

Improving the 21st-Century Health Care System

As discussed in Chapter 1, the American health care system is in need of major restructuring. This will not be an easy task, but the potential benefits are great. To cross the divide between today's system and the possibilities of tomorrow, strong leadership and clear direction will be necessary. As a statement of purpose for the health care system as a whole, the committee endorses and adopts the phrasing of the Advisory Commission on Consumer Protection and Quality in the Health Care Industry (1998).

Recommendation 1: All health care organizations, professional groups, and private and public purchasers should adopt as their explicit purpose to continually reduce the burden of illness, injury, and disability, and to improve the health and functioning of the people of the United States.

It is helpful to translate this general statement into a more specific agenda for improvement—a list of performance characteristics that, if addressed and improved, would lead to better achievement of that overarching purpose. To this end, the committee proposes six specific aims for improvement. Health care should be:

- *Safe*—avoiding injuries to patients from the care that is intended to help them.
- *Effective*—providing services based on scientific knowledge to all who could benefit and refraining from providing services to those not likely to benefit (avoiding underuse and overuse).

- *Patient-centered*—providing care that is respectful of and responsive to individual patient preferences, needs, and values and ensuring that patient values guide all clinical decisions.
- *Timely*—reducing waits and sometimes harmful delays for both those who receive and those who give care.
- *Efficient*—avoiding waste, in particular waste of equipment, supplies, ideas, and energy.
- *Equitable*—providing care that does not vary in quality because of personal characteristics such as gender, ethnicity, geographic location, and socioeconomic status.

Recommendation 2: All health care organizations, professional groups, and private and public purchasers should pursue six major aims; specifically, health care should be safe, effective, patient-centered, timely, efficient, and equitable.

The committee believes substantial improvements in safety, effectiveness, patient-centeredness, timeliness, efficiency, and equity are achievable throughout the health care sector. This opportunity for improvement is not confined to any sector, form of payment, type of organization, or clinical discipline. Problems in health care quality affect all Americans today, and all can benefit from a rededication to improving quality, regardless of where they receive their care.

The committee applauds the Administration and Congress for their current efforts to establish a mechanism for tracking the quality of care. Title IX of the Public Health Service Act (42 U.S.C. 299 et seq.; Agency for Healthcare Research and Quality Part A) provides support for the development of a National Quality Report, which is currently ongoing. Section 913(a)(2) of the act states: “Beginning in fiscal year 2003, the Secretary, acting through the Director, shall submit to Congress an annual report on national trends in the quality of health care provided to the American people.”

Recommendation 3: Congress should continue to authorize and appropriate funds for, and the Department of Health and Human Services should move forward expeditiously with the establishment of, monitoring and tracking processes for use in evaluating the progress of the health system in pursuit of the above-cited aims of safety, effectiveness, patient-centeredness, timeliness, efficiency, and equity. The Secretary of the Department of Health and Human Services should report annually to Congress and the President on the quality of care provided to the American people.

Without ongoing tracking of quality to assess the country’s progress in meeting the aims set forth in this chapter, interested parties—including patients, health care practitioners, policy makers, educators, and purchasers—cannot identify

progress or understand where improvement efforts are most needed. Continued funding for this activity should be ensured.

SIX AIMS FOR IMPROVEMENT

Over the course of a lifetime, individuals have numerous encounters with the health system. Fortunately, many of these encounters are effective and result in good outcomes, but such is not always the case. The following scenario, based on the composite experience of a number of patients, illustrates some of the serious problems facing patients and clinicians, problems that persist despite the widespread dedication of clinicians to providing high-quality care.

Ms. Martinez, January 2000

Ms. Martinez, a divorced working mother in her early 50s with two children in junior high school, was new in town and had to choose an insurance plan. She had difficulty knowing which plan to select for her family, but she chose CityCare because its cost was comparable to that of other options, and it had pediatric as well as adult practices nearby.

Once she had joined CityCare, she was asked to choose a primary care physician. After receiving some recommendations from a neighbor and several co-workers, she called several of the offices to sign up. The first two she called were not accepting new patients. Although she knew nothing about the practice she finally found, she assumed it would be adequate.

Juggling repairs on their new apartment, finding the best route to work, getting the children's immunization records sent by mail, and making other arrangements to get them into a new school, Ms. Martinez delayed calling her new doctor's office for several months. When she called for an appointment, she was told that the first available nonurgent appointment was in 2 months; she hoped she would not run out of her blood pressure medication in the interim.

When she went for her first appointment, she was asked to complete a patient history form in the waiting room. She had difficulty remembering dates and significant past events and doses of her medications. After waiting for an hour, she met with Dr. McGonagle and had a physical exam. Although her breast exam appeared to be normal, Dr. McGonagle noted that she was due for a mammogram.

