

SPECIAL COMMUNICATION

Preparing the Personal Physician for Practice (P⁴): Meeting the Needs of Patients: Redesign of Residency Training in Family Medicine

Michael E. Whitcomb, MD

Family medicine stands at a critical point in its history. To achieve a place of enhanced prominence within American medicine, the discipline must acknowledge the fundamental changes that have occurred in the country's health care system in recent decades and discard its historical attachment to the fundamental beliefs that led to the establishment of the specialty almost 40 years ago. If the discipline is to serve the most critical needs of the American public, family medicine residency programs must be redesigned to train family physicians who will be experts in the ambulatory care of patients with chronic disease. To accomplish this, family medicine residency programs should provide residents in training with a more concentrated experience in the care of such patients. The enhanced focus of training on education for chronic illness care can be accomplished within a 2-year training period by eliminating training requirements that are no longer relevant to the practice of family medicine in most communities. (J Am Board Fam Med 2007;20:356–364.)

Preface

I was more than a little surprised when Perry Pugno contacted me to ask whether I would be willing to write a paper expressing my views on how family medicine residencies should be redesigned so that the program graduates would be better prepared to help meet the needs of the American public for quality health care. I jumped at the opportunity and got back to Perry almost immediately to let him know that I would be happy to share my views on the subject and was honored to be asked to do so. After reflecting a bit on the task at hand, I began to wonder whether fate had some-

how preordained my involvement in this effort. Let me explain.

When I arrived at the University of Missouri-Columbia (UMC) as dean in June 1986, one of the first department chairs to make an appointment to see me was Jack Colwill, the chair of the Department of Family and Community Medicine (a fellow internist, I should note). Jack sought me out to make sure he had a chance to begin my education about the importance of family medicine in mid-Missouri and, of course, to make sure that I was properly focused on a set of issues that directly affected the future of his department. During the 18 months that I served as dean at UMC, Jack and I struggled through some very challenging problems, while at the same time establishing a friendship that fortunately for me continues to this day.

In January 1988, I left UMC to become dean at the University of Washington. Once again, one of the first department chairs to appear in my office was John Geyman, chair of the family medicine department there. I suspect that Jack Colwill had alerted John to the fact that I still needed a lot of education about family medicine and that he should get in the door before all the other chairs came asking me to focus my attention on their favorite projects. Unlike Jack, who was seeking new office

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Corresponding author: Michael E. Whitcomb, MD, Association of American Medical Colleges, 2450 N. Street, NW, Washington, DC 20037-1131 (E-mail: mwhitcomb@aamc.org).

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and clinic space for his department, John came bearing a gift—a copy of the second edition of his classic book on family practice (a book that is still in my personal library). So, I have had the interesting experience of having assumed deanships at 2 institutions where the family medicine departments were among the premier academic departments in the country and where, parenthetically, the interim deans were family physicians.

I truly believe that those experiences did have an effect on me. Before going to Missouri, I had had very little experience with a mature, academically oriented family medicine department, and perhaps more importantly, had very little insight into what family medicine was all about. Jack would almost certainly recount that I just didn't get it! Fair enough, but what would one expect of an academically oriented internist who had deviated into a subspecialty (pulmonary/critical care medicine)? But over the years, I have had many opportunities to work closely on various issues with senior folks in the field like Jack and John, and Roger Rosenblatt at University of Washington, and with some of the younger leaders—people such as Kevin Grumbach, Lloyd Michener, and Howard Rabowitz. They have all continued my education.

Given this, I am pretty comfortable offering some of my thoughts about residency redesign to the steering committee and perhaps to the family medicine community at large. I come at the task as an outsider of sorts, one who has been deeply immersed in medical education issues from a national perspective for the past dozen years, and one who has had the opportunity to view from a national pedestal the way that our approaches for educating doctors have failed in some ways to serve the interests of the American public. I want to acknowledge at the outset that I am pretty sure that some of what I have to say will not be viewed kindly by the family medicine community. My intent here is not simply to be provocative (but why write the paper if it isn't provocative). My intent is to contribute in constructive ways to the current dialogue about family medicine residency redesign by being candid about a number of issues that I think need to be more seriously considered by the family medicine community. If I miss my mark, I ask that you recognize that any errors I make are—to quote Jesse Jackson—"errors of the head, and not of the heart."

