

---

# Family Practice Forum

---

## Parallels in the Changing Roles of a Woman and Her Family Physician

Thomas L. Leaman, MD  
Hershey, Pennsylvania

Recently as I concluded a patient visit with a 55-year-old woman, we both reflected on how much healthier and happier she was than when I first saw her 32 years ago. I was greatly impressed by the changes in this woman as a person and also by the changes in the kinds of health care needs she had during these years. I also reflected on the changes in my own role as her physician during this period. It occurred to me that this woman's story, as her life has evolved, parallels many of the changes that have occurred in our society relating to the role of women. It also parallels, to a degree, the role changes from general practitioner to family physician.

### The First Ten Years

I first met the patient in 1955, when she was 23 years old and I had been in general practice for two years. She had just obtained a divorce ending a marriage that sounded miserable and from which she had a four-year-old son. During the first few years, I saw her for a number of crises, all of a hysterical nature. She then remarried, and during the next few years I delivered her of two healthy baby girls. I saw her frequently for many physical

complaints, including headache, numbness, hot flashes, nervousness, weakness, depression, multiple muscular pains, and lightheadedness. I recognized her symptoms as having an emotional origin and treated them with tranquilizers. I knew that she and her brother (also a patient) were having a continuous and heated altercation. I ordered her to set things right with her brother and to return to her church. (She had withdrawn since her divorce.) She was not able to follow either of these instructions. Her symptoms continued, and I referred her to a psychiatrist, who diagnosed her as having a "neurotic behavior pattern" and tried the new tranquilizer, chlordiazepoxide, but without much improvement.

### Second Ten Years

The patient began working in her husband's business, a small bakery. Soon she was working 14 hours a day. Her visits decreased and were more related to bronchitis, likely due to smoking more than two packs of cigarettes per day. At these visits I began to try to understand more of her personal life and found that her husband was threatening her physically with knife and gun. He stopped working, and she responded by working longer hours and smoking more. She began to have a variety of stress-related symptoms requiring frequent office visits. On each visit I raised the question of considering options in changing her life pattern. She eventually decided that she would leave

---

From the Department of Family and Community Medicine, The Milton S. Hershey Medical Center, Hershey, Pennsylvania. Requests for reprints should be addressed to Dr. Thomas L. Leaman, Department of Family and Community Medicine, The Milton S. Hershey Medical Center, Hershey, PA 17033.

fers to a computer's capacity for easy replacement of its basic hardware characteristic and for easy addition of new hardware. Apple, IBM P/C, and Radio Shack Model II are examples of computers with this characteristic, and it keeps them perennially fresh. The prototype of the modular system is the motherboard approach in which a series of circuit boards is plugged into a long board containing a row of sockets and the interconnecting busses. This approach allows complete updating of all hardware components as advances make earlier components obsolete. A good example of such a system is the S100, or IEEE (Institute for Electrical and Electronics Engineers) 696 standard bus. An additional desirable feature in personal computing is networking (connecting free-standing computers to share data). Any serious system must have hard disk capability. Hard disks are faster, more reliable, and cheaper (per character of storage) than floppy disks. Even so, the system will need at least one floppy disk drive, as most programs come on floppy disks, and without the drive there would be no way to enter the program into the computer.

The next step involves a little educated guessing. The physician who will probably work in a group setting will want to buy an office management package that can expand to handle an increased workload. Such a system should include accounts payable and accounts receivable modules that can interface with the general ledger. In addition, the program should be able to draw "productivity profiles" of each physician, list separate fees for each procedure and physician (in case they are different; do not assume anything!), and list separate payment options, such as salary, percentage of gross, percentage of gross minus expenses, seniority bonus, and so on.

The extent of automation desired will depend as much upon the attitude of practice colleagues and employees as on the available technology. Later it will be possible (emphatically not yet) to run an entirely paperless operation (with paper backup of data), from initial appointment to final billing. This degree of automation is not for everyone. Some employees have incurable computerphobia. If these employees are valued, the automation process should be slowed, not introduced precipitously. Do not assume that employees share an interest in computers just because they are silent.

## Elements of the System

### Hardware

The following is an overview of the kind of equipment a computer system should include and will help to estimate costs and plan space.

1. *The computer* itself: This is usually a very small part of the entire setup, often contained on a single circuit board (a rectangle of fiberboard coated with copper and drilled for insertion of components).

2. *The console*: This consists of the keyboard and the display, usually a television tube. Some systems include the computer with the console in a single case; others make them separate, in which case the console is known as a terminal.