Ms. Martinez called a site listed in her provider directory and was given an appointment for a mammogram in 6 weeks. The staff suggested that she arrange to have her old films mailed to her. Somehow, the films were never sent, and distracted by other concerns, she forgot to follow up.

A week after the mammogram, she received a call from Dr. McGonagle's office notifying her of an abnormal finding and saying that she should make an ap-

pointment with a surgeon for a biopsy. The first opening with the surgeon was 9 weeks later. By now, she was very anxious. She hated even to think about having cancer in her body, especially because an older sister had died of the disease. For weeks she did not sleep, wondering what would happen to her children if she were debilitated or to her job if she had to have surgery and lengthy treatment. She was reluctant to call her mother, who was likely to imagine the worst, and did not know her new coworkers well enough to confide in them.

After numerous calls, she was finally able to track down her old mammograms. It turned out that a possible abnormal finding had been circled the previous year, but neither she nor her primary care physician had ever been notified.

Finally, Ms. Martinez had her appointment with the surgeon, and his office scheduled her for a biopsy. The biopsy showed that she had a fairly unusual form of cancer, and there was concern that it might have spread to her lymph nodes. She felt terrified, angry, sad, and helpless all at once, but needed to decide what kind of surgery to have. It was a difficult decision because only one small trial comparing lumpectomy and mastectomy for this type of breast cancer had been conducted. She finally decided on a mastectomy.

Before she could have surgery, Ms. Martinez needed to have bone and abdominal scans to rule out metastases to her bones or liver. When she arrived at the hospital for surgery, however, some of this important laboratory information was missing. The staff called and hours later finally tracked down the results of her scans, but for a while it looked as though she would have to reschedule the surgery.

During her mastectomy, several positive lymph nodes were found. This meant she had to see the surgeon, an oncologist, and a radiologist, as well as her primary care physician, to decide on the next steps. At last it was decided that she would have radiation therapy and chemotherapy. She was given the phone number for the American Cancer Society. Before 6 months had gone by, Ms. Martinez found another lump, this time under her arm. Cancer had spread to her lung as well. She was given more radiation, then more chemotherapy. Wherever she went for care, the walls were drab, the chairs uncomfortable, and sometimes she would wait hours for a scheduled appointment.

During her numerous procedures and tests, Ms. Martinez experienced many acts of consideration, empathy, and technical expertise for which she was grateful. Yet for Ms. Martinez, who had excellent health insurance and was seen by well-trained and capable clinicians, the system did not work and did not meet her needs. Her care failed on several accounts.

First, it was not *safe*. Neither she nor her previous primary care doctor had been notified of an abnormal finding on her earlier mammogram. As a result, at least a year elapsed before the abnormality was addressed. Ms. Martinez was never confident that those directing her care had all the information about her previous care and its results. Prior to her surgery, critical laboratory information

was missing. She was repeatedly required to tell her story, which became longer and more complex as time passed. No one at the hospital followed her course of illness after her discharge.

Second, Ms. Martinez's care was not *effective*. She suffered preventable, long-lasting disability—and could have lost her life. It was not clear that her follow-up care consistently used the most up-to-date protocols. She needed consistent, reliable information, based on the best science available. Yet treatments tried and proven futile in one admission would be recommended in the next as if they were fresh ideas.

Third, her care was not *timely*. Repeated, extensive delays occurred between tests and follow-up care, delays that are not at all atypical in today's health system.

Fourth, her care was not *patient-centered*. She had little assistance or information to help her understand the implications of choices about her surgery, radiation therapy, or chemotherapy. Although office and hospital staff focused on immediate medical problems, her discomfort, fear, and uncertainty were never addressed, and she was offered few resources to help her.

Finally, her care was not *efficient* because much of its complexity and expense came from treating a tumor at a later stage than should have occurred.

Many other individuals experience systems of care that often do not work. This is true even for patients with excellent insurance, in fine institutions, cared for by conscientious and well-trained clinicians. Common, too, is frequent inability of patients to make their needs understood, to be treated with respect and compassion, to learn what to expect about their health condition and treatment, and to have caregivers and institutions they can trust. These patients tell stories of fragmented care in which relevant information is lost, overlooked, or ignored; of wasted resources; of frustrated efforts to obtain timely access to services; and of lost opportunities. When clinicians and their families and those steeped in health management become patients, they, too, find that there appears to be no one who can make the systems function safely and effectively (Berwick, 1996, 1999; Khan, 2000; Singer, 2000).