And so, here goes.

Introduction

It is fair to date the onset of family medicine as a recognized specialty of medicine to 1969, the year the American Board of Family Practice was established. It is extremely interesting to note that many of the issues discussed during the decade leading up to that sentinel event about the meaning of family practice and why a new specialty was even needed are to varying degrees among the critical issues under discussion within the family medicine community today. But of course, the issues are being approached today in ways that are quite different from how they were approached at that time. The discussions of the late 1950s and early 1960s focused on the need for the establishment of a new medical specialty devoted to providing "primary care" to people in the society, whereas the discussions ongoing today focus on the future of the specialty that was established for that purpose. In my mind, this is a critical distinction that requires a bit of explanation, and to do that, it is necessary to review a bit of history.

In the period leading up to the establishment of family practice as a distinct clinical specialty, the primary issue under consideration both within and outside the profession was who—that is, which of the evolving specialties—was going to accept the responsibility to ensure that people in our society would have access to physicians who would take responsibility for providing continuous care over time, either by providing needed services personally or by coordinating care to be provided by other specialists. The impetus for undertaking these discussions was the growing recognition that general practice, as it had existed in the country for decades, was no longer an appropriate approach for providing this care, largely because general practitioners had not been adequately educated and prepared for the scope of practice arising from the advances of modern medicine. Efforts to address this issue by establishing general practice residency programs in the late 1950s and early 1960s failed.

It is critically important to understand that although the discussions of this issue—that is, the future of general practice—were organized from within the profession (primarily by the American Medical Association), the discussions themselves were not limited to people drawn from the profession. For example, one of the most important, if not the most important, of the reports leading to the

development of family practice as a distinct specialty was the 1966 Millis Report (The Graduate Education of Physicians. The Report of the Citizens Commission on Graduate Medical Education). It is noteworthy that only 3 of the 11 members of the commission were physicians. The other 8 commission members were people drawn largely from the higher education community (including 2 university presidents). The reason the American Medical Association structured the commission in this way was to ensure that the commission focused its attention on deciding what would be best for society.

I make this point because the current discussion is almost entirely limited to people drawn from within the specialty. For example, the Future of Family Medicine Project (FFM) Leadership Committee was composed almost entirely of physicians drawn from the family medicine community (largely the academic community). In other words, the current examination of the discipline is very much an introspective one, whereas the founding of the discipline was based on the views of people looking at the issues from a societal perspective. It is inevitable, therefore, that much of the focus of the current discussion is on what would be best for family medicine as a specialty as opposed to what would be best for the American public. The assumption is made, of course, that what would be best for the specialty is also what would be best for the public.

By approaching the issue in this way, the discussions about the future training of family physicians reflect a strong desire to retain certain aspects of the current approach to training that are deeply engrained by tradition and culture in the design of existing programs, and to adhere to some of the core values of the family practice community. For example, an undercurrent persists in the discussions within the specialty that its purpose is to somehow transform the country's health care system. As admirable as this goal may be, it truly borders on the naïve. Forty years of experience should be sufficient to convince the leaders within the field that reform of the ways that health care is organized, financed, and delivered is not going to come from within the specialty, no matter how well intentioned those goals may be. So in my mind, it is important to put that goal aside and focus on the true challenge facing the specialty—that is, how to educate and

train family physicians who can provide high-quality care within the realities of the current system.

