



2001 Robert H. Ebert Memorial Lecture

Health Care Quality and How to Achieve It

Kenneth I. Shine

(To request a bound copy of this report, click [here](#).
To see a complete list of Milbank reports, click [here](#).
When ordering, be sure to specify which report you want,
your name, mailing address, and phone number.)

Table of Contents

[Foreword](#)

[Acknowledgments](#)

[About the Author](#)

[Health Care Quality and How to Achieve It](#)

[The Work of the Institute of Medicine](#)

[Issues of Quality in Health Care](#)

[The Care of the Patient: A Multifaceted Job](#)

[Notes](#)

Foreword

The Milbank Memorial Fund and the Association of American Medical Colleges (AAMC) established the Robert H. Ebert Lecture on Academic Medicine and the Public Interest as a memorial to an exemplary physician, scientist, dean, and foundation executive. Ebert Lecturers are persons whose careers and character demonstrate broad and effective concern for medicine and the health of the public. They are chosen by a committee appointed jointly by the AAMC and the Fund. The lecture is delivered in odd-numbered years at the spring meeting of the Council of Deans of the AAMC.

Robert Ebert (1914-1996) was an intensely private public man. He linked the laboratory bench and the clinic, care of individual patients with concern for the health of populations, and excellence in research with

innovation in the organization and financing of health services. Ebert served his country and his profession as a clinician, investigator, department chairman, dean, foundation executive, and leader of many boards, committees, and commissions. The institutions he enriched during his career include Oxford University, the University of Chicago, Case Western Reserve University, Harvard University, The Population Council, and the Milbank Memorial Fund.

Paying tribute to Ebert in a talk that preceded the first lecture in 1997 and subsequently published by the Fund, Eli Ginzberg concluded his remarks as follows:

Ebert valued peace over contention, consensus over authority. He had an instinctive sense of the way in which institutions become captives of their own history, and he spent considerable time and energy seeking solutions that produced change without upsetting large numbers of persons whose concerns could not, or should not, be ignored. He was a diplomat by instinct, who saw little point in wasting time and energy in conflict if compromise offered a satisfactory alternative.

But this man of peace was also a man of thought, who had a deep appreciation of how things were changing, especially in his area of expertise, and he considered it his duty to figure out what to do about the changes that were underway and how to respond to them constructively. Further, he concluded that it was also his duty to initiate and carry through actions to establish a new, improved match between opportunity and results. Ebert always wanted to improve life, not for those who had power and money, but for the average man and woman who had to work long and hard to make ends meet. He directed most of his life to figuring out how he could use his time and energy to improve the access of this population to medical care services; to do so at a price that society could afford to pay; and, in the process, to train the next generation of physicians, equipping them to minister more efficiently and effectively to the critical health needs of the American people. That was the challenge that Ebert set himself, surely from the time that he became dean of the Harvard Medical School, and that remained his goal for the remaining years of his life. In meeting this challenge, he displayed a dedication that must inspire those who now take up his responsibilities and follow his lead into the new century.

Ebert helped to guide the Milbank Memorial Fund for 30 years: as a member of its Technical Board, a director, and twice as president. Reflecting on his association with the Fund in 1995, he saw a "significant congruence between the evolution of my own thinking and the Fund's long-standing interest in public health and health policy."

The Board of Directors of the Fund adopted a resolution honoring Ebert that reads, in part, "We cherish Robert H. Ebert, the private as well as the public man. We affirm the moral and intellectual standards he set for himself, for his friends, and for the Fund. We will miss him."

Samuel L. Milbank
Chairman

Daniel M. Fox
President

Acknowledgments

Jordan J. Cohen, President of the Association of American Medical Colleges, collaborated with the Fund in creating the Robert H. Ebert Lecture on American Medicine and the Public Interest. The members of the committee who selected the third Lecturer were: David Blumenthal, Director, Institute for Health Policy, Massachusetts General Hospital and Partners Health System; Jo Ivey Boufford, Dean, Robert F. Wagner Graduate School of Public Service, New York University (committee chair); Michael J. Dunn, Dean and Executive Vice President, Medical College of Wisconsin; John T. Harrington, Dean, Tufts University School of Medicine; John D. Stoeckle, Professor of Medicine, Emeritus, Harvard Medical School, and Physician, Internal Medicine Associates, Massachusetts General Hospital; and Donald E. Wilson, Vice President for Medical Affairs and Dean, School of Medicine, University of Maryland.

Staff members of the Association of American Medical Colleges who helped to organize and administer the lecture and supervise its publication were: Albert Bradford, Senior Deputy Editor, *Academic Medicine*; Lynn C. Milas, Senior Administrative Associate, Division of Medical School Affairs; and Joseph A. Keyes, Jr., Senior Vice President and General Counsel.

