Involving All Family Physicians and Family Medicine Faculty Members in the Use and Generation of New Knowledge

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Perry Dickinson, MD: We are proud to have as our presenters today a group of our most outstanding leaders in family practice research, each an active member of this organization. They include the director or codirector of the three family practice research centers funded by the American Academy of Family Physicians (AAFP) and the director of the AAFP Center for Policy Studies in Family Practice and Primary Care. Each presenter will add an interesting perspective to the topic for this morning’s plenary.

Through our years of existence as a specialty, we have made some great contributions in the area of primary care research. The development of models for practice-based research networks as our primary laboratories; our promotion and advancement of evidence-based medicine; and our work in such areas as clinical outcomes, mental health, prevention, and others have made a difference in the way our clinicians practice, which should be the overriding goal of our research efforts. Despite these successes, it is indisputable that, all things considered, we have not done a good job of establishing the research credibility of our discipline.

Over the years, specialist friends have asked me why there is so little research supporting some of the key precepts of family practice. A number of answers and excuses have come to mind:

- We all are overworked in terms of our clinical and teaching responsibilities;
- We are all generalists and don’t want to just focus on one area, as research often requires;
- The reductionistic research funding agencies don’t have the vision to see what we have to offer and to fund us;
- We lack experienced research mentors; and
- The stuff we are researching is really difficult.

Each of these reasons probably encompasses one small piece of the truth. However, I have become increasingly dissatisfied with our excuses, especially after all these years of existence of our discipline. I am convinced that we have been our own worst enemies when it comes to research. I have recently been collaborating with people from general internal medicine and other specialties, and I have been struck by the difference in attitudes about research.

Shedding Our Anti-intellectual Approach to Research

In our early days, we seemed to view research as part of the establishment that we were rebelling against. At times, we have almost gloried in our anti-intellectual approach; it was part of what made us different. After all, the basic tenets of family practice were self-evident, and as long as we continued to take great care of our patients, sooner or later the rest of the health care system would realize the basic value of our approach. Although we have begun to wake up and recognize the need for higher quality information about how we take care of patients, we still haven’t rid ourselves of that heritage: 1) I have talked to too many medical students who were interested in research and

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primary care and felt that they would not be able to seriously pursue their research careers in family practice. 2) I have seen too many fired-up young researchers fresh out of fellowship who have been stuck into positions that leave less than 5% of their time for research. 3) I have seen too many of our best mid-career faculty members who have had initial successes in research pulled into administrative positions, as chairs or program directors, from which they never emerged with much significant further research productivity. 4) I have heard the disparaging remarks from clinician educators who don’t want their hard-earned clinical dollars going to support freed-up time for a family physician in their department to try to get a research effort off the ground. 5) I have talked with too many of our nonphysician faculty members who have made a major research contribution to our discipline, but who were the first to lose their jobs when the money got tight.

Time to Grow Up

It really is no wonder that we have not been any more successful in building a family practice research base. I understand the dynamics that cause these things to happen. However, it is time for our specialty to grow up. We now come to a juncture where research is vital for our discipline. The emphasis on evidence-based practice guidelines, for which we have provided a great deal of leadership, has exposed many holes in our knowledge base. Changes in the health care system put ever-increasing pressure on our clinicians to see more patients, doing more in less time. Many of the aspects of family practice that attracted us to the discipline in the first place have been rendered difficult or impossible. Some of my community-based colleagues have questioned whether the ability to build long-term continuity relationships with patients, providing them with comprehensive, family-oriented care for the full range of their health care problems, is becoming a thing of the past. If we do not prove the value of such an approach, they may be right.

I would argue that while family medicine has grown and developed well, we cannot become a fully mature discipline until we have better defined our knowledge base through research on our core principles and values. It is time for the academic leaders of family medicine to make a new commitment to research; to commit to, as in the title of this plenary, “Involving All Family Physicians and All Family Medicine Faculty Members in the Use and Generation of New Knowledge.” That certainly does not mean that everyone in academic family medicine should start devoting the bulk of their time to research; that is neither practical or likely to be productive. However, we must all commit to sharing responsibility for promoting our research mission, each in our own individual way, and how to do this provides a key focus for the plenary today.

Kurt Stange, MD, PhD: I’m going to tell the story of two clinical research projects. The first is by a resident, and the second is by a family physician in community practice. My goal is to show by example how the generation of new knowledge can be part of the daily activities of both the learners and teachers of family medicine and of the practicing family physician. As I briefly overview the research process and then tell about the examples, think about how some of the steps in that process can be part of your day-to-day life as teachers of family medicine.