I also think it is important to emphasize before getting into the specifics of residency redesign that the slogans and jargon that tend to dominate much of the discussion about what needs to be done to make family medicine training more effective in preparing family physicians to meet the needs of their patients must be discarded. To quote from the FFM report, "The development of family medicine and its identity as a discipline has been grounded in the core values of continuing, comprehensive, compassionate, and personal care provided within the context of family and community." But with all due respect, what does this mean in practical terms? Is there any evidence that these values translate into the way that the current practitioners practice? And how should these core values guide the training of the next generation of family physicians? The FFM leadership has indicated that one of the challenges facing the family medicine community is to "articulate these core values in a sufficiently distinctive way so they are recognized by the public as central to what patients seek from their personal physician." They acknowledge that the community has not done an adequate job of communicating these values to the public. I would suggest that they have little meaning for the public and, importantly, that they unnecessarily aggravate professional colleagues in other clinical specialties who believe that they also provide comprehensive, compassionate, and personal care.

By staking out these core values as what defines the specialty, the community adheres to the notion that the area of expertise of family physicians is to be found in an approach to care that emphasizes the process, not necessarily the content. This concept is deeply rooted in the founding of the specialty. In the famous Willard Report (Meeting the Challenge of Family Practice. The Report of the Ad Hoc Committee on Education for Family Practice of the Council of Medical Education of the American Medical Association), the committee states that the "newly minted" term, family practice, refers to "the function of the practitioner," not the content of his practice. (It should be noted, parenthetically, that family practice was recommended as the name of the specialty almost by default. The terms "personal physician" and "primary physician" were considered seriously by the various committees. And it is worth noting that the Millis Commission defined

the need they were trying to fill as providing physicians who would provide comprehensive care.) In following this approach, insufficient attention is paid to the specifics of the scope of services to be provided by the programs' graduates and the nature of the training required for them to meet those responsibilities. One has to search high and low to find any description of a realistic approach for defining prospectively the nature of the services that a family physician should be prepared to provide.

As a matter of first principle, all residency training should be designed to ensure that the graduates of the programs are well prepared to provide high-quality care within the scope of practice they are likely to encounter upon entering practice. I suggest, therefore, that discussions about the redesign of family medicine residencies should be guided first and foremost by a clear understanding of the scope of practice that the average family physician might be expected to provide in the future and how that care might be provided. In approaching the issue in this way, it is essential that the discussion not be dominated by "the exception" or by "unrealistic desires" but that it be informed by an acknowledgment of the current practice environment and how the environment is likely to evolve in the near future. And I believe that one of the goals is to adopt as a guiding principle that future family physicians will have expertise in certain content areas, and that although the process by which that expert care is provided is important, it is of secondary importance.

Meeting the Needs of Patients: The Challenges Facing Family Medicine

There is no question that providing high-quality care to patients with chronic illness is the most important challenge facing American medicine and that the degree to which the profession is successful in meeting this challenge will depend on the quality of care provided in ambulatory care settings. The challenge of providing care to those with chronic illness is staggering. There are approximately 125 million Americans afflicted with one or more chronic diseases, and the number is projected to increase progressively in the decades ahead. It is also noteworthy that 75% of all health care expenditures go to the care of those patients. At present, 85% of Medicare beneficiaries have one or more chronic diseases, and that number will increase progressively also.

In considering the burden of chronic disease in our society, it is important not to conclude that this is a problem of the geriatric age group that requires the training of more geriatricians. In absolute numbers, almost three-fourths of those with chronic disease fall into the working age population of Americans between 20 to 64 years of age, and an increasing number of those between 0 to 19 have at least one chronic disease. And finally, it is important to understand that patients with chronic disease account for almost three-quarters of physicians' visits in this country. As a result, the challenge of caring for patients with chronic illness presents an extraordinary opportunity for family medicine—an opportunity that is not as readily available to the other patient care specialties of medicine for the simple reason that the focus of care is on the ambulatory care setting.

