THE NEED FOR COMPUTERS IN THE PHYSICIAN'S OFFICE

Byron B. Oberst, M.D.
Omaha Children's Clinic, P.C.
12808 Augusta Ave.
Omaha, Nebraska 68144

ABSTRACT

The application needs for computer technology of the private practice physician and of the health care delivery system within the office setting are discussed in this paper. The indicated application needs are organized around eight major functions of a total physician's office management system.

A key point of this presentation is that the private practice physician needs a comprehensive and integrated system. The material includes a number of scenarios of developing trends related to computers and automation in medical practice. Companies that market computer based products and service to the medical community would do well to carefully consider these remarks.

INTRODUCTION

There needs to be close collaboration between computer knowledgeable physicians, software developers and vendors of hardware and software systems related to the needs of the private practice physician for computer based products and services. This paper addresses these needs from the view of a physician with many years of experience using computers in a busy pediatric practice. Eight major office system functions are discussed. Four functions relate to the business aspects of the practice and four relate to the health care delivery aspects.

THE BUSINESS ASPECTS

The software developer can aid the physician immensely in managing a more economically viable and efficient practice by providing better management tools.

Administrative Management

Physicians need a long range planning software package for their practice. It should aid the physician in defining and accumulating the necessary data on which to build an annual operating plan. Practice survival dictates the need for such assistance.

Most physicians do not even know how to begin creating a long range plan let alone being aware of what information should be included.

Long range plans work. The author wrote the first ten year long range plan for his group in 1970 and the second one in 1980. It provided direction for the group amidst all of the current upheaval that is occurring in health care and health care delivery.

The module devoted to practice analysis should have graphics capabilities and produce readable and practical reports related to a general practice profile. It then should be capable of segmentation in order to analyze each health care provider's individualized practice variations and production. Detailed demographic data are needed about patients including age, sex, salary classes, types of insurance coverage, zip code and census tract; utilizing a crossover bridge to diagnostic categories, procedure production and other statistical data. Some of the statistics should be plotted with color graphics for better emphasis.

The software should provide for quality control to include office maintenance, a laboratory unknown testing program, the over reading of X-rays and EKG's and a medical chart audit capability. The plan should provide for a patient recall system that can tie together into a composite whole diagnosis and treatment procedures with a comprehensive mailing program including form letters, addresses and label generators.

Practice viability reports are needed concerning new patients and their referring person with a self-generated "Thank You" note to this referring person. There needs to be a corollary report on patients leaving the practice with a self-generated "Reason for Leaving" evaluation survey.

A graphic production capability is needed to produce various types of graphs such as Bar, Pie and Multiple Stacking in order to demonstrate practice volume, revenue generation, types of visits and activities, procedure groups, diagnostic groups and other data; both collectively and by each health care provider. The system should provide suggestions to the physician as to which type of graph will
Accounting Management

Accounting and financial management are probably the most automated aspects of an office practice. Enhancements need to be developed with easy to read and useful reports. Financial modeling should be possible with predetermined business comparison ratios and "what-if" capabilities.

It should be possible to define cost centers and provide detailed and defined cost accounting regarding office visits, procedures, locations, departments and similar practice activities. It should be possible to track patient charges and insurance claims based upon the accounts aging report (30-60-90-120 days) with warning flags when the accounts receivables exceed certain ratios; to include the ability to graphically display groups of receivables in gross and adjusted dollars.

Close supervision and administration of prepaid plan patients is essential. These features should include the individual budget and the account benefit packages of each patient showing residual dollars remaining in the benefit package broken down for visits, medications, emergency care and hospital usage. The ability to identify and track heavy users and provide automatic calculation and posting of write-offs should be included.

A printing capability is needed for various types of encounter forms within the office setting based on a Super-Bill for office visits, hospital care, emergency care, health supervision visits, acute episodic care or a long term medical situation. This Super-Bill or a subset of it can double as an insurance form. This module as well as all the others requiring data entry should be designed to be easy to use and efficient, minimizing input errors.

An integrated package is needed that includes the following modules; general ledger, payroll, accounts payable, accounts receivable, job costing and the patient's medical record.

There needs to be a program that ties together diagnoses and procedures with a spreadsheet for financial analysis and with graphic summaries.

There needs to be detailed audit trails for all types of accounting, tax and fraud detection purposes.

Time Management

A time management module needs to be developed to determine time usage for better office efficiency; providing the ability to document, track, plot and graph time-motion flow studies both by group of patients and by physician or other health care provider. This includes analyses of the relationships between appointment time, check-in time, examination room preparation time, doctor's time and time of patient leaving the building.

An easy to use, efficient and workable appointment scheduling program is needed. It should automatically accrue data on appointment changes, no shows, and cancellations and be designed for use in high volume practices. It should cover groups of patients or individual patients over various time frames.

An excellent recall system is needed in order to keep all appointment time slots for all physicians (or other health care providers) filled daily. The recall system should be based upon the designated time of return (for patient surveillance purposes) and include the date of birth, type of specific procedure or laboratory test needed to be done and similar recall criteria. The module should have a way to log and document physician time usage in the area of practice management for salary reimbursement purposes.

Marketing Management

A detailed and defined marketing plan package needs to be developed that can be easily instituted into the practice. This package should contain an outline of a general approach using predetermined templates and formats. This formatted plan should be designed in a How-to-do-it and How-to-institute-it manner, possibly using artificial intelligence technology. By using an expert system's approach, it could describe how to develop key and critical marketing objectives; and how to identify and target areas by age, diagnosis, procedure, population groups, birthday, date of last visit or health supervision needs. It should also provide the means to develop and analyze demographic reports, and methods to determine, develop and institute action plans.

