

Current Comments

Can the New Health Practitioners Reduce Medical Costs?

Part 1. Physician Assistants and Emergency Medical Technicians

Number 13

March 31, 1980

Many people regard their doctors with ambivalence, or sometimes even hostility. We often leave the doctor's office dissatisfied and resentful. The pressure is apparent—there is never enough time to talk about our ailments. Obviously the doctor's patient load is often too heavy. Furthermore, the situation is aggravated by the doctor's inability to communicate concern for our problems.¹

Doctors are not renowned for their public relations expertise. Most doctors were so busy working for grades in biology and chemistry so they could enter medical school that they never had time to develop adequate communication skills. As Lewis Thomas points out, their neglect of the humanities is tragic.² Once a student enters medical school, little attention is paid to developing a "bedside manner," or the communication skills that help inspire a patient's confidence.

On the other hand, many people with excellent communication skills who are not as turned on by chemistry, physics, or biology have difficulty becoming physicians. Traditionally, they have been discouraged from entering medical school because they lack high academic grades in pure science. For example, I might have been an excellent doctor—certainly more sympathetic than many I have encountered. However, at a time when there were at least 10 applicants for every medical school opening, a "B" in organic chemistry was considered a mortal sin.

But this is really a digression. My point is, while we obviously do not train enough doctors to communicate with patients, we also do not make enough doctors out of people with good communication skills. Despite this, according to Frank Chappell, American Medical Association (AMA) science news editor, the AMA predicts there will be a half million physicians in the US by the mid-1980s.³ This will happen even though medical schools are unlikely to increase their enrollments. Added to the students graduated from American medical schools will be Americans who study medicine abroad. But even that number of doctors may not be enough because medical practice has become so specialized.

So how do we solve the problem? One way is to train so-called paramedical personnel who can do almost anything doctors do, with or without their supervision. These paramedical personnel should be distinguished from lesser-trained helpers such as medical secretaries, nurse's aides, and orderlies. While they are important to the doctor, they cannot perform medical tasks.

Whole new classes of health professionals have developed that provide medical care, thereby extending the services of the physician. Members of these professions—physician assistants, nurse practitioners, nurse-midwives, emergency medical technicians, and others—are trained to perform a number of medical tasks formerly reserved for the physician. By taking over many

of these duties, they free the doctor to concentrate on the most serious cases. In addition, by providing health care for lower fees, they reduce medical costs. Furthermore, these practitioners help to improve health care in medically underserved areas. They are also more often willing to work in rural and urban slum areas.

Although these health practitioners are now limited to positions as physician supporters or extenders, there are indications that they will play a greater role in independently providing health care.⁴ Just as psychologists went into private practice as the demand for psychiatrists exceeded the supply,⁵ (p. 21) physician assistants and nurse practitioners will gradually acquire greater autonomy. Thomas Samph and Bryce Templeton, National Board of Medical Examiners, predict that pressure for cost containment within the health care and insurance industries, improved techniques for evaluating the competency of these professionals, and legal challenges from physician extenders will eventually place these professionals in the role of the physician.⁴

In a subsequent essay I will discuss nurse-midwives and nurse practitioners. My discussion now will cover those new health practitioners who evolved directly out of a need for extended physician services—the physician assistant (PA) and emergency medical technician (EMT).

The practitioners whose roles are most similar to those of physicians are the physician assistants. Their responsibilities vary from state to state and from doctor to doctor. In some areas of the US they can care for patients with virtually no direct supervision.⁶ But in other areas, state laws limit their activities to those tasks usually performed by less trained medical personnel.⁷ Most of the 10,000 PAs in the US, however, work under the direct supervision of doctors and supplement, rather than

replace, their services.⁸ Most screen patients and refer them to the physician, take medical histories, administer routine physical examinations, and provide preliminary diagnoses which are reviewed by the supervising physician. They may even save the doctor time by interviewing the legions of medical detail persons sent out by the drug companies.

The PAs' professional organization, the American Academy of Physician Assistants (AAPA), emphasizes dependence upon the supervising physician, and does not condone independent practice, according to Marilyn Fitzgerald, director of public education for AAPA.⁹

The first PA training program in the US was developed at Duke University Medical Center in 1965 to train individuals "to assist the doctor in his clinical and research endeavors in such a way as to facilitate better utilization of available physicians and nurses."¹⁰ At that time the largest group of students was former medical corpsmen who received some medical training in the armed forces. According to Robert Bloom, former director of research and administration for the Association of Physician Assistant Programs (APAP),¹¹ there are about 60 PA training programs in the US today. Fifty of these are accredited by APAP.