Given the reality of the extraordinary challenge facing American medicine, it seems clear to me that family physicians need to become experts in the ambulatory care of patients with chronic illness across all age groups. This population, above all others, needs to be cared for by physicians who will provide "continuing, coordinated, compassionate, and personal care." And the care of these patients requires insight into the impact that their illnesses have on their families and on the communities within which they live. In sum, these are the core values of family medicine as presently articulated. But as noted above, the training of physicians to undertake these challenges must begin with a focus on achieving expertise in the care of the patients, not on the process by which care will be provided.

At present, the majority of the routine care provided patients with chronic illness is provided by family physicians, general internists, and subspecialty internists. Despite this, in none of the disciplines are the residency programs designed properly to train future practitioners to care for those patients. By embarking on the FFM project, family medicine has acknowledged that its training programs need to be redesigned, but the guidelines for that effort are not focused clearly on patients with chronic illness. It is also worth noting that the internal medicine community has been engaged in a similar, but less well organized, residency redesign effort for the past 3 plus years and that the pediatric community has recently begun a similar initiative. These initiatives present opportunities only if those involved are willing to discard some of

training approaches based on tradition to embrace new approaches specifically designed to meet the needs of specific patient populations. At issue, of course, is whether the family medicine community is willing to do this. In a very real sense, family medicine has the greatest opportunity of achieving success, largely because it has in place an infrastructure for training in ambulatory care settings that does not exist for internal medicine.

Before proceeding, it is important to recognize that some family medicine residents, albeit a small number, may aspire to careers that will find them practicing in small or rural communities. Those residents will not be well served by training in programs in which the focus is so clearly on the care of patients with chronic illness. The dilemma the community will face is that the career paths of those people will be more in tune with how those who adhere strongly to a traditional view of the specialty continue to view the future. Thus, they will argue that training should be designed primarily to serve this segment of the trainees—those inclined to a traditional family medicine practice—and not the great majority of residents who will choose to practice in major metropolitan communities where they will provide a much narrower scope of services.

Family Medicine Residency Redesign

As noted above, I believe the family medicine community should adopt as a matter of first principle that family physicians will possess true expertise in the management and care of patients with chronic illness. Before describing the educational experiences that I believe should become core elements of training in the discipline, I want to re-emphasize a point made above: family medicine is better situated than the other specialties that now care for patients with chronic illness (primarily internal medicine) to achieve this goal for the simple reason that the bulk of the training required to achieve this goal must be provided in the ambulatory care sites where such patients receive the great majority of their care. Family medicine can achieve this by creating a clearer focus for the ambulatory training now provided by residency programs. In contrast, internal medicine will have to make very dramatic changes in the design of their training programs—changes that will have a great impact on how patients currently hospitalized on the inpatient med-

icine services of major teaching hospitals will be cared for.

The following provides a general outline of the major redesign elements that should be incorporated into family medicine residency training.

Core Experience

Residents will provide care to a panel of patients with chronic illness throughout the duration of their training. The panel must be selected by the program faculty to include a number of patients with each of the most common of the chronic diseases (hypertension, diabetes, asthma, coronary artery disease, depression, arthritis, etc). In addition to serving as the patients' personal physician in the ambulatory setting, the residents should follow (and accompany whenever possible) their patients to referral visits with specialists in other disciplines, visit their patients while hospitalized regardless of the hospital to which they have been admitted, make periodic home visits, and visit their patients if admitted for hospice or nursing home care. The residents should also be expected to learn about the services available to their patients in their communities.

Year One

Residents will be assigned their chronic illness patient panels at the very beginning of the residency. The first year of training should consist of a year of uninterrupted ambulatory care experience. The residents should be assigned full time to an ambulatory setting where they would focus their efforts on the care of their patient panels while also seeing new patients seeking care at the site. To provide clinical experiences that would model the importance of team care, the residency program should seek an affiliation with a graduate nursing program (new doctoral programs preferred) to create clinical experiences that would allow residents and nurse practitioner candidates to work together (along with other health professionals) in providing care to some portion of the residents' patient panels. The residents should create electronic portfolios of a select group of their patients as a way of identifying and highlighting certain challenging clinical situations in each disease category.