About the Author

Kenneth I. Shine, M.D., is President of the Institute of Medicine, National Academy of Sciences. He is immediate past Dean and Provost for Medical Sciences of the UCLA School of Medicine. A cardiologist and physiologist, Dr. Shine received his A.B. from Harvard College in 1957 and his M.D. from Harvard Medical School in 1961. He served as Chairman of the Council of Deans of the Association of American Medical Colleges from 1991 to 1992, and was President of the American Heart Association from 1985 to 1986. Dr. Shine's research interests include metabolic events in the heart muscle, the relation of behavior to heart disease, and quality of health care. He continues to teach and care for patients as Clinical Professor of Medicine at Georgetown School of Medicine. His lecture also appears in *Academic Medicine* 77.1 (January 2002):91–9.

Health Care Quality and How to Achieve It

Robert Ebert was dean of the Harvard Medical School, where I went to school, and I had an opportunity to follow his career closely. Among other things, Ebert was committed to improving medical education. He initiated a number of new approaches to educational programs at Harvard and elsewhere. He was a major innovator of health care delivery who conceptualized the Harvard Community Health Plan. This combination of a scientist-teacher who also understood health care was quite unique. It is therefore particularly appropriate in this report (which is an edited version of the Robert H. Ebert lecture I delivered in April 2001) to consider ways in which the medical profession—including medical educators—can improve the quality of health care in the 21st century.

I propose to challenge us all about the culture of physicians and medicine in the 20th century and how different it must become in the 21st century (Table 1) to ensure high-quality care. The 20th-century physician prided himself on autonomy, as opposed to the requirements in the 21st century for teamwork in health care. Solo practice was the paradigm of the late 19th and the first part of the 20th century, whereas in the 21st century it will be systems of care in which individual physicians or a group of physicians play key roles that will determine the outcomes of care and health. Continuous learning has been part of the hallmark of learned professions throughout the generations, but from now on, continuous improvement must be added to the importance of learning in a much more explicit and concrete way.

Table 1. Contrasting Characteristics of the Cultures of Physicians and Medicine in the 20th and 21st Centuries

20 th -Century Characteristics	21 st -Century Characteristics
<ul style="list-style-type: none"> • Autonomy • Solo practice • Continuous learning • Infallibility • Knowledge 	<ul style="list-style-type: none"> • Teamwork / Systems • Group practice • Continuous improvement • Multidisciplinary problem solving • Change

Medicine continues to foster an aura of infallibility of the physician, and in many ways remains a "blame-and-shame" type of profession, in which the individual physician is supposed to know everything and not acknowledge when he or she is wrong or makes errors. Problem solving should be the 21st-century paradigm for the profession. Although the acquisition of new knowledge will remain important for the profession, it is the use of knowledge to produce change that should be a central feature of the knowledge effort in the 21st century.

The Work of the Institute of Medicine

The efforts of the Institute of Medicine to address quality of health care in America provide a basis for supporting these representations about medicine and medical education in the 21st century. The Institute of Medicine was established in 1970. It is an honorary organization that annually elects 60 regular members who have contributed to knowledge and practice of improving health and health science in the United States. It also elects five senior members and five foreign associates each year. The Institute operates under an 1863 charter to the National Academy of Sciences that requires that it will advise the government "whenever asked" on issues related to science and technology—and now on health. This advice is given primarily through reports on topics that run the full gamut from the hazards of smoking (*Growing Up Tobacco Free*¹ was the basis of the Clinton-Kessler tobacco policy) to nutrition, unintended pregnancy, and so forth.

Historically, the Institute responded largely to requests from government for individual reports on individual subjects. Currently, the Institute is conducting a congressionally mandated study on health disparities in America. Also under way are projects in research integrity and protection of human participants in clinical trials. The Institute now also initiates about 30 percent of its work, often in areas that are of great public interest. This includes a workshop on stem-cell research to analyze the potential scientific opportunities afforded by and limitations of stem cells from a variety of sources. This project is funded entirely by endowment income. A project on human cloning is underway to clarify some of the misunderstandings about the science of cloning. In collaboration with the Association of American Medical Colleges and the Association of Academic Health Centers, the Institute of Medicine recently held the Nickens Symposium to address issues of diversity in the health professions, including medicine.

But the Institute also has identified areas in which an important theme is explored through multiple reports. The first of these areas is the quality of health care in America. A six-report series of studies on the uninsured in America is now underway, with a special emphasis on the social, economic, and health consequences for the American people of the growing number of uninsured. A study on the future of academic health centers is just beginning, which will involve a committee whose members include a significant number of individuals who are not from academia. This approach will allow a thorough arm's-

length assessment of the performance and needs of these centers. Finally, the Institute will launch a series of studies on information technology, including standards for such systems, and their use by institutions, professionals, and the public.