Most PA training programs are two-year programs affiliated with major medical teaching centers. During the first year, students receive instruction in such areas as anatomy, physiology, patient evaluation, pharmacology, clinical microscopy, surgery, electrocardiology, and radiology. During the second phase of training, students receive clinical experience in surgery, medicine, obstetrics/gynecology, pediatrics, psychiatry, emergency medicine, and a choice of electives.⁸

Most students entering these programs have already attended college or

other medical training programs. Usually they have two to five years of experience in the health care field.

Once PAs have completed their training, they may take a national certification examination administered by the National Commission on Certification of Physician's Assistants (NCCPA) in cooperation with the National Board of Medical Examiners, the body that certifies physicians in the US. Although this certification is required in only about half the states, most PAs choose to take the exam, according to Fitzgerald.⁹ Furthermore, a PA must earn 100 hours of medical education credit every two years to maintain this certification.¹² This can be in the form of research, course work, or teaching and lecturing activities. According to Fitzgerald, plans are underway at the NCCPA for the development of a six-year recertification exam.⁹ This is commendable in light of the fact that only a few medical specialty boards require that members meet recertification requirements.¹³ Recertification will be required of MDs on a broader scale in a few years, according to Arthur Osteen, assistant director of the AMA's department of physician qualifications.¹⁴ Physicians in 19 states are currently obliged to meet continuing education requirements in order to reregister their licenses.¹⁴

In order to become accredited by the APAP, PA programs must meet a set of criteria developed by several medical organizations, including the AMA. These criteria, called the Essentials of an Accredited Educational Program for the Assistant to the Primary Care Physician, specify, "The function of the assistant to the primary care physician is to perform, under the supervision and responsibility of the physician, diagnostic and therapeutic tasks in order to allow the physician to extend his services through the more effective use of his knowledge, skills and abili-

ties."⁸ However, the PA frequently has a more independent role than these "essentials" imply.

Tim Johnson, The Pennsylvania State University, College of Medicine, in a review of the autonomy granted PAs, reported, "...over 80 percent of history-taking and physical examination tasks, 60 percent of medical tasks, 30 percent of laboratory procedures, and 20 percent of surgical procedures were performed by physician assistants without direct supervision of a physician." He states that studies have shown "90 percent of PAs [in a study group] also arrive at and record a provisional diagnosis." Johnson found that PAs also "make hospital and home visits alone, cover for the physician when he/she is on vacation, regularly use presigned prescription blanks, and otherwise work in situations of fairly high independence and autonomy."¹⁵

Since the PA profession is new and, therefore, imprecisely defined, some doctors feel threatened. Consequently, Paul J. Fink, Eastern Virginia Medical School, suggests that the physician's role needs to be redefined. He recommends that doctors assign routine tasks to PAs and concentrate on the more complex aspects of medicine. Doctors should fill the role of " 'diagnostician,' 'decision maker,' or 'problem solver.' "¹⁶

The PA profession was developed by and for physicians to satisfy a need for additional medical care. As a result, these health practitioners are generally well-accepted by the medical community. With the support of the medical profession, 45 states have enacted legislation permitting PAs to take over many of the physician's routine tasks. Thirteen of these states have permitted them to write prescriptions for specific—generally non-narcotic—drugs.¹⁷

The close working relationship between PAs and physicians is reflected in the wide variety of articles on PAs ap-

peating in medical journals such as the *Journal of Family Practice*, *Annals of Internal Medicine*, and the *New England Journal of Medicine*. These journals publish studies evaluating the PA profession and offer recommendations for the optimal use of PAs. However, the primary research, clinical, and informational publications for the PA profession are *Physician Assistant and Health Practitioner*, published by F & F Publications, Inc., 515 Madison Avenue, New York, NY 10022 in cooperation with the AAPA, and *Physician Assistant Journal*, published by the AAPA, 2341 Jefferson Davis Highway, Suite 700, Arlington, VA 22202. The *Physician Assistant Journal* has not been published for a year and a half but plans are underway to resume publication this fall.¹⁸ Formerly a quarterly, it will resume publication as a bi-monthly magazine.