The program should conduct throughout the year regularly scheduled chronic disease seminar sessions that would focus on topics specifically related to the care of patients with chronic illness.

These seminars should dominate the nonexperiential portion of the first-year curriculum. The sessions should be conducted as graduate-level seminars (advance readings, etc) and be led by people with expertise in the topics under discussion. The following topics should be included in the series: communication skills; cultural sensitivity principles; advanced therapeutics; analysis of evidence-based medicine concepts, to include review of relevant Cochrane resources; in-depth coverage of mental health/behavioral disorders; and the fundamentals of the country's public health and health care delivery systems.

Year Two

The second year of the program should be organized as an integrated clinical experience. The residents should rotate through other sites where they will encounter patients with acute episodic illnesses that have led them to seek care, as well as other patients with chronic illness. Rotations should occur in the following sites: emergency department, public health clinic/community health center, nursing home, hospice, and specialized practices focusing on medical gynecology, rheumatology, oncology, neurology, and cardiology. The experiences should be scheduled throughout the year (not assigned as block rotations) so that residents will have the opportunity to see some patients on a recurring basis (subspecialty continuity experiences) and experience clinical encounters in settings as their knowledge and understanding of practice matures throughout the year. During the year, the residents should have regular access to the program's ambulatory practice site to be able to schedule visits with the patients in their panels at times convenient for the patients.

Year Three

The third year should be designed as a fellowship or practicum year to allow residents to spend a concentrated period of time acquiring knowledge and skills specific to their career plans. For example, the year could be structured to serve the needs of residents who plan to enter practice in a rural or small community, because they will be responsible for a scope of practice much broader than that which will be experienced by residents entering practice in large metropolitan areas. To the degree possible, the year's experiences should be tailored to the specific practice site where the resident in-

tends to enter practice, perhaps as a practicum experience at that site (a la the existing rural tracks). For example, residents who will be entering a group practice in a metropolitan community should be allowed to structure the year as a practicum experience with the group. Residents who wish to gain more experience in certain disciplines (eg, intensive care, surgical care, obstetrics, etc) could accomplish that during a more structured third year.

It should be apparent that I do not believe that family medicine should attempt to retain its traditional tie to the broad scope of practice that characterized general practice or consider the process of care as its area of clinical expertise. In my view, family medicine should become identified as the specialty that provides expertise in the care of patients with chronic illness. This approach is perfectly consistent with the original concept of family practice set forth by the Millis Commission. The Commission distinguished the new specialty from general practice by indicating that its practitioners might focus their practice entirely on the scope of practice of only one, or maybe 2, of the disciplines (internal medicine, pediatrics, psychiatry, medical gynecology, and preventive medicine) that contribute to the field of family practice. Given the changes that have occurred in the ways medicine is practiced, it is unreasonable to believe that a physician can be adequately trained to care for patients across a number of different clinical domains. And it is particularly unreasonable to believe that the average family medicine physician will in the future provide obstetrical, surgical, or critical care (except for those who establish practice in rural communities). Given that, it makes no sense to require all residents to complete experiences in those disciplines as a requirement for completing a residency program and establishing eligibility for certification in the discipline.

Accordingly, I suggest that the following requirements now mandated by the Family Medicine Residency Review Committee (RRC) and approved by the Board of the Accreditation Council for Graduate Medical Education (ACGME) be modified:

The following requirements are woefully inadequate: only 2 nursing home patients over 24 months, only 2 home visits during the residency, and a minimum of only 150 ambulatory visits in the first year.

