

Vital Signs

E-HEALTH IN THE UNITED STATES

THE BOSTON CONSULTING GROUP



BCG REPORT



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JANUARY 2003

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NOTES TO THE READER



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EXECUTIVE SUMMARY



Our third report in the *Vital Signs* series reveals that in the United States, e-health is growing more pervasive among—and more relevant to—physicians and patients alike. Long after the *e* bubble has burst, physicians continue to move online and to report that the information they find in the virtual realm influences their real-world medical decisions in significant ways. In addition, more physicians than ever before are adopting online tools to deliver patient care. Similarly, the Internet's reach has expanded, and its call to action has increased, among the overall patient population. Indeed, e-health has advanced and accelerated the movement first initiated by direct-to-consumer drug advertising: the migration of patients toward more active engagement in their care.

The Internet continues to have a major impact on physicians in the United States. As we reported in 2001, physicians continue to spend about three hours a week online for professional reasons. Our latest data show that they spend more than half of that time on the Internet at home, where they are free from the distractions of the office and are otherwise unreachable. Once online, the vast majority of doctors continue to use the Internet to augment their clinical knowledge. Most physicians online also say that the information they find on the Internet has an impact on their knowledge about symptoms, treatments, and possible diagnoses. Around three-quarters continue to report that the information they find online has an impact on their prescription decisions. Furthermore, physicians have begun to embrace more sophisticated tools and to use the Internet in more discerning ways—

engaging in more interactive activities, adding more types of Web sites to their repertoire, and referring patients to Web sites.

Electronic prescribing, electronic medical records, and remote disease monitoring are garnering wider audiences as obstacles to the adoption of these tools are overcome. In the past year, use of the tools has grown beyond a core group of early adopters. Although the number of physicians is still small, about 40 percent more now use at least one of the three tools. Overall, doctors are turning to patient-care tools because they deliver on the two dimensions most important to them: enhanced quality of care and improved efficiency. Online communication with patients—the fourth major tool explored in previous *Vital Signs* reports—is holding steady. Of the one-quarter of doctors who communicate with patients online, most do so only with the handful who request this method of consultation.

Doctors are not alone online: about 80 percent of all patients we surveyed now search the Internet for information about health-related topics. On average, patients—by which we mean people with chronic medical conditions—are going online for health information about nine times a year. The vast majority of them report that the information they find enhances their understanding of their health problems, has an impact on how they manage their overall health, affects how they communicate with their doctors, and improves their compliance with prescribed treatments. Once they've logged on, patients continue to visit about three to five health Web sites regularly. They still find them

primarily through general search engines. WebMD continues to lead the pack of health care sites, followed by the health sections of mass-market portals, such as Yahoo! and MSN.

Exactly how patients use the Internet and how they are influenced by the information they find there continue to differ on the basis of the severity of their illness and their attitudes about their own role in their health care. Although e-health is gaining ground among all patients, its impact—and the growth of that impact—are most pronounced among patients whose conditions are most severe, who visit their doctors most frequently, and who take the greatest number of prescription drugs. The data show that e-health is an increasingly effective channel for reaching this audience most attractive to health care players.

As e-health evolves, it is changing the economics, interrelationships, and competitive landscape in the industry—gradually but fundamentally. Health care players must keep pace with these changes by honing their strategies and experimenting with new ones. In recent years, pharmaceutical marketing has focused on winning the drug-sales game largely through vast sales forces. But the interactive and

automatic nature of e-health—and e-prescribing in particular—could change the nature of that game. In fact, it will bolster formularies, shifting the balance of power and influence to managed care organizations.

To remain competitive in such a dynamic landscape, health care players must adjust their strategies as e-health evolves. They must understand that e-health poses different kinds of opportunities and challenges to different types of organizations. We believe that as the influence of the online channel increases among doctors and patients alike, all health-care players should continue to add the Internet and Web-based technologies to their strategic and operational initiatives. Rather than being viewed as a separate and distinct channel, the Internet should be integrated closely with offline capabilities currently used to reach patients and their doctors. Already, as more and more physicians recommend health-related Web sites to their patients, the means for reaching physicians and patients are converging. As a result, health care players should no longer market to two individual audiences but target both physicians and patients with a unified approach that delivers consistent messages across audiences and channels.

INTRODUCTION



Since 1999, The Boston Consulting Group has been taking the pulse of e-health, measuring the penetration and impact of online medical information and tools among physicians and patients. In this latest *Vital Signs* report, our data show that the Internet is having more and more of an impact on both groups in the United States. These same powerful trends are also at work in Europe, as our forthcoming companion study, *European Physicians and the Internet*, will show.

Our findings are based on surveys of more than 400 physicians and more than 10,000 patients in the United States.¹ The surveys were designed by The Boston Consulting Group in conjunction with Harris Interactive, and they were fielded using Harris Interactive's research expertise and capabilities.