In this chapter, the committee puts forth six specific aims for improvement: health care should be safe, effective, patient-centered, timely, efficient, and equitable. These specific aims are intended to aid in achieving the overarching purpose stated in Recommendation 1 above. These aims are not new; they are familiar and have been valued, arguably for decades, among health care professionals, patients, policy makers, and communities. Yet American health care fails far too often with respect to these aims, despite its enormous cost and the dedication and good efforts of millions of American health care workers. After careful consideration, the committee has concluded that fundamental changes are necessary if our current health system is to achieve these aims. In its current forms, habits, and environment, American health care is incapable of providing the public with the quality health care it expects and deserves.

The call for such improvement is not an indictment of physicians, nurses, or, indeed, any of the people who give or lead care. The committee asserts, without reservation, that our health care can and should be far better than it is today, but it would be futile to seek that improvement by further burdening an overstressed health care workforce or by exhorting committed professionals to try harder. Instead, the improvements outlined here will require significant changes in the ways health care is organized, in the accessibility and usefulness of clinical evidence, in the environment of payment, and in other incentives that set the context for delivery of care. A redesigned care system can offer the health care workforce what it wants—a better opportunity to provide high-quality care.

The ultimate test of the quality of a health care system is whether it helps the people it intends to help. This rather simple statement, as expanded upon in the following detailed discussion of the six aims for improvement set forth earlier, represents a major shift in thinking about the purpose of health care—a shift in attention from what is done to patients to what is accomplished for them. The IOM has defined quality as “the degree to which health care services for individuals and populations increase the likelihood of desired outcomes and are consistent with current professional knowledge” (Institute of Medicine, 1990). The committee believes the health care system should define safety, effectiveness, patient-centeredness, timeliness, efficiency, and equity using measures determined by the outcomes patients desire, although clinicians should not be asked to compromise their ethical values. Desirable personal health outcomes include improvement (and prevention of deterioration) of health status and health-related quality of life, and management of physical and psychological symptoms. Desirable outcomes also include attention to interpersonal aspects of care, such as patients’ concerns and expectations, their sense of dignity, their participation in decision making, and in some cases reduced burden on family and caregivers and spiritual well-being.

Such outcomes can be described at both the individual level (e.g., improvement in individual health status) and the population level (e.g., reduced aggregate burden of illness and injury in a population). The committee recognizes that the health of the public could be greatly improved by attention to and investment in a variety of areas, such as reducing violence and substance abuse and improving nutrition and transportation safety. This report, however, is focused specifically on the improvement of health care services to individuals. For this reason, we describe the six aims for improvement from the perspective of the individual’s—usually a patient’s—experience.

Safety

Patients should not be harmed by the care that is intended to help them, nor should harm come to those who work in health care. The earlier report by this committee, *To Err Is Human: Building a Safer Health System* (Institute of

Medicine, 2000b), addresses patient safety in detail. It defines patient safety as freedom from accidental injury. Although not all errors cause injury, accidental injury can be due to error, defined by the IOM (adapted from Reason, 1990) as either (1) the failure of a planned action to be completed as intended or (2) use of a wrong plan to achieve an aim. In health care these errors include, for example, administering the wrong drug or dosage to a patient, diagnosing pneumonia when the patient has congestive heart failure, and failing to operate when the obvious (as opposed to ambiguous) signs of appendicitis are present. Processes also should not harm patients through inadvertent exposure to chemicals, foreign bodies, trauma, or infectious agents.

The health care environment should be safe for all patients, in all of its processes, all the time. This standard of safety implies that organizations should not have different, lower standards of care on nights and weekends or during times of organizational change. In a safe system, patients need to tell caregivers something only once. To be safe, care must be seamless—supporting the ability of interdependent people and technologies to perform as a unified whole, especially at points of transition between and among caregivers, across sites of care, and through time. It is in inadequate handoffs that safety often fails first. Specifically, in a safe system, information is not lost, inaccessible, or forgotten in transitions. Knowledge about patients—such as their allergies, their medications, their diagnostic and treatment plans, and their specific needs—is available, with appropriate assurances of confidentiality, to all who need to know it, regardless of where and when they become involved in the process of giving care.

Ensuring patient safety also requires that patients be informed and participate as fully as they wish and are able. Patients and their families should not be excluded from learning about uncertainty, risks, and treatment choices. The committee believes an informed patient is a safer patient.

When complications occur, caregivers are ethically obligated to fully inform the patient of the event and its causes, assist recovery, and take appropriate action to prevent recurrences. For example, the Code of Ethics (E8.12) of the American Medical Association states, “It is a fundamental ethical requirement that a physician should at all times deal honestly and openly with patients Situations occasionally occur in which a patient suffers significant medical complications that may have resulted from the physician’s mistake or judgment. In these situations, the physician is ethically required to inform the patient of all the facts necessary to ensure understanding of what has occurred” (American Medical Association, 2000).

