Computers in Family Practice

Implementing an Automated Financial Management System for Medical Practices

Lee A. Rothenberger, MA, and John J. Aluise, PhD
Greensboro and Chapel Hill, North Carolina

The computer has revolutionized management functions in medical offices. Regardless of specialty or size of the practice, automation should be a consideration for physicians in established practices as well as those who will be starting new practices. Advantages in support of computerizing a medical office are well documented. Hardware and software applications revamp tedious tasks into precise operations that can be completed more accurately and reliably.[1] Costs are declining nearly 20 percent per year, and computer use has been shown cost effective for two physician practices.[2] Applications have been proven satisfactory for a wide range of business and clinical procedures, including appointment scheduling, laboratory reports, and patient education.[3] Computerized patient management problems have also been designed to aid residents and practicing physicians in clinical decision making.[4]

Despite the many positive features of computers and the declining financial investment, the implementation of a computer system requires careful investigation of several factors. Data bases and software packages should be consistent with practice philosophies and the uniqueness of each office.[5] The planning process should include analysis of facilities, data transfer, personnel requirements, cost, and security.[6] When selecting an automated financial management system, physicians and staff members must rethink business management, patient flow, and clinical procedures so that the final system enhances practice efficiency and provides useful data and reports.[7] A realistic timetable for planning and implementing a computerized system for an existing practice could require at least nine to 12 months, depending upon the difficulty of converting from manual to automated procedures.[8] The financial investment should not be underestimated, since both direct and indirect costs could range from $6,000 to $40,000 for a personal computer or a microcomputer to more than $40,000 for an in-house mini-system.[9] Regardless of the size of the practice and cost of the system, the steps toward purchasing an automated office system are essentially the same.

Any physician contemplating automation would benefit from a systematic method to evaluate and eventually choose the most appropriate system.

Thorough planning is important to minimize risks in purchasing and installing an office automation system. A systematic approach in making the decision to buy a computer includes a feasibility analysis of a practice, followed by a comparative review of computer systems, and concluding with a comparison of the various computer options. Physicians considering integrating a computer into their practices must justify its use in terms of cost benefit, assessment of needs, and ultimate value to the operations of the practice.

Feasibility Analysis

The initial step when considering automation is to conduct a feasibility study to decide whether a computer system would be beneficial. Although a computer may eventually become an inevitable feature of any well-run practice, it is unlikely that every office would immediately benefit from installing an automated system. A feasibility study could identify the gaps in the current system where a computer would make an improvement. Such areas include inefficient billing, slow registration of patients, excessive personnel overtime, delayed collections, paper overload, unorganized patient information, delayed filing of third-party claims, and lack of practice analysis reports. Initial investigation into these areas requires physicians to (1) organize a planning group made up of a physician and a member of the front office staff along with an outside consultant, (2) conduct a detailed investigation of the practice functions and dynamics that would be affected by the computer system, and (3) explore and compare the operations of automated systems in other medical practices.

Computer Committee

The initial objective of the computer committee is to identify flaws in the existing manual system. A potential blind spot is the belief that "once we get the computer, we won't have these problems."

If a computer is installed in an office with numerous problems, the only result will be faster and perhaps more complex errors.

After problems have been identified and remedied where possible, the committee should take a look at the remaining inefficiencies and ask, "By installing a computer, which of the remaining problems will be alleviated?" This inquiry should be followed by an assessment of all office functions to determine which operations could be improved through computerization. Throughout the assessment period the committee should schedule regular meetings to discuss such topics as available capital resources for the purchase of a computer, financing options, willingness of physicians and personnel to comply with automated procedures, and knowledge and skills of office personnel.

Discussion of these topics and collection of preliminary data take several weeks. At the end of this period, a formal report should be prepared indicating the "computer readiness" of the practice. If the committee concludes that the practice would benefit by automating, a more detailed study is warranted. At this point, a professional consultant would be a valuable addition to the committee. Consultants may be available at local universities or businesses. The national and state medical societies can also be sources of information for computer assistance. A consultant should be selected only if a reputable recommendation has been obtained.