The physician survey revealed that doctors are turning to online patient-care tools in greater numbers than before; more important, they are being influenced in greater numbers by the information they find online. The patient survey revealed the same rise in the Internet's influence on consumers, particularly on the heaviest users of health care—those patients whose medical conditions are most severe.

Although it is undeniable that the Internet is taking hold in the health care arena, the explosive revolution that was once anticipated has simply not happened. Indeed, early forecasts overestimated the speed with which e-health would become a reality—

and at the same time underestimated the impact that the Internet would have.

The evolution of e-health has turned out to be a gradual one: slowly but surely, it is becoming an integral part of the business processes of pharmaceutical, managed-care, and health delivery organizations. We expect the pace and scope of this evolution to get a significant boost once e-health overcomes the obstacles currently impeding its more widespread acceptance. Such obstacles include physicians', patients', and organizations' concerns about the privacy of online patient data, the legitimacy of using patient data in marketing, and the still uncertain regulatory impact of the federal Health Insurance Portability and Accountability Act (HIPAA).

Today e-health is ushering in fundamental change and shifting the balance of power among health care players. Ultimately, the trends suggest that e-health tools and sites can serve as a valuable bridge between physicians and patients—one that can initiate, inform, and reinforce the discussions that tailor health care decisions to each patient's needs and each physician's practice. Health care players that exploit the opportunities offered by e-health can position themselves at the point of convergence between patient and physician, online and offline marketing, information and influence—making the Internet a valuable component in marketing across audiences.

1. Physicians were sampled randomly by telephone, but the survey was administered only to those doctors who reported spending at least 20 hours a week caring for patients. The patient survey was conducted online and was weighted to the online chronic-patient population; the data cover more than 40 chronic conditions.



THE ROLE OF E-HEALTH IS EXPANDING AMONG PHYSICIANS



The e-health tools that doctors use in patient care are gaining greater acceptance and having more and more of an impact in the health care arena. Physicians report that electronic prescribing, electronic medical records (EMRs), and remote disease monitoring (RDM) enjoy impressive “efficacy” rates. Most of the doctors who use these tools report that they deliver on their promise of increased efficiency, better care, and enhanced patient satisfaction. In addition, use of the tools seems to be spreading—through favorable word of mouth—from a core of pioneers to a broadening base of physicians. Granted, even with the high adoption rates, the universe of physicians using these tools is still small. Nonetheless, our results confirm the growth of electronic patient-care tools.

Helping fuel this growth are two trends. First, virtually every U.S. physician engaged in patient care is now online. The proportion of surveyed doctors who use Web-based technologies has risen from an already impressive 89 percent in 2001 to 96 percent in 2002. Of those physicians online, 99 percent use Internet-based technologies for professional reasons—60 percent spending at least one-fifth of their time online for this purpose. This trend is playing out in Europe as well, where, by 2005, physicians’ use of the Internet is expected to be on a par with current rates in the United States.

Second, the doctors who turn to the Internet for professional reasons are getting more actively involved in the medium. The 2002 study indicated that the number of physicians attending virtual conferences grew by 35 percent and the number tak-

ing online continuing-medical-education (CME) courses grew by 29 percent. Such activities engage doctors more interactively than traditional online searching. Furthermore, physicians have now begun to shift their online knowledge-gathering from general health portals to disease- and specialty-specific Web sites—mirroring the shift we first discovered among patients in 2001.

These two trends make the Internet an increasingly relevant medium for reaching physicians, who are inundated with information. Today doctors are finding that simply *hearing* messages from health care players—much less choosing which ones to heed—is difficult and growing more so every day. For even as doctors must see more patients in less time, they must also select from a growing list of available treatment options. Many physicians struggle to stay abreast of the new therapies, working harder to juggle their administrative responsibilities, educational and informational needs, and time with patients.

Moreover, in the past four years the sales staff of pharmaceutical companies has doubled to approximately one rep for every ten physicians. In an environment where 89 percent of doctors reported that the overall time they spend with sales representatives is holding steady or declining, more reps and more products add up to more frequent—and therefore shorter and less informative—visits for many physicians. In addition, industry statistics show that doctors must wade through a growing number of protocols and practice guidelines from payers and delivery systems.

To complicate matters further, physicians must contend with the deluge of information generated by direct-to-consumer (DTC) advertisements for drugs. As intended, the \$3 billion spent on DTC ads in 2001 produced a steady stream of messages to patients, which in turn boosted queries to doctors. Indeed, 92 percent of physicians reported that their patients asked about drugs that they learned of through advertising. Almost 70 percent of those physicians told us that such requests are escalating, and 30 percent said the increases are significant. No doctors reported that the number of queries has declined.