Process of Generating New Knowledge

The process of generating new knowledge begins with identifying a gap in knowledge and then trying to discover if that knowledge gap is something that’s generally not known or just something that we don’t know ourselves. If we find that there actually is a need for new knowledge, then we go to the next step of focusing a research question, both on what’s important and what’s feasible to study. The next three steps are what’s typically thought of as doing research. It involves designing the study, collecting data, and analyzing and interpreting the results. Finally, there’s a lot of work being done on how we actually implement the results of scientific evidence in practice and that almost always leads to the identification of an additional knowledge gap.

Research Project No. 1

The first research project I want to tell you about began on Saturday morning rounds, when one of our residents, Victor Casseris, MD, was stopping the intravenous antibiotics on a female patient who he had admitted with pylonephritis, a kidney infection. Victor had been taught to observe patients in the hospital for 24 hours after switching them to oral antibiotics from the intravenous ones. I challenged him that that’s what I’d been taught, too, but in my experience, that didn't end up being a very worthwhile thing. So Victor searched the existing literature with the question, “Should we keep this patient in the hospital, or send her home to take her oral antibiotics?” What he found is that there really weren’t any published data from the literature. So, he did a brief survey of infectious disease specialists, took a random sample of 10 medical schools, and called the head of infectious diseases at each of these divisions and asked them what they did. Nine out of ten said that this was their practice, to keep people in the hospital and observe them, but none of them could actually cite any evidence for it. So what we had was a dogma that we’d all been taught, but something for which we really didn't have good scientific evidence. So we focused our research question on the clinical utility of a 24-hour period of in-hospital observation after switching from IV to oral antibiotics. What
we meant by clinical utility, as we thought about it, was were there adverse outcomes that you could pick up from watching people in the hospital, and were there medication side effects that were important to look for? We designed a retrospective chart review of all patients admitted to our hospital in the last 10 years with pyelonephritis, looking at those outcomes that we had identified. Victor didn't want to review a couple hundred charts, so he wrote a small grant application to the AAFP and got a resident research grant, which allowed him to hire a medical student who reviewed the charts over the summer.

When we looked at the data, we found that about 1% of patients actually suffered some evidence of clinical relapse during the day of hospital observation, and 4% had some minor side effects. All of these were the type of things that we would typically be able to manage as an outpatient, so our overall conclusion was that in-hospital observation is of limited usefulness. This was actually fairly easy to implement and practice. Now in our practice, we pretty much routinely discharge people and follow them closely on oral antibiotics after their infection is treated. This study raises some additional questions. What about other infections? And since then, we and others have extended this research, showing that the same findings hold for other infections, including pneumonia, skin infections, and other types of infections. There is additional work going on to look at whether you can transport this kind of information to very sick people with other co-morbid conditions.

**Research Project No. 2**

The next example I want to talk about is a study of a community family physician, Bob Blankfield, MD, who is a member of a regional practice-based research network and is in full-time private practice. Bob's question from his practice was how should I evaluate all these patients I keep seeing with bilateral leg edema—people who have both their legs swollen and no obvious cause? Bob said, "You know, I always blame this on venous insufficiency or varicose veins, but I don't really know what's going on, and I'm not really sure how much workup I should do for this pretty common problem." Bob looked at the literature and couldn't find any evidence of how common different causes of bilateral leg edema were in a primary care setting. So we focused on two research questions. First, what's the frequency of different causes of bilateral leg edema seen in family practice, and, then, how many of these can be discovered by a regular clinical exam, with a history and physical and laboratory testing?

Bob's in private practice and doesn't know a lot about research design, so he decided to collaborate with Steve Zyzanski, who is a biostatistician in our research division and does a fair amount of methodological consulting for the practice-based research study. Together, Bob and Steve designed a prospective study of consecutive patients who came in to Bob's practice, doing first a clinical evaluation that involved a H&P and laboratory testing, and next doing a more sophisticated test with an echocardiogram to look at the function of the heart and the surrounding vessels, and then a venous duplex scan to look at the structure and function of the veins in people's legs. Bob didn't have a grant and didn't want to bother writing a grant application, but some of the testing he wanted to do for this protocol was actually fairly expensive. So, he got a cardiologist to whom he frequently referred patients to do the echocardiograms for free and got him involved by making him a coinvestigator on the project. He got the venous duplex scans done by a vascular surgeon to whom he occasionally referred patients by involving him as a coinvestigator. In the initial part of the study, Bob found what he pretty much expected to find. Most of the patients were diagnosed as having venous insufficiency based on the clinical exam, with one in five thought to have congestive heart failure.

But, based on the more sophisticated testing, some surprises came out. Only about one in five actually had venous insufficiency as a cause. A third had a cardiac condition, and in a really unanticipated finding, 42% had pulmonary hypertension, high blood pressure in the vessels that go between the heart and the lungs, which is often indicative of a serious lung disease.

