IN PRAISE OF TECHNOLOGY IN MEDICINE

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T oday there is a great outcry against high technology medicine. Many call for a return to the art of medicine, echoing Hippocrates' dictum, Ars longa, vita breva, "The art is long and life is short." A deeper understanding of Hippocrates' concept of the art, however, shows that the dichotomy between the art of medicine and technological medicine may be a false one.

The art of medicine is often construed to be that which cannot be easily taught, is somewhat mysterious, is rarely reproducible, is the province of aging clinicians, and forms the soft, nonscientific side of medicine. For most of us, the term "art" also has connotations of museums, fine art, or aesthetics, and so the art of medicine is in sharp contrast with technologic medicine with its catheters, scanners, and expensive laboratory tests.

It is instructive to consider what Hippocrates meant by the art of medicine and how this differs from our current understanding of the art. For Hippocrates, the art of medicine was in no way an aesthetic experience. In fact, the Greek word used by Hippocrates was technē, which is the root of our word technology. "The art is long and life is short." A deeper understanding of Hippocrates' concept of the art, however, shows that the dichotomy between the art of medicine and technological medicine may be a false one.

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It is instructive to consider what Hippocrates meant by the art of medicine and how this differs from our current understanding of the art. For Hippocrates, the art of medicine was in no way an aesthetic experience. In fact, the Greek word used by Hippocrates was technē, which is the root of our word technology. Technē means art or craft, the skilled application of the principles of medicine, in this case. For the Romans, as well, who translated Hippocrates into Latin, ars also meant craft, artisanship rather than fine art. The connotation of art as fine art is a recent development in the English language. The Oxford English Dictionary points out that the meaning of the word "art" is a recent development as it "does not occur in any English dictionary before 1880." So, for Hippocrates, the Romans, and also for English speakers until recent years, the art of medicine meant craftsmanship.

Are there any lessons for physicians today that would come from considering our profession a craft, as Hippocrates did? In any craft, there are tools and procedures that need to be applied skillfully to result in a finished product. If we take the example of photography, one has a variety of tools and techniques that can be applied to a specific project. The photographer will select the tool that is most appropriate for the task at hand. A 4×5-view camera may be perfect for a wilderness landscape and yet be totally unusable for action photography. In ancient medicine, the Hippocratic physician was to learn the art (technē) and apply it to patients. The skilled physician of 2500 years ago was a technologist (knowledgeable in the art or craft), who made the most of the tools of that era.

In modern medicine, our tools range from the same clinical skills such as interviewing, physical examination, and diagnostic reasoning that were available to Hippocrates, to complicated procedures, such as angioplasty. Many of the problems in medicine perceived by patients and that trigger a call for a return to the art of medicine may result from a lack of craftsmanship and technology. A physician orders an MRI for a patient with chronic lower back pain which reveals a herniated disc. Having neglected to examine the patient using distracted straight...
Over recent years, systematic reviews have become increasingly important in the delivery of health information. Meta-analyses, a type of systematic review, have been shown to more accurately report medical research than traditional review articles or textbook chapters. For more details about systematic reviews, you may read articles from the recent series in the Annals of Internal Medicine. The entire series is available through the Internet by searching the Annals at the American College of Physicians Website (http://www.acponline.org/search/iaquery.exe) with the words “systematic reviews.”

Fortunately, systematic reviews can be located from several Internet sources. The easiest method is the Database of Abstracts of Reviews of Effectiveness (DARE). DARE is produced by the British National Health Service Centre for Reviews and Dissemination and is an ever-expanding collection of abstracts of systematic reviews. DARE is an ever-expanding collection of abstracts of systematic reviews. DARE is an ever-expanding collection of abstracts of systematic reviews.
ORIENTATION

Stephan D. Fihn, MD, MPH

All of us fret about how to stay organized. We strive to perform effectively and to avoid the negative consequences, mostly self-imposed, of failure to do so. As generalists, we run a higher than average risk of becoming disorganized because of the ambitious breadth and complexity of our interests and activities. A’s Browning observed, our reach often exceeds our grasp. This usually healthy challenge on occasion causes our efforts to degenerate into Brownian motion. I have come to believe that good organization, in all of its contexts, is essential to enduring success. It is a lesson that I, like most, have learned the hard way.