To overcome these obstacles and better reach physicians, it is incumbent upon drug companies, managed care organizations, and health delivery systems to devise new ways of exploiting the online channel. By now, almost every player has experimented or invested in the area. But players must keep in mind that e-health is far from static. It's a moving target, and they must continually adapt their strategies as e-health evolves. For all these reasons, players must stay abreast of how doctors are using the Internet to seek medical information and employing online tools to improve patient care.

Doctors Gain Sophistication in Seeking Information Online

The online channel remains a powerful tool for informing and influencing physicians. Researching clinical information continues to be the most common online activity among physicians who log on for professional purposes, with 90 percent of them reporting that they use the Internet for this reason. Similarly, reading articles from medical journals and communicating with colleagues are holding roughly steady in popularity. (See Exhibit 1.)

Doctors told us that the medical information they find online is still having an impact on the care they provide. Information gleaned online continues to have an impact on physicians' knowledge about new treatments (96 percent of doctors online) and about symptoms and diagnoses (91 percent). (See Exhibit 2.) In keeping with the findings from 2001, this information also has an impact on how more than 70 percent of physicians interact with patients, diagnose illnesses, and prescribe treatments.

Our study also uncovered several new findings. We now know, for example, that on average, doctors

EXHIBIT 1

The Internet Remains a Powerful Tool for Informing and Influencing Physicians . . .