In many cases, the best window on the safety and quality of care is through the eyes of the patient. For example, the Dana-Farber Cancer Institute in Boston, Massachusetts, includes patients on their review committees. Other approaches include inviting patients and health care workers to comment on the performance of the health system as they experience it, not solely for the purpose of generating

satisfaction ratings, but also as a core way of learning about the system's performance and how to improve it.

Although Americans continue to trust health care clinicians, including doctors and nurses (The Gallup Organization, 2000; The Henry J. Kaiser Family Foundation, 2000), the committee is concerned about Americans' remarkably low level of confidence in the health care system overall. For example, in July 2000, only four in ten Americans surveyed for one poll reported having a lot or a great deal of confidence in "the medical system," though it is not clear who or what kinds of settings were encompassed by their answers (Chambers, 2000). Of the 15 major industries included in the poll, the medical system ranked in the bottom half along with public schools, television and print news, and big business; poll participants reported having greater confidence in banks, the President, and the police. A Harris Poll conducted at the end of 1999 found that only 39 percent of respondents reported having a great deal of confidence in the "people in charge of running medicine" (Taylor, 1999). In 1998, The American Customer Satisfaction Index placed hospitals between the U.S. Postal Service and the Internal Revenue Service in customer satisfaction (Lieber, 1998).

One important route to restoring trust is through a commitment to transparency by all health care systems. Organizations and clinicians that act as though they have nothing to hide become more trustworthy. The health care system should seek to earn renewed trust not by hiding its defects, but by revealing them, along with making a relentless commitment to improve. The transition to openness is a difficult one for our often-beleaguered health care organizations, but it is a journey worth making. In the longer run, access to information can inspire trust among patients and caregivers that the system is working effectively to advance health. Such trust involves patient confidence both that those who are responsible for care have the information they need—regardless of where that information was generated—and that those organizations and caregivers will act in patients' best interests and actively seek to advance their health.

Achieving a higher level of safety is an essential first step in improving the quality of care overall. Improving safety will in turn require systematic efforts from a broad array of stakeholders, including a commitment of clear and sustained leadership at the executive and board levels of organizations; a greatly changed culture of health care in which errors are tracked, analyzed, and interpreted for improvement rather than blame; extensive research on the factors leading to injury; and new systems of care designed to prevent error and minimize harm (Institute of Medicine, 2000b).

Effectiveness

Effectiveness refers to care that is based on the use of systematically acquired evidence to determine whether an intervention, such as a preventive service, diagnostic test, or therapy, produces better outcomes than alternatives—

including the alternative of doing nothing. Evidence-based practice requires that those who give care consistently avoid both underuse of effective care and overuse of ineffective care that is more likely to harm than help the patient (Chassin, 1997).

To say that a health care intervention is effective implies an evidence base. Such evidence-based practice has been defined by Sackett and colleagues and is adapted here (Sackett et al., 1996): evidence-based practice is the integration of best research evidence with clinical expertise and patient values. *Best research evidence* refers to clinically relevant research, often from the basic sciences of medicine, but especially from patient-centered clinical research into the accuracy and precision of diagnostic tests (including the clinical examination); the power of predictive markers; and the efficacy and safety of therapeutic, rehabilitative, and preventive regimens. *Clinical expertise* means the ability to use clinical skills and past experience to rapidly identify each patient's unique health state and diagnosis, individual risks and benefits of potential interventions, and personal values and expectations. *Patient values* refers to the unique preferences, concerns, and expectations that are brought by each patient to a clinical encounter and must be integrated into clinical decisions if the patient is to be served.

Effective care should ensure use of the available, relevant science base. Evidence comes from four main types of research: laboratory experiments, clinical trials, epidemiological research, and outcomes research, including analyses of systematically acquired and properly studied case reports involving one or a population of patients (Agency for Healthcare Research and Quality, 2000). Laboratory experiments—usually on cells or tissues in laboratory animals—are conducted to determine the cause of a disease or how a drug or treatment works. Randomized clinical trials compare outcomes among patients who are randomly assigned to control or treatment groups; other clinical trials compare populations that may be assigned by nonrandom methods. Epidemiological research examines the natural course of disease in particular groups of people; the relationships between people and their health habits, lifestyles, and environment; and risk factors for certain diseases. Outcomes research uses information about how well treatments work in everyday practice settings. The findings of this research sometimes serve as the basis for clinical practice guidelines.