How do we implement this in practice? Bob's study and his results have changed what I do in practice. When I see patients now with leg edema I know what to do as far as a more thorough exam for it, and I've diagnosed three people in the last year with pulmonary hypertension—people who have been my patients for years. They've had this bilateral leg edema, I always blamed it on their venous insufficiency that I thought they had, and it turned out I was wrong. Bob's study has really changed my practice, and I think his practice as well. However, his study raised some questions. What's going on with these 42% of patients that have pulmonary hypertension—what's the cause of that? Bob has done some additional investigation that's just about to be published that shows that a great many of these people have sleep apnea. Here you have an example of a community family physician who has broad interests but who has latched onto a finding and is pursuing this as a whole research trajectory.

I just want to leave you with this one slide that shows the research process. As you consider these steps, think about what you can do in your daily life to be part of this process. For example, I think all of us can be involved in identifying knowledge gaps and then searching for an adequate answer. Most of the time we're going to find that what we didn't know is known, so if we have an adequate answer, we can implement it and really shortcut the circuit. This is evidence-based practice. But sometimes we are going to find things where the answer is really not known, or it's not known from
a family practice perspective or in a family practice setting. We don't have relevant knowledge. If that's what we find, I think we need to become more involved in generating research questions from that. Not all of us are going to be able to do the next steps, and I think as a discipline we need to train more people in knowing how to do the traditional research steps, but all of us can be involved in collaborating with people who know how to design studies. We can be involved in practice-based research networks where people both identify knowledge gaps and questions and collect the data as well. And then we can all be involved in the implementation steps. Imagine the possibilities for our discipline if this becomes part of our culture, if generating new knowledge, if raising the questions and trying to answer those questions becomes part of the culture of our training programs and our practice discipline.

Next, Mark is going to move us from this discussion of generating new knowledge to considering how to use scientific evidence.

Mark Ebell, MD, MS: We’ve just learned how it is possible for practicing family physicians to do research that is driven by their clinical questions. The next step is to integrate research into the teaching and practice of family medicine. To do that, I’m going to use a framework that was developed by David Slawson, MD, and Allen Shaughnessy, PharmD (Figure 1).1 They describe what they call the “Medical Information Business,” drawing parallels with more traditional industries such as oil refining and auto manufacturing. As I describe this model, think about how you can fit into the information enterprise.

Production
Like any business, the first step is production. An oil company has to drill for crude oil before it can do anything with it. A sugar refinery has to turn sugar beets into table sugar. In research, we do original research, and we bring clinical experience to bear on our clinical questions. That’s our product.

Refinement
Just as you can’t eat raw sugar beets, we have to refine that original research into something more useful, palatable, and more easily digestible. Systematic reviews, meta-analyses, and evidence-based guidelines are examples of refining and synthesizing original research into something that’s even more useful for family physicians and family medicine educators.

Distribution
Once you have a refined product, you have to get it to the consumers. An oil company has gas stations that deliver the gasoline to your car. Ford and General Motors have dealerships. Publishers have bookstores, and now they have Amazon.com. Original research has traditionally relied on journals, newsletters, newspapers, and lectures to disseminate information. In the information age, though, we have the ability to raise the bar. Instead of just distributing information, we have to get the best information to the family physician at the point of care when he or she needs it. That has to be our new goal as we move into the 21st century.

How do we do that? Computers can play a big role, whether they’re on your desktop or in your palm. The Internet is becoming an important way to get information to the clinician and patient at the point of care. The future will bring ubiquitous, cheap, easy, wireless access to information, so we can have it with us wherever we go. As educators, we have to stay ahead of that technology curve, because we are training our students and residents to practice in the medical environment of 2005, 2010, and 2020.

Marketing
The final step in the business cycle is convincing consumers that they just can’t live without your product. That’s called marketing, and it has received little attention in the medical information business. We have to teach our learners the limits of human cognition and human observation so they understand the need for an evidence-based approach. We must give our learners the tools that they need to be informed consumers of the literature—information masters. Our learners must be comfortable using computers as tools to gather information, organize it, synthesize it, and communicate it to consultants, colleagues, and patients. From a curricular perspective, that means teaching principles of evidence-based medicine, information mastery, and informatics.
Clearly, there is more to research than just production. As family doctors and as family medicine educators, we have the unique skill set to succeed in the refining and synthesis, distribution, and marketing of medical research and medical information. We have a broad, holistic view of patients and their health. We have communication skills that I think are more fully developed than those of some other specialties. We have research training, a growing research capacity, and talented informaticians. In the next section, I will discuss some specific ways that we can do a better job of refining, distributing, and marketing the results of research.

