Introduction to Allied Health

INTRODUCTION

Thanks to changing technology and advances in medicine, health career opportunities are growing rapidly. Managed care and cost containment are also shaping the health care industry. There's more of an emphasis on providing services on an outpatient (or ambulatory) basis, limiting unnecessary services, and stressing preventive care that reduces the cost of undiagnosed and untreated medical conditions.

Advances in information technology also continue to improve patient care and worker efficiency with devices such as handheld computers that record medical notes for each patient. Patient information is then electronically transferred to a main database, which creates an electronic medical record. This process eliminates paper, reduces documentation errors, and makes patient information instantly accessible. These changes create new health care job opportunities within the industry, especially in the health information management profession.

According to the 2003 edition of the *Occupational Outlook Handbook,* published by the U.S. Department of Labor, Bureau of Labor Statistics, the following developments in health care are foreseen:

- Health services will add 2.8 million new jobs as demand for health care increases.
- Between the years 2000 and 2010, health care support occupations are expected to grow by 33.4%, adding 1.1 million new jobs.
- Health information technology is one of the 20 fastest-growing occupations.

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- Medical records and health information management technicians held approximately 136,000 jobs in 2000.
- Approximately four of ten jobs are in hospitals. The remaining are mostly in nursing homes, medical group practices, clinics, and home health agencies.
- Employment of medical-records and health information management technicians is expected to grow faster than average (meaning an increase of 36% or more) for all occupations through 2010.

That's great news for you! You've chosen one of the fastest-growing health professions in the United States. The increase in health information management technician jobs has been attributed to an increase in the number of medical tests, treatments, and procedures. These increases will in turn increase use of health information by third-party payers, regulators, courts, and consumers. This increase in the need for health information will increase the need for health information management technicians to be responsible for the information. In addition, you'll be entering the field just when the possibilities are growing. That means that many new and exciting opportunities, roles, and settings will be available to you. Health information management technicians no longer have to work only in hospital settings. Today, there are a wide variety of settings and roles that health information management technicians can fill. If you're interested in a specific area of medicine or health care, chances are that you can find a position in that area as a health information management technician.

Health information management professionals have the best of all worlds in health care. As a health information management professional, you combine health care education, knowledge of medicine and clinical practices, legal and financial aspects of health information, and business practices. Few other health care professions offer such an extensive combination and expertise level in such a wide range of professions. As a health information management professional, others in the health care industry look to you for your expertise in disease processes and how they relate to reimbursement,

correspondence management, and data and health information management. You've chosen a very challenging and rewarding health care career path.

Before we discuss your specific role as a health information management technician, let's first review the history of medicine, which will give you a greater understanding of the industry.

HISTORY OF MEDICINE

According to the online 2000 version of the *Merriam-Webster's Collegiate Dictionary*, medicine is defined as "the science and art dealing with the maintenance of health and prevention, alleviation, or cure of disease." Although this is a recent definition, it still applies to medicine from centuries ago. Medical and health care practices have changed and evolved, but the basic concept of alleviation or cure of disease has remained the same.

Early medicine had its roots in practices that would be considered strange or unethical by today's standards. Even though some of these practices seem unusual, each new approach and discovery moved the medical field forward and helped us arrive at the point we're at today. We can learn a great deal about the evolution of medicine by studying the past (Figure 1). To understand the role you'll play in the health care field, it's important for you to first thoroughly understand the history of medicine and how medical and health care practices were documented throughout the years. Understanding how far the documentation of health information has come over centuries will help you truly appreciate your role as a health information management technician.