Although the concept of evidence-based practice has come to be regarded by some as implying rigid (even mindless) adherence to the evidence drawn from randomized controlled trials (Grahame-Smith, 1995; *The Lancet*, 1995), we mean it here to encompass the use of best available clinical evidence from systematic research of many designs and integration of that evidence with clinical expertise—the proficiency and judgment that are acquired through experience and applied with knowledge about individual patients and consideration of their priorities and values. The committee is well aware that for many aspects of health care, scant or no evidence of either effectiveness or ineffectiveness exists. In other areas, evidence may be available only for certain patient groups or for the

treatment of patients who do not have coexisting health problems. Thus, it is clearly not possible to base all care on sound scientific evidence, and certainly not exclusively on randomized controlled trials, which narrowly define study populations and exclude or control for factors that are inevitably relevant in real-world care settings. Nonetheless, the committee believes health care organizations and professionals could do a far better job than they do today in determining the most appropriate therapies on the basis of the strength of the scientific evidence; the stakes involved; clinical judgment; and, especially where the evidence is equivocal, shared patient and clinician decision making. In the ideal system of the future, the knowledge base about effective care and its use in health care settings will constantly expand through improved methods of accessing, summarizing, and assessing information and making it available at the point of care for the patient.

Knowing which services are likely to be effective also requires that health care systems continuously monitor the results of the care they provide and use that information to improve care for all patients. At a minimum, health care practitioners and organizations could be far more reflective and systematic than is generally the case today in studying their own patterns of care and outcomes, a vision that Codman (1914) had nearly a century ago when he recommended that all surgeons and hospitals carefully follow their patients after discharge from the hospital to learn whether the treatment they had received had been helpful.

Patient-Centeredness

This aim focuses on the patient's experience of illness and health care and on the systems that work or fail to work to meet individual patients' needs. Similar terms are *person-centered*, *consumer-centered*, *personalized*, and *individualized*. Like these terms, *patient-centered* encompasses qualities of compassion, empathy, and responsiveness to the needs, values, and expressed preferences of the individual patient.

Patients and their families are now better educated and informed about their health care than ever before. As noted earlier, the explosive growth in the use of the Internet by Americans of all ages (National Public Radio Online, 2000) includes intense interest in health information (Brown, 1998; Cyber Dialogue, 2000). In an October 1998 survey of Internet users, 27 percent of female and 15 percent of male Internet users said that they accessed medical information weekly or daily (Eysenbach et al., 1999; Georgia Tech Research Corporation, 1998). Increasingly, individuals make many of their own decisions about diagnosis and treatment and bring information to their physicians with the expectation of help in interpreting or judging its value for themselves. These new health care consumers represent new opportunities for responding to patient needs and reestablishing clinician-patient relationships that are at the heart of good health care.

Many patients have expressed frustration with their inability to participate in

decision making, to obtain information they need, to be heard, and to participate in systems of care that are responsive to their needs. The Picker Institute in Boston, Massachusetts, has been tracking patients' experiences in hospitals, clinics, and other settings since 1988 (Cleary et al., 1991; Picker Institute and American Hospital Association, 1996). In a 1999 report, patients said that, for the most part, doctors, nurses, and medical staff were courteous, and that as patients they were treated with respect and received attention to their basic physical needs. They also reported, however, that hospital discharge often meant an abrupt transition without information on how they should care for themselves, when to resume activities, what side effects of medications should be monitored, or how to have their questions answered. Above all, patients cited difficulty in obtaining the information they wanted, whether in hospitals, clinics, or doctors' offices. In the scenario presented earlier, little consideration was given to satisfying Ms. Martinez' preferences or to ensuring that she had sufficient information to make informed decisions.

The evidence bears out these perceptions. The right of patients to be informed decision makers is well accepted, but not always well implemented. An analysis of audiotaped encounters between patients and their primary care physicians or general and orthopedic surgeons revealed that overall, only 9 percent met the authors' definition of completely informed decision making (Braddock et al., 1999). In another study of physician-patient interaction during visits to general internal medicine specialists, physicians listened to patients' concerns for an average of about 18 seconds before interrupting (Beckman and Frankel, 1984).

Gerteis et al. (1993) have identified several dimensions of patient-centered care: (1) respect for patients' values, preferences, and expressed needs; (2) coordination and integration of care; (3) information, communication, and education; (4) physical comfort; (5) emotional support—relieving fear and anxiety; and (6) involvement of family and friends. Each dimension is briefly discussed below.

- *Respect for patients' values, preferences, and expressed needs.* Patient-centered care responds precisely to each patient's wants, needs, and preferences. It gives patients abundant opportunities to be informed and involved in medical decision making, and guides and supports those providing care in attending to their patients' physical and emotional needs, and maintaining or improving their quality of life to the extent possible. Patient-centered care is highly customized and incorporates cultural competence. Some patients wish to avoid risk; others may choose a risky intervention despite a relatively low likelihood of benefit. Patients' preferences are likely to change over time and to depend on the clinical problems in question; therefore, the enterprise of shared decision making is a dynamic one, changing as patients and circumstances change.

