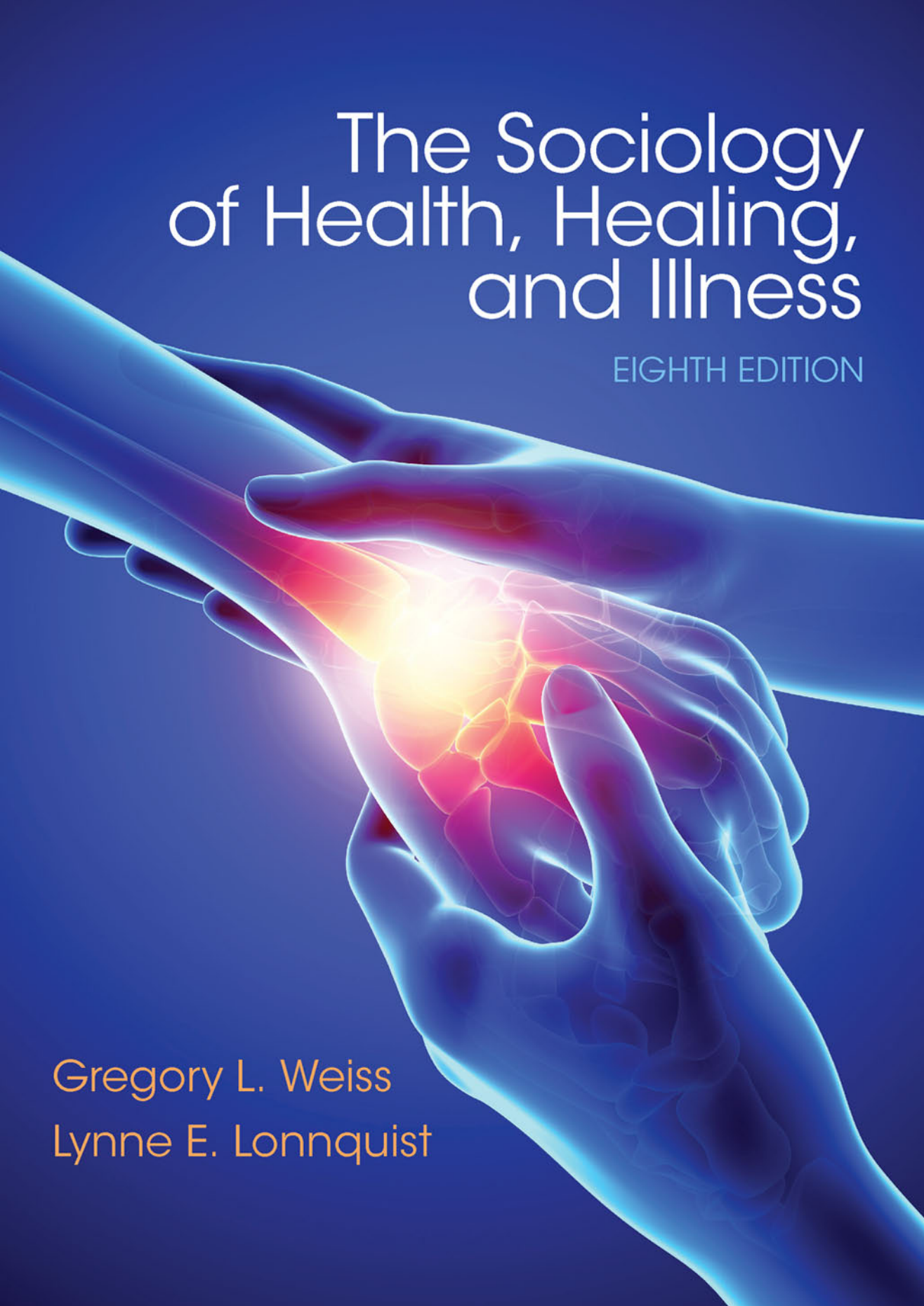


The Sociology of Health, Healing, and Illness

EIGHTH EDITION

Gregory L. Weiss
Lynne E. Lonquist

The image features a glowing blue hand holding a glowing red and yellow hand, symbolizing care and healing. The background is a deep blue gradient. The hands are rendered with a semi-transparent, wireframe-like texture, giving them a futuristic or ethereal appearance. The red and yellow hand is the focal point, with a bright yellow glow at its center, suggesting warmth and vitality. The blue hand is positioned around it, providing support and care.

EIGHTH EDITION

THE SOCIOLOGY OF HEALTH, HEALING, AND ILLNESS

Gregory L. Weiss

Roanoke College

Lynne E. Lonquist

Mary Baldwin College

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Preface

The eighth edition of this textbook has been updated to reflect the very important changes that have occurred in the U.S. health care system in the last three years and in matters related to the sociology of health, healing, and illness. It reflects medical sociology's commitment to analyzing patterns of disease and illness, health- and illness-related behaviors, the health care professions, and the health care system.

In preparing this eighth edition we have sought to retain and strengthen the emphases and features of the earlier editions; to thoroughly update patterns, trends, and statistics; and to present new material that reflects important changes in health care in society and important advancements in medical sociology.

KEY EMPHASES WITHIN THE TEXT

This edition of the text maintains the same five emphases as the earlier editions. First, we provide broad coverage of the traditional subject matter of medical sociology and include both new perspectives and new research findings on this material. The core areas of medical sociology (the influence of the social environment on health and illness, health and illness behavior, health care practitioners and their relationships to patients, and the health care system) all receive significant attention within the text. Naturally, statistics throughout the text have been updated to provide timely analysis of patterns and trends. Recent research findings and thought have been incorporated in every chapter. Attention devoted to relatively new areas in the field has not reduced coverage of traditional areas such as social stress, illness behavior, and the physician–patient relationship.

Second, we have continued to emphasize emerging areas of analysis in medical sociology and recent work within the field. Recent health

care reform efforts in both the public and private domains continue to have dramatic effects on almost every aspect of health care. We describe these effects throughout the text.

We also continue to incorporate key medical ethics issues throughout the text. These issues represent some of the most important health-related debates occurring in the United States today, and many medical sociologists have acknowledged the importance of understanding these policy debates and setting them within a sociological context. We have attempted to provide balanced and comprehensive coverage of several of these issues (especially in Chapters 13 and 16 and in the discussion questions and cases at the end of chapters).

NEW TO THIS EDITION

This eighth edition also provides extended analysis of a wide range of topics including the following:

- The early experience with the implementation of The Patient Protection and Affordable Care Act
- The importance of social relationships in preventing disease and illness and in responding to them
- Increased coverage of disease and illness in developing countries
- Additional coverage of Healthy People 2020
- The continuing controversy about the HPV vaccine
- The effects of neighborhood on mental health
- The relationship between sexual orientation and stress
- The issue of distracted driving as it relates to public health
- Additional coverage in developments related to palliative care

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- Introduction of key new concepts such as cultural health capital, pharmaceuticalization, and e-health
- Additional coverage of the relationship between medical providers and medical industries
- Modification of the Medical College Admissions Test (MCAT)
- New information on unionization of nurses and the nursing shortage
- Analysis of the movement toward patient-centered care and the importance of health literacy and patient activation
- The constitutional challenge to The Affordable Care Act
- An early look at the increased attention to the hospital readmission of Medicare patients
- A new section on nursing homes
- A brief look at health applications as part of the changing technology in medicine
- The globalization of health care
- Significant recent developments in the health care systems of Canada, China, and Great Britain and increased attention to European models for health insurance

Third, the extensive coverage of gender, race, and class issues as they relate to health, healing, and illness has been maintained. Throughout the textbook, we examine issues in light of race, class, and gender. We want students to constantly be exposed to the important influence of these factors on matters related to health and illness. The chapters on social epidemiology, social stress, health and illness behaviors, the profession of medicine and medical education, and the physician–patient relationship all give special emphasis to these matters.

Fourth, we continue to emphasize key social policy questions. Timely questions and issues addressed include regular, routine HIV checks (Chapter 4); the provision of clean needles to people using injectable drugs (Chapter 6); mandating HPV vaccinations (Chapter 6); public financing of medical education (Chapter 9); the reconfiguration of traditional responsibilities of hospital nurses (Chapter 10); use of strikes by medical providers (Chapter 10); reli-

gious exemption laws (Chapter 11); the legal status of medical marijuana (Chapter 11); The Affordable Care Act (Chapter 14); the effects of consolidation and merger among American hospitals and the pressures placed on the viability of public hospitals (Chapter 15); and the use and possible abuse of advanced health care technologies (Chapter 16).

Fifth, we have attempted to prepare a text that is informative, readable, and interesting. We want readers to become aware of many of the understandings of health, healing, and illness that we have because of medical sociology and to become intrigued by the provocative issues and debates that exist in medical sociology and in the health care field. We also want readers to find this book readable and interesting.

Both of us have enjoyed structuring our classrooms to enable as much reflection and critical thinking and student participation as possible. We have found that there is simply no time for some of the classroom activities that we most enjoy (e.g., reading and then discussing a provocative paperback, watching a good documentary and critically analyzing it together, or using student panels to introduce issues) if we feel obligated to lecture on all the material in each chapter. On the other hand, we do want students to become familiar with the important contributions of the field. When we use this book, we do spend some time lecturing on parts of it, adding to certain discussions and presenting some of the material in an alternative manner. But, our students are able to grasp much of the book on their own, enabling us to supplement and create additional types of learning experiences.

What are the key pedagogical features of this text?

- Clear organization within chapters and a clear writing style
- Interesting boxed inserts (“In the Field”) that provide illustrations of key points made in the chapters
- Interesting boxed inserts (“In Comparative Focus”) that examine a selected health topic or issue in another country or countries

- Meaningful tables and charts with the most recent data available at the time the book was written
- Illustrative photographs, most of which were taken specifically for use in this book
- Chapter summaries
- End-of-chapter “Health on the Internet” references and questions
- End-of-chapter “Key Concepts and Terms” sections
- End-of-chapter “Discussion Cases”
- References conveniently provided at the end of each chapter

Three additional facets of the book are important to us and help to describe its place within the field. First, we consider one of the strengths of the book to be the large number of research studies cited to illustrate key points. We do this to constantly demonstrate to students the empirical basis of sociology, the origin of sociological knowledge, and the fascinating types of research conducted in medical sociology. We hope it inspires students to consider interesting research projects.

We have worked hard to identify theoretically meaningful and methodologically sound studies that contribute important knowledge to our understanding of health, healing, and illness. While making heavy use of research conducted by medical sociologists, we also include appropriate material from the other social sciences, from the government, and from the medical professional literature. We believe that this is helpful in forming the most comprehensive understanding of the topics covered in the book.

The second facet of our book that is important to us is that we provide balanced coverage on key issues. That does not mean that our book lacks critical perspective or analysis. In fact, readers will find no shortage of critical questions being asked. But, our objective is to expose students to arguments on both sides of issues and to challenge them to consider the soundness of reasoning and quality of evidence that are offered.

Finally, we hope that this text reflects a genuine understanding of some very important

and complex issues. Both of us have had many opportunities to experience various dimensions of the health care system. Between the two of us, we have been able to apply and extend our medical sociological training through work in a free health clinic, a family planning clinic, in family counseling, in hospital bioethics groups, on the human rights committee of a state psychiatric hospital, on the Navajo reservation, and in voluntary health agencies. While we have not substituted our personal experiences for more general understandings developed through sound theory and research, we believe that our experiences have helped us to develop a better understanding of certain issues and assisted us in being able to illustrate important concepts and patterns.

Ultimately, our hopes for student-readers remain the same as with the earlier editions—that they gain an appreciation for how the sociological perspective and social theory contribute to an understanding of health, healing, and illness and for the manner in which social research is used to study these processes. In addition, we hope that readers perceive some of the many wonderfully exciting issues that are studied by medical sociologists.

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Gregory L. Weiss
Lynne E. Lonnquist

CHAPTER I

A Brief Introduction to the Sociology of Health, Healing, and Illness

Learning Objectives

- Identify and explain the major historical factors that led to the development of medical sociology as a subfield of sociology.
- Identify and give specific examples of the four major categories of focus within medical sociology.
- Explain how the sociological perspective, sociological theory, and social research methods can be applied to the study of health, healing, and illness.
- Discuss the orientation of medical sociologists to their research in this early part of the twenty-first century.

Through much of the first half of the twentieth century, matters pertaining to health, healing, and illness were viewed as being primarily within the domain of physicians, other health care practitioners, and scholars in the chemical and biological sciences. Neither medicine nor sociology paid much attention to each other. This has changed dramatically in the ensuing years as the paths of sociology and medicine have increasingly converged. This chapter presents a brief introduction to the sociology of health, healing, and illness—a subfield of sociology commonly referred to as medical sociology.

