UNIT SEVEN
CAREERS IN MEDICINE

Special Terms

Paramedical: Related but subsidiary to medicine. Not all health careers require professional medical training equivalent in duration to that demanded of doctors. Careers which permit personnel to assist physicians are paramedical careers.

Medic: Informal term used to refer to anyone practicing medicine; most often used for paramedical aides in the armed services.

Pathology: Study of the effects of disease on the body's structure and function. Medical pathologists are doctors with a specialty in pathology. They often supervise laboratories as well as performing gross and microscopic examination of tissues.

Electrocardiograph: Electronic instrument for recording heart action. It produces a tracing called an electrocardiogram (E.K.G.).

Electroencephalograph: Electronic instrument for recording brain waves. It is operated by an electroencephalograph (E.E.G.) technician.

Radiology: Science of the use of x-rays for diagnostic and therapeutic purposes.

Radioactive isotopes: Common chemicals tagged with a radioactive charge. The new field of nuclear medicine uses these isotopes in the diagnosis of disease.

Therapist: Person trained to rehabilitate patients through medical, physical, or occupational means.

Medical social worker: Person who assists patients with their readjustment to their own communities after a hospital stay.

Dietition: Person trained in the principles of *nutrition*. Most dietitians work in institutions such as hospitals, nursing homes, or schools planning meals.

Vocabulary Practice

1. Give an example of a paramedical career.

2. How does a nurse differ from a doctor?

3. Who usually runs a hospital laboratory?

4. What instrument can help a cardiologist with his diagnosis of heart disease?

5. Who operates an electroencephalograph?

6. If you are trained in radiology, what do you do?

7. What new branch of medicine uses radioactive isotopes?

8. How does a medical social worker help patients?

9. Who plans the meals in a hospital?

Courtesy of St. Luke's-Roc...

Careers in Medicine

Years ago a person who was interested in a medical career became a doctor, a nurse, or a dentist. The range of careers was limited. This is no longer the case. Technological advances have greatly increased the need for persons trained in a wide variety of health-related occupations. Now there are hundreds of jobs and professions in the health field. One can work in a hospital, caring for the sick and injured; or one can become a public health worker, trying to prevent illness through education campaigns. There are jobs for those who like people and jobs for those who prefer the solitude of scientific experimentation. The opportunities are so vast that anyone interested in pursuing a medical career can find something appealing and suitable.

The training required for the various occupations differs. It is not always necessary to spend as much time preparing for a medical career as a doctor must. For some careers, no training is needed beyond secondary school. The necessary skills can be learned on the job. For others, a year or two of specialized education are required.

Many of these related careers are called *paramedical,* indicating that persons working in these positions do not have the same role or medical background as a doctor.

One familiar medical career is *nursing*. Nurses work in hospitals and in doctors' offices. They join public health teams and care for bedridden patients in their homes.

Becoming a nurse does not require as many years of study as becoming a doctor, but one must be equally dedicated. Caring for sick people demands great patience and a lot of work. Nurses work long days, often on irregular shifts or during the night.

Depending on the training, a nurse may be a professional nurse, also known as a registered nurse (R.N.), or a licensed practical or vocational nurse (L.P.N. or L.V.N.). Registered nurses may have completed a full college course (degree) or a two-year course (diploma). Vocational or practical nurses complete a specialized training course, usually one year long. A professional nurse has the major responsibility for a patient's care, following the physician's instructions. She is assisted in her duties by nurses with less training, who comprise the nursing team. Together they perform such tasks as administering medicine, assisting with blood transfusions, preparing patients for surgery, changing patients' surgical dressings, and making routine checks of patients' vital signs.

Courtesy of the American Cancer Society

Courtesy of Sloan-Kettering Hospital

Orderlies and nurse's aides are often the unsung heros of hospital care. They may be students working while they pursue further training, or professionals at their trade. They move patients, assist at procedures, and generally help with patient care and comfort, often doing unpleasant and demanding tasks.

A number of newer professionals have merged to join the health care team. Nurse practitioners (N.P.'s) are nurses who have taken a year (or more) of advanced training to enable them to work more directly in primary care areas such as gynecology, allergy and family practice. They work in close collaboration with physicians but are independently licensed under state nurse practice laws.

Certified Nurse Midwives (C.N.M.'s) have taken special training to care for normal pregnancy and routine delivery. They work in collaboration with obstetricians.

Physician Assistants (P.A.'s) are not nurses at all. Many were medics in the armed services. They are awarded a certificate to practice under the direction of an M.D., and perform many functions, including surgical assistance and providing primary care in clinics.

The jobs of the doctor and nurse are also made much easier by the work performed by laboratory technicians. These specialists have training in medical technology. They analyze blood, urine, and tissue specimens from patients, providing valuable information to doctors to help with their diagnoses. Lab technicians use many of the tools of modern medical science, particularly the *microscope*. Laboratories are usually run by *pathologists* with specialized training in the science of disease.