Practice Analysis

After the benefits of automating have been recognized, the next step is a detailed study of the practice under the direction of one physician and the office manager or consultant. To avoid biases, the investigation should precede the evaluation of any specific computer systems. Some of the necessary information will be accessible; some will require extensive probing. The study should include an evaluation of current billing, scheduling, patient flow, and information systems in addition to a task analysis of personnel. Specific parameters needing examination include the number of active and inactive patients, number of patients seen per day, turnaround time for claim payments,

collection ratios, number of third-party claims, daily and monthly revenue by each physician, number of outstanding accounts, and amount of time spent on various office functions.

To supplement the practice analysis data, other information is needed to determine the complete impact of the computer on the practice. The following questions could be asked: What tasks currently performed by physicians or staff could be standardized? What management reports are needed or preferred? How can the processing of insurance claims be more efficient? Can billing costs be decreased?

Site Visits

Another important source of information during this data-gathering phase is visiting several other practices utilizing automated systems. During these site visits, information can be obtained on costs, conversion problems, satisfaction of staff, computer applications, personnel requirements, and hardware configurations. As long as the practice is not a test site for a particular company, this information can be extremely useful because it represents an unbiased opinion of the system. A site visit also allows the physician contemplating automation to see the system in operation and observe the procedures and routines that are influenced by computer applications.

Evaluating Companies and Their Systems

Before meeting with computer vendors, it is helpful to have a standard list of questions for them. Information should be obtained on hardware and software costs, conversion time, service agreements, training, utility fees, forms preparation, supplies, and other components. Figure 1 provides an example of a questionnaire used to evaluate computer systems for a medical practice. This information sheet can either be used as a checklist when evaluating vendors or be mailed to computer companies interested in selling their system to the practice. Such a questionnaire puts the onus on the vendor to respond in language that the physician understands. It also provides the physi-

cian with standard information on each company's system, thus enabling better comparisons.

Discussion with vendors should focus on the company's experience in medical office practice and applications of immediate value to the practice. Beware of the vendor who attempts to "sell the sizzle instead of the steak," who flashes fancy screens and printouts but talks little about the practical applicability of the system. Also be suspicious of the vendor who insists on talking in computer jargon (bits and bytes) while saying little about practice management. Such esotericism is usually a cover-up for a lack of knowledge about computer applications in the field of medicine.

In addition to evaluating an individual vendor, a computer shopper must be certain to assess the reputation of the company. A reputable company will employ representatives who not only are knowledgeable concerning computers but also understand the unique needs of physicians within the office practice setting. These characteristics usually require some past experience in systems application within the medical community. A firm should be more than willing to provide a list of references and may even arrange a site visit.

After an evaluation of the vendors has been completed, requests for a formal proposal should be directed to the top two or three companies. Such a proposal should address the unique needs of the practice and should include specific recommendations for hardware and software along with any necessary modifications or enhancements. Arrangements for training of physicians and staff members to use the system should also be incorporated along with a plan for implementation. Service and maintenance costs should be specified along with the parties responsible for each.

While the proposal provides recommendations for system implementation, the contract formally defines the product, services, and conditions of the agreement.[10] Such areas include ownership and use of hardware and software, warranty, service and training, terms of payment, completion of installation, and bankruptcy policies. An attorney and consultant should be involved during the contract negotiations, and competitive bidding should be maintained throughout the contractual process. For final acceptance of a vendor contract, a physician must take all elements including product, service, reputation, price, contractual obligations, and long-term relationship into consideration.

Vendor's Name   Address/Telephone   Contact Person(s)

Company
1. How long has your company been in operation? _____ years
2. How many staff members do you employ? _____
3. How many practices within a 100-mile radius are currently using your system? _____
References:

_____

_____

_____

Software
Billing
1. Does the system generate an itemized bill at the time of service?
   _____yes   _____no
   If yes, are preprinted forms:
   _____required
   _____not used
   _____optional
2. How long will it take to print 100 statements? _____minutes
3. Can brief messages be printed on preidentified statements?
   _____yes   _____no
   If yes, how many can be printed at one time? _____messages
4. Are accounts automatically stepped through a predetermined collection cycle?
   _____yes   _____no
   If yes,
   Is a message automatically printed?
   _____yes   _____no
   Can the cycle be stopped for special accounts?
   _____yes   _____no
5. How quickly are charge and payment data updated?
   _____immediately
   _____daily
   _____other (specify)