Systematic Reviews

When we refine and synthesize original research, we must raise the bar. Just doing a review isn’t enough. We have to do systematic reviews that look at all of the evidence, evaluate it, synthesize it, and give the clinician a useful bottom line. Characteristics of useful systematic reviews include: a focused clinical question that addresses a common or important primary care problem; selection of patient-oriented outcomes, not disease-oriented endpoints; comprehensive literature searches that go beyond MEDLINE to the Cochrane Library and other resources; evaluation of the quality of articles using standard instruments; and an emphasis on the results from the highest quality research with a bottom-line that reflects the best evidence, not the status quo.

When we distribute the results of research, it is not only a matter of technology. We must set high standards for the lectures that we give to our learners. When you are talking about diagnosis, don’t just state that a test exists but tell your audience how to interpret the results using likelihood ratios and predictive values. Become comfortable with those terms, which have real, clinical meaning when we’re talking about diagnosis. Identify useful, validated clinical prediction rules like the Ottawa Ankle Rules and Strep Score, then build them into the forms and templates that we use in our model clinics. They can help make our diagnoses more accurate, more reliable, and more reproducible.

When discussing therapy, don’t just say that a therapy exists and you like to use it but talk about the degree to which it helps a patient live a longer or better life. Describe therapies in terms of the number needed to treat and number needed to harm. If you don’t know what these terms mean, you should see www.poems.msu.edu/InfoMastery for a tutorial on these and many other concepts of information mastery. Describe studies in terms of their level of evidence, so when you say that this recommendation was based on a Level 3 study, your learners know immediately that they have to be looking for something better out there in the future.

Don’t forget to think outside of the envelope and beyond the lecture. Many family physicians and students are carrying handheld computers. Residents are using them to organize their hectic lives and to exchange information. In Figure 2 you can see an example of a clinical prediction rule for the diagnosis of deep venous thrombosis (DVT). That rule is based on good evidence, but it’s hard to find that journal when you have a patient with suspected DVT sitting in front of you. Using a handheld computer, you can take that information to the point of care, and the computer will do the calculations for you. This approach will make your evaluation and management of that problem more rational, and more solidly grounded in the best available evidence. You can e-mail updates to your residents, faculty, and students. You can use evidence-based guidelines from the National Guidelines Clearinghouse and adapt them to your local setting. There are many other examples of useful resources on the Web, and the STFM Web site, www.stfm.org, is a great place to start exploring.

Marketing the best evidence means teaching information mastery, and that in turns means focusing on the most useful information. It also means understanding that we use information in two different ways. We use it to forage and keep up to date on a daily, weekly, or monthly basis. We also use information to hunt for answers to the questions that arise every day at the point of care. However, we only answer about 30% of the dozen or so questions that arise daily in our care of patients, and we must do better.
Relevance x Validity

Usefulness of medical information = \frac{Relevance \times Validity}{Work}

That means we have to increase relevance, increase validity, and reduce work. My colleague Henry Barry, MD, and I, with support from Michigan State University’s Office of Medical Education Research and Development, have developed an on-line course in information mastery. We encourage you to visit the site and use it in your teaching of faculty, residents, and students (www.poems.msu.edu/InfoMastery). In it, you will learn how to increase relevance by focusing on patient-oriented evidence that matters (POEMs) instead of disease-oriented evidence (DOE). To increase validity, you must learn the vocabulary, language, and tools of evidence-based medicine. Your learners should be able to critically appraise an article, understand the critical appraisals and evidence-based reviews of others, and communicate with colleagues using the language and tools of evidence-based medicine. Finally, to reduce work, we must ensure that every medical student, resident, and faculty member is trained in basic medical informatics. I would challenge our training programs to ensure that within 5 years every family practice residency has curricula in information mastery, evidence-based medicine, and medical informatics.

Creating a Culture of Inquiry

To paraphrase James Carville, “It’s the culture, stupid.” For too long, we have nurtured a culture of advocacy in medicine. And physicians are great at advocacy! We cling tightly to strongly held beliefs of the best way to order a test and the best way to treat a patient. We speak of “the Duke way” and “the Michigan way.” We say “that’s always worked for us around here.” We respect our teachers and honor them by sometimes clinging a little too hard to what we were taught. We defend our turf, and challenge, denigrate, and ignore those who ask us to think about a new way to look at a problem.