DEFINITION OF MEDICAL SOCIOLOGY

Ruderman (1981:927) defines **medical sociology** as “the study of health care as it is institutionalized in a society, and of health, or illness, and its relationship to social factors.” The Committee on Certification in Medical Sociology (1986)

of the American Sociological Association (ASA) provided the following elaboration:

Medical sociology is the subfield which applies the perspectives, conceptualizations, theories, and methodologies of sociology to phenomena having to do with human health and disease. As a specialization, medical sociology encompasses a body of knowledge which places health and disease in a social, cultural, and behavioral context. Included within its subject matter are descriptions and explanations or theories relating to the distribution of diseases among various population groups; the behaviors or actions taken by individuals to maintain, enhance, or restore health or cope with illness, disease, or disability; people’s attitudes, and beliefs about health, disease, disability and medical care providers and organizations; medical occupations or professions and the organization, financing, and delivery of medical care services; medicine as a social institution and its relationship to other social institutions; cultural values and societal responses with respect to health, illness, and disability; and the role of social factors in the etiology of disease, especially functional and emotion-related.

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Clearly, the focus of medical sociology is broader than just “medicine.” In fact, the title of this book was intentionally selected to connote that medical sociology includes a focus on health (in the positive sense of social, psychological, and emotional wellness), healing (the personal and institutional responses to perceived disease and illness), and illness (as an interference with health).

Sociologists study health, healing, and illness because they are a central part of the human experience, because they help us to understand how society works, and because they reflect patterns of social relationships. Sociologists emphasize that explanations for health and illness and for healing practices must go beyond biological and individualistic factors by examining the important influence of social context.

HISTORICAL DEVELOPMENT OF MEDICAL SOCIOLOGY

Setting the Foundation: The Importance of Social Factors on Health and Illness

It is difficult to identify any specific event as the “starting point” of the field of medical sociology. Certainly, some of the basic insights of the field were present among society’s earliest philosophers and physicians. Many physicians in ancient times (see Chapter 2) perceived an essential interrelationship among social and economic conditions, lifestyle, and health and illness. This understanding has been an integral part of medical thinking in some (though not all) civilizations since then. Often cited as a key historical figure who paved the way for medical sociology is Rudolf Virchow, the great mid-nineteenth-century physician (and the founder of modern pathology). Virchow identified social and economic conditions as being primary causes of an epidemic of typhus fever in 1847 and lobbied for improved living conditions for the poor as a primary preventive technique. Arguing against biomedical reductionism—attempting to reduce every disease and illness to a biological cause—Virchow contended that

medicine is largely a social science that needs to consider the influence of social structure on creating both health and illness.

The Turn of the Century: Development of Social Medicine

The last decades of the nineteenth century and the first decades of the twentieth century were a period of heightened awareness in both the United States and Europe of the need for social programs to respond to health crises. These were years of social upheaval caused in part by the effects of the Industrial Revolution and rapid urban growth (and, in the United States, a tremendous influx of largely poor and unskilled immigrants). In 1915, Alfred Grotjahn published a classic work, *Soziale Pathologie*, documenting the role of social factors in disease and illness and urging the development of a social science framework for working with communities and providers in reducing health problems. The term **social medicine** was coined to refer to efforts to improve public health.

However, an important crosscurrent was occurring simultaneously. The discovery of the germ theory of disease enabled physicians to more successfully treat the acute infectious diseases that plagued society. This reinforced a belief that medicine could rely solely on biological science. The discipline of sociology was still in its infancy and was not able to provide sufficient documentation of the need for a complementary focus on social conditions.

The Early- to Mid-Twentieth Century: More Studies on Health and Medicine

Several important precursors to the development of medical sociology occurred in the first half of the twentieth century. Social surveys became an important research technique, and many focused on health and living conditions. Sociologists often worked with charity organizations and settlement houses, which also became subjects for study. By the 1930s and 1940s, many sociological studies of the medical field, including Talcott Parsons’ 1939 work on the medical

professions, appeared. Political scientist Oliver Garceau (1941) contributed to the political sociology of medicine by analyzing the political life of the American Medical Association. George Rosen (1944) studied increasing specialization in medicine. Oswald Hall (1946) studied the informal organization of medical practice in an American city (Rosen, 1976).

The 1950s and 1960s: The Formal Subdiscipline Emerges

The emergence of medical sociology as a field of study occurred in the 1950s and 1960s. The most important developments then pertain to changes in health, healing, and illness; external recognition of the field; and its institutionalization within sociology.

Changes in Health, Healing, and Illness.

Based on analysis by Rodney Coe (1970) and others, the development of medical sociology was facilitated by four changes that had occurred or were occurring in medicine in the 1950s and 1960s. These are as follows:

1. **Changing patterns of morbidity and mortality.** During this time, the primary causes of sickness and death shifted from acute infectious diseases (e.g., influenza and tuberculosis) to chronic, degenerative diseases (e.g., heart disease and cancer). Because the factors that lead to degenerative diseases are more obviously interwoven with social patterns and lifestyle, the necessity for sociological contributions became more apparent.
2. **The impact of preventive medicine and public health.** In the 1800s and early 1900s, the field of public health focused primarily on bacteriology (linking particular germs to diseases) and immunology (preventing disease occurrence). As the twentieth century progressed, however, it became apparent that protection of public health also required consideration of social factors such as poverty, malnutrition, and congested living areas—all of obvious interest to sociologists.
3. **The impact of modern psychiatry.** The development of the field of psychiatry led to increased interest in the psychophysiological basis for many diseases and illnesses, in the importance of effective interaction between patients and practitioners, and in the use of patients' social environment as part of therapy.
4. **The impact of administrative medicine.** Throughout the twentieth century, the organizational complexity of the medical field—in the settings in which care is delivered, in the ownership of medical facilities, and in the bureaucracies that were created to regulate and finance medical care—expanded enormously. The abilities of sociologists to analyze organizations and structures, identify those who are harmed as well as those who gain by various arrangements, and examine the consequences of alternative techniques were increasingly useful skills in organizationally complex environments.

External Recognition and Legitimation.

Two key events during the 1950s and 1960s contributed to the increased interest in and legitimation of medical sociology. First, medical schools began to hire sociologists for their faculties. Although medical sociology was not always well integrated into the curriculum, the move symbolized an increasing recognition of sociology's potential contribution to understanding disease and illness. Second, government agencies and private foundations initiated significant financial funding for medical sociology. The National Institutes of Health and the National Institutes of Mental Health sponsored sociological research in medicine and subsidized training programs for graduate students in sociology. (Both authors of this book received fellowships from the U.S. Public Health Service for their graduate education.) The Russell Sage Foundation provided significant funding of programs to increase the use of social science research within medicine.

Institutionalization of Medical Sociology.

Finally, two additional events are especially noteworthy in the institutionalization of medical

4 Chapter One

sociology. In 1959, medical sociology was accepted as a formal section of the ASA—an important step in bringing recognition to a field and enabling recruitment of new members. Second, in 1965, the ASA assumed control of an existing journal in medical sociology and renamed it the *Journal of Health and Social Behavior*. Now the official ASA journal for medical sociology, it is a key mechanism for medical sociologists to share their research findings.

Since then the field has flourished. The ASA section on medical sociology currently has approximately 1,000 members (there are about 15,000 ASA members) and is the second largest special interest section within the association. Medical sociologists publish in a wide variety of journals in sociology, public health, and medicine, and are increasingly employed in health planning, community health education, education of health professionals, and health care administration in addition to colleges and universities. See “In the Field” insert on Major Topics in Medical Sociology for one way of organizing the major topics within medical sociology.

Foundational and Emerging Areas of Interest

All fields of inquiry are built on certain foundational topics yet remain open to new and emerging areas of interest. The “In the Field” insert on Major Topics in Medical Sociology identifies the foundational topics within this field. Two topics in which interest is rapidly expanding (issues related to medical ethics and to managed care and health care reform) are described below.

Issues Related to Medical Ethics.

Technological advancements in medicine in the last few decades have raised important and provocative ethical questions. Sociological analysis and insights are extremely important in genuinely understanding these matters (DeVries et al., 2007). In recent years, medical sociologists have become more active in studying (1) values, attitudes, and behaviors of people relative to ethical issues in medicine (e.g., attitudes about

genetic research and human cloning) and how they are influenced by various social factors; (2) social policy questions (e.g., on new reproductive technologies or the termination of treatment for the terminally ill); and (3) social movements (e.g., the pro-life and pro-choice movements) that have developed around interest in ethical issues in medicine. DeVries and Subedi (1998:xiii) describe sociology’s role as “lifting bioethics out of its clinical setting, examining the way it defines and solves ethical problems, the modes of reasoning it employs, and its influence on medical practice.”

Issues Related to Managed Care and Health Care Reform.

Concerns about the high costs of health care and the lack of access that millions of Americans have to quality health care have led to health care reform efforts in the United States. A massive shift from traditional health insurance plans to managed care networks, such as health maintenance organizations, occurred throughout the 1990s and early 2000s, and major health care reform legislation (the Affordable Care Act) was passed in 2010. Hankin and Wright (2010:S10) in an editorial entitled “Reflections on Fifty Years of Medical Sociology” in the *Journal of Health and Social Behavior* state:

The work for medical sociologists is just beginning as we enter a new era of health care reform. Not only can we offer insights about how to implement reform, but we can also examine the intended and unintended consequences of transforming the health care system and the extent to which these structural changes actually improve population health.

These changes have had tremendous effects on the health care system and are examined throughout this book.

SOCIOLOGY’S CONTRIBUTION TO UNDERSTANDING HEALTH, HEALING, AND ILLNESS

Sociology is “the scientific study of social life, social change, and the social causes and consequences of human behavior” (American



IN THE FIELD

MAJOR TOPICS IN MEDICAL SOCIOLOGY

The four major categories of interest in medical sociology with specific topics of analysis and sample research questions (that will be answered in the appropriate chapters) are as follows:

Category #1: The Relationship Between the Social Environment and Health and Illness

Social Epidemiology—the study of patterns and trends in the causes and distribution of disease and illness within a population. Research question: Why is the infant mortality rate higher for African Americans?

Social Stress—the study of the imbalance or unease created when demands on a person exceed resources to deal with them. Research question: Why do women report higher levels of stress?

Category #2: Health and Illness Behavior

Health Behavior—the study of behaviors intended to promote positive health. Research question: Why does society focus on changing individual behaviors rather than the social circumstances that influence individual behaviors?

Experiencing Illness and Disability—the study of the ways that people perceive, interpret, and act in response to illness and disability. Research question: What factors cause people to interpret medical symptoms in very different ways?

Category #3: Health Care Practitioners and Their Relationship with Patients

Physicians and the Profession of Medicine—the study of medicine as a profession and the role of medicine within society. Research question: How does the high number of medical malpractice suits influence physicians and the practice of medicine?

Medical Education and the Socialization of Physicians—the study of the education and socialization of physicians in medical schools. Research question: What are the key value orientations that students learn in medical school?

Nurses, Mid-Level Health Care Practitioners, and Allied Health Workers—the study of issues pertaining to nonphysician health care providers. Research question: Why are physicians more supportive of physician assistants than they are of nurse practitioners?

Alternative and Complementary Healing Practices—the study of healers and healing practices outside conventional medicine. Research question: Why do many people simultaneously use both medical doctors and alternative healers?

The Physician–Patient Relationship—the study of patterns in the way that physicians and patients relate to each other and factors that influence these patterns. Research question: To what extent do male and female physicians interact differently with patients?

Category #4: The Health Care System

The Health Care System—the study of the organization, regulation, financing, and important problems in the health care system and recent health care reform legislation and activity. Research question: What effect will health care reform have on the health care system?

Health Care Delivery—the study of the organizations and agencies (including hospitals) that provide health care services. Research question: What are the consequences for society of for-profit versus not-for-profit hospitals?

The Social Effects of Health Care Technology—the study of the social consequences and public policy choices of new health care technologies. Research question: What are the supporting and opposing arguments for legalizing physician-assisted death?

Comparative Health Care Systems—the study of health care systems in other countries. Research question: Why are most health care systems around the world currently undergoing significant change?

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Sociological Association, 2013:1). It is the discipline with primary responsibility for studying social interactions among people, groups and organizations, and social institutions, and examining how these interactions influence and are influenced by the larger culture and social structure of society.

Three particular aspects of sociology contribute in important ways to understanding health, healing, and illness: (1) the sociological perspective, (2) the construction of social theories to explain why things happen as they do, and (3) the scientific foundation of the discipline.

The Sociological Perspective

Sociology is one of many perspectives that are used to acquire knowledge about the world. History, biology, chemistry, anthropology, psychology, economics, political science, philosophy and religion, clinical medicine, and other disciplines all contribute to our understanding of the medical field. Sociology's primary focus is to understand social interaction, groups and organizations, and how social context and the social environment influence attitudes, behaviors, and social organization.