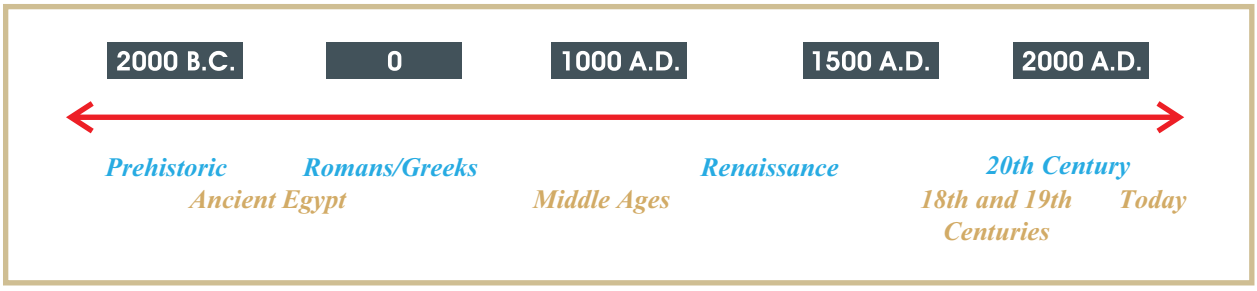


FIGURE 1—Historical Time Line

Prehistoric Medicine

Because we have no written documentation, our knowledge of prehistoric medicine is based on speculation from archaeology findings and studies. *Archaeology* is the study of materials from and related to humans who lived in the past. Archaeologists have studied prehistoric bones and tools to help us understand the diseases, illnesses, and treatments that were prevalent during that time period. For example, by studying human skulls, findings have led us to believe that during this time a procedure called trephination was used. *Trephination* was the practice of drilling a hole in a person's skull to relieve pain. Historically, illnesses and diseases were thought to be caused by evil spirits. It's believed that this procedure was performed to release those evil spirits. Study of materials such as rocks have revealed the types of tools that were used for surgery during that time.

Ancient Egyptian Medicine

Around 3000 B.C., people began to keep written records. Some of our earliest forms of medical records came from Egypt. These records were actually drawings and symbols known as *hieroglyphics* that provided information on illnesses and diseases, treatments that were used, and operations performed during ancient Egyptian times.

The Egyptian medical system was developed over a period of 3,000 years and greatly improved medicine. Egyptian medicine was actually quite advanced for its time. Egyptians based much of their medical knowledge on observations and trial-and-error processes; we still use some of these methods today. The documentation that has been studied from that time shows that the Egyptian people had a good understanding of the human body and some treatments. Most of their knowledge was based on what they learned during the processes of mummification and autopsy.

Mummification was the process of preserving the appearance of people after they died. The Egyptians believed that the deceased needed their bodies in the next life. In the mummification process, many of the person's internal organs were removed.

Removal of organs may have allowed the Egyptians to study the human anatomy, leading to a greater knowledge of the body and how it works.

Two important Greeks who were involved in medicine, Hippocrates and Galen, acknowledged that their Egyptian predecessors contributed to the Greek system of knowledge and medical beliefs. We'll discuss more about these two important historical figures and their contributions to medicine in the next section.

Greek and Roman Impact

Around 400 A.D., the Romans conquered Greece and created a new empire. There was a mixing together of knowledge from both cultures. This led to improved knowledge and new concepts that were spread across the new empire. One important factor that helped in disease containment at this time was building architecture. The Romans and Greeks built stone buildings that were much healthier and more sanitary than previous buildings. These new buildings helped contain and reduce the spread of disease. The Romans seemed to understand that there was a link between dirt and diseases, so they built baths, sewers, and aqueducts to carry water. Also during this time, the Romans were experimenting with herbs to treat illnesses.

Documentation of medical records and treatment was handwritten during this time. The Greeks created medical terms and books and documented clinical cases. Much of the medical terminology that we still use today has its basis in the Greek language.

Two men had significant impact on medicine during this time. The first was a Greek named Hippocrates, regarded as the "father of medicine." He believed that the body was made up of four "humours" and that diseases were caused by an imbalance in these humours. Because Hippocrates refused to attribute illnesses and cures to the mythological gods of that time, he was a major player in transforming medicine from a religion to a science. Today, physicians still observe the *Hippocratic oath* based on Hippocrates's beliefs (Table 1). This is the oath that medical students take when they become doctors.

Table 1

A VERSION OF THE HIPPOCRATIC OATH

You do solemnly swear, each by whatever he or she holds most sacred

That you will be loyal to the Profession of Medicine and just and generous to its members

That you will lead your lives and practice your art in uprightness and honor

That into whatsoever house you shall enter, it shall be for the good of the sick to the utmost of your power, your holding yourselves far aloof from wrong, from corruption, from the tempting of others to vice

That you will exercise your art solely for the cure of your patients, and will give no drug, perform no operation, for a criminal purpose, even if solicited, far less suggest it

That whatsoever you shall see or hear of the lives of men or women which is not fitting to be spoken, you will keep inviolably secret

These things do you swear. Let each bow the head in sign of acquiescence

And now, if you will be true to this, your oath, may prosperity and good repute be ever yours; the opposite, if you shall prove yourselves forsworn.