Issues of Quality in Health Care

There are now six Institute reports on the quality of health care in America. The first, which appeared in the *Journal of the American Medical Association*,² was written by Bob Galvin of Motorola and Mark Chassin of the Mount Sinai School of Medicine in New York. That report concluded a number of important things. First, that quality can be measured. Second, that there is a substantial gap in America between average quality of care and the best that is available. That gap exists in fee-for-service care and in managed care. The gap consists of several elements: overuse, underuse, and misuse of medical care.

Overuse entails many obvious components: excessive surgery, especially certain procedures that are carried out as much as six to eight times more frequently in some parts of the country than in others. Overuse includes excessive use of antibiotics and many other therapies. Underuse refers to the failure to apply, when indicated, therapies that have been shown to be effective in medical care.

In a study comparing the outcomes of care for a number of conditions at major teaching hospitals, minor teaching hospitals, and community hospitals,³ it was shown that major teaching hospitals achieved better outcomes of care for treatment of acute myocardial infarction. The principal difference in outcomes was based not on high-tech surgery, but on the use of beta-blockers and aspirin. Yet, in the major teaching hospitals, only 48.8 percent of patients who should have been receiving beta-blockers after a myocardial infarction were getting them. In another important study,⁴ the investigators added a note on reports coming back from the EKG lab that observed that patients over age 65 with a diagnosis of atrial fibrillation, in the absence of a contraindication, should be anticoagulated. As a result of these reminders, the use of aspirin went up 62 percent and the use of Coumadin went up over 40 percent in this hospital study.

In a report from the Institute of Medicine's National Cancer Policy Board,⁵ an entirely separate committee looking at cancer care in America came to the same conclusions for cancer care that the Institute's Quality Roundtable came to for care in general. Moreover, they showed that there was a relationship between volume and outcomes in terms of cancer care, particularly for more complicated kinds of treatments such as those required for cancer of the pancreas or esophagus.

Medical Errors

The Institute's Quality of Care Committee, chaired by William Richardson, produced *To Err is Human: Building a Safer Health System*,⁶ as its first report. When the report was released, some challenged the assertion that 44,000 to 98,000 Americans died annually as a result of preventable errors. The evidence since that time suggest those numbers are actually low. It is clear in the studies that led to these numbers that in many cases errors that occurred were often not recorded in the patient's chart. Second, these figures did not include the nursing home deaths or the ambulatory care deaths. Since that time, studies of nursing homes and of the ambulatory arena have demonstrated substantial, serious problems.

As recently as April 2001, the *Washington Post*⁷ outlined the story of a young child who was hospitalized and subsequently died after receiving two doses of ten times the amount of morphine that the physician had intended. The system of care for this child failed; there was lack of clarity in the written prescription, and all of the people in the treatment chain failed to find out what the real prescription was. We know that medical errors kill many people. The burden of injury from errors is large, but most of these errors are avoidable, and there is considerable experience from other industries regarding error prevention.

There has been some debate of what is an "error." Since the release of the report, there has been a burgeoning interest in safety and errors, and investigators are entitled to define errors in a variety of ways. If they are going to do a particular study, then they need to define it carefully. The Institute of Medicine committee did not want to imply errors were principally about physician judgment. Errors are the failure of a planned action to be carried out as intended. A doctor determines to do something and the system for making it happen fails, whether it results in the wrong dose of a medicine or surgery on the wrong side of the body or some other kind of adverse outcome. An error of planning would be a situation where a pathologist interprets a clinical surgical slide without having a clinical history. If the pathologist has the clinical history, looks at the slide, and comes to an incorrect conclusion, that may be a judgment issue.

The key findings from *To Err is Human* were that errors are caused by system failures and that preventing errors means designing safer systems. The Institute of Medicine outlined a four-part plan to combat errors, much of which has begun to be implemented. A national center for patient safety has been established. It is the Center for Quality Improvement and Patient Safety (CQIPS) at the Agency for Health Research and Quality (AHRQ). This center has a first-year budget of \$50 million. There have been several requests for proposals issued for investigators to study patient safety. The AHRQ is charged with issuing an annual report to Congress and to the president on issues of quality of health care in America and on patient safety. William Roper chaired a committee for the Institute that has recommended criteria for developing such a national quality report.⁸

There has been considerable debate concerning the recommendation that there be error reporting systems. The most important aspect is that there be a voluntary system within institutions for discussing all kinds of errors, major events, and near misses. There is a need for additional legislation to increase protection under the peer review process for privileged discussion of those kinds of errors. That aspect is vital. The Institute of Medicine will also be undertaking a project that will examine the impact of liability suits on quality improvement.

