
Editorial

Computers in Family Practice

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Social scientists tell us that the Industrial Revolution has given way to the Information Revolution, and that the Computer Age has begun. Computer technology has progressed rapidly in recent years. Over the past 25 years, for example, the speed of computers is said to have increased by a factor of 200, while their size and energy consumption have decreased by a factor of 10,000. Current projections call for at least 16 million home computers within four years in the United States with an estimated market of \$3 billion annually.¹

Nevertheless, except for obvious applications of the computer in practice management and for certain specialized functions, medicine has been comparatively slow in embracing computer applications in medical care and medical education. There is now solid evidence, however, that the level of interest and acceptance by the medical profession in possible new computer applications in medicine is increasing rapidly. As examples of a new wave of interest in computers in medicine, the American Medical Association initiated a comput-

erized medical information system in 1982, there are now at least ten computer medicine specialty journals, and the attendance at the Annual Symposium on Computer Applications in Medical Care has grown from 200 to 2,300 in just six years.¹ The Association of American Medical Colleges' Project on the General Professional Education of the Physician is currently reviewing the role of information management and medical applications of computers in the education of medical students in United States medical schools (personal communication, Dr. Emanuel Suter, AAMC, Washington, DC, June 1983). The National Board of Medical Examiners has committed itself to computerized clinical simulations as an essential component of their medical student examinations.

It has been estimated that an expert's knowledge in most disciplines comprises about 100,000 bits of information, that the rate of input into long-term memory in the human brain is about 10 seconds per item, and that the capacity of short-term memory is only about 6 to 8 "chunks" of information at any one time.² Because of these and

other limitations, the computer is increasingly being looked to as an aid to human memory and even data analysis. As Weed suggests: "In medical practice, expert thinking should be coupled to action through modern tools (principally computers); we should not rely too heavily on human memory and analytic capacities at the time of action."³

It is clear that information management is a vital part of medical practice and medical education. As Levinson points out:

The physician is an information manager who acquires, processes, stores, retrieves, and applies information related to (1) individual patient history and clinical course, (2) diagnostic and therapeutic protocols, (3) disease patterns in patient populations, (4) functioning of the health care system, and (5) the vast store of published knowledge. Little occurs in the clinical encounter that is not in some way related to obtaining, processing, or applying information.⁴

A growing number of family physicians have purchased a microcomputer for office or home use. Although practice management applications

are commonplace, other uses (particularly those more directly related to patient care) will likely require years of development before such beneficial applications will become accepted procedures in everyday practice within the constraints of time, cost, physician behavior, and related factors. Clinical applications of computers are not a panacea, as is already apparent from the initial experience with Internist-1, an experimental computer program designed as a diagnostic consultant in general internal medicine. Its major deficiencies include, for example, an inability to deal with multiple problem areas and an inability to reason anatomically or temporally, both of which are essential in family practice.⁵

For all of these reasons, this issue of *The Journal* inaugurates a new monthly special feature on "Computers in Family Practice." This section is edited by Dr. Roger Rosenblatt, who has provided the first contribution.⁶ Subsequent contributions will present and evaluate the cumulative experience in various family practice settings with computers for clinical, educational, research, and administrative purposes. It will be interesting to watch these new applications unfold and to see which will stand the test of time.

References

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