Claudius Galen was one of the most famous Greek doctors in the Roman Empire. Galen was influenced by Hippocrates' ideas, and he educated himself in anatomy and surgical skills by dissecting and studying animals. During this time, scientists and physicians couldn't dissect and study human cadavers as medical students do today, so they had to use animals to learn. What Galen learned from his study of animals, he then applied to humans and medicine. His discoveries about the body helped improve surgery by improving surgical skills and instruments. Galen's ideas dominated medicine throughout the Middle Ages. Some of Galen's discoveries are still used in current medical practices. For example, Galen developed the practice of taking a patient's pulse, a practice that's still used today. Galen's ideas and books were used through the Renaissance period and sixteenth century.

The Middle Ages

Even with the previously mentioned medical advancements, people in the Middle Ages (around 1000 A.D.) were actually less healthy than people from prior ages. The collapse of the Roman Empire brought poorer and dirtier living conditions,

and most of the prior medical information was lost. The cause of disease during this time was controversial. Some thought diseases were punishments from God. Others believed that diseases were linked to astrology and the position of stars. Still more people thought that there were invisible poisons in the air making people sick.

During this time, a disease called the *bubonic plague* started in Asia and spread to Europe. Because there was no understanding at that time of what caused the plague, there was no cure. Thus, a great number of people died from it. Later studies showed that fleas and rats carried the disease.

During the Middle Ages, there was very little advancement in medicine and the way that records were kept. However, one advancement that did occur was an increase in the number of doctors compared to previous years. This increase was due to the Crusades and other conflicts, which increased the need for treatment of the injured. During this time, it was rare for women to be considered doctors. If women tried to practice medicine, they were hanged as witches. Other advancements included the use of wine as an antiseptic to treat wounds topically and opium to anesthetize patients.

The Renaissance Period

The Renaissance period refers to the time from approximately 1450 through the 1600s. It was a period of revival of Greek and Roman ideas about medicine. Books and medical documentation were printed, whereas previously they had been handwritten. This meant that medical information was easier to read, more accurate, and could be distributed more quickly.

An advancement from Galen's time was that scientists were allowed to dissect human corpses. This allowed artists to more accurately draw the human anatomy for medical books. For the first time, scientists could study exact drawings of the human body.

Great advancements were made in medicine during this time. In the early 1600s, William Harvey published a new theory that blood was pumped through the heart. He also conducted experiments to illustrate the pumping of the blood through

arteries and veins. At that time, people didn't know about blood pumping through the heart, arteries, and veins. In addition, explorers of new worlds were bringing back new plants to be used as medicines. Unfortunately, they also brought back new diseases such as *smallpox* and *measles.* At that time, people didn't have natural immunity to these new diseases, and many died.

The Eighteenth and Nineteenth Centuries

Industry rapidly expanded during this time period. A growing number of people were moving to large towns to work in the new factories. Because towns grew quickly with the influx of people, overcrowding and filthy conditions caused diseases like *cholera* to spread rapidly (that is, through infected food and water).

Cholera is an acute infectious (but noninvasive) disease that's caused by the bacterium *Vibrio cholerae.* The major symptom of this disease is massive watery diarrhea.

Medical advancements were great during this time period. Edward Jenner developed a vaccine for smallpox, the disease that was brought by explorers from other countries. Louis Pasteur and Robert Koch proved that bacteria, commonly called *germs,* caused disease. This discovery then led to the development of new medicines and vaccines. Florence Nightingale also set standards for nursing and hospital settings, which helped improve the care of hospital patients.

Additional advancements were also made in surgery and equipment. Surgery became safer due to the use of better surgical instruments and antiseptics. Sterilization techniques were developed for surgical instruments to reduce the risk of infection. Another advancement was the development of X-ray photography.

During this time, physicians were responsible for documenting the patient's medical record. This meant that they wrote all the patient's documentation in the record and were often responsible for keeping and storing the record. However, there was no standardized filing system.