A mandatory system for reporting errors is much more debatable. The Institute's report did not suggest a national mandatory reporting system. It suggested that there be state-based systems, that these systems use similar definitions so that it is possible to compare patient safety between states, and that reports focus on the most serious errors. The Joint Commission on Accreditation of Healthcare Organizations (JCAHO) now reviews sentinel events when they do site visits. Not all sentinel events are due to errors, but errors are one of the serious issues to identify in regard to such events. Experience has shown that not only should there be organizational level reporting of serious adverse events, but there should also be public access to information.

Physicians believe that they know quality of care when they see it—and they are often wrong. Doctors are good at evaluating other doctors on the basis of their knowledge and on the basis of their communication skills and organization, but they do not know whether the care provided by a specific physician produces good outcomes without information and evidence.

Information and evidence must be concerned with more than the actions of the individual doctor. For example, in New York State, a hospital with a group of well-trained surgeons on staff had very poor risk-adjusted mortality rates.⁹ The hospital argued that the mortality was high because of very sick patients and that the system for risk adjustment was inaccurate. A site visit revealed that elective patients in that hospital had very good outcomes, but if a patient arrived unstable in the emergency room, the result was very poor. At that time, every other cardiac surgical program in New York State stabilized such unstable patients in the emergency room before taking them to the operating room. At this hospital, these surgeons instructed the emergency room staff to get unstable patients to the operating room as fast as possible. This practice resulted in high mortality outcomes. When the policy was changed to stabilize patients in the emergency room, the surgeons operated on 55 patients before there was a death. The surgeons were technically good, but they operated under a faulty system of care.

The experience of reporting outcomes of coronary artery bypass surgery in New York State emphasizes that the improvement in care that took place was not primarily due to the doctors' changing their referral patterns, or to managed care companies buying better care. In my opinion, it occurred largely because the trustees of hospitals with poor results did not like being in the bottom tercile. Data can drive change.

Much has happened since *To Err is Human* was released. Medical institutions, professional organizations, managed care organizations, and purchasers are working hard to improve patient safety.

Some of the recommendations from *To Err is Human* have direct relevance to medical education. We need to create a safety net in health care, provide leadership in designing jobs properly, emphasize team functioning, help physicians anticipate the unexpected, and create a learning environment in situations where care is given. Specifically, medical schools should consider educating medical students in situations where they can be taught in conjunction with nursing students and other kinds of health professionals, including pharmacy students, so that they learn how to do joint problem solving in the same way that institutions are trying to deal with patient safety. The educational process needs to reflect team functioning and orientation to micro- and macro-systems of care to a much greater extent than it has.

Although almost all of the work on medical errors has been based on inpatient hospital studies, the outpatient environment is also critical. An editorial from the *Washington Post*¹⁰ from July 2000 outlined the

death of a five-year-old from a dose of imipramine given in a concentration five times greater than what the doctor prescribed. This was an outpatient death. A striking feature of the editorial was a report from the Commonwealth of Virginia that indicates that between 2 percent to 5 percent of prescriptions in Virginia contain an error. In another article, the *Post*¹¹ reported that 73 patients with syphilis who were treated at public health clinics in Maryland received the wrong antibiotic. They were given Bicillin CR instead of Bicillin LA. CR is used to treat strep infections; LA is used to treat syphilis. The color scheme, typography, and contents of the packages were virtually identical except for the suffixes, CR and LA.

Clearly, we simply cannot afford to have medications whose names sound the same and that look similar in their packages. The physicians who have done the most to overcome this and related problems are the anesthesiologists; they have dramatically reduced the numbers of incorrect dosages and concentrations in the operating room. With the systems they have established, they are much less likely to pick up the wrong concentration of a drug. But their efforts can be augmented by the Food and Drug Administration (FDA), which should discourage approval of drugs with similar names, packaging, and appearance.

Fostering Quality

The Department of Health and Human Services (DHHS) has created the QUIC, the Coordinating Committee on Quality, which has already been very effective. The Leapfrog Group of almost 100 corporations has placed patient safety high on its priority list. It is requiring computerized physician order entry in all of the urban hospitals providing care to enrollees in their health plans. The Leapfrog Group is also devising ways to pay more for quality and to help its employees choose quality. The state of California has mandated computerized physician order entry (CPOE), and many state health departments are developing patient safety programs.