The **sociological perspective** requires an ability to think about things in a manner other than that to which many individuals are accustomed. Often, we think very individualistically about human behavior. If a particular teenager begins smoking cigarettes, or a particular man is very reluctant to see a physician when ill, or a particular medical resident feels abused by superiors, we may attempt to understand the behavior by focusing on the particular individual or the particular situation. However, sociology attempts to understand these behaviors by placing them in social context—that is, by looking for social patterns and examining the influence of social forces or circumstances that have an impact on individual behavior.

C. Wright Mills, an enormously influential sociologist, referred to this ability to see how larger social patterns (public issues) influ-



C. Wright Mills (1916–1962) coined the term “sociological imagination” to refer to the ability to see how individuals’ *personal* troubles are influenced by large-scale, social (*public*) issues.

ence individual behavior (personal troubles) as **sociological imagination** (Mills, 1959).

Consider the following:

1. Almost all adult smokers began smoking as a teenager; few adults begin smoking.
2. Men are more reluctant than women to see a physician.
3. Pharmaceutical drugs are more expensive in the United States than in any other country.

How do we understand these very important social patterns that have a significant influence on health and illness in the United States? Sociologists attempt to understand these patterns by placing them in social context. It is not just one adult smoker who started as a teen; that is the common pattern. So, we try to find the social forces and the social arrangements that

make it common for teens but not for adults to initiate smoking.

It is not just one man who is more reluctant than one woman to see a physician. If so, there might be an individual explanation. But, rather, men in general have more reluctance than women in general, so we are talking about some social force that influences men and women differently. What is it about living in the United States that creates this greater physician-aversion for men?

Finally, it is not just one drug that is more expensive in the United States than in other countries. If so, there might be something in particular about that drug. But, almost all drugs are more expensive—many are much, much more expensive—so there must be some larger explanation. This is what Mills meant when he said that sociologists try to identify and explain the “public issues” (the larger social forces) that lead to “personal troubles.”

The Construction of Social Theories

Sociology is an effort to identify and describe social patterns and then to find cause-and-effect relationships that explain the patterns. In *Invitation to Sociology* (1963), Peter Berger describes sociology as searching for the general in the particular—attempting to determine how particular facts or individual behaviors may generate as well as reflect social patterns. Whether the focus is delinquency, family interaction, or medicine, sociologists attempt to identify patterns in attitudes and behaviors.

All science, natural and social, assumes that there is some underlying order in the universe. Events, whether they involve molecules or human beings, are not haphazard. They follow a pattern that is sufficiently regular for us to be able to make generalizations—statements that apply not just to a specific case but to most cases of the same type . . . Generalizations are crucial to science because they place isolated, seemingly meaningless events in patterns we can understand. It then becomes possible to analyze relationships of cause and effect and thus to explain why something happens and to predict that it will happen

again under the same conditions in the future. (Robertson, 1987:6)

Major Theoretical Orientations in Sociology That Guide the Effort to Find Explanations. Three major theoretical orientations have dominated the field of sociology. These orientations are fundamental images of society that guide sociological thinking and the process of searching for explanations.

Functionalism (or structural functionalism) views society as a system (a structure) with interdependent parts (e.g., the family, the economy, and medicine) that work together to produce relative stability. Each of these parts is assumed to have positive consequences (or functions) and may have negative consequences (or dysfunctions) for the society as a whole. When each part operates properly, a stable and relatively harmonious society exists.

Given this image of society, functionalists are adept at identifying the effective integration of societal parts. For example, functionalists might identify the manner in which the value that America places on science and discovery has led to significant advancements in medical knowledge and to the development of new forms of medical technology.

Conflict theory views society as a system largely dominated by social inequality and social conflict. Societies are viewed as being in a constant state of change, characterized by disagreements over goals and values, competition among groups with unequal amounts of power, and hostility. Conflict theorists perceive whatever societal order exists to be dictated by the most powerful groups, rather than being based on the value consensus envisioned by functionalists.

Given this image of society, conflict theorists are skillful at utilizing a critical perspective about it and at identifying social inequities. In this regard, medical sociologists have an opportunity to comment critically on perceived problems and inequities in the health care system and to offer a critical perspective on the functioning of the system. For example, conflict

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theorists point out that a primary reason that many low-income women conceive premature, low-birth-weight babies is their inability to access adequate prenatal care.

While functionalism and conflict theory view society from a macro perspective (examining society as a whole), **interactionism** (or symbolic interactionism) focuses on small-scale, day-to-day interactions among people. Society is viewed as the ultimate outcome of an infinite number of episodes of interaction each day in which individuals interpret social messages and base their responses on these interpretations.

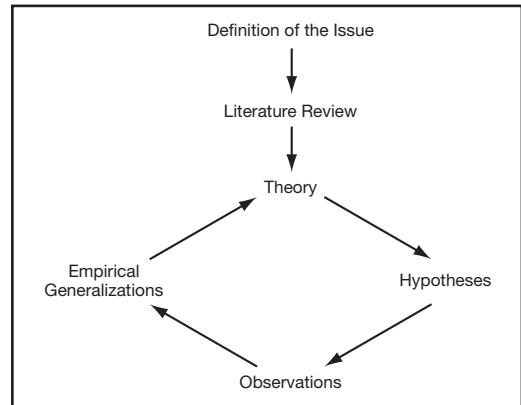
In medicine, interactionists have shown how physicians sometimes use particular communication strategies (e.g., using brief, close-ended questions and interrupting patient comments) to reinforce dominance and bolster role distance.

The Scientific Foundation of the Discipline

Charon and Vigilant (2008) have stated that sociology rests on both an objective and critical foundation. Sociology is a social science, and through much of its formative years, researchers typically followed the same basic model of science and scientific research as did their colleagues in the natural and physical sciences. These techniques rely on empirical procedures used to obtain quantifiable data designed to test specific hypotheses. Scientists are expected to maintain objectivity in the conduct of their research, that is, to attempt to prevent biases from influencing the conduct of the work or the conclusions drawn.

The Scientific Process. A model of the **scientific process** is provided in Figure 1–1. According to this model, once a particular sociological question is identified, the researcher scours the literature (typically books and journals) to learn what research has already been done and determine what is already known about the subject. This work guides the researcher in formulating a *theory*, or general explanation, about why things happen as they do.

Figure 1–1 The Scientific Process



Source: Adapted from Walter L. Wallace (ed.). *Sociological Theory: An Introduction*, Copyright (1969) by Aldine Publishers. Reprinted by permission of Aldine Transaction, a division of Transaction Publishers.

Based on this theory, the researcher deduces one or more specific *hypotheses* (specific statements predicting what will be found in the research). These hypotheses must be capable of being found to be accurate or inaccurate. Research is then designed to test the accuracy of the hypotheses; a sample of people is selected from the population for study, and data are collected.

Once the data have been collected and analyzed, the researcher seeks to draw empirical generalizations from the research. Conclusions are drawn about the accuracy of the hypotheses and appropriateness of the theory that guided the research. The research may lend additional credence to the theory, suggest the theory needs to be modified, or be so inconsistent with the theory that a major revision is needed. If the results of the research are published or presented, then the study will join others on the subject and be available for the next researcher doing a literature review in the area.

Data-Collection Techniques. Some of the most important data-collection techniques used by medical sociologists are briefly described here. Other techniques, such as specific epidemiological techniques, are described where appropriate in the text.

1. **Survey research.** **Survey research** is the most commonly used data-gathering technique in sociology. It involves the systematic collection of information about attitudes and behaviors through personal or telephonic interviews or self-administered questionnaires (increasingly done online). Survey research is particularly helpful in studying attitudes or values—subjects that cannot easily be studied in other ways—and obtaining self-reported data on health and response to illness. Proper sampling techniques must be followed so that the sample is representative of the population of interest.
2. **Experimental research.** **Experimental research**—seeking to identify cause-and-effect relationships between specified variables in carefully controlled conditions—is typically conducted in a laboratory but can be done in natural settings. In the ideal case, two groups—the experimental group and the control group—are formed. The groups should be as similar as possible, except that only the experimental group receives the independent variable (the potential “cause”). Whatever change occurs in the dependent variable (the potential “effect”) from the beginning to the end of the experiment can then be attributed to the independent variable. Experimental research can be used in health settings for purposes such as testing health education materials, innovations in teaching medical students, and new payment mechanisms.
3. **Observational research.** **Observational research**—the systematic observation of people in their natural environment—has also been a valuable data-collection technique for medical sociologists. While it is more difficult to be systematic in using this technique (though an extensive array of techniques to support systematic study is available), it does enable observation of actual behaviors rather than reports of behavior or behaviors performed in artificial settings. Important observational studies have been conducted in such diverse settings as general care hospitals, mortality review conferences, and patient self-help groups.
4. **Use of existing statistics.** Many demographers (those who study population size, composition, and distribution) and other medical sociologists study health problems and society’s reaction to them by drawing upon recorded vital and social statistics. Researchers may examine birth and death records, medical charts and insurance forms, and any compiled statistics on mortality, morbidity, medical resources, or any other aspect of health care systems.

Getting at Socially Constructed Reality.

Although the scientific method continues to dominate in sociology, most sociologists acknowledge that reality is often more subjective than objective. These perspectives direct sociology to help us to understand the “socially constructed” nature of belief systems about health, illness, and healing practices. Cultures vary in their perception of what constitutes good health, in factors that shape health (e.g., Chinese belief in the presence of a vital spirit in the body), and in views of appropriate healing procedures (e.g., the importance of social support in Navajo healing). These perspectives are examined further in this text in chapters on social stress, illness behavior, and alternative healing practices.

THE ROLE OF THE MEDICAL SOCIOLOGIST IN THE TWENTY-FIRST CENTURY

What will be the future role of the medical sociologist? Perhaps three aspects will be most important.

First, the most important objective of the medical sociologist will continue to be to demonstrate and emphasize the important influence of cultural, social-structural, and institutional forces on health, healing, and illness. Medical sociologists must be evermore vigilant in using their “theoretical and methodological skills to address interesting and important questions” in order to ensure that the sociological perspective continues to influence public discussion (Pescosolido and Kronenfeld, 1995:19).

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Second, medical sociologists need to maintain their spirit of free and critical inquiry (Bloom, 1990). Responding to an article that suggested that some physicians were concerned about sociologists' more liberal ideology, Mechanic (1990:89) wrote:

It seems clear that these commentators . . . prefer a sociology that is adjunct to medical activity and accepting of its basic premises. Such a sociology would simply be a servant to medicine not fulfilling its larger responsibility to understand medicine as a social, political, and legal endeavor; to challenge its curative and technological imperatives; to examine equity of care in relation to class, race, gender, age, character of illness, and geographic area; and to study the appropriate goals and objectives for health care in the context of an aging society with an illness trajectory dominated by chronic disease.

Finally, medical sociologists should continue to seek interdisciplinary collaboration. In the early years of the field, medical sociologists debated whether their primary focus should be on the **sociology of medicine** (i.e., advancing sociological theory and method through research in the medical field) or on the **sociology in medicine** (i.e., making practical contributions to the practice of medicine) (Straus, 1957). While many medical sociologists have clearly identified more with one or the other of these approaches, the distinction has blurred over time, and today most researchers

understand that good sociological research can simultaneously contribute to the development of medical sociology *and* to improved health care (Bird, Conrad, and Fremont, 2000). Straus (1999) has recently suggested that it is even possible to take a critical perspective while working in a medical setting as long as it is perceived to be constructive, objective, and not blatantly antagonistic.

Mechanic (1995:1492) has noted that “the major health problems facing national systems are complex and multifaceted and not easily amenable to analysis from the perspective of any single discipline.” Coe (1997:6) has encouraged working with other social scientists (as well as others involved in health research) as a way of creating “opportunities to strengthen a sociological perspective” and deepening “our understanding of the complexities of human behavior in the context of health and illness.” Zussman (2000) has written persuasively about how genuine understanding of ethical issues in medicine can be derived by utilizing both normative reflection (the primary approach of medical ethics) and empirical description (the primary contribution of sociology). Several medical sociologists (Fremont and Bird, 1999; Pescosolido, 2006, 2011; Seabrook and Avison, 2010) have recently urged greater efforts to integrate social and biological explanations of matters related to health, healing, and illness.

SUMMARY

Medical sociology emerged as a scholarly field of inquiry in the 1950s and 1960s. Four factors were primarily responsible for this emergence: (1) a shift from acute infectious diseases to chronic degenerative diseases as major sources of morbidity and mortality, (2) increased focus on behavioral factors related to health and illness, (3) increased recognition of the importance of the patient–physician relationship, and (4) the increasingly complex structure of the health care system. Simultaneously, outside agencies (e.g.,

medical schools and government agencies) were taking increased interest in the field, and medical sociology was becoming institutionalized as a special interest section in the ASA.