Insurance
1. Which of the following forms can your system generate?
   _____Blue Cross/Blue Shield
   _____Medicaid
   _____Universal HICF
2. Are preprinted forms:
   _____required
   _____optional
3. Does the system print forms in:
   _____batch mode
   _____individually (on demand)
   _____can easily do both
4. Is the insurance information:
   _____stored as demographic data
   _____entered for each individual claim
5. How long does it take to set up and print an insurance form at time of visit? _____minutes
6. Will your system transmit insurance information:
   _____via modem
   _____via diskette
   _____neither

Figure 1. Evaluating a computer system

Hardware
1. What model system do you recommend for my needs? _____
2. How much memory do you recommend?
   _____K (currently)
   _____K (in 3-5 years)
3. How much disk storage space do you recommend?
   _____MB (currently)
   _____MB (in 3-5 years)
4. How many printers will I need?
   #1 _____(type)   _____(speed)
   #2 _____(type)   _____(speed)
   #3 _____(type)   _____(speed)
5. What type of back-up system do you offer? _____
   How long will it take to back up one day? _____(minutes)
6. Will I need any other peripherals? (please specify)

· ·

Maintenance
1. Does your company *directly* employ the people who would diagnose and do repairs for the hardware?
   _____yes   _____no   (who does?) _____
2. How long will it routinely take to get a hardware repair person on-site if I need help?
   _____hours/days
3. Does your company *directly* employ the people who would diagnose and do most repairs necessary for the software?
   _____yes   _____no   (who does?)_____
4. How long will it routinely take to get a software repair person on-site if I need help?
   _____hours/days
5. During a one-year time period, how many times can we expect failure?
   (give a range) _____times

Training
1. Is training performed at:
   _____your location
   _____our practice
2. How many hours of training do you offer? _____hours
3. Is follow-up training available?
   _____yes   _____no

Costs
Please approximate the following costs:
_____Hardware (including all interfaces and cables)
_____Software
_____Training
_____Maintenance

Total Costs to Practice

$_____ $_____ $_____ $_____ $_____
    Year 1   Year 2   Year 3   Year 4   Year 5

_____
            Signature   Date

Figure 1. Evaluating a computer system, continued

Summary

The increase in availability, affordability, and sophistication of computer technology over the past few years has prompted the development of numerous high-quality software packages for management of medical practice. Although the prices of computer hardware and software continue to decrease, the purchase of an automated system remains a major investment. To ensure a successful purchase and implementation of a system, physicians and office managers must first become knowledgeable about computers and their applicability to medical practice and then devise a strategy for the purchase of a system.

References

1. Kerr CP: Computers in medicine. JAMA 249:2027, 1983

2. Blight W: Just what the doctor ordered. Microcomputer, Nov 1981, pp 40-45

3. Neiburger EJ: Microsystems for dental/medical office. Microcomputer, Nov 1981, pp 48-51

4. Edwards JC, Evans DW: Microcomputers enhance residency experience. Fam Pract Recert 5:27, 1983

5. Singer J, Sacks H, Lucente F, Chalmers TC: Physician attitudes toward applications of computer data base systems. JAMA 249:1610, 1983

6. Zimmerman J, Boxerman S, Rector A: Are microcomputers appropriate for your practice. JAMA 242:1887, 1979

7. Grossman J, Barnett G, Thomas K, et al: An automated medical record system. JAMA 224:1616, 1973

8. Roovers T: Pluses and minuses of computerized billing in private practice. Physician's Management, July 1977, pp 33-40

9. Valancy J: 10 questions doctors ask most about computers. Physician's Management 22:121, 1982

10. Sambridge E: Purchasing Computers. New York, American Management Associations, 1981

Suggested Reading

Computers and Medicine. Chicago, American Medical Association (1972–1981); Glencoe, Ill, Milton Golin (1982 to present)

Erlich A: The Role of Computers in Medical Practice Management. Champaign, Ill, Colwell Systems, 1981

Kannenberg A: The computer in family practice: Capabilities, current research, limitations, and selection of an office computer. Fam Pract Res J 2(1):50, 1982

Katzan H: Office Automation—A Manager's Guide. New York, American Management Associations, 1982

Brandess JF, Pace GC: Physician's Primer on Computers: Private Practice. Lexington, Mass, Lexington Books, 1979