*Crossing the Quality Chasm: A New Health System for the 21st Century*¹² is the most recent Institute of Medicine report about quality in health care. The "chasm" in the title is a reference to the finding from the errors report that showed a significant gap between average care and best care. The more the committee looked at the problem, the more clearly they saw that it was not just a gap but a chasm. There is evidence that if an outcome of care is measured, practitioners will respond by improving their performances. But if one excludes specific projects focused on quality care or those being measured by accrediting bodies, there are many conditions in which half or less than half of the patients who should be receiving particular treatments get them.

The "chasm" report analyzed some of the major forces influencing health care. These include an expanded knowledge base, information technology, chronic care needs, and payment policy. Many issues exist regarding the expanded knowledge base. The FDA last year received more than 5,000 applications for new devices. The number of drugs being submitted to the FDA continues to rise rapidly. Mark Chassin¹³ noted that in 1966 there were about 100 published papers on randomized controlled trials in the United States. In 1995, there were more than 10,000.

Having access to information systems and using them properly is essential to dealing with this information explosion. Information systems can improve quality through CPOE. There have been some very interesting studies showing that computerized systems to assist diagnosis and patient management can dramatically improve quality of care when used properly. We must apply the computerized patient record throughout our health care system. The Department of Veterans Affairs (VA) hospitals have an excellent computerized patient record. There are isolated examples around the country of outstanding computerized patient records. But the fact that in a \$1.2 trillion system, most physicians cannot immediately learn which drugs the patient is taking or the results of recent tests obtained in the office or the emergency room simply does not make any sense.

Information technology can improve timeliness, it can help parents decide about immunization, it can reduce redundant testing, and it can also provide much more equity by improving the access and providing more options for patients and providers. In addition, our system must become much more patient-centered as the Internet provides increasing access to knowledge to many people, can customize their education, and can offer information about disease management.

The current delivery system is inadequate to provide a full complement of services to the chronically ill. Many physician groups and hospitals still operate as silos. This past March, I was on service at Georgetown University Hospital. It is remarkable that in the year 2001, I saw a patient who came in with a history of esophageal varices and vomiting of blood, but I could obtain no information about previous work-ups at multiple institutions for this patient. His history was quite incomplete and confusing. It took weeks to collect

information about him from previous encounters with the health care system. In the mean time, we had to manage him without the data.

The emphasis on chronic illness is important. Once, the outstanding physician was known as one who could diagnose and treat patients with acute conditions. Yet we have 100 million people in this country, approximately 40 percent of the population, who have chronic conditions.¹² Those account for more than two thirds of all health care expenditures. This also emphasizes the "80/20 Rule," that is, some 20 conditions account for about 80 percent of expenditures in the health care system.¹² This observation is important for recommendations regarding chronic care, but again emphasizes that our educational systems and our care systems in the health care system are not well designed to provide the kind of models for planned systematic approaches using information technology and self-management of patients with chronic conditions.

The use of multidisciplinary teams to manage chronic illness has been very good in some institutions when applied to care of diabetes and geriatrics. But by and large, our health care system is still a long way from effectively using multidisciplinary teams and educating people to use them.

Finally, the payment systems in place in our health care systems are contradictory and complex, working against efforts to improve quality. For example, a group of physicians decided to improve its diabetes management through e-mail communications with patients.¹⁴ The enhanced communications helped patients receive better care, have better outcomes, and require fewer doctor visits. But because the doctors were reimbursed for fee for service and patients did not return as often, it cost these physicians significant income to implement a quality program. There is no incentive for most doctors to use e-mail today. Physicians worry they will receive more and more questions and not be compensated for responding to them. In another study,¹⁴ a hospital in the Midwest implemented a program to improve choices of initial antibiotics to treat pneumonia. Mortality rates went down, hospital days went down, and costs went down, but it cost the hospital money because these patients were less sick, their DRG categories were less serious, and the hospital received less money. The system itself is bizarre. If the system makes a mistake and produces kidney failure, this will put the patient into a higher- paying DRG. That is clearly not aligning incentives with regard to quality.

The Institute of Medicine's Committee on Quality emphasized that we should aim for our system to be safe, effective, patient-centered, timely, efficient, and equitable. The system has to become one where the patient is the center of activity. The committee also concluded that the health care delivery system is in need of fundamental change and that current care systems cannot do the job. This is very important: Trying hard will not work. We have a tendency to think that if only doctors worked harder or nurses worked harder, things will improve. This is not true. Changing systems of care is the only way to make the system better. We have to work smarter and work more effectively. The Institute of Medicine Quality Committee¹² recommended that there be ten rules to redesign care:

1. Care based on continuous healing relationships; in many cases, this will be with a physician, but if not a physician, then perhaps a nurse or another health professional can provide such a continuing relationship.
2. Customization of care, based on patients' needs and values.
3. The patient as the source of control.
4. Shared knowledge and free flow of information.
5. Evidence-based decision making.
6. Safety as a systems property—the system should be transparent and patients should be able to understand everything occurring, both in individual care and in the kind of care that is provided by institutions.
7. Transparency—patients should have access to information about how the system is performing.
8. Anticipation of needs.
9. Continuous decrease in waste.
10. Cooperation among clinicians.