3. *Hardcopy*: This is usually a printer, but an electronic typewriter (not an electric typewriter, but one with sophisticated electronic components to operate the type bar, wheel, or ball) can be substituted for a printer and do double duty. The printer may or may not have keys; it usually does not, since typing is done almost exclusively at the console.

4. *Data storage*: At the present, data are semi-permanently stored on magnetic disks in the form of tiny magnetized particles of iron oxide. These are arranged in concentric bands (tracks or cylinders) on the disk, and are in turn broken up into sectors (pie wedges) within the tracks. Each sector stores a specific amount of data, usually referred to as a physical record. The disks may be the soft plastic floppy disks, which are frequently placed in and removed from the rotating and read/write mechanism (disk drive) and stored in envelopes or boxes, or they may be hard disks, which are often fixed in place and infrequently removed. Hard disks allow faster access time, store much more data (millions instead of thousands of characters), are more free from surface imperfections and errors, and are far more expensive (four figures, instead of three).

5. *Data backup*: Some means of providing backup storage of valuable data is necessary, preferably both on and off the premises. Usually such storage is done by means of magnetic tape (tape-streaming devices or, less often, videotape); lately, removable hard disk cartridges are becoming quite competitive.

6. *Temporary data storage*: While data are

being manipulated (for example, the day's receipts being added and proofed against patients' ledger entries), they are stored in temporary "bins" called *volatile memory*, so called because it evaporates when the power is turned off (this is also called random-access memory, or RAM). In addition to that shortcoming, it is limited to a relatively small volume, from 16,000 characters on older and smaller computers, up to about 1 million characters on newer machines. RAM has the advantage of being instantly accessible, however, unlike the slower magnetic disks.

7. *Data transmission equipment*: Often data must be moved from one medium to another, eg, from the console to the computer, from the computer to the printer, from the RAM to the disk storage, or even from one computer to another (as in networking). There should be another circuit board available to accomplish this transfer, which is called the I/O module (for input/output). Generally, data are transferred over wires called busses, one character at a time (parallel I/O) or one bit at a time (eight bits join to make one character—serial I/O). If data are to be transmitted over the telephone, they must be converted to audible tones by a machine known as a modem (MODulator/DEModulator).

## Software

The term *software* means the instructions that turn a computer from a sleeping giant into an active partner. The computer must be told exactly what to do at every step of the way. Software instructs the computer to perform.

A minimal amount of software for any medical office would include a general ledger program and some kind of text editor. A word processor program can serve as a text editor, be used to create documents (such as instruction sheets, order forms, notices), and even (if the printer is letter quality) function as a correctable typewriter.

The general ledger program keeps track of all income and expenses by account. It can save accountants' fees and track the income-expense ratio, the percentage of the income going to each expense account, and trends by month or year.

For those in solo practice, these two software

elements may suffice. An office with ten or more employees or more than one physician justifies a payroll program, which will not only figure deductions and withholding amounts, but also automatically keep track of employees' sick leave and vacation time.

If most outpatient work is done on a pay-as-you-go basis and third parties are billed for the bulk of the inpatient work, there is no need for an accounts receivable program. A good one-write (pegboard) system is cheaper and just as efficient. However, if a practice sends out more than 500 bills a month, an accounts receivable program can save much time and probably prevent having to hire an extra bookkeeper. By not hiring a single additional employee, it is possible to afford a whole library of software. Programs do not require vacation pay, pension plans, hospital insurance, and unemployment compensation.

An accounts payable program would be practical only if there are a very large number of bills to pay each month and the bookkeeper spends a great amount of time writing checks.

It pays to plan ahead, for if these programs are purchased as an integrated package, the accounts receivable, payroll, and accounts payable entries can be entered automatically into the general ledger accounts, saving entering them twice. If the office has a large staff, several physicians, and several clerical workers, such a program is essential. Recently several very attractive medical management programs have appeared that combine these features and add productivity reports, automatic bill generation, insurance form writing, and disability data, which can automatically be added on an insurance claim form.

Other useful (though not essential) programs are (1) an electronic spread sheet program, in which numerical entries are made by column, and the program calculates new entries in other columns according to predetermined formulas that can be used for financial modeling, predicting practice trends, real estate calculations, etc, (2) utility programs, such as electronic dictionaries to check spelling in documents and letters, disk backup and copying utilities, and disk repair utilities (to save data on a damaged disk), and (3) communications programs, which allow computers to access other computers over the telephone using a modem.