Instead, we must create a culture of inquiry in our residencies, in our departments, and in our training programs. This culture of inquiry will value questions and will value the process of asking questions and answering them. I want to hear our learners and teachers say “That’s an interesting idea. Tell me more about it” and “Wow, that sounds wonderful. What is the evidence behind it?” One way we can encourage this culture of inquiry is by having “Q&A Rounds.” Each participant identifies a clinical question that came up during the care of patients, answers it using a structured one-page format, and shares the answer with colleagues during the “Q&A Rounds.” Some day, using the Internet, I hope that we can share those answers with the rest of the world and develop an impossibly huge database of answered clinical questions for family physicians. This was first proposed by a family physician, John Ely, MD, and could be a reality if we work together.

Our success as clinicians and educators depends on our ability to refine and synthesize original research into something even more useful, to distribute it to physicians at the point of care, to integrate it with the process of care, and to help clinicians appreciate the value of relevant, valid evidence-based information. Together, we can create a culture that values inquiry, and even challenges authority.

Bernard Ewigman, MD, MSPH: Drs Stange and Ebell have given a wonderful introduction to my topic: the Family Practice Inquiries Network (FPIN), a model for all family physicians, family medicine educators, and researchers to become information masters in the information age. Dr Stange’s two excellent examples illustrate why it is so important for every one of us who is taking care of patients to be thoughtful about the clinical questions we ask and the answers we get. We must determine whether current venerable sources give us answers that justify the trust our patients put in us. I think these are two examples of many clinical problems in which that trust may not be justified, and it’s incumbent on us for some of us to pursue original research.

Our message is that everyone in family medicine needs to become a researcher. Our message is that everyone needs to be involved in this process that Drs Stange and Ebell introduced. Dr Stange addressed the process of beginning with a clinical question and pursuing research to produce new knowledge. Dr Ebell articulated the process of integrating evidence into usable knowledge, as he does so well. And surely, this task of integrating evidence with our clinical experience and applying it to the compassionate care that’s the trademark of family medicine, is the major intellectual task of our discipline.

We challenge all in family medicine to actively engage in integrating, disseminating, and applying evidence in our work, whether as patient care doctors, teachers, or as scholars.

Introducing the Family Practice Inquiries Network

Now to turn to the topic I have been asked to present. This is an exciting vision for our future. This is a model that represents coming changes in the way we practice, teach, and do research in family medicine. This model is in the planning stage. There is a large group of people who are involved in FPIN, including Dr Ebell and myself as the leaders of the development team. I want to describe this model, not as the answer, but as a model of the kinds of answers that I think are becoming available to us as we experience a revolution in our society, and that revolution is the revolution of the information.
Let me begin by describing one of the problems that this model is designed to address. Now, I am able to ask each one of you how you manage information and ask whether you feel that you adequately keep up with the medical literature, my guess is that most of you would answer as I would, and that would be, “No, I don’t. I feel overwhelmed by the amount of medical literature out there.” If I were to ask you, “When you are seeing patients, do you have access to the kind of clinical information, decision support tools, and answers that you feel that you need or would like to have in taking care of your patients?” My guess is that most of you feel the way I do—frustrated about the books I use and the CD-ROMs I buy that just really aren’t good enough or easy enough to use.

It’s no wonder we feel overwhelmed in attempting to keep up with the medical literature and frustrated with our access to the information we need in patient care settings. Just look at the facts. There are 12,000 medical research articles published each year. The articles published in 90 of these journal are potentially relevant to the practicing family physician and the teacher of family medicine. Ninety is the number of journals that Mark Ebell, MD, MS; Dave Slawson, MD; Allen Shaughnessy, PharmD; and Henry Barry, MD, review each month for their newsletter Evidence Based Practice. In this newsletter, the editors select the PO-EMs (Patient-oriented Evidence that Matters) and other articles that are relevant to actual patient care and write a brief synopsis of those articles. Now, it’s difficult to keep up with even a few journals on a regular basis for most of us who are trying to practice, trying to teach, or have administrative or research responsibilities, but it’s no wonder that most of us feel inadequate. I don’t think I have to point out for this audience the importance of the Internet, the mass media, and the increased access to information that our patients have. Attempting to take in this volume of information is often compared to drinking water from a fire hose. The purpose of FPIN is to successfully manage information for the practicing family physicians and their patients and to improve the quality of that information.

So What Is FPIN?

First of all, FPIN is one of the seven objectives of the Center for Family Medicine Science in the Department of Family and Community Medicine at the University of Missouri, Columbia, which is funded by the American Academy of Family Physicians. It is a national consortium of family medicine researchers, educators, practitioners, informaticians, and library scientists.

What will FPIN do? Our mission is to use information technology to deliver the best available knowledge to practicing family physicians and other primary care providers at the point of care. By point of care, we mean that the answers to clinical questions are available while we are seeing our patients. The second part of the FPIN mission is to generate new knowledge through practice-based research. These are not new ideas. What is new is the community development, the organization, and the technology that will make this possible.