- The requirement that upon completion of the program, residents must be competent to provide hospital care is meaningless without describing the kinds of patients to be cared for and the scope of responsibility of the family physician. The requirement for 6 months of inpatient adult medicine care is excessive. It is also meaningless unless the specific patient populations to be cared for and the level of competence the resident is expected to achieve are defined.
- The requirement for residents to manage 15 critically ill patients during their residencies is extreme tokenism: there is no way that such a limited experience can qualify a resident to provide critical care in the current patient care environment.
- The requirements related to obstetrical care should be eliminated as part of the core program for all residents. Residents who plan to enter practice in rural communities should be required to complete obstetrical training if they plan to include obstetrical care in their practices. The training should be included in a year-three rural practice fellowship.
- All general surgery experience should be organized as ambulatory experiences. Given the advances in surgical care, there is no longer any reason why the average family medicine resident should spend time on a surgical inpatient unit.
- All the references to hours or visits in the requirements should be eliminated and replaced by definitions of specific kinds of patient encounters.
- Residents should not be required to complete 6 months of electives. The fact that the electives are not defined as requirements in specific domains of medicine means that they are not considered part of the core training of the average family physician. Accordingly, residents should not be required to spend time in training to complete them. If residents wish to experience electives (noncore experiences) in a variety of disciplines of particular interest to them, they should remain in training for a third year to do so.

A careful analysis of the recommended changes outlined in this section indicates that the core curriculum for family medicine residency programs—the experiences that all residents should be required to complete—can be completed in 24 months. There is no rationale for the average resident to

remain in training for a longer period of time. I realize that this recommendation will not be viewed favorably by the family medicine community, but it is worth noting that it would align residency training with what is done in Canada (2 years required training plus fellowships to correspond with expected scope of future practice), where the scope of practice for most family physicians does not include obstetrics and surgical and critical care medicine.

Special Challenges

The focus of this paper is on the need for redesign of residency training in family medicine and on the kinds of changes that should be considered by the family medicine community. However, in considering the specifics of residency redesign, it is important to be aware of the fact that family medicine training programs face several special challenges that relate to the nature of the educational environment that residents train in. I mention them in passing simply for the purpose of indicating that there are serious concerns about residency training in family medicine from outside the family medicine community.

First, because of the nature of the discipline, family medicine has generally not been able to establish itself fully with the academic medicine community. The other specialties of medicine are rightfully able to claim expertise in a specific domain of medicine, and by virtue of that, are able to conduct an array of scholarly studies relevant to that domain. By doing so, faculty members in academic departments are able to acquire solid academic credentials that are widely respected within the academic community as a whole. Because the academic credentials of the faculty are the currency that builds an institution's reputation, family medicine departments are not viewed as being as critical to the prestige of their institutions as are other departments that make highly visible contributions to the institutions' research and clinical care missions. There are clearly exceptions to this, but they tend to be far and few between. Indeed, the great majority of family medicine residency programs are not based in traditional academic medical centers.

Second, family medicine is progressively becoming a specialty in which the majority of new practitioners will not be graduates of US allopathic medical schools (USMGs). In 2004, approximately 50% of the residents in training in family medicine

programs were USMGs. Approximately 13% of the residents were graduates of osteopathic medical schools in the US, whereas approximately 35% were graduates of non-US medical schools (IMGs). Of the 3021 people who entered PGY-1 positions in 2006, less than half (~45%) were USMGs, whereas 41% were IMGs. The percentage of positions filled by IMGs has increased markedly during the past decade as the number of USMGs choosing to enter family medicine programs has declined precipitously.

As a result, there are now a very large number (119) of family medicine residency programs, including some based in academic medical centers, in which >75% of the new residents are IMGs. The results of a 1996 study of residency programs across core specialties (including family medicine) showed that once a program became IMG-dependent (50% of residents IMGs), the number of USMGs who applied to the program declined progressively, whereas the number of IMGs applying to the program increased. If those trends hold true today, and there is no reason to believe that they do not, there are a many family medicine programs that will be very unlikely to have any USMGs in the years ahead.