Sociology's contributions to the study of health, healing, and illness emanate from the sociological perspective (the understanding that human behavior is largely shaped by the groups to which people belong and by the social interaction that takes place within those groups); sociology-based theoretical approaches

(functionalism, conflict theory, and interactionism); and the scientific foundation and critical perspective of the discipline.

The most important tasks of medical sociology are to demonstrate and emphasize the

important influence of cultural, social-structural, and institutional forces on health, healing, and illness, and maintain a spirit of free and critical inquiry while recognizing the interdisciplinary basis of health and illness.

HEALTH ON THE INTERNET

This chapter discusses recent calls for health researchers in various disciplines to work more closely together. Learn more about three of the social science disciplines that investigate health, healing, and illness by checking out their Web sites.

Medical sociology: <http://www2.asanet.org/medicalsociology/index.html>

Medical anthropology: <http://www.medanthro.net>

Health psychology: <http://health-psych.org>

What is the main focus of each of these three fields? What similarities and differences do you note?

DISCUSSION QUESTIONS

1. In order to understand better the approach and work of medical sociologists, select a recent article from the *Journal of Health and Social Behavior* or *Social Science and Medicine* or any journal assigned by your professor. Identify its main subject, theoretical approach, data-collection technique, and main findings. How does the approach of a medical sociologist differ from that of a medical journalist or that of a layperson attempting to understand some subject related to health, healing, and illness? Identify a specific question related to medical sociology or an issue that you might be interested in studying.

2. The health and medical sector is an extraordinarily broad and important component of society. One way of identifying the importance of health, healing, and illness in society is to note the extent to which the social institution of medicine is closely interwoven with all or almost all other social institutions. Identify how the social institution of medicine interrelates with each of these other social institutions:

science	government	economy
education	family	law
religion	the arts	recreation

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CHAPTER 2

The Development of Scientific Medicine

Learning Objectives

- Explain how medical belief systems fluctuated from the earliest civilizations to the Hippocratic Era to the Medieval Era to the Renaissance and the development of scientific medicine to today's focus on technology in medicine.
- Identify and discuss three significant contributions of Hippocrates (the “Father of Medicine”) to the understanding of health, healing, and illness.
- Describe the practice of medicine in early America.
- Identify and discuss the effects of the Civil War on medical understanding and on the practice of medicine.
- Compare and contrast the views of Paul Starr and Vicente Navarro on the “cultural authority of medicine.”

Today's healing practices and health care systems have developed through centuries of efforts to understand disease and illness and to find effective means to protect and restore health. Understanding this historical development is important both as an end in itself and as a means to a better understanding of current patterns.

Compiled histories of medicine are not in short supply, but few of these histories attempt to place the development of medicine within a societal context. A “sociological approach to the history of medicine” would include at least the following: (1) a “sociology of medical knowledge”—that is, the ways in which societies “socially construct” medical knowledge; (2) the development and evolution of the primary activities in which physicians engage, including patient education, prevention, examination and diagnosis, prognosis, curative techniques, and palliative care (relief from suffering); (3) the evolution of the organization of medical practice, including medical specialization and

the relationship to hospitals and corporations; (4) the development of hospitals and their changing role within society; and (5) the development and evolution of public health measures including nutrition, sanitation, and public education (McKeown, 1970; White, 2009).

This chapter gives some attention to all of these themes but focuses primarily on the first theme by describing the historical development of scientific medicine and tracing the ascendancy of scientific medical authority in America. It demonstrates that the discovery and acceptance of medical knowledge can be understood only in social context and is, at the least, partially dependent on both cultural values (including orientation toward medicine) and the configuration of powerful interests within the society. In particular, notice the following:

1. The “constantly shifting character” (Cassady, 1991) of medicine as understanding of disease causation shifts between a supernatural and

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scientific basis; as the role and popularity of alternative healing philosophies ebb and flow; and as the emphasis within medicine centers more on preventive care or curative care.

2. The constant struggle of physicians and medical researchers to discover causes of disease and effective cures for them and the typically long time lag before major discoveries are accepted and have any impact on patient care.
3. The important impact on medicine of other major institutions in society including the government, the church, the family, and science.
4. The constantly evolving view within societies of the nature and inevitability of disease and of the patient's responsibility for self-care.

A BRIEF HISTORY OF MEDICINE

One of the most significant events in the development of scientific medicine is that many diseases can be traced to specific causes such as bacteria, viruses, parasites, and genetic impairments. Chief credit for this discovery is typically assigned to Louis Pasteur's formulation of the germ theory of disease in the 1860s and 1870s. Prior to this time, both lay and professional understanding of the causes of disease and illness had evolved through a multitude of approaches and explanations. The first part of this chapter traces this development of scientific medical knowledge.

EARLY HUMANS

Although the first forms of writing did not appear until between 4000 and 3000 B.C., paleontologists have used human remnants such as teeth, bones, and mummies, as well as works of art, to study early disease and its treatment. They have learned that disease and injury are as old as humankind (and the presence of bacteria and viruses far older). There is evidence of tumors, fractures, parasitic diseases, arthritis, osteomyelitis, and dental caries that predate written communication.

How did early humans interpret these medical calamities?

Primitive man, noting the rising and setting of the sun and moon, the progress of the seasons, the birth, growth, and inevitable death of plants, animals, and humans, did not take long to arrive at the supposition that these phenomena did not occur by chance . . . it seemed logical to suppose that they were ordered by some all-powerful god, or gods, and equally logical was the belief that fortune and misfortune were signs of the gods' pleasure or displeasure. (Camp, 1977:11)

Supernatural Belief Systems

These "magico-religious" or **supernatural explanations of disease** evolved into complex belief systems. Diseases were caused either by direct intervention of a god or spirit or through a sorcerer (a mortal in control of supernatural forces) or through the intrusion of some foreign object into the body. This "object" might have been a spirit or demon or even something more tangible such as a stone or pebble (Magner, 2005).

Early humans used several divination procedures (e.g., crystal gazing or trances) to read the intentions of the supernatural. Once diagnosis was made, appropriate cures were employed. Religious rituals such as prayer, magic spells, and exorcism were used when the origin of the disease was traced to supernatural forces, and more physical means including a "sucking-out" procedure, artificially induced vomiting, and "bloodletting" (draining blood from the body to extract the foreign presence or redistribute the blood, a practice that survived for centuries) were used in cases of object intrusion (Magner, 2005).

The most amazing procedure used was skull **trephination**—using sharpened stones to drill or carve a hole in the skull. The exact purpose of trephination is unknown, but many believe it was done to release evil spirits. The holes drilled were of various sizes and configurations depending upon the diagnosis. Fossil studies demonstrate that many of the patients survived the surgery, and some of them received additional trephinations years after the original one (Kennedy, 2004).



Trephination is considered by many to be the first surgical technique. It involved carving a circular section from the skull in order to reduce pressure or to release evil spirits causing sickness. It likely started as long as 7,000 years ago and continued for perhaps 2,500 years.

The First Physicians

Specialists (often religious figures) emerged to serve as intermediaries with the gods. Known as

the **shaman** (or the “witch doctor” or “medicine man”), this was typically a highly revered, much-feared individual who often provided effective medical care. Many were adept at observing animals and noting the plants and herbs they used for relief, and many practiced trial and error medicine—experimenting with a variety of substances or procedures till the most effective were identified. The kinds of diseases most common in early societies—rheumatic diseases, digestive disorders, skin diseases, and gynecological disorders—were problems more amenable to cures available at the time than would be epidemic diseases, such as typhoid, measles, and smallpox, which many believe were not yet present.

Of course, these techniques were only part of the medical arsenal of the shaman. Prayer and incantation, ritualistic dancing, and sacrifices were also used to capture the attention of the gods. These techniques also increased the patient’s confidence in the cures being attempted—an important psychotherapeutic benefit (Magner, 2005).

THE EGYPTIAN CIVILIZATION

Of the various ancient civilizations whose medical practices have been studied in some depth, Egypt has received the most attention. This



IN THE FIELD

THE CONTRIBUTIONS OF IMHOTEP AND ANCIENT AFRICANS TO MEDICINE

A considerable body of knowledge attests to the fact that Africans in antiquity made significant contributions to medicine and may have been the originators of medical practice. Though current medical history texts give little attention to the contributions to medicine of people of color, Greek philosophers, historians, and physicians—who are given much credit—wrote of what they learned from the writings and oral traditions of Africans.

Some now refer to Imhotep—an African engineer, architect, scribe, priest, builder of

tombs, and possibly a physician who lived in the 2600s B.C.—as the “Historical Father of Medicine.” He is known to have been an advisor to the king, to have built impressive tombs and possibly the first hospital, and to have produced journals (now lost) on surgery, anatomy, pathology, diagnosis, and experimental scientific observation. His legend grew following his death, and he became a deified figure in Egypt (Makah and Jalil, 2009; Pickett, 1992).

is due to Egypt's reputation as an especially healthy civilization and to an abundance of written material and other forms of evidence (medical writings preserved on the papyrus reed and well-preserved mummies) that exist from the 3,000-year-old Egyptian civilization. Of interest is the fact that many Egyptian physicians gave credit to earlier African civilizations (see the accompanying box, "The Contributions of Imhotep and Ancient Africans to Medicine").

The most important development in Egyptian medicine is the evolution of physicians into specialists as most of them focused on a particular disease or a particular part of the body. Physicians were also religious leaders, and each was devoted to a different god. As a result, they tended to focus on whatever diseases were associated with their deity. Not surprisingly, given the hot and dusty desert conditions, most physicians specialized in eye care.

Egyptian medicine also produced two noteworthy documents: the **Code of Hammurabi** (a Babylonian King who lived from 1728 to 1686 B.C.), which is possibly the first codified set of guidelines regarding responsibilities of physicians, and the *Ebers Papyrus*—a type of medical textbook summarizing extant knowledge about several disease categories that offered tips on diagnosis, prognosis, and therapeutic measures, including over 800 specific prescriptions (Magner, 2005).

GREEK AND ROMAN SOCIETIES

One of the most remarkable civilizations of all was that of Greece during the last 2,000 years B.C. The substantial contribution of the Greeks to medicine is consistent with their contributions to philosophy, art, theater, sculpture, government, and other areas.

In the beginning part of this era, religion and medicine were still inextricably linked. Apollo, the sun god, was also god of health and medicine and believed to be the inventor of the healing art. According to Greek legend, Aesculapius was the son of Apollo and such a brilliant healer that by the eighth century he was

considered the Greek god of health. Temples called "asklepieia" were created where priest-physicians practiced the healing ceremony of incubation or "temple sleep."

Patients who came to the temple would purify themselves (bathe), fast, read about the cures of former patients, and make offerings to Aesculapius. They would be given drugs to induce sleep. During the night, harmless "sacred" snakes would crawl around the patients and lick their wounds, after which attendants would apply salves. Lore has it that cures were invariably produced (Magner, 2005).

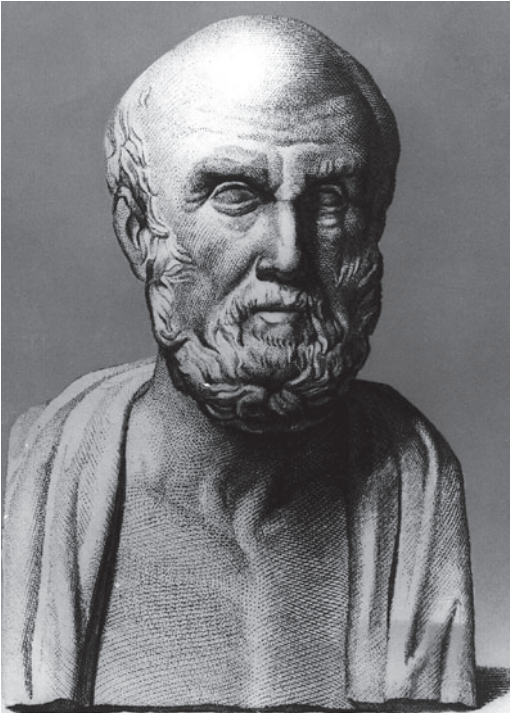
Hippocrates—the "Father of Medicine"

Simultaneously, a more empirically based medicine was developing, and many physicians enjoyed favorable reputations. The most renowned of these physicians is certainly **Hippocrates** of Cos (460–377 B.C.)—the "Father of Medicine." Hippocrates was born in Cos, was well educated, became a successful and much beloved physician, and was an esteemed teacher. He is best known for three major contributions:

1. *The principle of natural, rather than supernatural, explanations for disease.*

Hippocrates taught that disease is a natural process and that symptoms are reactions of the body to disease. He further emphasized that the chief function of the physician is to aid the natural forces of the body. With this principle, sick people ceased to be considered as sinners and sinners began to be thought of as sick people. Hippocrates emphasized that the body possessed its own means of recovery and that a healthy man was one in a balanced mental and physical state because of complete harmony of all the humors (Green, 1968:31).