I believe that for every important procedure performed, there should be a defined range of acceptable outcomes. When a patient is referred, the patient should be provided the range of acceptable outcomes and compare them with the results obtained by the physician to whom he or she is referred.

As previously noted, 20 conditions account for 80 percent of U.S. health care expenditures. The priority conditions are critical. The AHRQ should identify 15 such conditions, most of which will be chronic, and

encourage research to define the evidence for best care of each condition. The Institute of Medicine Committee on Quality recommended that Congress establish a \$1 billion innovation fund to seed improvement projects in this area. Clearly, investments to improve quality throughout the health care system must also be made.

Health care purchasing organizations and professional organizations in medicine need to develop strategies and implement plans to improve quality substantially for priority conditions over the next five years. There needs to be a major renewed commitment to build an information infrastructure to support health care quality measurement, improvement, accountability, services, research, and education. The United States spends one-seventh of its gross domestic product (GDP) on health care, yet the industry as a whole does not have an infrastructure in which there exists a common language, common definitions, and the ability to communicate.

There probably needs to be a federal investment in this, most likely as capital investments through HCFA (the Health Care Financing Administration, since renamed CMS, the Centers for Medicare & Medicaid Services), but the tradeoff should be that money is not given unless there is an agreement to standards of the system, language, and connectivity. That kind of a system should also lead to the elimination of most handwritten clinical data by 2010.

Purchasers need to examine their systems to remove barriers that impede quality and to build strong incentives for quality. GM, Motorola, and a number of other companies have now had evaluations of quality among their providers, and if their employees choose a higher-quality program, their co-payment will be less. They are also looking at a variety of ways to identify quality and give it a premium. The AHRQ and HCFA need to evaluate options to better align the current payment methods with quality-improvement methods.

Payment methods must provide fair payment for good management of the type of patient seen, and there must be a way for providers to share the benefits. The experience has been that incentives are important, but we need to align them and provide an opportunity for consumers and purchasers to recognize quality differences and then make decisions accordingly. Payment systems should align financial incentives to the implementation of care practices based on best practices and on the reduction of fragmentation of care. Systems demonstrating this ought to be rewarded.

As mentioned earlier, physicians have been trained with an expectation that they will be infallible. "How can there be an error without negligence?" is the way they are taught to look at errors. We have educated our young people in a "blame and shame" approach if there is a poor outcome. We and our students can learn a lesson from what was done when a major error occurred in a Florida hospital and a little boy died as a consequence of being given the wrong dose of epinephrine. Not only did the hospital acknowledge the error, but the anesthesiologist involved went to the Internet and let the rest of the anesthesia community know that there was a problem and how to deal with it. That anesthesiologist had resisted the need to appear infallible. But that need creates in many a strong pressure to cover up mistakes and that is wrong.

While I was on service at Georgetown this past March, a young resident asked to present the case of a female patient who was not on our services in the hospital any longer. The resident blushed deeply and proceeded to tell me that they had not done a good job with this patient, who had presented with acute upper abdominal pain. The student then told the story of the patient and I commented as she presented. At some of my observations, she would blush again. She acknowledged that she was blushing because I was on the right track. Finally, I concluded that the patient had acute myocarditis with heart failure and the reason for her abdominal pain was severe right-hearted failure with swelling of the liver. The patient had been treated for an acute abdominal catastrophe. For her low blood pressure, they gave her huge amounts of fluid, which made her heart failure worse. It was only after some scans were performed that it was noticed the heart was dilated.

After we had finished discussing the case, the young resident turned to me and said, "I almost could not bring myself to present this patient to you." And again, she blushed deeply. We want our trainees to be responsible and effective, but medical education is about learning. Trainees should learn from this kind of experience rather than conceal it, and it troubled me that this resident was so tempted not to reveal her experience.

Human-factors research in industry has defined a number of factors that reduce error and improve performance.¹⁵ In the airline industry, there are strict rules about how long a pilot can fly, and there are limits so that pilots cannot fly back-to-back—yet look at what our nurses and house officers do on schedules that

are back-to-back. We have nurses working 12-hour sessions back-to-back; we have house officers working enormous hours. We would never do that if we were designing a good system in terms of quality of care.

