1 The Practice of Medicine

The Editors

THE PHYSICIAN IN THE TWENTY-FIRST CENTURY

No greater opportunity, responsibility, or obligation can fall to the lot of a human being than to become a physician. In the care of the suffering, [the physician] needs technical skill, scientific knowledge, and human understanding.... Tact, sympathy, and understanding are expected of the physician, for the patient is no mere collection of symptoms, signs, disordered functions, damaged organs, and disturbed emotions. [The patient] is human, fearful, and hopeful, seeking relief, help, and reassurance.

—*Harrison's Principles of Internal Medicine,* 1950

The practice of medicine has changed in significant ways since the first edition of this book appeared more than 60 years ago. The advent of molecular genetics, molecular and systems biology, and molecular pathophysiology; sophisticated new imaging techniques; and advances in bioinformatics and information technology have contributed to an explosion of scientific information that has fundamentally changed the way physicians define, diagnose, treat, and attempt to prevent disease. This growth of scientific knowledge is ongoing and accelerating.

The widespread use of electronic medical records and the Internet have altered the way doctors practice medicine and access and exchange information (Fig. 1-1). As today's physicians strive to integrate copious amounts of scientific knowledge into everyday practice, it is critically important that they remember two things: first, that the ultimate goal of medicine is to prevent disease and treat patients; and second, that despite more than 60 years of scientific advances since the first edition of this text, cultivation of the intimate relationship between physician and patient still lies at the heart of successful patient care.

THE SCIENCE AND ART OF MEDICINE

Deductive reasoning and applied technology form the foundation for the solution to many clinical problems. Spectacular advances in biochemistry, cell biology, and genomics, coupled with newly developed imaging techniques, allow access to the innermost parts of the cell and provide a window into the most remote recesses of the body. Revelations about the nature of genes and single cells have opened a portal for formulating a new molecular basis for the physiology of systems. Increasingly, physicians are learning how subtle changes in many different genes can affect the function of cells and organisms. Researchers are deciphering the complex mechanisms by which genes are regulated. Clinicians have developed a new appreciation of the role of stem cells in normal tissue function; in the development of cancer, degenerative diseases, and other disorders; and in the treatment of certain diseases. Entirely new areas of research, including studies of the human microbiome, have become important in understanding both health and disease. The knowledge gleaned from the ***science of medicine*** continues to enhance physicians' understanding of complex disease processes and provide new approaches to treatment and prevention. Yet skill in the most sophisticated applications of laboratory technology and in the use of the latest therapeutic modality alone does not make a good physician.

When a patient poses challenging clinical problems, an effective physician must be able to identify the crucial elements in a complex history and physical examination; order the appropriate laboratory, imaging, and diagnostic tests; and extract the key results from densely populated computer screens to determine whether to treat or to "watch." As the number of tests increases, so does the likelihood that some incidental finding, completely unrelated to the clinical problem at hand, will be uncovered. Deciding whether a clinical clue is worth pursuing or should be dismissed as a "red herring" and weighing whether a proposed test, preventive measure, or treatment entails a greater risk than the disease itself are essential judgments that a skilled clinician must make many times each day. This combination of medical knowledge, intuition, experience, and judgment defines the ***art of medicine***, which is as necessary to the practice of medicine as is a sound scientific base.

CLINICAL SKILLS

History-Taking The written history of an illness should include all the facts of medical significance in the life of the patient. Recent events should be given the most attention. Patients should, at some early point, have the opportunity to tell their own story of the illness without frequent interruption and, when appropriate, should receive expressions of interest, encouragement, and empathy from the physician. Any event related by a patient, however trivial or seemingly irrelevant, may provide the key to solving the medical problem. In general, only patients who feel comfortable with the physician will offer complete information; thus putting the patient at ease to the greatest extent possible contributes substantially to obtaining an adequate history.

An informative history is more than an orderly listing of symptoms. By listening to patients and noting the way in which they describe their symptoms, physicians can gain valuable insight. Inflections of voice, facial expression, gestures, and attitude (i.e., "body language") may offer important clues to patients' perception of their symptoms. Because patients vary in their medical sophistication and ability to recall facts, the reported medical history should be corroborated whenever possible. The social history also can provide important insights into the types of diseases that should be considered. The family history not only identifies rare Mendelian disorders within a family but often reveals risk factors for common disorders, such as coronary heart disease, hypertension, and asthma. A thorough family history may require input from multiple relatives to ensure completeness and accuracy; once recorded, it can be updated readily. The process of history-taking provides an opportunity to observe the patient's behavior and to watch for features to be pursued more thoroughly during the physical examination.

The very act of eliciting the history provides the physician with an opportunity to establish or enhance the unique bond that forms the basis for the ideal patient-physician relationship. This process helps the physician develop an appreciation of the patient's view of the illness, the patient's expectations of the physician and the health care system, and the financial and social implications of the illness for the patient. Although current health care settings may impose time constraints on patient visits, it is important not to rush the history-taking. A hurried approach may lead patients to believe that what they are relating is not of importance to the physician, and thus they may withhold relevant information. The confidentiality of the patient-physician relationship cannot be overemphasized.

Physical Examination The purpose of the physical examination is to identify physical signs of disease. The significance of these objective indications of disease is enhanced when they confirm a functional or structural change already suggested by the patient's history. At times, however, physical signs may be the only evidence of disease.

The physical examination should be methodical and thorough, with consideration given to the patient's comfort and modesty. Although attention is often directed by the history to the diseased organ or part of the body, the examination of a new patient must extend from head to toe in an objective search for abnormalities. Unless the physical examination is systematic and is performed consistently from patient to patient, important segments may be omitted inadvertently. The results of the examination, like the details of the history, should be recorded at the time they are elicited—not hours later, when they are subject to the distortions of memory. Skill in physical diagnosis is acquired with experience, but it is not merely technique that determines success in eliciting signs of disease. The detection of a few