Figure 3 shows a schematic overview of the FPIN model. As Figure 3 illustrates, FPIN will consist of three components; information services, a national consortium, and practice-based research. The structure and processes of FPIN will be built on the foundation of actual questions at the point of care—those questions that we have as practitioners seeing patients. Questions such as: What’s the cause of this bilateral leg edema? Why does this patient have lymphadenopathy? What’s the natural history of brown recluse spider bite? How can I diagnose deep vein thrombosis? These are the kinds of questions that we have every day. The FPIN consortium is developing an information system that will consist of knowledge bases available on handheld, desktop, and Web-based platforms that will answer those questions quickly with the most relevant and valid answers available.

Our development team has evaluated 37 existing electronic knowledge resources for possible use in FPIN. InfoRetriever, developed and maintained by Dr Ebell, has many of the key characteristics that we intend to build into the FPIN knowledge base, user interface, and
search engine. These essential characteristics include a pull-down menu that automatically creates a precisely defined clinical question capable of linkage to indexing vocabularies for efficient searches. FPIN will not require intimate knowledge of arcane keywords, search terms, or Boolean strategies (although the sophisticated user will have the option of doing his/her own customized search). FPIN will provide an intuitive user interface that makes searching as easy as playing Solitaire on the computer. A second desirable characteristic is that the results of the search are displayed according to the level of evidence and the type of question; etiology, prognosis, screening, diagnosis, or treatment.

Objectives

Our performance objective with FPIN is to answer 80% of the practicing clinician’s questions within 60 seconds. Wouldn’t that be fantastic? I am eager for the day when I can pull out one of Dr Ebell’s handhelds or the FPIN system and get this kind of information. Now, those of you who have worked in this area are thinking to yourself, “This is crazy. There is no way that they can do this.” You may be thinking, “Hey, it takes me at least 10 minutes to get my CD-ROM, put it in, and fire it up. Meanwhile I have to go back and see a patient.”

I am convinced that we can make this happen. I’m not particularly computer savvy, and I am not spending much of my energy trying to make FPIN a reality because I love computers. I am committed to this because I want to do better patient care, and I want to create a system in which we can all do better patient care. I have met with, discussed, and developed plans for FPIN with many computer scientists, medical informatics specialists, and business professionals to be convinced that FPIN is not a pipe dream. The technology exists to do this. What it takes is a large community of people committed to doing it, and that’s what we’re trying to develop.

Other Features of FPIN

What else will FPIN do? One type of information need is the type you realize. You have a patient in front of you and a knowledge gap becomes apparent, so you ask a question. The other type of information need is not knowing what you don’t know. To use Dr Stange’s example, if you were not aware of the findings of that study on the etiology of bilateral leg edema, you’d probably still be telling your patients who do not have congestive heart failure, as I’ve done for the past 21 years, “Well, it’s probably venous insufficiency. Don’t worry about it,” when in fact they may have pulmonary hypertension due to obstructive sleep apnea. This is an example of an unrecognized information need.

FPIN will publish an on-line journal that will disseminate only the most-important research findings that family physicians must know; we will publish POEMs, evidence-based answers to common clinical questions and the results of original practice-based research studies in daily or weekly issues. These will be delivered in brief nugget-size summaries. Hypertext links will allow users to drill down to a more extensive review and get the full text of the original article if desired. All of the content of the FPIN On-line Journal will be routinely included in the FPIN electronic knowledge base and, thus, stored and available for future searches. The FPIN subscribers will also have access to librarians, colleagues, and consultants to ask for searches, pose questions, and engage in on-line discussions.

What about the practice-based research component of FPIN? Imagine that it is 25 years ago, when I was in medical school, and the question is: “What is the cause of lymphadenopathy. Well, the answer I got when I was in medical school was that 50% of patients with lymphadenopathy have cancer. I assume that no one out here believes that is a correct answer. But as I recall, this was the answer in the internal medicine textbook, and my internal medicine attending agreed, so I had no reason to doubt it. When I did my family practice preceptorship and when I began my family practice residency, all of the family physicians said, “No, that’s not true.” However, none of them could point to a study that verified their belief.

Then a family physician completed a study in our practice to answer this question. Nearly 300 patients with undiagnosed lymphadenopathy after the first visit were followed until a diagnosis was determined. Two had a serious disease, neither had cancer. Was what I learned in medical school wrong? No, actually it wasn’t. It was correct. But previous studies were done in cancer clinics, where all of the patients were referred because of a high suspicion that they had cancer. The findings from this study were not helpful for family physicians trying to decide what to do with unselected patients with undiagnosed lymphadenopathy.