- *Coordination and integration of care.* Because of the special vulnerability that accompanies illness or injury, coordination of care takes on special im-

portance. Many patients depend on those who provide care to coordinate services—whether tests, consultations, or procedures—to ensure that accurate and timely information reaches those who need it at the appropriate time. Patient-centered care addresses the need to manage smooth transitions from one setting to another or from a health care to a self-care setting.

- *Information, communication, and education.* With respect to their health, people tend to want to know (1) what is wrong (diagnosis) or how to stay well, (2) what is likely to happen and how it will affect them (prognosis), and (3) what can be done to change or manage their prognosis. They need answers that are accurate and in a language they understand. Patients are diverse in the way they prefer to interact with caregivers: some seek ongoing personal face-to-face relationships; others prefer to interact with the health care system only when unavoidable and with no substantial interpersonal relationship, being comfortable with e-mail and other Web-based communication technologies. Common to all such interactions is the desire for trustworthy information (often from an individual clinician) that is attentive, responsive, and tailored to an individual's needs.

- *Physical comfort.* Among the committee's more disturbing findings is the frequency with which patients experience pain, shortness of breath, or some other discomfort. Especially at the end of life, they need not undergo such suffering. Sadly, many patients fail to receive state-of-the-art pain relief or respiratory management (Ingham and Foley, 1998; SUPPORT Principal Investigators, 1995). Attention to physical comfort implies timely, tailored, and expert management of such symptoms.

- *Emotional support—relieving fear and anxiety.* Suffering is more than just physical pain and other distressing symptoms; it also encompasses significant emotional and spiritual dimensions (Byock, 1998; Cassell, 1991). Patient-centered care attends to the anxiety that accompanies all injury and illness, whether due to uncertainty, fear of pain, disability or disfigurement, loneliness, financial impact, or the effect of illness on one's family.

- *Involvement of family and friends.* This dimension of patient-centered care focuses on accommodating family and friends on whom patients may rely, involving them as appropriate in decision making, supporting them as caregivers, making them welcome and comfortable in the care delivery setting, and recognizing their needs and contributions.

Health care should cure when possible, but always help to relieve suffering—both are encompassed by the notion of a healing relationship (Crawshaw et al., 1995; Quill, 1983). To accomplish these goals, both technical care and interpersonal interactions should be shaped to meet the needs and preferences of individual patients (Tressolini and The Pew-Fetzer Task Force, 1994; Veatch, 1991). Because patients are highly variable in their preferences, clinicians cannot assume that they alone can make the best decisions for their patients (Balint, 1993; Barry et al., 1995; Brock, 1991; Emanuel and Emanuel, 1992; Szasz and

Hollender, 1956; Wagner et al., 1995). Patients increasingly want to obtain information and to be involved in decision making (Deber et al., 1996; Degner and Russell, 1988; Guadagnoli and Ward, 1998; Mansell et al., 2000; Mazur and Hickam, 1997). Moreover, meeting the aim of patient-centeredness can improve the outcomes patients desire (Brown, 1990; DeBusk et al., 1994; Linden and Chambers, 1994; Mullen et al., 1987), at least in part, by increasing their participation in decision making (Greenfield et al., 1985, 1988; Kaplan et al., 1989; Mahler and Kulik, 1991; Orth et al., 1987; Stewart, 1995).

As with communication styles, patients differ in their views about how active they wish to be in decision making. In some cases, patients want a large role, and in other cases they may delegate most decision making to a clinician. The goal of patient-centeredness is to customize care to the specific needs and circumstances of each individual, that is, to modify the care to respond to the person, not the person to the care.

Timeliness

Timeliness is an important characteristic of any service and is a legitimate and valued focus of improvement in health care and other industries (Fishman, 1999; Fung and Magretta, 1998; Goldsmith, 1989; Kenagy et al., 1999; Maister, 1984; Roach, 1991; Sirkin and Stalk, 1990; van Biema and Greenwald, 1997; Womack et al., 1991). However, long waits are the norm in most doctors' offices, in emergency rooms, on the telephone, in responses to inquiries, in specialty care, on gurneys in hallways waiting for procedures, and awaiting test results, both in institutions and in the community. In addition to emotional distress, physical harm may result, for example, from a delay in diagnosis or treatment that results in preventable complications. The long waits for appointments described in the scenario presented earlier, which are common today, may have resulted in a much more advanced diagnosis for Ms. Martinez. Lack of timeliness also signals a lack of attention to flow and a lack of respect for the patient that are not tolerated in consumer-centered systems in other service industries. It suggests that care has not been designed with the welfare of the patient at the center.

Waits also plague those who give care. Surgeons know that operations rarely start on time; doctors and nurses wait "on hold" as they try to track down vital information, and delays and barriers involved in referrals eat up the time and energy of both referring doctors and consulting specialists. In the earlier scenario, Ms. Martinez' surgery was nearly cancelled because important information that should have been in her record was missing, and staff spent valuable time finding it and rearranging schedules to avoid having to cancel the operation.