Advanced study in physics, chemistry, biology, pathology, parasitology, and other essential sciences is required of laboratory technicians. Others who study these same subjects become scientists engaging in medical research. There are hematologists who study blood and virologists who study viruses. Endocrinologists explore glandular malfunctions while geneticists do research on genetic reproduction. A relatively new science is biomedical engineering which makes use of computers. All these scientists are engaged in improving the medical techniques available to mankind.

Other technicians who help make medicine a more sophisticated science today are *electrocardiograph* and *electroencephalograph* technicians. The electrocardiograph machine, also known as the ECG or EKG machine, records the movements of the heart. It is used to diagnose heart disease. The electroencephalograph machine or EEG measures brain waves and helps brain specialists detect such problems as epilepsy and stroke. Both machines are complicated pieces of equipment requiring the skills of technicians with special training.

X-ray technicians, trained in *radiology*, operate X-ray machines to take pictures of the bones and inner organs of the body. They also administer any high energy radiation treatment prescribed by a radiologist.

A new and related field is nuclear medicine, which uses *radioactive isotopes* to locate problems. Nuclear medicine technologists inject an isotope into the blood stream, tissue, or organ and image its pattern of distribution with a scanner. A Nuclear Medicine Specialist (M.D.) then interprets the patterns.

Many of these people work primarily in hospitals. Hospitals are very complex institutions requiring the skills of countless workers, trained in a variety of occupations. In addition to the doctors, nurses, and various technicians, there are trained *therapists* who rehabilitate patients after an illness. Physical therapists use massage, heat, and exercise to help patients regain the use of their limbs. Occupational

therapists use various crafts with patients who must remain hospitalized for a long time. There are medical librarians, records technicians and *medical social workers* who provide assistance to patients and their families during their readjustment period following an illness. *Dietitions* and nutritionists play important roles in hospitals and other institutions, assuring that nutritious food is served to patients and staff and sharing the principles of good nutrition with the community. These are only a few of the employees who must be coordinated by the hospital administrator in order for a complex modern hospital to function smoothly.

Other medical professionals and paraprofessionals help people maintain good health and recover from illness. Trained pharmacists prepare prescription drugs after they have been licensed. Dentists clean teeth and fill cavities with the assistance of dental hygienists. Technical writers and medical illustrators help prepare medical guidebooks and other printed materials. Health educators work through public health departments to educate communities regarding good health practices.

Courtesy of Dentsply International

Dentists clean teeth and fill cavities with the assistance of dental hygienists.

These and other trained personnel help make the physicians' jobs easier and allow them to provide the most comprehensive medical care available to patients. The field of medicine today is as advanced as it is in large measure because of the support services provided by these individuals.

Discussion

1. Are there more or fewer health-related careers today than there used to be? Why?

2. Do all careers in the health field require as much training as that needed by doctors?

3. Where can one work as a nurse?

4. How does an L.P.N. or L.V.N. differ from an R.N.?

5. What are some duties of the nursing team?

6. How does the job of a Nurse Practitioner differ from that of a nurse?

7. What nursing degree is required to become a Physician's Assistant?

8. What do laboratory technicians do?

9. Who runs most laboratories?

10. Name some branches of science in which research is conducted.

11. How is an electrocardiograph machine used to help physicians with their diagnoses? An electroencephalograph machine?

12. What is the purpose of an x-ray?

13. Explain how a radioactive isotope is used to diagnose illness.

14. Who assists a patient who has just had a leg amputated to learn how to function without the leg?

15. What techniques does an occupational therapist use?

16. What employee assists a patient to readjust to his community after an illness?

17. What else may a dietition do besides planning menus in a hospital?

18. Who is responsible for assuring that a hospital runs smoothly?

19. What person is trained to fill prescriptions?

20. What kind of assistance do dental hygienists provide?

Review

A. Match each of the careers in the left column with the appropriate description of the duties performed in the right column.

1. Registered nurse	____a. Plans menus for hospital patients and staff
2. Medical social worker	____b. Supervises patients' care
3. Dietitian	____c. Makes a health institution run smoothly
4. Lab technician	____d. Works through the public health department on disease prevention
5. Nuclear medical technician	____e. Helps patients readjust to normal life after a hospital stay
6. Health educator	____f. Analyzes blood and urine specimens
7. Dental hygienist	____g. Specializes in study of blood
8. Physical therapist	____h. Uses radioactive isotopes to detect problems
9. Health administrator	____i. Helps dentist with care of teeth
10. Hematologist	____j. Helps patients to regain use of limbs

B. Which medical career have you chosen? Why? What will your duties be?

C. Pretend that you are a hospital administrator with the task of staffing a new hospital. What medical personnel would you need, both professional and paraprofessional?