The marketing plan should provide measurable yardsticks and methodologies for indicating goal attainment with time frame limitations. This marketing plan should include the ability to automatically generate new patient "Thank you" notes and letters for referrals from physicians, families, institutions and others. This point was mentioned earlier in the administration area. All of these modules need to be carefully integrated. For example, there needs to be a crossover bridge to convert zip codes to census tracts for easy identification of relationships with government generated health care data, economic data and similar information; and there needs to be pre-zip code sorting and letter generation for target area information acquisition by various age, diagnostic, sex and similar designated groups.
HEALTH CARE DELIVERY

A properly designed office practice automation system can actually aid the physician in providing better health care delivery.

Patient Care Management

It is possible to vastly improve the quality of patient care by integrating into the system a patient management system. A major function of the module is to provide a patient recall system based upon diagnostic groups by age, sex, medications, procedures, and immunizations. An innovative approach should be used by the module such as using graphical presentations to emphasize key issues. A built-in methodology is needed to develop audit formats for patient care related to acute episodic situations, immunizations, procedures, and immunizations. Growth charts, anatomical locations of major physical findings and other items.

Other needed patient management functions include a method for documenting the details of a home service program and an easy method to enter these data into the patient's automated medical record. These data are apt to be placed on "smart cards" in the near future.

The patient's health care record reports should have a graphics capability for displaying such things as levels of medications in the blood, selected laboratory procedures, serial blood pressure determinations, growth charts, anatomical locations of major physical findings and other items.

A one page summary containing a problem list, vital signs, medication list, essential family and social data and major physical or objective findings should be easily retrieved from the patient's automated medical record. These data are apt to be placed on "smart cards" in the near future.

A portable patient health care record is needed. The one page summary containing a problem list, vital signs, medication list, essential family and social data and major physical or objective findings should be easily retrieved from the patient's automated medical record. The patient's health care record reports should have a graphics capability for displaying such things as levels of medications in the blood, selected laboratory procedures, serial blood pressure determinations, growth charts, anatomical locations of major physical findings and other items.

Other needed patient management functions include a method for documenting the details of a home service program and an easy method to enter these data into the patient's automated medical record. These data are apt to be placed on "smart cards" in the near future.

The patient's health care record reports should have a graphics capability for displaying such things as levels of medications in the blood, selected laboratory procedures, serial blood pressure determinations, growth charts, anatomical locations of major physical findings and other items.

A system for providing a patient education plan similar in concept to the marketing plan is needed for generating the appropriate information and logging the type of educational media utilized and identifying the associated diagnostic group educational materials available for the particular medical problem area.

Epidemiological type data need to be accumulated on patient and family groups on a wide variety of issues; even medical problems caused by computers and automation such as job loss due to automation, changes in working conditions and similar societal impacts. There needs to be a methodology for comparing patient care algorithms or protocols recommended for various medical situations to actual health care record data, to be done automatically by diagnostic category.

A reservoir of telephone advice and information needs to be developed tied into an automated and intelligent system; to be used in patient care and education by the practice personnel. These data should be constructed so that they can be readily edited, updated, increased or deleted. Expert systems technology would appear to be useful in this type of application.

Physician Management

Physician management entails better documentation and utilization of physicians' skills, time and activities. For example, the system needs to accrue both continuing medical education credits and other professional activity data including hospital privileges and individual curriculum vitae data. These data need to be stored in the office system, because there is a changing relationship occurring between hospital administration and the individual physician.

It is necessary to have a way to document and follow each physician's patient's response to the treatment program. It is also necessary to develop a methodology to compare intra-office treatment groups to determine if there are improved patient outcomes. This is another example of how the modules need to be integrated. In this case, the patient management and physician management modules.

There is a need for detailed information concerning physician production and diagnostic data using analytical techniques and graphics. Office Diagnostic Related Groups data needs to be accumulated in a standard medical record format to include associated problem lists, complications and medication responses. Since not all patients comply or respond to treatment regimes in the same way, the system should provide a methodology (with documentation capabilities) that will support clinical studies in the office. The system should provide for statistical comparisons to online standard treatment protocols for evaluation of the effectiveness of the particular treatment approach.

Hospital Management

The efficient use of patient and physician time is essential in today's high cost hospital care. There needs to be secure and easy access from the Office-Hospital to patient data from the nursing station, laboratory and x-ray department with the ability to transmit, download, extract and change treatment plans. There needs to be better treatment algorithm data and length of stay information on disease entities that require hospitalization.
Medical Information Management

The office practice physician needs help in managing the large volume of on-line and other computer based medical information at his disposal. Easy access with user friendly searching of medical databases for reference information is needed based on some type of intelligent software. There should be an easy method to file and retrieve medical articles and references. A section for formatted scientific medical meeting notes providing for easy use and recall is also needed.

SUMMARY AND CONCLUSIONS

This paper provides a description of the major components of a total physician's office management system. Key issues relate to the ability of parts of the system to work together in an integrated way. For example, when the patient recall system identifies that a patient needs to return for a visit the system should be able to retrieve a letter format and print a letter to the patient, even address the envelope. The long range planning process should be able to get at and use billing, demographic and individual doctor performance data. The views are those of a physician who has many years of success in private practice using computers and automation.

REFERENCES