Hippocrates subscribed to the **humoral theory of disease**—a dominant approach for centuries. The humoral theory postulates that there are four natural elements in the world (air, earth, fire, and water) and four natural properties (hot, cold, dry, and wet). In the body the elements are blood (hot), phlegm (cold), yellow bile (dry), and black bile



Hippocrates of Cos, the “Father of Medicine,” advocated natural rather than supernatural explanations for disease.

(wet). A person is healthy when these four humors are in balance and when the individual is in balance with the environment. Therefore, one seeks moderation in life so as not to upset the balance. Sickness is created by imbalance. These imbalances are detected by physical symptoms. A warm forehead (fever) indicates excessive heat; a runny nose is a sign of excessive phlegm. Appropriate cures seek to restore balance. For example, cold food was a remedy for heat-related diseases, and a very dry environment was created for the patient with excessive phlegm.

2. **His writings.** One of the most important sets of medical writings ever collated is the *Corpus Hippocraticum*, more than 70 books, monographs, and essays covering a variety of aspects of medicine. Hippocrates wrote of the importance of observing disease progression and described his own copious note taking of medical histories, symptoms,

and reactions to therapy when treating his patients. He encouraged physicians to treat the whole patient, not just a particular organ or particular symptom (Porter, 2006).

3. **His teaching of human compassion and ethical standards as illustrated in the Hippocratic Oath.** The first section of the **Hippocratic Oath** (see the accompanying box, “The Hippocratic Oath”) expresses reciprocal commitments made by physicians and their apprentices and establishes teaching as a primary obligation of the physician. The second portion of the oath is a brief summary of ethical guidelines. Some of the pledges—for example, against doing abortion, cutting for stone, and facilitating a suicide—raise questions since all were common practice at the time and were activities in which Hippocratic physicians are known to have engaged (Nuland, 1995). Nevertheless, the oath commanded significant attention then as it does now (even though most physicians no longer pledge to it).

Despite the popularity of Hippocrates, Greece could be described as an “open medical marketplace” that was comprised of several types of religious, magical, and empirical medical practitioners. Because there was no medical licensing, anyone could be a healer, and patients used the services of practitioners representing a multitude of medical philosophies.

Roman Medicine

Medicine did not flourish in Rome. Roman households ministered to the sick in their own families, often using treatments similar to those used in early societies. Beginning in the third century B.C. (Rome was founded in 753 B.C.), Greek physicians began filtering into Rome. At first, these physicians were persecuted, partly out of a jealousy that Rome was not producing its own physicians. Cato the Censor (234–149 B.C.), the man given credit for being the first important writer in Latin, prohibited all in his family from using these physicians (he relied instead on raw cabbage taken internally and



IN THE FIELD

THE HIPPOCRATIC OATH

I swear by Apollo the physician, and Aesculapius, Hygeia, and Panacea and all the gods and goddesses, that, according to my ability and judgment, I will keep this oath and this covenant:

To reckon him who taught me this Art equally dear to me as my parents, to share my substance with him, and relieve his necessities if required; to look upon his offspring on the same footing as my own brothers, and to teach them this Art, if they shall wish to learn it, without fee or stipulation; and that by precept, lecture, and every other mode of instruction, I will impart a knowledge of the Art to my own sons, and those of my teachers, and to disciples who have signed the covenant and have taken an oath according to the law of medicine, but no one else.

I will follow that system of regimen which, according to my ability and judgment, I consider for the benefit of my patients, and abstain from whatever is deleterious and mischievous.

I will give no deadly medicine to anyone if asked, nor suggest any such counsel; and in

like manner I will not give to a woman an abortive remedy. With purity and with holiness I will pass my life and practice my Art.

I will not cut persons labouring under the stone, but will leave this to be done by such men as are practitioners of this work.

Into whatever houses I enter, I will go into them for the benefit of the sick, and will abstain from every voluntary act of mischief and corruption; and, further, from the seduction of females or males, of freemen and slaves.

Whatever, in connection with my professional practice, or not in connection with it, I see or hear, in the life of men, which ought not to be spoken of abroad, I will not divulge, as reckoning that all such should be kept secret.

While I continue to keep this Oath unviolated, may it be granted to me to enjoy life and practice the Art, respected by all men, in all times. But should I trespass and violate this Oath, may the reverse be my lot.

rubbed on the body as a medicinal cure). Pliny the Elder himself is said to have remarked, “The honour of a Roman does not permit him to make medicine his profession, and the Romans who begin to study it are mercenary deserters to the Greeks” (Camp, 1977).

Perhaps for this reason, physicians openly competed for status and reputation. Aggressive self-promotion and public humiliation of rivals were not uncommon. Physicians sought out medical cases that had been difficult to solve and attempted public, “spectacular” diagnoses or cures that would be widely publicized and, when successful, would lead to improvement in social standing (Mattern, 1999).

Asclepiades

The arrival of Asclepiades (a Greek physician born in Asia Minor in 124 B.C.) initiated a general increased regard for physicians. Skeptical

of the idea of the “self-healing” potential of the body, Asclepiades believed that health and illness were determined by the condition of the pores. If the pores were either too open or too closed, illness resulted. He prescribed massage, diet (wine was a common recommendation), and baths as techniques to alter the structure of the pores (Magner, 2005). Asclepiades became a popular figure, founded a school that survived his death in 60 B.C., and influenced Julius Caesar to decree in 46 B.C. that Greek slave-doctors were free and had full rights of citizenship.

Roman Contributions to Medicine

Rome’s major medical contributions were to the field of public health. Recognizing that unsanitary conditions contributed to the spread of disease, the government constructed a system of aqueducts to obtain pure water, built an elaborate system of public baths, passed ordinances

requiring street cleanliness, and established a system of hospitals to tend to the sick.

Galen

The other most pivotal figure of this era is **Galen**, a physician whose ideas dominated much of medicine for the next 12 centuries. Born in Asia Minor in A.D. 131, he studied Hippocratic medicine (and its rival theories) and eventually migrated to Rome at the age of 34. There he became famous as a physician, author, and medical researcher.

Galen made extensive contributions to the understanding of anatomy. Since he was prevented by Roman law from using human cadavers for study, Galen relied on the dissection of monkeys and pigs and on the study of the skeletons of criminals. Based on these studies, he refuted several common medical notions (e.g., that the heart was the origin of the nerves and that blood vessels originated in the brain) and added to the existing knowledge about bones, muscle groups, the brain, and various nerves. Yet he could not be dissuaded from his belief in “pneuma”—that certain vital spirits (but not blood) circulated throughout the body (Magner, 2005).

Galen, a rather dogmatic individual who was absolutely convinced that his ideas were accurate, vehemently discouraged others from further investigating his work. Though we now know many of his theories to be false, they were extremely influential during his time and for several subsequent centuries. On the other hand, his title as “the Father of Experimental Physiology” seems well deserved, as he was probably the foremost medical experimentalist until the 1600s.

THE MEDIEVAL ERA

The end of the Western Roman Empire is generally pegged at A.D. 476 when the conquest of Europe by the barbarians was completed. In the East, the Byzantine Empire (based in Constantinople) survived and became a center of civilization. The time period between (roughly)

A.D. 500 and A.D. 1500 is referred to as the Medieval Era.

Monastic Medicine

Medical practice in the first half of this era is referred to as **monastic medicine** since medicine was based in the monastery. Medical practice was officially controlled by the Church in Byzantium (the early Christian church), which was extremely hostile to physicians. This hostility was based on two precepts: (1) Disease and illness are beneficial in that they test one’s faith and commitment to God and the church, and (2) all illnesses occur as punishment by God, possession by the devil, or the result of witchcraft.

These religious causes required religious cures, typically, prayer, penitence, or intercession with saints. Particular diseases and body parts were believed to have a patron saint who could inflict pain and enact cure. For example, if one had a toothache, prayer was made to Saint Apollonia. According to the church, private physicians represented a form of blasphemy in their efforts to cure disease apart from religious intervention. In reality, many people from all stations in life considered secular healing to be an appropriate complement for religious healing and often used the services of herbalists, midwives, wise women, and lay specialists. These practitioners are largely responsible for preserving much of the medical knowledge that had been passed on to them and ensuring its transmission to later generations (Bennett, 2000).

Arabic Medicine

The commonwealth of Islam was founded in 622 by Mohammed. During the next 100 years, his followers conquered almost half of the world known at that time. By 1000, the Arab Empire extended from Spain to India. The Arabs were intensely interested in medicine: They built famous teaching hospitals, bestowed high prestige on private physicians, and basically served as the link between Greek medicine and Renaissance medicine (Magner, 2005).



IN THE FIELD

A MEDIEVAL JOKE

If you want to be cured of
I don't know what
Take this herb of
I don't know what name

Apply it
I don't know where
And you will be cured
I don't know when

Scholastic Medicine

The second half of the Medieval Era is referred to as the time of **scholastic medicine**. In 1130, a proclamation from the Council of Clermont forbade monks from practicing medicine because it was too disruptive to the peace and order of monastic sequestration. Rather than shifting medicine to the private sector, medical practice became the province of the secular clergy, and universities began to play a prominent role in the education of physicians. Though it is impossible to fix the precise date at which universities in the modern sense first developed, twelfth- and thirteenth-century schools became centers where a variety of disciplines were taught (probably the most important legacy provided by the Middle Ages) (Magner, 2005).

Two other occurrences during this era are significant: (1) There were numerous devastating epidemics (leprosy reached a peak in the thirteenth century; epidemics of scurvy were common; and the Bubonic Plague—**Black Death**—caught hold in Europe in the 1340s and killed an estimated 43 million people in 20 years) that made clear the total helplessness of physicians to restrain disease (Porter, 2006), and (2) the earliest hospitals developed in the monastic period (though they were mostly places of refuge for the poor, the clergy did provide caring concern for those who came to them).

MEDICINE IN THE RENAISSANCE

The fifteenth and sixteenth centuries—the Renaissance—represent a rebirth in the arts and philosophy, scientific endeavor, technological

advancement, and medicine. The scholarly blinders of the Middle Ages were discarded in favor of *humanism*, which stressed the dignity of the individual, the importance of this life (and not solely the afterlife), and spiritual freedom.

Andreas Vesalius

A key early event of the Renaissance was the refutation (at long last) of many of Galen's ideas. Andreas Vesalius (1514–1564), a product of a Brussels medical family, contradicted Galen's description of anatomy. Using corpses purchased from grave robbers, he discovered that Galen's descriptions accurately portrayed monkeys but, in many respects, not humans. For centuries, people had believed Galen's conclusions were based on human dissection, yet they were not! Vesalius contended that if Galen was wrong about anatomy, he might be wrong about his other medical conclusions (e.g., *pneuma*). Yet allegiance to Galen's ideas was so strong that Vesalius was dismissed from his university position for this heresy, and his career as an anatomist was finished (though he later became a court physician). It was not until 1628 that Englishman William Harvey demonstrated conclusively that blood circulates throughout the body in an action stimulated by the heart (Kennedy, 2004).

Paracelsus

The humoral theory of disease also came under attack. Philippus Aureolus Theophrastus Bombastus von Hohenheim (1493–1541)—Paracelsus, for short—held that God revealed

medical truth to humans through revelation. A devotee of astrology and alchemy (the chemistry of the day), he criticized the humoral theory and spent much of his life searching for specific pharmacological remedies and produced some modest successes. Though often disliked for his attacks on Galen, and a thoroughly contradictory fellow, Paracelsus is nevertheless an important figure in medical history.

Medical Specialization

During the Renaissance, the medical specialization that had begun to develop in the ninth or tenth century became more pronounced. *Physicians* were those who had graduated from a school of medicine. They provided diagnosis and consultation and were expected to bear themselves as gentlemen so as to match the demeanor of their wealthy patients. *Surgeons* were lower in status because they practiced skills learned in apprenticeship. Their primary responsibilities were to treat external complaints (e.g., wounds and abscesses), repair broken bones, and perform minor surgeries. In some areas, *barber surgeons* were available to perform major surgery (often on war wounded), and many also practiced bloodletting. Approximately equal in prestige to surgeons, *apothecaries* dispensed herbs and spices prescribed by physicians and, especially in the countryside, often took on the physician's duties. Nevertheless, self-medication and lay healing were very common in the Renaissance, and families placed priority on staying well.

MEDICINE FROM 1600 TO 1900

The Seventeenth Century

The development of modern science is the key event of the seventeenth century.