Developing the FPIN Research Agenda

FPIN databases will capture and categorize the answers given to the questions asked by FPIN subscribers according to level of evidence. A study like the one done in the cancer clinic will be ranked as a low level of evidence because the results would not be generalizable to the family practice setting. We will therefore know that this is a question that is begging to be answered in a family practice research laboratory, such as an existing practice-based research network. We will also do random electronic surveys of practitioners and evidence-based medicine types to assess the adequacy of answers. Those deemed inadequate will constitute a database of questions that could be developed into research studies. We will implement a process for developing fundable research proposals to answer the questions that survive the selection process. We will use the following criteria to develop the FPIN research agenda:
becoming fully integrated with patient-specific information mastery.

Currently planning a comprehensive vision for curriculum delivery services and practice-based research described above, FPIN will also serve as a portal for on-line family medicine research agenda using the process outlined above, a research resource Web site so data collection tools, protocols, guidelines for developing grants, funding sources, and consultants are available to students, residents, faculty members, or practitioners who seek assistance with their practice-based research, a translation of research into practice unit that will study the structures, processes, and outcomes relevant to the dissemination, integration, and adoption of research findings in the practice setting

In addition to the core components of information delivery services and practice-based research described above, FPIN will also serve as a portal for on-line family medicine education. A group of FPIN members are currently planning a comprehensive vision for curricular offerings for residents, faculty, and practitioners to learn information mastery.

We envision the FPIN information delivery systems becoming fully integrated with patient-specific information, diagnostic and decision-making tools, and patient education and quality improvement initiatives using electronic medical records.

Finally, we envision a consumer/patient version of FPIN in which the patients of family physicians have access to the same information content as their personal physician (translated into appropriate language and educational media). This will greatly enhance the strong doctor-patient relationship that is the cornerstone of our discipline.

Before concluding, I want to emphasize that the FPIN model is only an example of what information technology is making possible. My take-home message is that our opportunity, as personal physicians, as educators and as researchers is to use this technology to achieve our core missions: to provide superb patient care; to train well-informed, compassionate physicians who work with their patients as partners; and to generate new knowledge that will be relevant to both practice and teaching. In short, we have the opportunity to become information masters in an information age and to engage all family practice physicians, educators, and researchers in the use and generation of knowledge.

Larry Green, MD: I want to start off by thanking Ed Fryer, PhD, and Sue Dovey, my buddies at the AAFP Policy Center. Some of the stuff I’m about to show you here is their work, and we also want to thank the American Academy of Family Physicians and you, if you’re a member of it, for letting us have so much fun. I like to tell people what I’m going to say, so here it is. I’m going to say that we spend an awful lot in this country for mediocrity. And, I’m going to say that there are some real big problems that are besetting our people. And, I’m going to say that family practice is an important player now, and then I’m going to say that someone, maybe you, should do something about it—this mess. And specifically, I’m going to keep honing down on you as individual faculty members to suggest that you personally can make a favorable difference by insisting that all family physicians must use and generate important new knowledge.

Here’s my point about spending for mediocrity. The last numbers we got, we spent about one and a quarter trillion. That number is just so big that I cannot imagine it. The really good news is that it’s renewable annually. This is my point, and I’ll use an international comparison as an example. I mean no disrespect for the fabulous Czech Republic, but we’re spending incredibly large sums of money to be directly in competition with a performance level just like the Czech Republic in terms of standard measurements of a health system’s performance. Now, you can be happy with that if you want to be. I am not content, and I’m not sanguine about that. I think it’s wrong. What happened to American ingenuity? Shouldn’t this be better? Its scandalous.
Health Disparities

I picked out one thing about problems that are besetting our people. We know if you're Hispanic and black, you're likely to be under-treated for pain from a fracture of one of your long bones. We know that postoperative pain is not adequately managed if you're anything but white. We know that blacks are less likely than whites to receive curative surgery for early stage lung, colon, or breast cancer, and we know that holds when you control for SES insurance status and access to care. We know that blacks with chronic renal failure were less likely than whites to be referred for a transplant or to undergo the transplant. This holds after you control for things like patient preference, their SES status, the cause of their renal failure, and their morbidity. We know that blacks were less likely than whites to undergo thorough diagnostic evaluations for symptoms suggesting life-threatening coronary artery disease. We know that blacks and Hispanics with severe pain are less able than whites to obtain their medicine. And, after you adjust for the differences in clinical and demographic characteristics and the clinical presentations, blacks, regardless of sex, are significantly less likely than whites to receive potentially life-saving therapy.

We’re One of the Players

Family medicine is really a player now. We have 476 residencies. Norman Kahn, MD, tells me we have about 11,313 residents in training, as of the end of December. We have 113 university departments and a couple of divisions. We have about 55,000 board-certified family physicians.