While away at camp in the Ozarks at the age of 10, I fell and lacerated my right wrist. The wound was sutured by a rural GP. When camp ended a week later, my counselor reported to my parents that the “novocaine had not worn off.” They took me to Barnes Hospital where a newly acquired operating microscope was employed to repair the severed median nerve. For a couple of years thereafter, while Wallerian regeneration took its laborious course, I lost the use of my right hand for many tasks, including writing. One of the favorable outcomes was that I was forced to learn to type at a young age—a skill that has been of incredible value ever since. Comfort with a keyboard was a key factor in my early affinity for computers and programming. This interest, in turn, provided exposure to databases, spreadsheets, and other programs that afforded tools to organize complex tasks. Several years before the advent of PCs and word processors, I was the first student at the University of Washington to submit a master’s thesis created using a computer—a huge DEC 10 mainframe. Subsequently I bought one of the very first generation PCs. Thus, I like to think that it was actually an injury and subsequent disability that forced me to seek new ways to perform and organize my work.

Much more recently I took a tumble on the ski slopes and sustained a ruptured right ulnar collateral ligament: “skier’s thumb.” (Is there a pattern emerging here?) Though this injury was certainly less disabling than the earlier one, the surgical repair placed my hand in a cast for 6 weeks and I was again unable to write. (Most of those who have had occasion to try to decipher my handwriting probably would view this a good result.) For 3 months all my written communication was dictated and I suddenly found how much more time I had gained, including time with patients. Since regaining the use of my hand, I continue to dictate as much as possible and find it still saves a considerable amount of time. (Unlike one of our other SGIM colleagues who has crashed his car while dictating, I try to confine it to times when I am stationary.)

A final incident worth relating occurred 8 years ago when I was missing a lot of sleep working on a major grant proposal. I awoke one morning with an odd sensation in my chest and realized I was in atrial fibrillation. Luckily, I had gained the use of my hand back for many tasks, and I could again dictate as much as needed. I continued on page 7.
I have been taking business classes at a local university. I started with economics so I could better understand the economics of health care, but I have continued with other MBA classes. My friends and family think I am nuts, but I find I actually enjoy it. It is far outside the realm of anything I have done in medicine. It uses a part of my brain that has been dormant since high school, the part that shunned business all through college in pursuit of the more noble sciences.

The fact is, medicine today is big business. Wall Street has discovered health care. Fourteen percent of the gross domestic product, which was previously more or less under the control of physicians, is available to those willing to take the risk and win in the competitive marketplace. Allowing the free market into health care is the best use of our health care dollars.

In economics we studied the wonders of capitalism and the free market. The market will select the best firms that combine quality and efficiency. In a free market health care system, the most successful companies will offer the highest quality care, remove waste from the system, save money through economies of scale, and select for practitioners that can perform the optimum service at the most efficient price.

The problem is, health care is a unique commodity. In the automobile market, if you don't find a car you like or if your needs are too expensive for the automotive service to handle, you don't get a car; you take public transportation or walk. In health care, if you can't afford insurance or insurers drop you because you are too high risk, you don't get health care. A s a society we should find this abhorrent, yet we have allowed the number of uninsured to rise to an all-time high.

We physicians have been pretty much left by the wayside. We refused to be involved in the business side of medicine, and the business people results. That may be true, but I find it mystifying that management can get megalithic salaries even if they don’t perform. The CEO of a large New England health plan received a multimillion dollar severance package after the plan lost more money in a single quarter that it had made in profit over the lifetime of the company. He received this package at a time when the plan was months behind in paying hundreds of doctors for services rendered. It is difficult to believe that this is the best use of our health care dollars.

By allowing the business people to be the ones making the decisions...quality of care may suffer.

Despite this premise, there is profit to be made in health care. There is money for shareholders and for management. We have CEOs in health care making top dollar to maximize the earnings per share of their corporations. The companies tell us that they must offer competitive salaries, stock options, and perquisites to attract top talent, and they must attract top talent to get
leg raising, the physician may go on to perform anatomically “successful” surgery yet have a poor long-term outcome. A plication of the art of medicine to such a patient is not mysterious, but rather the result of techniques and tools (i.e., simple physical examination maneuvers). Many of us, however, are not skillful or selective in our use of tools. We are thus poor craftsmen, or as Platt suggested, hypo- competent.5

The master physician/craftsman will select the appropriate tool for the given patient and for the given clinical problem. For some patients the best tool might be an empathic response to the predicament or giving him/her a tissue. For others, the best tool might be an endomyocardial biopsy. Just as the expert photographer is proficient and selective with all his/her tools, so the physician/craftsman must have command of the tools and use them appropriately to the patient’s benefit.