This scientific revolution replaced previous concepts with new ideas of matter and its properties, new applications of mathematics to physics, and new methods of experimentation. By 1700, a "new world" view had taken form. Modern science rested on interchange and mutual verification

of scientific ideas and information by investigators in many countries and these needs were satisfied by the development of scientific societies and publications. (Green, 1968:83)

In part, this scientific revolution was stimulated by several scientist-philosophers of the century, most notably Francis Bacon (1561–1626) and René Descartes (1596–1650). Bacon argued for "natural" explanations for events that could be understood through systematic observation and experimentation. Descartes invented analytical geometry and, through his work on momentum, vision, reflex actions, and a mind–body duality, laid the basis for a science of physiology.

William Harvey. The most important physiological advancement in the century was Englishman William Harvey's (1578–1657) confirmation of the circulation of blood. Though the idea had been suggested by others earlier in history, Harvey was the first to offer experimental and quantitative proof.

Throughout his life, Harvey was a clinician-researcher. He maintained a clinical practice of medicine (in his later years being physician to kings and other members of the aristocracy) while he devoted himself to medical investigation in anatomy and physiology. Primarily through analysis of dissected and vivisectioned animals, observation of the weakening heartbeat of animals as they were about to die, and various forms of experimentation on human heartbeat, Harvey proved that the contraction of the heart drove blood into the major arteries toward the body's peripheries (and that cardiac valves prevented blood from reentering the heart through the arteries). When the heart is resting between beats, it is filled with blood that has been carried to it by the veins. Though Harvey's finding removed a key obstacle to medical progress, the discovery was met with skepticism by some and open hostility by others. It had little influence on the treatment of patients during Harvey's time (even in his own practice) as physicians waited for further substantiation of his main ideas (Nuland, 1995).

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Clinical Medicine. How did all this scientific theorizing affect patient treatment? Very little. Even those theories now known to be accurate were met with skepticism, and the process of incorporating new knowledge or techniques into medical practice was quite slow. Medical superstitions were common, routine treatments often dangerous, and quackery quite prevalent. On the other hand, some seventeenth-century physicians focused their attention on the physician–patient relationship and on the body’s self-healing capacity, and in this way, maintained the Hippocratic tradition.

The Eighteenth Century

The eighteenth century, the “Age of Enlightenment,” is marked by efforts to collate the advancements of the preceding century and further refine knowledge in all fields including medicine. People perceived that they were living at a special time of rapid growth; more open intellectual inquiry; advancement in the arts, literature, philosophy, and science; and freer political expression.

Development of a Modern Concept of Pathology. Though medical progress had been achieved in many areas, understanding of disease causation in the early eighteenth century was little different than it had been 2,500 years earlier. Many still advocated the humoral theory or some variation of it; others traced disease to climactic conditions or focused on structural explanations such as the condition of the pores.

The understanding that diseases are attached to particular organs is traceable to Giovanni Battista Morgagni (1682–1771), an Italian physician and professor of anatomy at the University of Padua. Based on his systematic and thorough note taking of patients’ symptoms, Morgagni developed the **anatomical concept of disease**—that diseases could be traced to particular pathology or disturbance in individual organs. Hence, he directed medicine to seek the originating localized disturbance in a particular organ. It may seem strange to us today that for so long physicians did not connect patients’

symptoms with the corresponding pathological condition. And even those who challenged the prevailing notions of the day, like Andreas Vesalius and William Harvey, relied primarily on the old ways in the actual treatment of their own patients.

The Emergence of Public Health and Preventive Medicine. The eighteenth century also witnessed a return to interest in public health. Attention was focused on the unsanitary conditions that prevailed in industry, the armed forces, prisons, and hospitals. The lack of public sanitation in cities and contaminated water supplies were seen as significant threats to health. Individuals were encouraged to attend more to personal hygiene.

The foremost accomplishment of this movement was the discovery of an effective preventive measure against smallpox, a leading cause of death among children. Edward Jenner (1749–1823), a British country doctor, had heard that milkmaids infected by cowpox developed an immunity to smallpox. Through experimentation (on humans), Jenner demonstrated that persons inoculated with cowpox (vaccinated) would not develop the disease. Though initially regarded with suspicion, it was a signal event in the history of preventive medicine (Magner, 2005).

Alternative Paths of Medicine. While discussing the advancement of ideas later confirmed by science, competing theories and treatments of the day are often overlooked. The discoveries of Morgagni and Jenner, for example, do not mean that medicine was not simultaneously taking alternative routes. For example, William Cullen of Edinburgh (1712–1790) founded a medical system based on “nervous forces”—that all diseases were a result of overstimulation or an inability to respond to stimulation. Appropriate cures were found in stimulants and depressants. Edinburgh-trained James Graham established a “Temple of Health and Hymen” in London. The temple was filled with beautiful young virgins attired in skimpy costumes who would sing to the sick—an approach that seemed logical to Graham, who believed

that illness could only be cured in the presence of beautiful sights and sounds (Camp, 1977).

The Nineteenth Century

Many eighteenth- and nineteenth-century inventions stimulated a rapid growth in the iron and textile industries and led to the Industrial Revolution. Industrialization began in England and spread to the rest of Europe and the United States. The development of large industries with many jobs pulled large numbers of workers into concentrated areas. The world was not prepared to deal with the consequences of this urbanization process. The cities that grew up around the industries were severely overcrowded, typically unsanitary, and often lacking safe procedures for food and water storage. These conditions produced a very unhealthy living environment.

Hospital Medicine. The first half of the nineteenth century is known mostly for the importance physicians and medical researchers attached to clinical observation. Whereas medicine in the Middle Ages had been centered in monasteries and libraries and in the Renaissance (as in antiquity) was centered on the individual sickbed; in the nineteenth century, for the first time, it was centered on the hospital.

Hospitals had existed for centuries but increased rapidly in number in the 1800s in response to the massive number of people migrating into the newly developing cities. Communicable diseases became commonplace; many of the urban migrants contracted typhoid fever and tuberculosis. Admission to a hospital was the only resort. These patients provided an unprecedented opportunity for clinicians and researchers to observe the sick and search for common patterns in their symptomology, disease progression, and response to medication. By the 1830s, especially in Paris, physician-researchers were increasingly taking advantage of the opportunity to separate patients by condition and specialize in particular conditions in order to expand medical knowledge (Weisz, 2003). Simultaneous advances in science and technology (e.g., the invention of the stethoscope

by Laennec) were extremely important events of this era, but the immediate course of medicine was more strongly influenced by clinical observation in hospitals.

Laboratory Medicine. The laboratory became the focus in the second half of the century. The work of Morgagni and others had fixed attention on pathology in particular organs. But no one knew what caused something in the organ to go awry. Many theories existed, and each sought “the” answer to unlock this key mystery. The absence of a correct answer to this question was repeatedly made obvious by the absence of effective cures.

They bled their patients, and they puked them and purged them and blistered them as their professional forefathers had always done; they confused the metabolisms of the sick with dazzling combinations of botanicals whose real actions were only partially known, and often not known at all. They stimulated in cases whose cause was thought to be too little excitation, and they tried to induce a touch of torpor when the opposite was the case. In short, except when the need for amputation or lancing was obvious, the healers didn’t really know what they were doing. (Nuland, 1995:306)

Discovery of the Cell. The answer to the mystery is, of course, the cell, and credit for its discovery and interpretation goes to the German pathologist Rudolf Virchow (1821–1902). Virchow pinpointed the cell as the basic physiological matter and understood that disease begins with some alteration in the normally functioning, healthy cell. Effective treatment depends on restoring the cell to normality (or, at least, terminating its abnormal development).

Ironically, while Virchow’s discovery of the human cell appropriately led to study of the physiological changes involved in disease progression, Virchow was a leading proponent of the importance of environmental influences on health and illness. He understood that one’s social class position, occupation, and involvement in social networks had as much to do with creating sickness as cellular changes. He referred to medicine as a “social science” and as the “science of man” and sought to influence societal

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conditions that negatively impact human health (Kennedy, 2004). The final 30 years of his life were largely devoted to explorations in the fields of anthropology and archaeology, the development of public health measures in his hometown of Berlin, and advocating for democratic reform and political and cultural freedom in Germany. He was a much beloved figure in Germany at the time of his death.

The Germ Theory of Disease. One more question remained. What causes a cell to begin change? What substance or condition initiates the disease process? At various points in history, medical researchers had speculated on the existence of microorganisms, but the speculation never inspired any substantial following. From the 1830s through the 1860s, various researchers observed bacteria under the microscope (minute organisms were first observed under a

microscope by its inventor, Leeuwenhoek, in 1675), but their significance was not understood at the time.

The key figure in the development of the **germ theory of disease** is Louis Pasteur (1822–1895), a French chemist, now called the “Father of Modern Medicine.” In 1857, Pasteur countered prevailing understandings by demonstrating that fermentation (he lived in the wine region) was not solely a chemical event but also the result of various microorganisms. By 1862, he had disproved the notion that bacteria were spontaneously generated.

However, not until 1877, after 20 years of research on microorganisms, did Pasteur turn to human diseases. He identified the specific bacteria involved in anthrax and chicken cholera and, with several of his pupils, identified other disease-causing bacteria, and developed effective vaccinations against them. By 1881, the germ theory of disease was generally accepted. With the impetus provided by Pasteur, one bacteriological discovery after another occurred over the next ten years. Between 1878 and 1887, the causative agents for gonorrhea, typhoid fever, leprosy, malaria, tuberculosis, cholera, diphtheria, tetanus, pneumonia, and epidemic meningitis were discovered (Magner, 2005).

The success of these efforts inspired an exciting period in medical history. Researchers would focus on a particular disease, identify the organism that caused it, determine how it invaded the body, and identify a vaccine that would prevent it. The mass media—newspapers, magazines, health education pamphlets, radio, motion pictures, and even comic books—joined in and promoted medical advancements (Hansen, 2009).

At first, however, it was understood only that vaccines worked. It required another ten years to understand why—that the body produces antibodies in response to the presence of a disease and that these antibodies remain in the body to fight the disease on future exposures (Magner, 2005).

Progress in Surgery. Considerable progress in surgery also occurred during this time



Louis Pasteur, called the “Father of Modern Medicine,” is credited with discovering the role of microorganisms as a cause of many human diseases.

due to three essential advancements: (1) an understanding of the “localized” nature of disease (when surgeons believed that diseases were caused by generalized forces, like humors, it made little sense to remove a particular area or organ); (2) an ability to control the patient’s pain in the surgical process (which occurred in incremental stages based on trial and error throughout the nineteenth century); and (3) an ability to prevent wound infection. Throughout history, surgeons recognized that almost all surgeries (even “successful” surgery) resulted in a frequently fatal infection in the wound site. (“The operation was a success, but the patient died.”) Surgery performed in hospitals was especially likely to result in infection.

The importance of “asepsis” (surgical cleanliness) was discovered by Sir Joseph Lister (1827–1912), an English surgeon. Lister’s concern was prompted by the very large percentage (almost half) of his amputation patients who died as a result of infection. At first convinced that infection was caused by the air that came into contact with the wound, Lister altered his thinking when he read descriptions of Pasteur’s work. By the mid-1860s, he realized that sepsis was caused by bacteria in the air rather than the air itself. Lister learned that applying carbolic acid to the wound, his hands, the surgical instruments, and the dressings used to close the wound prevented sepsis from occurring (Magner, 2005).

THE ASCENDANCY OF MEDICAL AUTHORITY IN AMERICA

Early America

The earliest explorers to America found that Native Americans relied mostly on supernatural explanations for disease and illness. Diagnosis of disease and illness and treatment were often assigned to separate individuals. Treatment of the sick was typically assigned to a “medicine man” who could intercede with the gods and, it was hoped, drive off evil spirits. Among the most common ailments were those related to the

active and difficult lifestyle: fractures, dislocations, and wounds.

The Early Colonists. The earliest colonists endured an excruciatingly difficult voyage across the ocean (typically requiring three or more months) only to be met with tremendous hardship upon arrival. Though warned about the danger of disease by their sponsor, the London Company, the Jamestown settlers in 1607 were more concerned about being attacked by Indians. They selected a site for their new home that had a military advantage (being able to see up and down the river) but was limited by an inadequate food supply and brackish water. Six months after arrival, 60 of the 100 who landed had died from dietary disorders or other diseases.

The Plymouth Colony in Massachusetts had a similar experience. Due to an outbreak of scurvy and other diseases, only 50 of the 102 arrivals survived the first three months. Epidemics and other infectious diseases (e.g., malaria, dysentery, typhoid fever, influenza, smallpox, scarlet fever, yellow fever, and consumption—tuberculosis) were the primary killers during the colonial years (Green, 1968).

The colonists also brought with them from Europe several contagious diseases (e.g., measles, smallpox, and mumps) that had been unknown in the Americas. Lacking immunity to these diseases, Native American populations were very susceptible to them and were decimated in continuing outbreaks. Some historians estimate that up to 90 percent of Native Americans died in this process (Cassady, 1991).

