training. Such a step would help to ensure that future physicians are not the recipients of a narrowly focused, practice-orientated system of medical education. The lack of counter-movement by physicians may reflect the fact that they do not have or see themselves as having the time for collective actions and, when danger signals are seen—even those that threaten their value system—they often expect that society and legislators will innately understand and support their agenda (5). Progress in this area, however, demands that physicians and their allied representatives become actively engaged in working toward the maintenance of high standards in research and education.

It is important to realize that while the shift away from the physician's role as teacher and researcher has occurred contemporaneously with the growth of managed care, this is not the only element driving the shift to technical rather than academic pursuits. The problem also extends from unprecedented technological advances over the past 10-20 years, which have led to an over-expansion of highly complex and costly services. This has often led to intense regional competition between medical institutions in the same geographic locale. Medical centers may acquire new technologies and provide increasingly complex services in an attempt to stay ahead financially rather than to fulfill a clear healthcare need within their communities. In fact, new technologies are sometimes embraced before research has definitively established their value. Even when the technology has been shown to have benefit, research into the appropriate utilization of these services, although needed, is often neglected.

Impact on the Content of Training Programs

Conflicts can arise when financial performance rather than academic performance dictates the content of subspecialty training. I have witnessed firsthand the concern registered by residency program directors forced to place too heavy an emphasis on procedural as opposed to cognitive skills. When confronted, however, few program directors seem willing to change the curriculum because it is likely to have a negative effect on the financial performance of their section or may lead to a change in the quantity or quality of applicants.

It is ironic that the excessive emphasis on procedural skills is also what may be keeping some of our better internal medicine graduates from choosing a career in Gastroenterology. A recent survey of nearly 600 Internal Medicine graduates from 61 university medical centers found that the major reasons for residents not entering the field of Gastroenterology were a perception of an inordinate concentration on procedural skills and lack of academic opportunities (6). Such studies indicate that concerted action is needed to develop better ways of informing Internal Medicine residents of evolving disease concepts and academic opportunities. A light at the end of the tunnel has emerged from recent refinements in the standards for GI residency training as established by the ACGME and the Federated Societies of Gastroenterology and Hepatology (7). During the 3-year curriculum for GI subspecialty training, at least 6 months of dedicated time for scholarly activity is required, and programs that fail to meet these standards for research are theoretically in danger of losing accreditation status. The ACGME requires a program to be in "substantial" rather than "absolute" compliance with the guidelines, however, and there are enough interpretations of academic behaviors and cognitive training that strict adherence to a minimal level of academic performance among the various programs may not be achievable.

The Need to Maintain Professional Diversity

Excessive emphasis on "production" and "net revenues" can hamper physician diversity as practitioner, educator, and clinical scientist. It is a sad irony that in the past many have chosen the profession of medicine for its potential for diverse activity. In today's medical economy, the physician can successfully deal with this dilemma by finding educational and research opportunities within his or her clinical practice experiences, i.e. by integration of all three aspects of physician behavior. It is no longer appropriate or beneficial to view these as separate or mutually exclusive. The practicing physician with a focused interest in a particular disease is often in a far better position to determine the critical areas in practice management and how carefully designed evidence-based studies can answer clinically relevant questions. Publication is a vehicle for translating the findings so that others may judge their significance, but clinical research can also help to define the way in which a physician can better manage a disorder and lead to improved system efficiencies.

The developing field of health outcomes research has been driven by the rising cost of healthcare and declining reimbursements (8). It is no accident that the progressive penetration of managed care in many markets in the United States has coincided with the study of cost-effectiveness and quality of life, areas given little attention in the 1960s and 1970s (9). Now more than ever before, physicians need to consider not only the cost of care, but whether better outcomes are achievable with a reduced expenditure of healthcare dollars. Opportunities to obtain funding in this area are becoming increasingly available (for example, through the Agency for Health Care Policy and Research, private research foundations such as the Robert Wood Johnson Foundation, and private industry), but sources of funding still lag far behind the true need. It should also be kept in mind that important questions can still be answered without the requirement of multicenter trials and large research budgets. The practicing physician need only systematically address clinically important questions arising from his or her daily experiences (Table 1). Ideally, the physician should strive to encourage residents to assist in the design as well as the implementation of the study.