Therefore, the dichotomy between the art of medicine and high technology care may be a false distinction. Perhaps too many physicians are incomplete craftsmen who are skilled only in some aspects of the art (e.g., expert in catheterization but not in interviewing, or vice versa). If we are to provide the best care for our patients, then we need to become skilled craftsmen and technologists. We need to master all of our tools, ranging from perceptive interviewing to appropriate use of complex imaging modalities. We should return to the true technology of medicine, which means that physicians must learn the entire craft of medicine, and use both the “soft” and the “hard” tools of our trade. Our patients need more high technology medicine, not less, if we are to live up to Hippocrates’ dictum. SGIM

References

Research Funding Corner

Title: NLM — Publications Grant Program
Funding Agency: National Library of Medicine

Brief Description: NLM provides grants of up to $25,000 for a maximum of 3 years to support the preparation of book-length manuscripts that facilitate the use of biomedical information, and assist in closing the gap between scientific research findings and clinical practice. Types of publications include, but are not limited to, medical informatics, critical reviews of current health care delivery, the history of medicine, secondary periodical publications, guides, atlases, handbooks, and proceedings of scientifically significant symposia.

Application Due Dates: February 1, June 1, October 1 of each year

Contact Persons: Publication Grant Program, Division of Extramural Programs, Bethesda, MD 20894. Telephone (301) 496-4621; Fax (301) 402-0421; E-mail sparks@nlm.nih.gov

For early notification of grant opportunities, try these web sites:
http://www.ahcpr.gov (Agency for Health Care Policy and Research)
http://www.gen.emory.edu/medweb/medweb.grants.html
http://www.omhrc.gov/new-fund.htm

Please send content areas and funding opportunities of interest to SGIM members to: Eric C. Westman, MD, MHS, Smoking Research Laboratory (11-C), Durham VA M C, 508 Fulton Street, Durham, N C 27705. Telephone (919) 286-6822; Fax: (919) 286-6758; E-mail ewestman@duke.edu SGIM
Currently contains over 1500 abstracts or reviews that were originally published in medical journals. In addition, DARE has abstracts of very high quality systematic reviews published by the Cochrane Collaboration and other sources. Although the DARE does not have full text articles, it consists of well-structured abstracts written by DARE. DARE is an excellent Website; a quick search of DARE may obviate a lengthy MEDLINE search.

The Cochrane Database of Systematic Reviews (CDSR) is also on the Internet. The CDSR abstracts are available for free. You or your institution must subscribe in order to use the CDSR search interface and to browse full texts of the reviews; however, you may find the detailed abstracts sufficient when you use the following method to replace the search page. Open the page in the table below. As the titles of all the abstracts are on one web page, you can simultaneously press “ctrl” and “f” on your web browser and type in the name of the disease you would like to search.

In comparing the DARE and Cochrane Websites, I find DARE more helpful because it is larger than the Cochrane and contains abstracts from Cochrane. I use DARE first, and then use Cochrane if the abstract I found with DARE originated from the Cochrane and the DARE abstract was insufficient for my clinical purpose.

Lastly, MEDLINE itself can be searched for systematic reviews. The best way is usually with commercial search software for MEDLINE, such as Ovid, that can use pre-saved search strategies that filter for articles that are systematic reviews. However, these commercial products require a subscription. PubMed is the free MEDLINE search service provided by the National Library of Medicine. You can go directly to PubMed, enter the search term “meta-analysis,” and direct PubMed to search this term in the “publication type” field. Although this is the best single search term for systematic reviews, many (perhaps most) systematic reviews are not indexed with this term by MEDLINE. For this reason, experienced MEDLINE users have developed a filter, or group of search terms, that can find a much larger number of systematic reviews. A limitation of PubMed is that it has not incorporated such a filter into its interface, you can go to the second Internet address in the table for PubMed and use a filter for systematic reviews that has been translated into PubMed language.

While you are at the PubMed site, click their comments button to send them an E-mail urging the incorporation of a search filter for systematic reviews. All of these Websites rely on your ability to search for text words in documents. There are two tips if you do not locate the reference you want. First, truncate words. For example, searching for “diabet$” at the DARE site or “diab*” at PubMed or Cochrane search pages will find articles with the words “diabetes” or “diabetic.” Second, think of synonyms for your terms. For example, if a search for “Bell’s Palsy” is unsuccessful, try using “facial nerve,” “seventh nerve,” or “cranial nerve.”

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References

Helpful locations for using systematic reviews.

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Groups, which was published in Under the Eye of the Clock by Christopher Nolan. Written when he was a teenager, it is an autobiographical account of how, despite being made totally helpless by cerebral palsy, his own personal strength combined with the faith and love of his family and friends allowed him to become a truly wonderful poet in the lyric Celtic tradition of Yeats and Thomas. I highly recommend it.

Next month, I will relate more of the Council's plans for the year. SGIM

Necessity is indeed the mother of invention.