There are three elements that are essential in the medical profession: altruism—that is, putting the patient before yourself; a sufficient body of knowledge; and the self-governance that includes ensuring the quality of the services provided. Medical educators have placed increasing emphasis on altruism in recent years and this is essential. The body of knowledge has changed dramatically, first because of its size, but also because patients have access to it. No longer are we a secret society that controls information about health. Many of our patients know a lot of this information, and we, as a profession, need to know how to share it.¹⁶ In the areas of self-governance and quality, I think we have largely failed. We have failed because we equate quality with how much an individual physician knows. We do an exam and we look at the knowledge base, as opposed to looking at quality as something that has to do with how well patients are cared for, which takes me back to where I started. Recertification for specialists should be at least as much about performance as about knowledge.

The 20th-century paradigm I mentioned earlier was of the autonomous physician, and our physicians are still fighting for this. The whole managed care issue in many ways was a fight about autonomy. In the early 20th century, according to Eli Ginzberg,¹⁷ there were three health providers (e.g., nurses, pharmacists) for every doctor in America. The ratio today is 16 to 1. When there was one doctor for every three providers, the doctor did most of the care and was able to see the beginning, middle, and end of that care. Today, there are 15 other people, and teamwork is what counts. Solo practice was the paradigm. Solo practice has merged into group practice to an increasing extent, but we now must consider the importance of systems of care, which include all elements of practice.

Issues of Education

Continuous learning is very important to all of us. That has been one of the paradigms of the intellectual aspect of medicine. However, when physicians attend CME programs, they often show an increase of knowledge, but only about 20–25 percent change their practice as a result of that new knowledge. Physicians must understand that continuous learning is also about continuous improvement, and that means getting evidence and determining whether you are improving. We have to change to a paradigm that emphasizes problem solving in clinical practice. Recent patient safety activities have been profound because they have included activities for nurses, pharmacists, physicians, and many other health providers to come together to determine why something went wrong and how they, as a group, can do something to prevent it. Knowledge is important, but knowledge without application does not improve care. I believe that our physicians need to be educated on the concept of change as a fundamental element in practice. Physicians are among the most conservative people in our society. They quickly apply new technology, but do not apply change to the way in which they apply that technology in practice. Educating our young people to the notion of change and continuous improvement is vital.

Education, it seems to me, now requires insights into systems analysis, which can now be done through case-based problem solving. We need to have courses in the second, third, and fourth years of medical school in which students from a variety of professions learn about the cultures of each other's professions and learn about how they can work together. There is nothing wrong with an outstanding clinical nurse practitioner supervising medical students in the outpatient environment. It happens in a number of good programs already and needs to be generalized. Education must focus on change and improvement, team functioning, and evidence-based care.

The Care of the Patient: A Multifaceted Job

Let me conclude with this 1927 quotation from Francis Peabody,¹⁸ a copy of which I have kept in my briefcase my entire career. It was a very important notion to me that "for the secret of the care of the patient is in caring for the patient." That was 1927, when the physician had little or nothing to offer except caring, and in which that caring was exemplified by the willingness of the physician to come to the house to do a tonsillectomy on the kitchen table. In the 21st century, I think we have to accept the notion that "the secret of the care of the patient is in the care of the patient." That does not mean that we do not want physicians who are not altruistic, who do not communicate well, who do not care for their patients. But no matter how much they care, if physicians are not in a position to provide outstanding care through the mechanisms that I have discussed, all the caring in the world will not help our patients. While we continue to emphasize altruism, it seems to me that a focus on the concepts of outcomes, of process, of evidence, of improvement, of change, and of application of learning are absolutely essential to us.¹³ I would argue that Robert H. Ebert, as a 21st-

century physician, would encourage us to confront these issues in education and in the delivery of health care.

