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**The Value of E-Health Care in the
Operations of Medical Groups Today**

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E-health care has finally come to medical groups and physician offices. Software and technology for e-mail, physician Web sites, electronic prescription pads, computerized patient records (CPR), access to electronic continuing medical education (CME), and content search such as the free MEDLINE service are among the most ubiquitous of products being promoted for the physician marketplace in 2000.

But the real value of this e-revolution has yet to be determined and taken advantage of by health care practitioners. Will technology solve more problems than it creates? Will it lower operating costs for physician offices while improving the quality of care for patients and the quality of life for physicians and their staff? These are questions that need to be addressed as physicians determine what to expect out of these new "advances."

To ensure physicians receive maximum value from the benefits that e-health care could offer and avoid the peril of adopting the wrong technology, medical groups must determine what is most beneficial for medical groups—their doctors and their patients.

For example, is it easier to handwrite a prescription versus typing into a computer? The answer depends on

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whether this technology is an isolated "point" solution or if it is an integrated part of the physician's workflow. An electronic prescription would create more work if a physician then had to print it out to add to a patient's paper chart. What appears to be a "solution" becomes a workflow nightmare if physicians don't consider in advance how it fits into their entire office infrastructure and established workflow pattern.

Is the CPR a viable option for medical groups today? In the early 1990s, experts predicted the CPR would become a pervasive automation tool that would rid the industry of time-consuming, paper-intensive administrative functions and quality care delivery difficulties. According to many surveys, the adoption rate of the CPR is still as low as 5 percent. Why is this? Is the CPR a valid solution to physicians' office workflow?

If patients have physicians' e-mail addresses, how can doctors respond effectively to multiple inquiries? Physician e-mail has brought up many questions. On the one hand, it seems like a way patients could easily communicate with their doctors, but on the other hand, what are the legal implications if an e-mail is not answered in a timely manner or not documented in a patient's medical record?

Physicians also fear they will receive an avalanche of e-mails on top of their already busy schedules, creating substantially more work without additional compensation. E-mail without triage will likely cause more workflow chaos in already overburdened physicians' offices.

Are Web sites necessary for physician offices today? What is the purpose of having a Web site for doctors or medical groups? Marketing? Or automating repeated tasks related to answering directions or office hours? Can a Web site actually make office tasks easier by offloading them to a self-service model of information delivery?

In today's fast-moving health care environment, the technology discussed above can be effectively harnessed for medical groups, but with qualifications. Technology should be a tool to help medical groups run more efficiently and the Internet should be viewed as a means to that end.

New Knowledge Economy

Today's information highway has created a wealth of information and knowledge. In industries such as health care, new information and bodies of knowledge are created and disseminated every day. The need for administrative information has never been greater. The task of keeping track of patient information, insurance verification, new treatments for illness and disease, and the logistics of prescriptions, refills, scheduling, and billing can be an administrative nightmare and certainly contributes a significant amount to the cost of health care.

An automated physician's office should empower physicians and office staff by providing them with the exact knowledge they need at the precise time that they need it, to function in this new "knowledge economy." Doctors and health care providers spend more than 80 percent of their time collecting, processing, retrieving, communicating, and generally dealing with infor-

mation. This mandates that there should be a system automating and helping providers to deal with this massive information and knowledge to communicate among physicians, staff, patients, pharmacies, labs, and other health care specialists. Ironically, health care professionals typically don't see themselves as information gatherers and disseminators. As a result, when compared to other information-intensive industries, health care has been slow to capitalize on information technology.

But information technology is the exact tool the health care industry needs to enable doctors and their staff to function as "knowledge workers." It is imperative that they have a strategic plan to achieve "knowledge management." Medical records and practice administrative information should be accessible to anybody from anywhere at anytime with the right authentication. If the right information is delivered to the right people at the right time, customer service and patient care will improve, and efficiencies in the medical practice will occur, resulting in lower overhead and an improved bottom line.

Many group practices are exploring how information technology, especially Internet solutions, can have a profound impact on physician-patient relationships. Health care providers are beginning to see how using new information technology can improve operations as well as physician and patient satisfaction.

Patient Satisfaction

Any new solution including Internet and office automation software should have customer service in mind. Customer demand will shape the delivery of health care in the future.

Customer relationship management is a rapidly growing trend in service industries as companies recognize the need to not only retain customers, but to optimize all customer interactions to increase satisfaction and profitability. In the fragmented, paper-intensive world of the physician's office, physicians and their office staff cannot effectively manage their patient contacts and utilize patient information to improve services.

Decreasing Time Delays

Much of the dissatisfaction experienced by health care customers today is due to time delays and access to physicians. Playing phone tag with a doctor is a common—and frustrating—problem of modern medicine. Long waiting periods spent in physician offices is another. When patients can't talk to or see their doctors, they quickly feel estranged because of the lack of communication. Health care is a long way from remedying these communication delays, which in turn can decrease customer satisfaction.

Continuous quality improvement (CQI) also takes time due to a delayed feedback loop. If a change is made, it takes time to see if customers have a more satisfactory experience as a result. With the information technology advances, especially Internet-based solutions, the feedback loop can be shortened. Statistical reports on waiting time in the office, appointment time, and lab results notification delays can be monitored almost in real time with a much faster feedback loop to see the result of an intervention, rather than waiting until the next questionnaires are sent out and analyzed. By decreasing the feedback loop, medical groups can more quickly identify and address problems that affect patient satisfaction.

Increasing Access

The Internet has the potential to improve many workflow processes in the physician's office. The Internet and e-mail can improve communication with patients and other providers. Patients would be able to contact their doctors via the Internet to schedule appointments, refill prescriptions, check on lab results, and ask their doctors questions.