Any high-quality process should flow smoothly. Delays should occur rarely. Waiting times should be continually reduced for both patients and those who give care. Much waiting today appears to result from the presumption that certain

kinds of face-to-face encounters are required for patients to receive the help or interaction they require. Health systems must develop multiple ways of responding to patients' needs beyond patient visits, including the use of the Internet. Reducing waiting time does not have to increase expense. Experience has shown repeatedly that in many areas, improving access reduces costs in health care (Barry-Walker, 2000; Cohn et al., 1997; Fuss et al., 1998; Stewart et al., 1997; Tidikis and Strasen, 1994; Tunick et al., 1997) and in other industries (Heskett et al., 1997). Promising work in health care has begun to result in reduced delays by decreasing cycle time and by applying lessons from other industries on continuous rather than batch production (Nolan et al., 1996). These approaches are described further in Chapter 7.

Efficiency

In an efficient health care system, resources are used to get the best value for the money spent (Palmer and Torgerson, 1999). The opposite of efficiency is waste, the use of resources without benefit to the patients a system is intended to help. There are at least two ways to improve efficiency: (1) reduce quality waste, and (2) reduce administrative or production costs.

Not all but many types of quality improvements result in lower resource use. This is true for improvements in effectiveness that result from reductions in overuse. It is also true for most improvements in safety, which result in fewer injuries. Quality waste from both overuse (see Appendix A) and errors (Institute of Medicine, 2000b) is abundant in health care and contributes to excess costs.

Some researchers have attempted to quantify administrative costs that constitute waste (Woolhandler and Himmelstein, 1997; Woolhandler et al., 1993). Others have identified waste in the work of smaller health care units and sought systematically to reduce such waste through a variety of strategies, including eliminating processes that are not useful (such as tests), multiple entries (such as clerical reentry of physicians' prescriptions and laboratory orders), classifications that add complexity without adding value (such as types of appointments and job classifications), and layers of control (such as approvals and sign-offs). Waste can also be reduced by recycling and appropriate reuse of resources (such as data and water) and by wise substitutions (Kain et al., 1999; Klein et al., 2000; Langley et al., 1996; Luck and Peabody, 2000; Poplin, 2000; Skillman et al., 2000; Walczak, 2000; Zairi et al., 1999). Other approaches rely on matching supply to demand and using sampling for measurement instead of measuring 100 percent of events. Several of these approaches are described in greater detail in Chapter 7.

Because of the high levels of waste in the current system, the committee sees no immediate conflict in the simultaneous pursuit of lower costs through efficiency and better patient experiences through safety, effectiveness, patient-

centeredness, and timeliness. There is little doubt that current resources can be spent more wisely to pursue the aims set forth in this chapter.

Equity

This chapter began with a statement of purpose for the health system: “to continually reduce the burden of illness, injury, and disability, and to improve the health and functioning of the people of the United States.” The aim of equity is to secure these benefits for all the people of the United States. This aim has two dimensions: equity at the level of the population and equity at the level of the individual. At the population level, the goal of a health care system is to improve health status and to do so in a manner that reduces health disparities among particular subgroups. Equity in care implies universal access, a promise that has yet to be either made or kept. Lack of health insurance has a profound effect on access to appropriate services, and is directly associated with poor functioning, increased morbidity, and increased mortality (American College of Physicians–American Society of Internal Medicine, 2000; Baker et al., 2000; Franks et al., 1993; Haas and Goldman, 1994; Hafner-Eaton, 1993; Kasper et al., 2000). Institutions and health professionals that deliver uncompensated care to uninsured or underserved patients are at risk financially (Institute of Medicine, 2000a), and evidence suggests that the provision of uncompensated care is declining (Cunningham et al., 1999; Mann et al., 1997). The committee believes lack of access to care is a very powerful barrier to quality.

With regard to equity in care giving, all individuals rightly expect to be treated fairly by social institutions, including health care organizations. The availability of care and quality of services should be based on individuals’ particular needs and not on personal characteristics unrelated to the patient’s condition or to the reason for seeking care. In particular, the quality of care should not differ because of such characteristics as gender, race, age, ethnicity, income, education, disability, sexual orientation, or location of residence (Ayanian et al., 1999; Canto et al., 2000; Fiscella et al., 2000; Freeman and Payne, 2000; Kahn et al., 1994; Pearson et al., 1992; Philbin and DiSalvo, 1998; Ross et al., 2000; Yergan et al., 1987).