The organization of administrative support within SGIM has evolved not because of a grand scheme to expand or to create a bureaucracy, but mainly because of immediate circumstances. Most recently, Elnora's departure forced our two previous Presidents, Bill Tierney and Nicki Lurie, into a challenging reorganization. As Nicki described during her remarks at the Annual Meeting, this restructuring, aided in no small part by David Karlson, has gone astonishingly well and has been due in large part to the independent efforts of these groups.

Most of us, I have been forced to embrace better organization by external circumstances rather than any sensible planning on my part. Necessity is indeed the mother of invention.

Groups tend to behave in the same fashion, maybe more so, and SGIM is no exception. The advantage of this energy and creativity. Some of the very finest accomplishments of the Society have been due in large part to the independent efforts of these groups pursuing a goal. We need to be certain that the activities of committees, task forces, and interest groups are coordinated. Some of the very finest accomplishments of the Society have been due in large part to the independent efforts of these groups pursuing a goal. We need to be certain that we are organized to take full advantage of this energy and creativity.

A lovely and moving book about striving to overcome seemingly impossible adversity, to some degree, the importance of getting organized, is entitled Under the Eye of the Clock by Christopher Nolan. Written when he was a teenager, it is an autobiographical account of how, despite being made totally helpless by cerebral palsy, his own personal strength combined with the faith and love of his family and friends allowed him to become a truly wonderful poet in the lyric Celtic tradition of Yeats and Thomas. I highly recommend it.

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passed us by. While there may have been noble reasons for avoiding this aspect of medicine, I think we may have done our patients a disservice. By allowing the business people to be the ones making the decisions, financial determinations may outweigh the human considerations, the humane considerations, and quality of care may suffer.

I teach a health policy class for undergraduate students at a nearby university. The students are shocked to learn that we are the only industrialized country in the world without universal access to health care. They don't understand how we can have record low unemployment and 41 million people without health insurance. In their naiveté they struggle with the idea that health care can be treated like a commodity, that employers can “sell” their employees to the lowest bidder. They don't understand how we can let financial considerations be of paramount importance in an area as critical as the health of an individual. I tell them that our society values individuality more than the social solidarity of universal health care. I tell them that managed care has held health care expenditures constant. Perhaps those companies with high-paid management get results that justify the million-dollar salaries and stock options. Perhaps the decisions they make in the interests of the shareholders and the company provides for quality care and plan members are really better off. Perhaps managed care is able to offer higher quality at a lower price. I understand the jury is still out on these issues, and I eagerly await the results.

In the meantime I think we, as physicians, need to develop more business skills. We need to be able to talk to the business people in their own language and provide solid economic reasons to do what we believe is necessary and right. We need to advocate for change to improve health and health care, and be able to look beyond our own salaries.

That is why I am taking business classes. SGIM
ASSOCIATE PROGRAM DIRECTOR. Our well-established, multispecialty group-based Internal Medicine Residency program at the Virginia Mason Medical Center is recruiting a fourth Associate Program Director. This full-time position is supported with “hard money”; 0.5 FTE is devoted to clinical practice in General Internal Medicine, and 0.5 FTE is distributed to teaching, research, and administrative duties according to the skills and interests of the successful candidate. Clinical and teaching experience is essential. A applicant must be board certified. One of two civilian programs in Western Washington, we have six Categorical and four Primary Care residents per year, as well as three Preliminary Internal Medicine slots. We also sponsor complete residencies in Surgery, Anesthesia, Radiology, and Transitional Year. Our graduates’ first time pass rate in the ABIM exam over the past 3 years places VM in the top 10% of accredited US programs. Women and minorities are encouraged to apply, as are those with interest and experience in Health Services Research, Outcomes Research, Bioethics, Education, Information/Evidence-Based Medicine, Infectious Diseases/HIV, Psychosocial aspects of medicine, and Alternative Medicine. This is a wonderful opportunity for an energetic person, supported by “hard money,” to have protected time for reflective thought, scholarly activity, and high-quality, innovative education in a supportive environment. Please provide CV and cover letter to: Roger W. Bush, MD, FACP, Program Director, Internal Medicine Residency, Virginia Mason Medical Center, 1100 Ninth Avenue, C8-GIM, Seattle, WA 98101.

DIRECTOR. Philadelphia Veterans Affairs Medical Center seeks board certified physician for Director of this well-developed, primary/managed care program affiliated with the University of Pennsylvania. Position is primarily administrative with daily oversight and strategic planning responsibility for multidisciplinary practice groups. Includes limited clinical practice. Teaching opportunities and faculty appointment at the University commensurate with qualifications. Send CV and three references to DeAnn Dietrich, VP, Primary Care and Consultative Medicine (111), PVAMC, University and Woodland Avenues, Philadelphia, PA 19104.

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