Imagine a patient e-mailing a doctor for a prescription refill. The doctor electronically contacts the local pharmacy authorizing the refill and e-mailing the patient that the prescription will be waiting. The patient can then pick it up without the hassles of playing phone tag and leaving messages. This streamlined process can take as little as a few minutes and result in a very satisfied customer.

Although e-mail can improve problems related to time delays and access, physicians must be timely in their responses and keep complete records of all information given via e-mail. Although it works well for general information, any confidential and/or sensitive information should be communicated in person. The confidentiality of electronic medical records is protected by law, so physicians must show extreme caution with the information that is communicated over non-protected networks. (*For more information on Federal guidelines concerning medical records confidentiality, see page 39.*)

Health care and medical information is one of the fastest growing areas of interest on the Internet. An increasing number of consumers—by some estimates, 22 million adults in 1998—turn to the Web for their health care information. While some sites are credible, some are questionable resources. Physicians want and need to know where their patients are turning for information. Through Internet-enabled technology, physicians can set themselves up as the "portal" through which their patients receive safe and reliable health and medical information. Picking and choosing the medical information

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contents they post on their Web sites, physicians can control the quality of knowledge their patients review. In addition, this ensures that a physician is familiar and comfortable with the information in a way that will enable him or her to have a meaningful discussion with patients. *(For an example of one group's use of the Internet to connect with patients, see page 27.)*

Physician Satisfaction

Because of the massive change in the medical field, physicians struggle daily with diminishing reimbursement for medical services. These changes have led many of the approximately 730,000 physicians in the United States to seek ways to improve practice efficiency in order to better absorb revenue decreases, comply with managed care guidelines, and manage risks without compromising quality of care.

To address these challenges, health care providers are increasingly turning to information technology, including integrated clinical and practice management systems. Automated administrative functions and automated clinical records in the health care industry would greatly help physicians streamline their offices, save in administrative costs, and improve the quality of care and customer satisfaction for patients and the quality of life for themselves and their staff.

Increasing Efficiency

Health care is an information-intensive industry, but up to this point it has also been paper-intensive. You only have to walk into a doctor's office and observe the walls of patient files to realize the extent of information they have to catalog. This has led to an extensive amount of paper-shuffling and unending administrative tasks.

A centralized computer-based

patient record (CPR) or electronic medical record (EMR) can greatly improve the inefficiencies in the health care delivery system. In the past, there have been barriers to the development of effective and secure CPRs. One major obstacle has been

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cost, especially the need for capital investment at the outset of the implementation. Managing software also has become increasingly sophisticated, requiring information technology (IT) experts to deploy and support the system.

This cost requirement, the complexity of modern information technology, and rapidly evolving technology—with its resulting obsolescence—has delayed physicians and provider organizations in making decisions to implement CPRs.

Newer high-technology CPRs have been developed to meet the demands and address the many real issues mentioned above by combining the best the Internet can offer and integrating with existing technologies.

(For a more in-depth discussion of the computer-based patient record, see page 24.)

Streamlining Operations

The Internet can revolutionize the management of large group practices. A centralized server with Internet access from multiple sites provides access to data to a greater number of people. A group practice can be monitored and managed real-time to improve human resources deployment with staff changes, reengineer workflow processes, and allocate resources at a much faster pace. With centralized information accessible to all end-users, "knowledge workers" can conduct business functions in a decentralized fashion.

Scheduling, reminders, electronic document handling and management, and call center functions can be handled from one point, but individual offices would all have the same

access and ability to handle ad hoc tasks. This would allow a greater balance between centralized and decentralized workflow in a large group practice. Just as the CQI feedback loop is shortened through Internet connectivity, so too can management feedback of multiple sites in a large group practice.

Medical groups can significantly streamline operations through the use of CPRs and the Internet.

Various data, including transcriptions, hospital data, lab results, and pathology and radiology results, can be electronically delivered to physicians throughout the system, even if they are in satellite facilities.

Physicians can use a Web browser to receive messages and respond with instructions and notes to other physicians and staff. In addition to using the Internet, many medical groups have large intranets for affiliated physicians and support staff. Each medical group must examine the options and decide what model works best for its individual needs.

(For an example of how one group used a clinical messaging system to improve workflow, see page 35.)

ASPs: The New Health Care IT Delivery System

Perhaps the greatest challenge confronting medical groups that want to implement information technology solutions is the cost of installing and maintaining an information system. Application service providers (ASPs) are quickly emerging as an alternative IT delivery system especially for small to mid-sized companies like the physician office. Compared to the traditional way of purchasing software applications and hardware, ASPs offer total solutions including hardware, software, and connectivity through the Internet on a pay-per-use basis or for a fixed monthly charge to customers. Software is not sold or licensed for a large one-time investment. Most of the vendors will accommodate customers by allowing them to rent their "solution" rather than purchasing software.

Free from the hassles of managing complex software or hiring information technology experts to deploy and support the system, ASP vendors allow doctors to focus on what matters most—quality patient care. In this economic model, no excessive, up-front expenditure is required by doctors, and it is extremely important for vendors to make sure a customer is satisfied, or risk them “unsubscribing.” (*For a more detailed discussion of ASPs, see page 31.*)

The Future of E-Health Care

A variety of forces—decreased reimbursement, demands for better customer service, increased communication needs, the use of new technologies—are buffeting physicians today. Physicians must keep their heads about them, and thoroughly research the emerging technologies, and adopt those that can provide them the proper return on investment—in administrative costs, IT expenditures, and patient care—to remain competitive. Each group must find the right solution for its distinctive needs. Technology has to be adopted with the end goals in mind: lower cost, higher quality care, and ultimately, lifestyle improvement for physicians and the patients they serve.

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