Conflicts Among the Aims

For the most part, the six aims are complementary and synergistic. At times, however, there will be tensions among them. Health care institutions, clinicians, and patients will sometimes need to work together to balance competing or conflicting objectives. Two examples are the potential conflict between the aims of patient-centeredness and effectiveness, and the need to balance the aim of equity as applied to the population with achievement of the other aims at the level of the individual.

Some readers might question whether a commitment to evidence-based care conflicts with an emphasis on patient-centered care. We emphasize that the commitment to patient-centered care is not intended to imply that clinicians have an obligation to provide unnecessary services merely because patients request them. All unneeded services have the potential to cause harm. For example, false-positive results on a test can lead to a cascade of testing and psychological distress. Because unnecessary services can do harm and offer no benefit, ethical principles dictate that a physician not recommend or prescribe requested treatment that is of no known benefit—whether, for example, the request is for antibiotics, diagnostic tests, or a wide variety of invasive procedures.

A VISION OF FUTURE CARE

The six aims for improvement described in this chapter define the tasks ahead for the health care system, for organizations, and for clinical practices that wish to contribute to the overarching social purpose set forth at the beginning of this chapter. These aims can lead us all to fundamentally better care. Having presented earlier in this chapter a scenario in which almost everything went wrong, we conclude the chapter with a scenario depicting care as it could be if the six aims were realized:

Maureen Waters, January 2002

Maureen Waters, a single working mother with teenage children, was new in town. When the family moved to Southcity, she had to select an insurance plan. She chose CityCare because its cost was comparable to that of other options, and it was associated with a major university-affiliated hospital.

When Ms. Waters joined CityCare, she was asked to choose a primary care physician. After talking with her neighbors and coworkers, she was pleased to confirm some of what she had learned from having online access to profiles and to information on office hours, credentials, patient satisfaction, and outcomes for each physician and group.

Again online, using a secure site, she chose a physician, completed background and health risk appraisal information for herself and her children, and never again had to supply this information. An hour later, her choice of a physician was confirmed by the plan. She also received a reply from her new physician's office that, on the basis of her health risk appraisal, she should make an appointment to meet with her primary care physician, have her hypertension assessed, and obtain medication refills. The reply also included information about blood tests that should be done before her first appointment.

Because she was due for a breast exam and mammogram, a referral to a breast care center was attached to the reply. Also online, she was able to schedule a

time convenient for her (Sunday afternoon) at one of several locations in South-city.

Since the information for the appointment had already been completed, she went directly to a breast care center, where the exam and mammogram were completed without delay. Before leaving, she learned that a lump discovered during the breast exam had been confirmed by mammogram and sonography, and that she should have a biopsy to determine the nature of the finding. The radiographic results were available to her as digital images that could be e-mailed to her physician.

Because her health profile included hypertension, Ms. Waters needed to see her primary care physician to evaluate her hypertension control and discuss next steps before any further treatment that might include surgery could occur. Dr. Fine had an open scheduling system that allowed Ms. Waters to be seen the next morning.

Dr. Fine explained that although the breast lump was the first issue on the agenda, she was still concerned about Ms. Waters' other health issues and her preventive care. The doctor therefore suggested that Ms. Waters return after blood work had been done, using the same online open scheduling system that had made it easy for her to be seen that day. Ms. Waters was reassured not only by the process, but also, as a newcomer to the city, by Dr. Fine's concern about her well-being and role as her advocate, especially because of her concerns about the upcoming biopsy and what it might mean.

During the visit, Dr. Fine was able to give Ms. Waters profiles of surgeons, describe their interpersonal as well as technical skills, and coach her about questions or issues she might want to explore. Ms. Waters also had received information from the groups about their research efforts and the protocols they used. While she was in the primary care office, the staff arranged for her to have the biopsy done early that week by the surgeon she had selected. In a small room containing a computer, she consulted the CHES database, a National Library of Medicine database for consumers, and Cancerfacts.com for information about treatment options, the meaning of test results, rates of recurrence, side effects, resources available to her locally, and the names of support groups. She forwarded to her own computer information that she wanted to read and follow up on later and took with her the addresses of several of the Web sites.

The biopsy showed an early-stage cancer. Ms. Waters was able to see her physician the next day to learn about and discuss her options for treatment. She was linked with other patients who had faced similar choices. She immediately began plans for treatment, which was completed without delay.

Throughout this process, Ms. Waters had information available to her in several ways. Although her style was to read as much as she could and ask when she was confused, she spoke with other women who were most comfortable accepting what their doctor recommended in terms of treatment, but sought resources for rehabilitation and advice about managing the side effects of their therapy.

When she felt the need to do so, she spoke with or e-mailed Dr. Fine. At other times she spoke with the nurse practitioner who worked with Dr. Fine. Throughout this process, she could examine her own records, including test results. Ms. Waters had no paperwork to complete, no duplicative questions, and no trouble reaching professionals when she had concerns or questions.

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