Though health problems were rampant in the colonies, conditions for slaves were especially bad. Subjected to massive overwork; poor food, housing, and sanitation; and inadequate medical care, the health of slaves was very poor in both an absolute and relative sense.

Early Medical Practitioners. Medical care was provided by colonists (often clergy) who had some formal education (not necessarily in medicine). The only known medical work published in America in the 1600s was by the

Reverend Thomas Thatcher of the Old South Church in Boston. The Reverend Cotton Mather (1663–1728) (precocious, vain, and fanatical about witches) is often called the first significant figure in American medicine. Though a full-time clergyman, Mather read widely about medicine, wrote numerous treatises and books on anatomy and therapeutic medicine, and is known for an understanding of inoculation far beyond that of his contemporaries.

There were a few trained physicians and surgeons who had migrated to the colonies from Europe, and it was common for young men to attach themselves to these physicians as apprentices (typically, for four to seven years). But, in colonial America, people from all walks of life took up medicine and referred to themselves as physicians. Many added the physician's duties to another job such as food merchant, wig maker, or cloth manufacturer (Starr, 1982). Much medical care was delivered by the apothecary. Although apothecaries primarily made their living by providing drugs and medical preparations, they also gave medical advice,

dressed wounds, and even performed amputations (Magner, 2005).

Obviously, in such conditions, there was little in the way of professionalized medicine. The first comprehensive hospital in the United States (the Pennsylvania Hospital in Philadelphia) was not built until 1751 (and the second not till 20 years later in New York); the first efforts to license medicine came in 1760 (in New York); the first formalized medical school (at the College of Philadelphia) was established in 1765; and the first state medical society (in New Jersey) organized in 1766.

Domestic Medicine. Given these conditions, it is not surprising that families assumed primary responsibility for protecting the health of family members and providing therapeutic agents when sick. Women stored medicinal herbs just as they did preserves, made up syrups and salves and lotions, bandaged injuries, and were expected to tend to sick family members. They called on other family and friends in the community for advice and sometimes sought the



IN THE FIELD

THE DEATH OF A PRESIDENT

In December 1799, he went out riding and got caught in a cold freezing rain, hail, and snow. When he returned to the house, he went to dinner without changing his wet clothes. He quickly came down with a cold, hoarseness, and a severe sore throat.

He was feeling worse the next morning, and three physicians were called in. A mixture of molasses, vinegar, and butter was provided, but it brought on near-fatal choking. A short time later, a bloodletter was added to the team. At various points during the day, blood was removed from the patient: 12 to 14 ounces at 7:30 A.M., an additional 18 ounces at 9:30 A.M., and another 18 ounces at 11:00 A.M. Despite continued pleadings by his wife for caution, another 32 ounces of blood were let at 3:00 P.M. At 4:00 P.M., calomel (mercurous chloride) and

tartar emetic (antimony potassium tartrate) were administered.

After a brief spell of improvement, his condition began to weaken. Various poultices and compresses were applied. Around 10:00 P.M., he whispered burial instructions to a friend. A few minutes later, the recently retired first president of the United States, George Washington, died.

Did the attempted cure kill the former president? It is clear that the bloodletting did not help and probably hastened Washington's death. It is now generally agreed that Washington had acute bacterial epiglottitis. The youngest of the three physicians had argued unsuccessfully to do a very new technique at the time, a tracheotomy, to assist Washington's breathing. That might have worked and prolonged his life (Morens, 1999; Wallenborn, 1997).

assistance of an older woman in the community known for her healing knowledge (Cassady, 1991; Starr, 1982).

Domestic medicine was supported by an ideology that individuals and families were capable of providing for the ill. Texts on domestic medicine (typically written by physicians) were available as was advice through newspapers and almanacs as well as word of mouth. Medical jargon was criticized as being unnecessary and discouraging people from family treatment.

The Revolution to the Mid-1800s

Though there were only about 3,500 physicians in the country at the start of the Revolutionary War (and only 400 of these had a university medical degree), medicine was making progress. Many of the physicians were as competent as the times allowed, and they took their responsibility to apprentices seriously.

Americans who could afford formal medical education often traveled to the University of Edinburgh, then considered the world's finest medical school, or other European centers. By the turn of the century, the country had established four medical schools (Pennsylvania, Columbia, Harvard, and Dartmouth), each of which sought to offer excellence in medical training (but with a minimum of faculty members; Dartmouth had a one-man medical faculty for over a decade).

The most famous American physician of this era was Benjamin Rush (1745–1813), who after serving an apprenticeship in the colonies, earned a medical degree from Edinburgh. Rush, a signer of the Declaration of Independence and a strong advocate for temperance and the abolition of slavery, wrote extensively on his medical observations and made substantial contributions to the understanding of yellow fever and psychological problems. He argued against the common stigmatization of the mentally ill and urged that those with mental health problems be treated with kindness and humaneness (Magner, 2005).

Nevertheless, he preached and practiced many of the medical errors of the day. He believed all symptoms and sickness were traceable to just

one disease—a “morbid excitement” induced by “capillary tension,” and he recommended and used bloodletting and purging as common cures (Magner, 2005).

America's experience in the Revolutionary War highlighted the lack of accurate knowledge about disease causation and treatment. The annual death rate in the Continental army was approximately 20 percent; 90 percent of war deaths were the direct result of disease (Green, 1968). See the accompanying box, “The Death of a President,” on the use of bloodletting as a factor in George Washington's death.

Frontier Medicine. In the early nineteenth century, many of America's most important contributions to medicine occurred in the expanding Midwestern region of the country. This is explained by the extremely difficult life lived by those on the frontier and their susceptibility to disease. Life was difficult; food was often in short supply (Steele, 2005).

While families typically practiced homemade remedies (based on both trial and error and superstition), there were some remarkable medical achievements. Ephraim McDowell (1771–1830), an Edinburgh-trained physician practicing in Danville, Kentucky, was the first to successfully practice ovariectomies (in 1809, he removed a 22- $\frac{1}{2}$ -pound ovarian tumor from a woman who originally had thought herself pregnant). William Beaumont's (1785–1853) experience with a young accidental gunshot victim led to experiments on digestion (Green, 1968). Daniel Drake (1785–1870) wrote about the influence on health of physical and social environmental factors (e.g., climate, diet, ethnicity, lifestyle, and occupation), encouraged collaboration among physicians, and was a strong proponent of physician licensure.

The Status of Medicine. Despite these advancements, medicine remained a very downgraded occupation. Physicians had little genuine understanding of disease causation and few effective treatments. Sometimes their cures were helpful (e.g., using willow bark, a source of aspirin, or rose hips, the ripened fruit of the

rose bush and a good source for vitamin C, for fevers). Other remedies may not have been helpful but neither were they harmful (e.g., using fried daisies for a compress or putting feverish patients in a tent with burning tobacco). Some cures, however, were very harmful (e.g., bleeding, purging, amputation for any broken limb, and trephination).

Alternative Philosophies. For a variety of reasons, physicians were poorly paid (and often not paid at all). These reasons include (1) the fact that family medicine was preferred by many; (2) the difficulty in seeing a substantial number of patients in a day (people lived far apart and efficient transportation was lacking); (3) the inability of many patients to pay for care (much care was provided on credit but never reimbursed); and (4) the fact that many people offered themselves as physicians (without licensure requirements, there was virtually unlimited entry into the field). Given these conditions, many could not justify the cost of formal education. Through the first half of the 1800s, then, physicians enjoyed little prestige (Starr, 1982).

Many alternative healing philosophies (medical sects) competed throughout this time period. “Thomsonianism” was created by Samuel Thompson (1769–1843), a New Hampshire native, who had unhappy experiences with “regular” physicians. His motto was “Every man his own physician.” He believed that disease resulted from insufficient heat and could be countered by measures that would restore natural heat (e.g., steam baths that would promote massive sweating and “hot” botanicals like red pepper). Over three decades, Thompson’s influence grew, and he attracted many followers (Steele, 2005).

A second important medical sect, homeopathy, was founded by a German physician, Samuel Hahnemann (1755–1843), who viewed diseases as being primarily of the spirit. Homeopaths believed that diseases could be cured by drugs that produced the same symptoms when given to a healthy person (the homeopathic law of “similars”—like cures like). The rationale was that a patient’s natural disease would be displaced after taking a homeopathic medicine by

a weaker, but similar, artificial disease that the body could more easily overcome (Starr, 1982). For example, homeopaths view coughing as the body’s effort to deal with foreign substances in the lung. While medical doctors would typically try to suppress the cough, homeopaths would regard this as stifling the body’s natural curative processes.

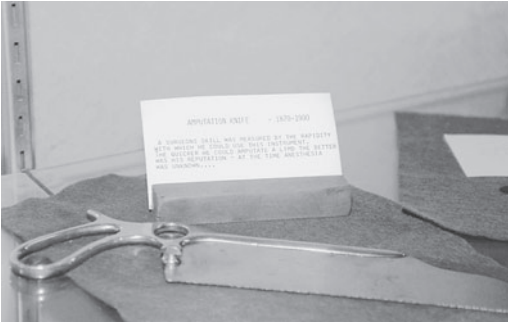
Conventional physicians (who were referred to as allopaths and as practicing allopathic medicine) were vocally critical of homeopaths and others who practiced forms of medicine contrary to the allopaths. They sought to discredit them, often refused to interact with them, and attempted to drive them from the field of medicine. You can read more about the relationship between conventional and alternative medicine in Chapter 11.

1850 Onward

At least three events of major significance during the second half of the nineteenth century and the first half of the twentieth century combined to “professionalize” medicine.

The Civil War. As has frequently occurred, war dramatizes both the technological strengths and weaknesses of a society. Despite the ferocity of battle between the Union and Confederate forces, disease and illness represented the most lethal forces of the Civil War. An estimated 618,000 persons were killed during the Civil War—one-third from battle fatalities and two-thirds from disease and illness. Diarrhea and dysentery were the major killers, while numerous deaths were caused by smallpox, typhoid, yellow fever, pneumonia, scarlet fever, and infection from surgical procedures.

The wounded often lay on the battlefield for days until a conflict subsided and they could be moved. Wounds commonly became infected. Surgery was very primitive; though anesthesia was often used, it typically took the form of alcohol or opium. In some instances, the patient was hit in the jaw to knock him out; at times, the patient would simply bite down on a piece of wood or even a bullet (hence the expression, “bite the bullet”) as a distraction.



Medical tools of the late 1800s, like this amputation knife, reflect the still primitive nature of medicine at this time.

To remove a bullet, the surgeon would put his unwashed hand in the open wound, squish around until the bullet was found, and pull it out. Scalpels used for amputation (there were approximately 60,000 amputations during the Civil War—three-fourths of all operations) were not washed; the blade was often dull; and whatever sharpening occurred was done on the surgeon’s boot sole. Surgeons bragged about the speed with which they could amputate a limb (the best were called 1–½-minute men). Almost everyone got infections; many died from them. For comparison purposes, in Vietnam, 1 in every 75 wounded soldiers died; in World War II, 1 in 33 wounded died; in the Civil War, 1 in 7 wounded died.

Professional nursing was begun during the Civil War as a means to assist in the treatment of wounded soldiers. The ambulance corps was initiated to move the wounded from the battlefield to field hospitals. These experiences helped medical personnel learn about sanitation and other public health measures.

Medical Advancements. As discussed earlier, the discovery by Pasteur that microorganisms cause disease is considered by many to be the single most important medical discovery ever. Coupled with Lister’s recognition of the importance of sepsis and Wilhelm Roentgen’s (1845–1923) discovery of X-rays and their diagnostic utility in the 1890s, much improved disease diagnosis was possible. These

advancements meant that knowledge existed that required specialized training.

The germ theory of disease stimulated a massive and effective assault on infectious disease through prevention (immunization) and treatment. The decades of the 1920s through the 1940s represent years of peak pharmacological success—a time when one “magical bullet” after another was discovered. Insulin was discovered in 1921; vitamin C was isolated in 1928 (enabling better understanding of vitamin deficiency diseases), the same year that a vaccine for yellow fever was produced. The potential for sulphur drugs (in preventing the growth or multiplication of bacteria) was realized in the 1930s, and the ability of penicillin to kill bacteria was fully understood in the 1940s. For a time, great optimism was engendered that all diseases and illnesses could be eradicated.

An unfortunate consequence of this focus on germ-caused disease was the turning away of attention from the “whole person.” Some of the most valuable lessons to be learned from the Hippocratic tradition, such as the influence of lifestyle, the importance of inner harmony and moderation in life, the mind–body connection, and the importance of person-oriented medicine, were lost in the rush to identify microorganismic culprits and methods of conquering them. It would be decades before the importance of these themes would be remembered.