Without making any judgment about the relative performance of USMGs and IMGs once they enter practice, there can be no question that the presence of a many IMGs drawn from a variety of countries presents special challenges to those responsible for the conduct of the residency programs and the performance of their graduates. And because medical students often rotate to the clinical sites where the people are in training, it is likely that the dominance of IMGs affects their views of the discipline.

Conclusion

Family medicine is on the edge of an abyss. Those who hold leadership positions in the specialty must decide if they wish to adhere to the fundamental beliefs that led to the founding of the discipline almost 40 years ago or whether they are open to the reality that the very purpose of the specialty must be redefined in recognition of the profound changes that have occurred in the ways medicine is now practiced. If they chose the former, I believe the specialty will continue to flounder, and an opportunity to contribute in incredibly important

ways to how the profession meets the needs of patients will be forever lost.

My hope is that the specialty's leadership will recognize the need for fundamental change in the very purpose of family medicine, primarily that family physicians must be able to claim true expertise, not just in the process of care, but in a specific domain of medical practice. If they chose this pathway, they must accept the need to make very fundamental changes in the design and conduct of family medicine residency programs. And if they do so, they face an incredible array of challenges in designing the programs so that the graduates are well prepared to meet the needs of patients with chronic illness.

Appendix A. Resource Materials

Books

Kane RL, Priester R, Totten AM. Meeting the challenge of chronic illness. Baltimore: The Johns Hopkins University Press; 2005.

Ad Hoc Committee on Education for Family Practice of the Council on Medical Education. Meeting the challenge of family practice. Chicago: American Medical Association; 1966.

The Citizens Commission on Graduate Medical Education. The graduate education of physicians. Chicago: American Medical Association; 1966.

Stevens R. American medicine and the public interest. New Haven and London: Yale University Press; 1971.

Geymen JP. Family practice. Foundation of changing health care. Norwalk (CT): Appleton-Century Crofts; 1985.

Institute of Medicine. Primary care. America's health in a new era. Donaldson MS, Yordy KD, Lohr KN, Vanselow NA, editors. Washington, DC: National Academies Press; 1996.

Cassell EJ. Doctoring. The nature of primary care medicine. New York and Oxford: Oxford University Press; 1997.

Starfield B. Primary care. Concept, evaluation, and policy. New York and Oxford: Oxford University Press; 1992.

Keystone III. The role of family practice in a changing health care environment. A dialogue. Washington, DC: The Robert Graham Center; 2001.

Selected Papers

Martin JC, Avant RF, Bowman MA, et al. The future of family medicine: a collaborative project of the family medicine community. *Ann Fam Med* 2004;2:S3–32.

Bucholtz JR, Matheny SC, Pugno PA, et al. Task Force 2. Report of the task force on medical education. *Ann Fam Med* 2004;2 Suppl 1:S51–64.

Scherger JE. The end of the beginning: the redesign imperative in family medicine. *Fam Med* 2005;37:513–16.

Zweifler J. Why we should reduce family practice training to two years. *Acad Med* 2003;78:885–7.

Green LA, Fryer GE. Family practice in the United States: positions and prospects. *Acad Med* 2002;77:781–9.

Sharp LK, Wang R, Lipsky MS. Perceptions of competency to perform procedures and future practice intent: a national survey of family practice residents. *Acad Med* 2003;78:926–32.

Kim S, Phillips WR, Stevens NG. Family practice training over the first 26 years: a cross-sectional survey of graduates of the University of Washington family practice residency network. *Acad Med* 2003;78:918–25.

Brocato JJ, Mavis B. The research productivity of faculty in family medicine departments at US medical schools: a national study. *Acad Med* 2005;80:244–52.

Whitcomb ME, Miller RS. Comparison of IMG-dependent and non-IMG-dependent residencies in the National Resident Matching Program. *JAMA* 1996;276:700–3.

Data Sources

AAMC Center for Workforce Studies

AAMC Electronic Residency Matching Service

National Residency Matching Program

ACGME Program Requirements for Graduate Medical Education in Family Medicine