Notes

1. B.S. Lynch and R.J. Bonnie, eds. *Growing Up Tobacco Free: Preventing Nicotine Addiction in Children and Youths*. Washington, D.C.: National Academy Press, 1994.
 2. M.R. Chassin and R.W. Galvin. The Urgent Need to Improve Health Care Quality. *Journal of the American Medical Association* 280(1998):1000–5.
 3. J.J. Allison, C.I. Kiefe, and N. Weissman. Quality of Care at Teaching and Nonteaching Hospitals. *Journal of the American Medical Association* 284(2000):2994–5.
 4. V. Valeti, L. Horton, J. Schwartz, et al. A Simple Intervention to Improve Physician Practices Regarding Antithrombotic Therapy in Patients with Atrial Fibrillation. *Journal of the American College of Cardiology* 33(2000):102A.
 5. M. Hewitt and J.V. Simone, eds. *Ensuring Quality Cancer Care*. Washington, D.C.: National Academy Press, 1999.
 6. L.T. Kohn, J.M. Corrigan, and M.S. Donaldson, eds. *To Err is Human: Building a Safer Health System*. Washington, D.C.: National Academy Press, 2000.
 7. A. Goldstein. Overdose Kills Girl at Children's Hospital. *Washington Post* (April 20, 2001):B01.
 8. M.P. Hurtado, E.K. Swift, and J.M. Corrigan, eds. *Envisioning the National Health Care Quality Report*. Washington, D.C.: National Academy Press, 2001.
 9. M.R. Chassin, E.L. Hannan, and B.A. DeBuono. Benefits and Hazards of Reporting Medical Outcomes Publicly. *New England Journal of Medicine* 334(1996):394–8.
 10. Reducing Pharmacy Errors (editorial). *Washington Post* (July 6, 2000).
 11. Syphilis Patients Got Wrong Drug. *Washington Post* (Sept. 15, 1999).
 12. Committee on Quality of Health Care in America, Institute of Medicine. *Crossing the Quality Chasm: A New Health System for the 21st Century*. Washington, D.C.: National Academy Press, 2001.
 13. M.R. Chassin. Is Health Care Ready for Six Sigma Quality? *Milbank Quarterly* 76(1998):575–91.
 14. B. James (Executive Director, Intermountain Health Care Institute for Health Care Delivery Research, Salt Lake City). Personal communication, April 24, 2000.
 15. J.M. Juran. *Juran on Leadership for Quality: An Executive Handbook*. New York: The Free Press, 1989.
 16. K.I. Shine. Closing the Gap in Quality Health Care for Americans. *Circulation* 101(2000):2325–7.
 17. E. Ginzberg (Director, Eisenhower Center for the Conservation of Human Resources, Columbia University). Personal communication, April 5, 2001.
 18. W.F. Peabody. The Care of the Patient. In *The Art of Medical Care and Caring*, ed. W.F. Peabody, 69–99. Boston: Harvard University Press, 1968.
-

*(To request a bound copy of this report, click [here](#).
To see a complete list of Milbank reports, click [here](#).
Be sure to specify which report you want,
your name, mailing address, and phone number.)*

Milbank Memorial Fund
645 Madison Avenue
New York, NY 10022

(c) 2002 Milbank Memorial Fund

The Milbank Memorial Fund is an endowed national foundation that engages in nonpartisan analysis, study, research, and communication on significant issues in health policy. In the Fund's own publications, in reports or books it publishes with other organizations, and in articles it commissions for publication by other organizations, the Fund endeavors to maintain the highest standards for accuracy and fairness. Opinions expressed by individual authors, however, do not necessarily reflect opinions or factual determinations of the Fund.

This file may be redistributed electronically as long as it remains wholly intact, including this notice and copyright. This file must not be redistributed in hard-copy form. The Fund will freely distribute this document in its original published form on request.

Printed in the United States of America.

ISBN 1-887748-49-0



2005 Robert H. Ebert Memorial Lecture Emerging and Re-emerging Infectious Diseases: The Perpetual Challenge. 2005 Robert H. Ebert Memorial Lecture Emerging and Re-emerging Infectious Diseases: The Perpetual Challenge. Milbank Memorial Fund. by Anthony S. Fauci. Milbank Memorial Fund. Robert H. Ebert Lecture on Academic Medicine and the Public Interest as a memorial to an exemplary physician, scientist, dean, and foundation executive. Ebert Lecturers are persons whose careers and character demonstrate broad and effective concern for medicine and the health of the public. They are chosen by a committee appointed jointly by the AAMC and the Fund. The lecture is delivered in odd Richtmyer Memorial Lecture Award. Floyd K. Richtmyer, a founder and past president of AAPT. Established in 1941. Named for Floyd K. Richtmyer, distinguished physicist, teacher, and administrator and one of the founders of AAPT, the Richtmyer Memorial Lecture Award recognizes those who have made outstanding contributions to physics and their communication to physics educators. The recipient delivers the Richtmyer Lecture at an AAPT Winter Meeting on a topic of current significance and at a level suitable for a non-specialist audience and receives a monetary award, an Award Certificate, and travel. Dr. Robert H. Ebert, the longtime dean of the Harvard Medical School and founder of the nation's first academic health maintenance organization, died on Monday in Boston. He was 81 and lived in Wayland, Mass. Dr. Ebert actively supported his medical students as they protested the Vietnam War, both on and off campus, and he took part in antiwar rallies, too, even though he was trying to build support for the medical school at the same time among corporate executives who supported the war. Critics of corporate-sponsored research worried that such work might be skewed from pure medical research, but Dr. Ebert endorsed the partnership and helped expand it. After retiring from Harvard, he became the president of the Milbank Memorial Fund, a foundation that supports health projects.