The Organization of Professional Medicine. During the first half of the nineteenth century, several localities and states formed professional medical societies. While there was considerable variation in their objectives and activities, each focused primarily on promoting the professionalization of medicine. On May 5, 1847, 250 physicians representing many of these medical societies and some medical schools met in Philadelphia to establish a national medical society, the **American Medical Association (AMA)**.

The motivation to establish the AMA was part ideological and part economic. Competition from homeopaths and other alternative healers was limiting financial success for physicians and

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reducing pride in the field. Physicians openly sought more esteem and condemned those with alternative approaches (Magner, 2005; Steele, 2005). In part, the motivation for creating the AMA was similar to Hippocrates' motivation for writing his famous oath: To establish visible standards for the practice of medicine so as to gain a greater confidence from the general public.

The AMA identified its chief goals as the (1) promotion of the science and art of medicine, (2) betterment of public health, (3) standardization of requirements for medical degrees, (4) development of an internal system of licensing and regulation, and (5) development of a code of medical ethics.

However, it would be years before the AMA would develop into an important force in medicine. Several states and some medical schools opposed uniform standards in education and licensing requirements. There was sentiment in the general public against legitimizing a particular medical orientation as it was not clear that the brand of medicine offered by the AMA was superior to the many alternative healing philosophies in existence.

Forces Stimulating Professionalization

Three pivotal events strengthened the position of the AMA in medicine. First, the discovery of the germ theory of disease offered medical schools a sound approach to disease causation and treatment and a clear rationale to the public for preferring formally trained physicians.

Second, the AMA was eventually successful in achieving one of its key goals: **medical licensure** requirements. The AMA and the country's top medical schools argued that licensure would restrict the practice of medicine to those who had been formally trained and were able to demonstrate competency. Opposition stemmed both from those who wanted to maximize the choices people had available for medical practitioners and from the administrations of many of the lower quality medical schools who feared their graduates would not be able to pass a licensure exam. By the early 1900s, the battle had largely been won as most states required a license to practice medicine.

These two events were necessary, but not sufficient in the AMA's drive for professional authority. By 1900, there were approximately 110,000 physicians in the United States, but only 8,000 belonged to the AMA. Reorganization of the AMA in 1901 (tightening the relationship among local, state, and the national associations and increasing the power of the AMA's governing board) provided a boost to the association, but one thing more was needed—control of medical education.

In the late 1800s and early 1900s, there was considerable variation in the quality of America's medical schools. More than 400 medical schools had been created in the United States in the 1800s. Some, like Harvard and Johns Hopkins, offered sound training in the basic sciences and substantial clinical experience under close supervision and had excellent resources. The majority, however, were not linked to a university and did not have access to the faculty, library resources, and facilities provided in the better schools. In many cases, admission standards were nonexistent, and there was no training provided in the basic sciences and little or no clinical supervision. As late as the 1870s, one physician was quoted as saying, "It is very well understood among college boys that after a man has failed in scholarship, failed in writing, failed in speaking, failed in every purpose for which he entered college; after he has dropped down from class to class; after he has been kicked out of college; there is one unfailing city of refuge—the profession of medicine" (Numbers, 1985:186).

The Flexner Report. The AMA contracted with the Carnegie Foundation to study the quality of medical education. They hired Abraham Flexner to conduct a comprehensive study of all the medical schools in the United States and Canada. Upon hearing of this study, many schools closed immediately rather than being condemned. Flexner's team visited the 155 remaining schools. His final report, the **Flexner Report**, issued in 1910, praised the efforts of many schools (Harvard, Western Reserve, McGill, Toronto, and especially, Johns

Hopkins) but lambasted those offering inferior programs. He recommended that the number of schools be reduced to 31 and that medical education be subjected to formal regulation.

The Great Trade of 1910

The only national standards available for accrediting medical schools were those that had been prepared by the Council on Medical Education (CME) of the AMA. In 1910, the states and the federal government made a deal with the AMA. In return for providing the best and most efficient health care system, the states and the federal government gave the CME monopoly over the production and licensing of physicians, including the power to establish standards for medical schools. In this **Great Trade of 1910**, the AMA was given a near-exclusive right to regulate the medical profession. With the power of knowledge supplied by the germ theory of disease and the organizational legitimacy provided by the states and the federal government, the powerful position of the AMA was secured. In turn, the AMA institutionalized scientific medicine as the foundation of America's health care system.

PERSPECTIVES ON THE ASCENDANCY OF MEDICAL AUTHORITY

Attempts to interpret and explain the ascendancy of medical authority in the United States have followed various lines. Two contrasting approaches, that of Paul Starr and Vicente Navarro, are summarized here.

Paul Starr

Paul Starr's *The Social Transformation of American Medicine* (1982) is a fascinating and well-documented description and analysis of the evolution of the medical profession in America. Starr (who won the Pulitzer Prize for this work) describes the rise of medical authority in America, as medicine was transformed from a relatively weak and poorly regarded

occupation into a powerful and prestigious "sovereign" profession, and how the efforts of medicine to maintain professional autonomy by limiting government control have left it open to being taken over by corporatization. The second of these points will be examined in later chapters; the first point addresses the bases for the ascendancy of medical authority in America and is discussed here.

Starr acknowledges the synergistic relationship between the advance of science and the professionalization of medicine but contends that something more than the former is needed to explain medicine's acquisition of economic power and political influence in America and its ability to shape the health care system. Paul Wolpe summarizes this point.

A profession's power rests on its consensually granted authority over a specific, cultural tradition. Knowledge and maintenance of that tradition is the profession's social capital, and it must guard that capital from challenges while projecting an aura of confidence, competence, trust, and self-criticism. Professions institutionalize control over social capital by establishing licensing procedures, internally-run educational institutions, and self-regulation. But institutional legitimacy, while somewhat self-sustaining, also depends on ongoing public acceptance of a profession's claim of exclusive expertise over a realm of specialized knowledge. Lacking broad coercive powers, professions have developed strategies to protect their socially granted right to interpret their particular cultural tradition. (Wolpe, 1985:409)

Starr suggests that professions develop authority in order to maintain their position. This includes social authority (Max Weber's notion of controlling actions through commands; authority is typically built into laws or rules or bureaucratic protocol) and cultural authority (which Starr defines as, "the probability that particular definitions of reality and judgments of meaning and value will prevail as valid and true") (Starr, 1982:13). **Cultural authority of medicine** is manifested in the "awe and respect from the general public and legislators" that allow medicine to set its own conditions of practice (e.g., site of care and

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payment mechanism) (Anderson, 1983:1243). While social authority can be legislated, professions must “persuade” publics that they are deserving of cultural authority.

The triumph of the regular profession depended on belief rather than force, on its growing cultural authority rather than sheer power, on the success of its claims to competence and understanding rather than the strong arm of the police. To see the rise of the profession as coercive is to underestimate how deeply its authority penetrated the beliefs of ordinary people and how firmly it had seized the imagination even of its rivals. (Starr, 1982:229)

What structural changes in medicine resulted from this “social transformation”? Starr (1982) delineates five key changes: (1) The growth of hospitals created a desire for hospital privileges and referrals, which caused physicians to become more colleague dependent and less patient dependent; (2) gaining control of medical education and the licensure process enabled the profession to restrict entry into the field and shape the evolution of the profession; (3) having medicine viewed as a special type of field legitimated the expenditure of enormous sums of public money for hospital construction, medical education, medical research, and public health; (4) physicians gained nearly complete control over conditions of medical practice (e.g., the setting of fees) and established significant political influence; and (5) medicine established very clear professional boundaries that were to be respected by others.

By the 1920s, the ascendancy of medical authority was clear. Though the sovereignty of medicine would not peak for several decades (probably around 1970), its prominent position and ability to control the health care system were firmly established.

Vicente Navarro

An alternative view of the ascendancy of medical authority in America is presented by sociologists and medical historians who follow a social conflict approach. Vicente Navarro, a Marxist scholar who has written extensively

about medicine, disagrees with three assumptions he finds in Starr.

Starr’s interpretation of America sees the past and present structure of power in the United States as reflecting the wishes of the majority of Americans. To see the structure of power in America as the outcome of what Americans want, however, is to beg the question of which Americans. If by Americans it is meant the majority of Americans, then two assumptions are being made. One is that the majority of Americans share a set of beliefs, values, and wants that provide an ideological cohesiveness to the totality of the unit called America. The other assumption is that the majority of Americans have had and continue to have the power to determine what happens both in the private sector of America (through the market forces) and in the public sector (through the representative public institutions). To these two assumptions Starr adds a third one: the dominant ideologies and positions become dominant through their powers of persuasion rather than through coercion and repression of alternative ideologies and positions. (Navarro, 1984:515)

Navarro emphasizes that Americans have been and continue to be “divided into classes, races, genders, and other power groupings, each with its own interests, set of beliefs, and wants that are in continuous conflict and struggle” (Navarro, 1984:515). These groups have different levels of power and interact within a dominant–dominated framework. In society in general and within medicine, powerful groups are decisive due to the resources they have acquired. They get their way, not because they successfully persuade, but because they coerce and repress the less powerful.

According to Navarro, the ascendancy of medical authority occurred (and the corporatization of medicine is now occurring) not because people willed it and not because they were persuaded it was in their interests, but because it served the interests of powerful societal groups (the government, those sufficiently wealthy to afford medical education and private health care, and the corporate sector). These groups determine what options are provided for society and ignore values and preferences (e.g., for universal coverage for health care) that they judge not to be in their interest.

SUMMARY

The study of the history of medicine is important both to understand earlier peoples and events and to decipher ways in which modern ideas and practices have evolved. Understanding of disease shifted from supernatural explanations in early humans, to a slightly more empirical basis in Egyptian society, to natural causes in the Greco-Roman era. Hippocrates, the “Father of Medicine,” encouraged careful observation of sickness in patients, a close relationship between physician and patient, and ethical guidelines for physician behavior.

The centrality of religion’s role in medicine reemerged during the Medieval Era but ultimately became overshadowed by the scientific perspective during the Renaissance. Particularly important was Pasteur’s discovery of the germ theory of disease.

Diseases were common in colonial America; trained physicians were few; accurate medical knowledge was limited; and most families cared

for their own sick members. Physicians had little training, low prestige, and earned little money. The gradual implementation of the germ theory of disease led to other medical discoveries, much improved medical care, and widespread public health and disease prevention programs.

The AMA was established in 1847, though it did not become a powerful voice for medicine for several decades. The two key events in the institutionalization of the AMA were (1) the establishment of licensure requirements in states, thus controlling entry into the field, and (2) the federal government’s granting of authority to the AMA to control standards in medical education.

Paul Starr emphasizes that medical authority ascended in the United States because the medical profession persuaded people that such power was in their best interest. Vicente Navarro contends that the profession of medicine and the health care system has evolved in ways determined by powerful groups.

HEALTH ON THE INTERNET

There are several informative sites about Hippocrates, his writings, and recent updates of his work. Read the Introductory Note, the Oath of Hippocrates, and the Law of Hippocrates at

www.bartleby.com/38/1/.

Consider the following questions:

1. The final paragraph of the Introductory Note contains an aphorism about the art of the physician. What is the meaning of this statement? What does it say about the physician–patient relationship? Have you observed any occasions in which a physician seemed to be practicing this art?

2. Point five in the Law of Hippocrates includes the statement, “Those things that are sacred, are to be imparted only to sacred persons; and it is not lawful to impart them to the profane until they have been initiated into the mysteries of science.” What is meant by this statement?
3. In what ways is the Law of Hippocrates consistent with the Oath of Hippocrates, and in what ways does it differ?
4. There are now many contemporaneously written oaths to which physicians and other health care providers pledge. Search online, identify one alternative oath, and compare and contrast it to the Hippocratic Oath.

DISCUSSION QUESTION

In his seminal work, *The Structure of Scientific Revolutions* (published in 1962), Thomas Kuhn describes the history of science as a series of eras each guided by a dominant

paradigm (i.e., a theoretical perspective or general understanding of things). This is “normal science,” and it is sustained through education and research apprenticeships whereby

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young scientists are socialized into the prevailing paradigm.

Occasionally, new theoretical insights or empirical findings appear that question the dominant paradigm. If these “anomalies” are infrequent or isolated occurrences, consensus around the dominant paradigm will be undisturbed. However, if these contradictory perspectives persist and are replicated, a “scientific revolution” may occur wherein the old paradigm is replaced by a new one. Kuhn sees scientific

progress as occurring through revolutions rather than evolutions.

Based on your reading of this chapter and other familiarity you have with the history of medicine, would you say Kuhn’s view is or is not applicable to the advancement of medical knowledge? Has the progression of medical knowledge occurred incrementally in an evolutionary process? Or, have there been one or more revolutions in understanding disease and illness wherein new paradigms have become accepted?

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