An example of this within my own subspecialty may help clarify this idea. Upper GI bleeding is common in the elderly and until very recently had routinely been handled with hospital-based assessments and treatments. Starting in 1995, my colleagues and I began to evaluate whether unnecessary hospitalizations could be prevented by the application of urgent upper endoscopy to assess whether lesions were present that could be considered high-risk for rebleeding. A decision to admit the patient to the short stay unit, medical floor, or intensive care unit was made according to predefined comorbidity criteria and the hemodynamic stability of the patient. Using this method, patients who were felt not to be in need of hospitalization were carefully followed by a nurse through frequent telephone assessments and repeat endoscopy was done as clinically indicated. The results of this study were startling: our approach in managing these patients allowed us to safely treat 24% as outpatients, and remarkably none of these individuals had evidence for recurrent bleeding (10). The average cost savings was in excess of $1600 per hospital admission. This study also allowed effective incorporation of our subspecialty residents who were involved from the very beginning in the design and conduct of the study, and the lessons learned were extremely pertinent to their future management of a relatively common clinical situation.

Table 1. Suggested formats for practice management oriented clinical studies.

What?
Ask important questions
Who?
That pertain to a large enough segment of your practice to show statistical validity
How?
By establishing diagnosis and treatment plans that have the potential to improve the quality of care
How long?
Flexible, but avoid long-term protocols*
Other factors
Involve residents and physician extenders in the planning as well as implementation
Aim to disseminate your results**

* If too long, may be affected by changes in insurers, changes in cost structure, and potential for obsolescence
** Publication in journals and presentations at national meetings or at the very least institutional periodicals and newsletters to colleagues

Summary

Today's economic crisis in medicine has changed how physicians at teaching institutions utilize their time. Physician diversity has suffered, and the greater time spent with clinical service commitments has taken a toll on the time for research and education. This shift in physician priorities has occurred at a time when fewer young physicians are choosing academic career pathways, suggesting that the two events are linked. This is likely to have a profound effect on the way that the next generation of physicians view teaching and research, and the matter needs to be taken very seriously.

Physician educators are often quick to blame managed care and changing reimbursement as the cause for this deviation from academic behaviors, but many of these same physicians have failed to examine the opportunities that the changing medical environment provides for clinical studies and teaching. Physicians have become extremely focused on the generation of clinical revenues, but much can also be gained from attention to the study of how our treatments affect patient outcomes and how healthcare resources can be more appropriately utilized. Never before has the need been as great for such studies. Also, physicians need to be flexible with their time so that mentorial relationships can be developed before critical career decisions are made by residents. Whenever possible, residents and junior level colleagues should be actively involved in clinically based research programs.

If steps are not taken to reverse the current trend away from research and education, the physicians of tomorrow are likely to be technically proficient, but, as the recipients of a more narrow medical education, they are also likely to remain intellectually unchallenged.

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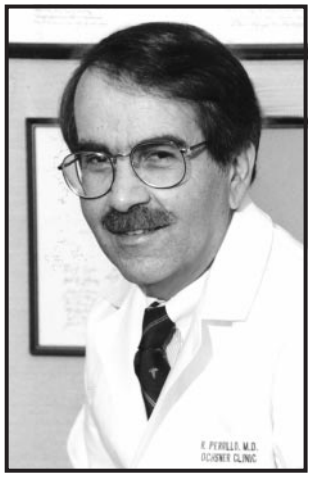

Dr. Perrillo is The Ochsner Journal's Editor-in-Chief.

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