Let's consider patient visits. In the most recent National Ambulatory Medical Survey, there were about 787 million visits made by Americans to office-based physicians, 200 million of them to family physicians. Now, compare that to the internists that did 121 million, 92 million for the pediatricians, and 71 million for the obstetricians and gynecologists.

What about the idea of usual care (Table 1)? In 1996, 82% of Americans had a usual source of health care and of these, 56% regarded an individual as that source. Of those 56% that named an individual, 62% named a specific family physician. That compares to 16% who identified an internist, 15% a pediatrician, and 8% identified someone from all the other specialties combined. Link usual source of care to whether or not you have insurance. If you look at uninsured people, there were about 17% at that point that were uninsured (It's probably worse.). Of these, 62% identified a usual source of care. I thought that was pretty interesting. Of those 62%, 46% could name a specific person as their usual source of care and 71% named a family physician.

Rural Settings

What proportion of doctors, ordinary doctors, were practicing in rural settings? It’s 21% of family physicians, and that compares to 8% of general internists and 7% of pediatricians. Let’s talk about these primary care health shortage areas around the country. The best data source we’ve got about these is the area resource file, and the most recent data set that’s got all the data is 1995 (Table 2). There are more than 3,000 counties in our grand country. About 2,300 of them in 1995 were not, that’s the operative word, were not designated as a primary care health professional shortage areas (HPSA). These are the counties that we think have pretty good access, okay? That’s who these are. Now look at this. Pull all the general internists out of all the counties in the United States that are presently not in trouble for access, and you can convert 45 of them, or 2% of them, into a primary care HPSA. Put the internist back. Pull the pediatricians out. Eleven counties became shortage areas.
Put them back in. Pull the obstetricians out. Nine counties go to a shortage area, .4%. Put them back in. Now, pull all the internists, all the pediatricians, and all the obstetricians out at the same time, and you can convert 176 of those counties to a primary care HPSA, or 7.7%. Put them back in. Pull the family doctors out, and you convert 1,332 counties into a primary care HPSA, or 58% of the country.

Adolescents

Let’s focus on one special group—adolescents. I sometimes introduce myself as the recovering parent of adolescents. This is one group of human beings that my heart goes out to. They are living in tough times, in amazingly difficult circumstances. They don’t get their fair share of help from us doctors. They only made 44 million visits back in 1997. That’s about 40% of the rate they would if they were getting their fair share. They don’t like to go to doctors much; neither do I. But of those that do go, 30% of them are going to see a family doctor, and that compares to 18% seeing a pediatrician, about 8% or 9% seeing an internist, and about 9% obstetricians, and we know what that’s about.

The Point—Do Something About It

Here’s my next point. You may not feel like it. You may not remember it this way, but you’re an incumbent discipline. An incumbent holds an office, and incumbency is the sphere of action of an incumbent. This panel’s message to you today as the teachers of the future generations of family physicians is that you are in an incumbent position. It behooves you to do something about the mess. It is hard for the four of us to think of how we’re going to address this without stronger and better science. We think in the next version that family practice is going to be held accountable for improving itself. We think that family practice in its next version, Mark wants me to say Version 2.0, is accountable for relieving big, important problems. These problems that I use as exemplars this morning, as far as I’m concerned it’s our problem. It’s not someone else’s. We’re the incumbent provider of services for these people. We’re the people they’re coming to. If we don’t do it, we don’t have someone to do it. And in the next version it’s no longer going to be acceptable to just whine about how published work lacks relevance. It doesn’t apply to our problems. Do something about it. It’s just no longer acceptable to blame someone else for our not knowing. If we don’t know, it’s time to blame ourselves. It’s no longer acceptable to applaud the recruitment of residents into family practice training programs who are wholly or, in part, being recruited because they like people instead of science. It is not compassionate to systematically continue to provide services that are known not to work. In the next version, family practice is going to be based on better knowledge than before, and it’s going to be developed by the likes of the individuals to my left, like Kurt, Mark, Bernard, and Klea Bertakis, MD, people who do the hard work of developing something like DOC so you can measure it and see if it moves when you do something else. And the next version is going to be based on better implementation strategy like what Bernard’s talking about and what Mark’s talking about, better than ever before, and it’s going to be done by discriminating family physicians who you are going to prepare to do daily work with real people with real problems, and it will still be built on deeply rooted values respecting all persons.

More than ever before, getting the very best from a health care system depends on you, especially you folks that are not doing a lot of research but you’re teaching the next generation of family physicians. My parting word is, spread the word. The family docs are coming.

Note: Audio and slides of the research plenary can be found at the STFM Web site: www.stfm.org.

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