Health practitioners roughly equivalent to the US physician assistant can be found throughout the world. Their training and practice vary with the social, geographic, and medical structure of their countries. As expected, those practicing in underdeveloped countries often have a higher level of autonomy than the physician assistants practicing in the US. In Sudan, for example, the "medical assistant" can function as a physician and public health officer in areas where these professionals are not available. He or she must give first aid in medical and surgical emergencies, diagnose and treat common ailments, perform minor surgery, detect acute infectious diseases, and initiate appropriate sanitary and epidemic control measures.¹⁹

Like their counterparts in Sudan, the Tanzanian medical assistants' duties are somewhere between those of the US physician and physician assistant. These practitioners, who receive three years of training after graduation from secondary school, administer rural health centers serving as many as 50,000 peo-

ple. Patients are referred to them by lesser trained medical auxiliaries.¹⁹ Zaire's medical assistant program, established in 1936, involves four years of post-secondary school education and a two-year clinical internship. They are supervised by physicians, although they do function as independent health care providers in rural areas.¹⁹

The *feldshers* of Russia are also similar to the physician assistant. They undergo two and a half to three and a half years of medical education, depending on whether they've had eight or ten years of general education. There are a number of divisions within this discipline, including the general *feldsher*, who operates directly under a doctor's supervision in urban areas and a bit more independently in rural areas, the laboratory *feldsher*, and the *feldsher* sanitarian.²⁰⁻²²

Perhaps the most familiar of the new health professionals in the US are the emergency medical technicians. Rather than supplementing the physician's services in an office or institutional setting, they bring direct emergency care to the patient. They are most often called upon to treat victims of shock, provide initial care to poison or burn victims, administer cardiac resuscitation, and transport patients to a health facility.

A few systems in which physicians provide on-the-scene emergency care exist in the US and Europe. For example, physician-manned coronary care units have been used in New York City and Newark, NJ, and physicians in rural areas of the US lacking EMTs are often called upon to provide on-the-scene care.²³ The UK has experimented with emergency schemes involving general practitioners; anesthesiologist-manned ambulances have been used in Oslo, Norway;²⁴ and a hospital in Belfast, Northern Ireland, has staffed a mobile coronary care unit with a doctor and a nurse.²⁴ Michel Bernon, French scientific attaché, reports that young physicians man "SOS vehicles" in several

cities in France.²⁵ However, the presence of physicians in emergency vehicles is now a rarity in the US. EMTs have become the primary providers of emergency on-the-scene medical care.

Although a few emergency medical services existed in the late 1960s, these services were not available nationally until after 1973, when the Emergency Medical Systems Act (PL-154) became law.²⁶ Since then, 10 regional administrative areas have been designated by the US Departments of Health, Education and Welfare, and Transportation. Within each region are local divisions, usually state offices of emergency medical services. These state offices regulate the technicians. Jeffrey Harris, executive director of the National Association of Emergency Medical Technicians, reports there are approximately 190,000 certified EMTs and 25 to 30 thousand certified EMT-paramedics (EMT-P) in the country, most of whom operate out of mobile emergency vehicles. Approximately 2,000 assist in hospital emergency departments.²⁷

EMTs must complete a US Department of Transportation approved 100-hour course that includes classroom and clinical training in the treatment of bleeding, fractures, airway obstructions, cardiac arrests, and emergency childbirth as well as the use and maintenance of emergency equipment. This course is given at hospitals and fire, health, and police departments, where most EMTs work, and at community colleges.

EMT-paramedics are EMTs who have taken a 600- to 1,000-hour advanced course, in addition to having completed the basic 100-hour course and six to 12 months of experience. This course expands upon the basic training program and includes classroom instruction in anatomy, physiology, cardiology, trauma and pathophysiology, emergency procedures, and pharmacology. The clinical phase of this training enables a paramedic to assess a patient's condi-

tion and, under the direction of a physician, perform more sophisticated procedures than those permitted an EMT, including blood transfusions, minor surgery, and the administration of medication. This advanced training is given at hospitals and in a few two-year associate degree programs.²⁸

Both EMTs and EMT-Ps must be certified as such by their state office of emergency medical services or the National Registry of Emergency Medical Technicians. An intermediate level certification is now offered by 17 states. According to Janet Schwettman, director of community relations for the National Registry of Emergency Medical Technicians, the National Registry will offer an intermediate level national exam this year.²⁹

Although studies on emergency medical technicians and paramedics are frequently reported in medical journals such as *Journal of the American Medical Association* and *Annals of Emergency Medicine* (formerly *Journal of the American College of Emergency Physicians*), several periodicals exist purely for the profession. These are *EMT Journal* (published by C.V. Mosby, 11830 Westline Industrial Drive, St. Louis, MO 63141), *Emergency Medical Services* (published at 12849 Magnolia Boulevard, North Hollywood, CA 91607 and covered by *Current Contents* / *Clinical Practice*), the *Journal of Emergency Medical Services* (Backdraft Publications, P.O. Box 152, Morristown, NJ 07960), and *Emergency* (6200 Yarrow Drive, Carlsbad, CA 92008). These magazines provide both practical and academic information for emergency technicians. Articles appearing in these publications cover such topics as innovative training programs and equipment available to the EMT. They also include reviews to be used by EMTs to test their knowledge and skill.