The Twentieth Century

The medical field saw great changes in the twentieth century—probably more changes than in all the other years put together. During the first half of the century, blood groups, blood clotting factors, transfusions, insulin, and vaccines for diphtheria and tetanus were discovered or developed. In addition, Alexander Fleming discovered a type of mold that was capable of killing some microorganisms. This led to the development of the first antibiotic, penicillin. Today, we have a variety of different penicillin families that treat a vast array of bacteria.

During the second half of the twentieth century, new technology and scientific experiments helped advance medicine quickly. Some of the advancements included

- Prevention of disease by routine immunization
- New technology to help diagnose disease (ultrasound, electrocardiographic, magnetic resonance imaging, and computed tomographic studies)
- Laser surgery and organ transplantations
- Discovery of DNA and human genes

There were also changes in how medical records were kept. By this point, people understood how important it was to document a complete picture of the patient's illness in the medical record. Also during this time, standardizations for the content and filing of medical records were being implemented.

Like all other centuries, the twentieth century also saw negative developments. Third-world countries still suffered conditions like those from the Middle Ages. Also, acquired immunodeficiency syndrome (AIDS) spread rapidly and killed many throughout the world. Today, we're still battling the effects of AIDS as well as researching a cure.

A summary of historical medical advancements is presented in Table 2.

Table 2

ADVANCES IN MEDICINE THROUGHOUT HISTORY

Prehistoric Period
- No written records revealed by archaeology findings
- Evil spirits caused disease

Ancient Egypt
- Written records in form of symbols and drawings
- Greatly improved medical practices
- Study of anatomy via mummification

Greek and Roman Period
- Disease containment via stone buildings
- Handwritten documentation
- Hippocrates advances medicine from religion to science
- Galen learns anatomy by dissecting animals

Middle Ages
- People less healthy compared to previous years
- Little advancement in medicine
- Increase in number of physicians

Renaissance Period
- Revival of Greek and Roman medical ideas
- Documentation now printed—distribution of medical information faster and easier
- First time scientists can study exact drawings of human anatomy
- William Harvey publishes circulation theory
- Smallpox and measles kills many people

Eighteenth and Nineteenth Centuries
- Rapidly growing industries
- Overpopulation causes rapid spread of disease
- Pasteur and Koch prove germs cause disease
- Florence Nightingale sets standards for nursing and hospital care
- Physicians become responsible for patient medical records
- Medical stenographers assist in medical records documentation

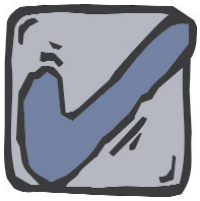
Twentieth Century
- Great medical changes occur
- Fleming discovers the mold that led to the development of penicillin
- Increased awareness of diseases like acquired immunodeficiency syndrome

Twenty-First Century
- Focus on cost containment
- Focus on wellness instead of just sick care
- Technology playing increased role
- Move toward electronic health records

Summary

Your new knowledge of the history of medicine will help you as you study and learn in the health care field. The history of medicine will give you a better understanding of why medicine and health care practices work in a particular way. In the next section, we'll review the history of medicine specifically related to the United States.

Now, review the material you've studied here. Once you feel you understand the material, complete *Self-Check 1*.



Self-Check 1

At the end of each section of *Introduction to Allied Health,* you'll be asked to pause and check your understanding of what you've just read by completing a "Self-Check" exercise. Answering these questions will help you review what you've studied so far. Please complete *Self-Check 1* now.

1. Why is it important for a health information management technician to understand the history of medicine?

   _____

2. Who kept the earliest forms of written medical records? What was the form of those records?

   _____

3. Who was known as the "Father of Medicine"? What was named after him and is still used by medical students and doctors today?

   _____

Questions 4–9: Identify the person or people associated with each description.

_____ 4. Self-educated in anatomy and surgical skills by dissecting animals

_____ 5. Discovered a mold that led to the development of penicillin

_____ 6. Proved that germs cause disease

_____ 7. Developed a vaccine for smallpox

_____ 8. Set standards for nursing and hospitals that improved patient care

_____ 9. Developed the theory that blood pumped through the heart

Check your answers with those on page 77.