Several studies should dismiss any fears that these professionals provide second-rate care. For example, in a

study of primary care PAs practicing in rural settings, M. Julian Duttera, Duke University Medical Center, and William R. Harlan, University of Michigan, found, "Physician extenders provided patient care comparable to that given by physicians if the physician assistant (1) was assigned to practice problems at levels appropriate to his training, (2) was given opportunities and specific indications to consult with the physician, and (3) was provided with adequate facilities to accommodate patient flow."³⁰ These findings have been confirmed by a number of other studies.^{31,32}

EMTs and paramedics also seem to be successfully supplementing physicians in providing emergency on-the-scene care to patients. A recent study of advanced paramedics in a mobile coronary care system revealed that these paramedics, working independently of physicians but following predetermined procedures, were able to "perform as well as physician counterparts."³³

The *primary* health care field and rural areas of the US seem to be feeling the greatest impact of these new classes of health care providers. In fact, studies have shown that physician assistants are helping to relieve the shortage of primary care physicians in medically underserved areas. Primary care, by the way, is the type of medical care you receive from your internist or family doctor, rather than the specialized care given by surgeons, dermatologists, or cardiologists. A 1978 study by Henry B. Perry, Maine Medical Center, revealed that although PAs are represented in such specialties as urology and radiology, three fourths are working in primary care practices, half in communities of 50,000 or less.³⁴

Finally, these professionals are cost-effective, since while earning a lower salary than a doctor, they permit physicians to see more patients.³⁵ For example, studies have shown that PAs increase the volume of patients seen by a physician by as much as 30 to 50 percent.⁷

Although they are gaining wide acceptance, several barriers to the optimal use of these practitioners exist. Under most public and private health insurance payment systems a patient (or doctor) cannot be reimbursed for PA services that have traditionally been rendered by a physician. As a result, physicians employing these practitioners are faced with the difficult question of how they will pass their lowered costs on to their patients.

The federal government and medical community now seem to favor the use of these physician extenders. In the past few years the AMA, American Hospital Association, and US Department of Health, Education and Welfare have issued statements urging state legislatures to amend their laws to give physicians authority to delegate tasks to personnel working under their supervision.³⁶ I hope legislators will respond to these statements and take advantage of what has proved to be a tenable solution to increasingly expensive and inaccessible medical care.

While one hopes that all of these activities will lead to more preventive medicine, once disease has struck, an individual is entitled to all the information the physician can provide. If he is too busy treating patients, he should turn the job of providing information to the patient over to someone who has the time. While in many situations this function is performed by residents after you have been admitted to the hospital, it is not performed by anyone in the busiest practices I have observed. Physician assistants and nurse practitioners are trained to provide information on preventive medicine and treatment of disease. Perhaps, as these professionals become more available, the public will become better informed about personal health care.

In technologically advanced societies like the US and Western Europe, it may be pioneering to talk about physician assistants. But in the Third World the need for such personnel is clearly a

great imperative. How can we cope with the vast number of tropical diseases in the world, even after research uncovers cures, unless we have an adequate number of people to administer drugs, vaccines, and other health care on a massive scale?

Undoubtedly one of the areas with the most pressing need for physician support is geriatric hospitals and nursing homes for the aged. As medicine increases the life span, we face the need for increased medical attention. Without paramedical support, physicians will be swamped by the needs of an aging population.

The nursing profession has also responded to the need for additional medical services at a reasonable cost. Like physician assistants and emergency medical technicians, nurse practitioners and nurse-midwives—registered nurses with specialized training—perform many of the same tasks as the physician. These “new” nurses will be discussed in a future essay.

* * * * *

My thanks to Joan Lipinsky Cochran and Linda Cooper for their help in the preparation of this essay.

©1980 ISI

REFERENCES

1. **Garfield E.** A growth in biomedical literacy is changing the doctor-patient relationship! *Current Contents* (14):5-7, 4 April 1973. (Reprinted in: **Garfield E.** *Essays of an information scientist.* Philadelphia: ISI Press, 1977. Vol. 1. p. 425-7.)
2. **Thomas L.** How to fix the premedical curriculum. *Medusa and the snail.* New York: Viking, 1979. p. 137-41.
3. **Chappell F.** Telephone communication. 19 December 1979.
4. **Samph T & Templeton B.** Forecasts for evaluation in medical education. (Samph T & Templeton B, eds.) *Evaluation in medical education past, present, future.* Cambridge, MA: Ballinger, 1979. p. 293-323.
5. **Dörken H & Associates, eds.** *The professional psychologist today.* San Francisco: Jossey-Bass, 1976. 394 p.
6. **Sox H C.** Quality of patient care by nurse practitioners and physician's assistants: a ten-year perspective. *Ann. Intern. Med.* 91:459-68, 1979.
7. **Frame P S, Wetterau N W & Parey B.** A model for the use of physician's assistants in primary care. *J. Fam. Pract.* 7:1195-201, 1978.
8. **Heller L E & Fasser C.** Physician's assistants: the new prescribers. *Amer. Pharm.* 18(13):12-7, December 1978.
9. **Fitzgerald M.** Telephone communication. 17 December 1979.
10. **Stead E A.** Conserving costly talents—providing physicians new assistants. *J. Amer. Med. Ass.* 198:182-3, 5 December 1966.
11. **Bloom R.** Telephone communication. 17 December 1979.
12. **Wilson M L.** Physician assistants as valuable members of health care team. *Postgrad. Med.* 64(2):22, August 1978.
13. **American Board of Medical Specialties.** *Directory of medical specialties.* Chicago: Marquis, 1978. 2 vols.
14. **Osteen A.** Telephone communication. 22 January 1980.
15. **Johnson T M.** Physician's assistants, their physician employers, and the problem of autonomy: consensus or conflict? *J. Fam. Pract.* 6:621-5, 1978.
16. **Fink P J.** A question of identity: physician versus physician's assistant. *J. Med. Educ.* 50:190-1, 1975.
17. **American Academy of Physician Assistants. Professional Practices & Relations Committee.** *Physician assistant prescriptive practices information.* Arlington, VA: AAPA, 1978. 21 p.
18. **Fitzgerald M.** Telephone communication. 24 January 1980.
19. **Pitcarn M & Flahault D, eds.** *The medical assistant.* Geneva: World Health Organization, 1974. 171 p.

20. **Hahn J A L.** Development of new kinds of health manpower. *World Health* 10:132-6, 1974.
21. Training and utilization of feldshers in the USSR. *WHO Chron.* 26:299-301, 1972.
22. **Sidel V W.** Feldshers and "feldsherism." *New Eng. J. Med.* 278:934-9; 987-92, 1968.
23. **Morris M C.** On-the-scene emergency care by the primary physician. *J. Amer. Coll. Emerg. Phys.* 5:669-76, 1976.
24. **Pantridge J F & Adgey A A J.** Pre-hospital coronary care. The mobile coronary care unit. *Amer. J. Cardiol.* 24:666-73, 1969.
25. **Bernon M.** Telephone communication. 3 March 1980.
26. **Persily N A & Turban E.** The development of education programs in EMS systems administration. *Emerg. Med. Serv.* 8:54, 56, 58, 77, 1979.
27. **Harris J.** Personal communication. 5 March 1980.
28. **National Health Council.** *200 ways to put your talent to work in the health field.* (Brochure) New York: National Health Council, March 1977.
29. **Schwettman J.** Telephone communication. 14 December 1979.
30. **Duttera M J & Harlan W R.** Evaluation of physician assistants in rural primary care. *Arch. Intern. Med.* 138:224-8, 1978.
31. **Perry H B.** Physician assistants: an overview of an emerging health profession. *Med. Care* 15:982-90, 1977.
32. **Kane R I, Olsen D M & Castle C H.** Medex and their physician preceptors. *J. Amer. Med. Ass.* 236:2509-12, 1976.
33. **Lewis R P, Stang J M, Fulkerson P K, Sampson K I, Scoles A & Warren J V.** Effectiveness of advanced paramedics in a mobile coronary care system. *J. Amer. Med. Ass.* 241:1902-4, 1979.
34. **Perry H B.** An analysis of the specialty and geographic location of physician assistants in the United States. *Amer. J. Public Health* 68:1019-21, 1978.
35. **Greenfield S, Kormaroff A L, Pass T M, Anderson H & Nessim S.** Efficiency and cost of primary care by nurses and physician assistants. *N. Eng. J. Med.* 298:305-9, 1978.
36. **Bruyn H B & Crocker S.** Health screening and the role of nurse assistants—medicolegal considerations in California. *West. J. Med.* 128:178-84, 1978.