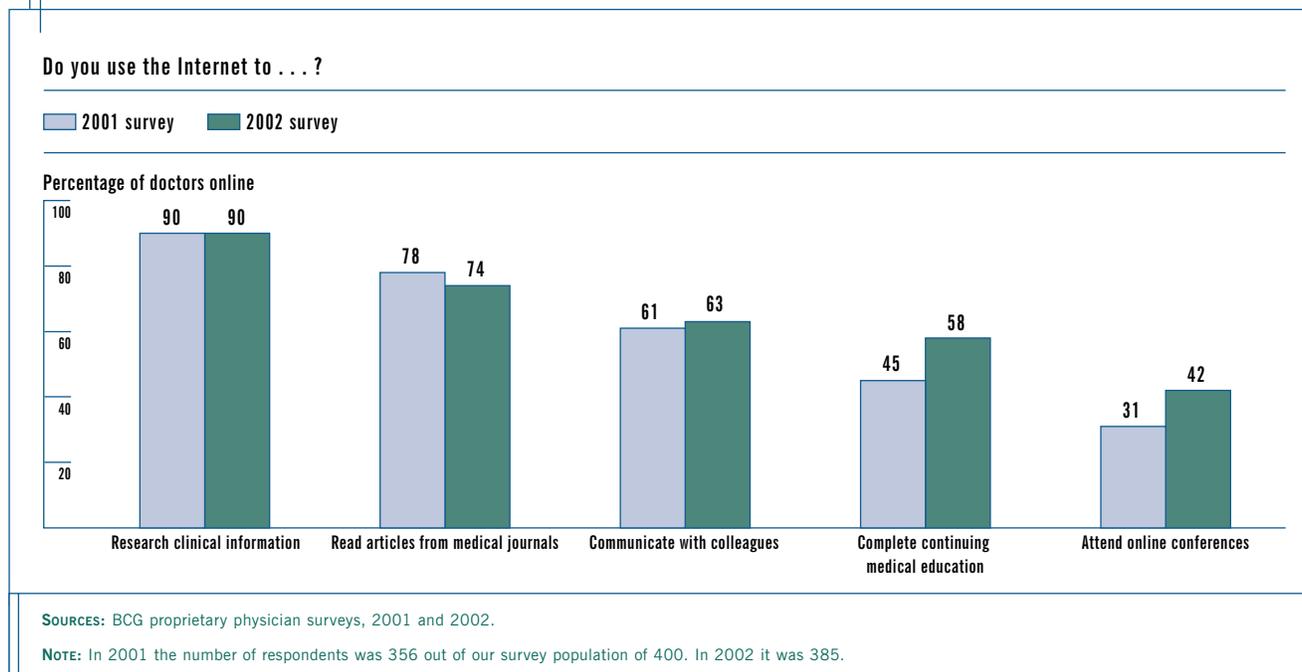


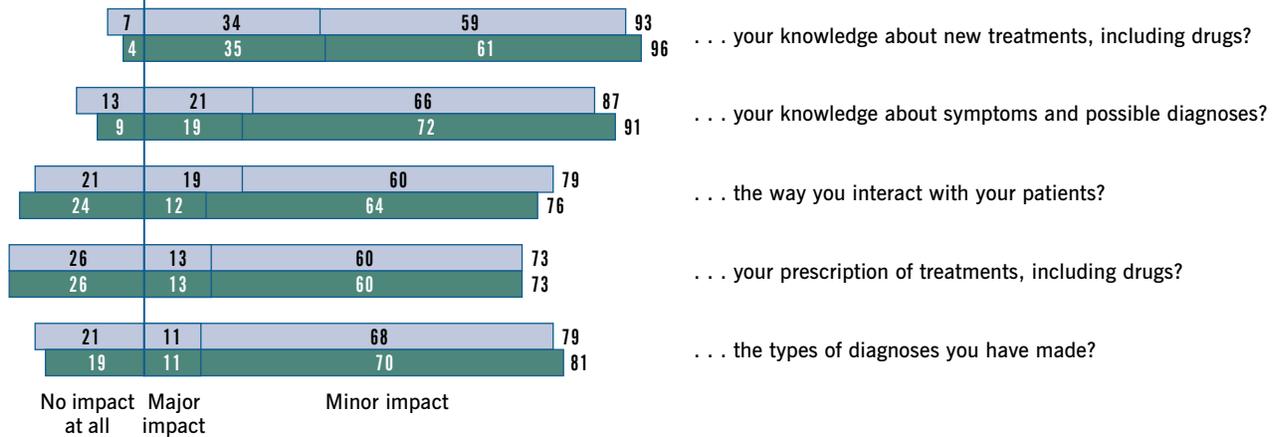
EXHIBIT 2

... And It Is Having a Significant Impact on the Care They Provide

Has the information you have gotten from the Internet had a major impact on . . .

2001 survey 2002 survey

Percentage of doctors who regularly visit at least one health-related site



Sources: BCG proprietary physician surveys, 2001 and 2002.

Note: In 2001 the number of respondents who regularly visited at least one health-related site was 297; in 2002 it was 338.

spend more than half of their time online at home for professional reasons. Because physicians tend to log on when they are free from the distractions of the office, the Internet gives players uninterrupted and previously unavailable access to doctors. Also, physicians have begun to embrace more sophisticated tools and to use the Internet in more discerning ways—engaging in more interactive activities, adding more types of Web sites to their repertoire, and referring patients to sites.

More physicians are attending conferences and completing CME courses online. Whereas 31 percent of doctors in 2001 said that they had attended a virtual conference, 42 percent said they had done so in 2002. Similarly, 58 percent of physicians reported completing CME course work online—up from 45 percent in 2001. And for every ten physicians who completed course work online, nine reported that they found virtual CME useful and two said that they found the programs very useful.

The notable rise in these activities is particularly intriguing because online conferences and online

CME are far more interactive and require far more involvement from physicians than traditional online research. The growing acceptance of—and satisfaction with—these knowledge-building tools demonstrate that doctors are gaining comfort with basic online functions and beginning to migrate to more complex tasks and sophisticated offerings.

This finding bodes well for health care players seeking deeper relationships and more meaningful interactions with doctors. In particular, it suggests that in the future doctors may be more willing to use *e-detailing*—electronically enabled video visits and other virtual information sessions with drug reps—to replace in-person visits.

Doctors are beginning to broaden the range of Web sites they visit and are homing in on specialized sites for focused information. About 70 percent of physicians continue to visit three or fewer Web sites regularly in search of medical information, but the traffic patterns are changing slightly. Although physicians continue to favor health portals, especially WebMD and Medscape, some traffic has

begun to migrate from those sites to sites sponsored by professional associations, such as the American Academy of Pediatrics and the American Academy of Family Physicians. The success of these two sites in particular owes in part to their broad appeal to sizable areas of care: children's health and general practice. But when viewed collectively, *all* the professional association sites (including smaller and more focused associations, such as for cardiologists and endocrinologists) command a 43 percent total share of physicians online—up from 32 percent in 2001. (See Exhibit 3.)

Physicians appear to be turning to these sites in search of continuing medical education and additional information about specific diseases and the latest treatments. And since most of these sites focus narrowly on the interests at the heart of specialist practices, physicians may visit them in search of affinity and affiliation with other like-minded doctors. As with other types of sites, doctors tend to visit association sites after they learn of them through medical ads and word of mouth among colleagues.

With more and more physicians visiting niche sites, achieving laserlike targeting online promises to become easier. Roche, for example, attempts to tap into this shift by sponsoring AcneNet, a site linked with the American Academy of Dermatology. All visitors to the site can read about the causes of and treatments for acne, including the most effective drug available for treatment of severe acne: isotretinoin, which Roche manufactures as Accutane. In this way, the company zeroes in on the most likely prescribers of its drug. It also gains credibility from associating its product with the expert organization in the field and from filtering the information through an objective third party.

Similarly, the Swiss biotech company Serono, a manufacturer of fertility drugs, sponsors Ferti.Net through an unrestricted educational grant. The site keeps fertility specialists up to date on the latest studies, drugs, and conferences. It also provides explanations of studies and their implications for general health practitioners and patients.

Doctors are directing patients to medical Web sites. Now comfortable with Internet technologies and

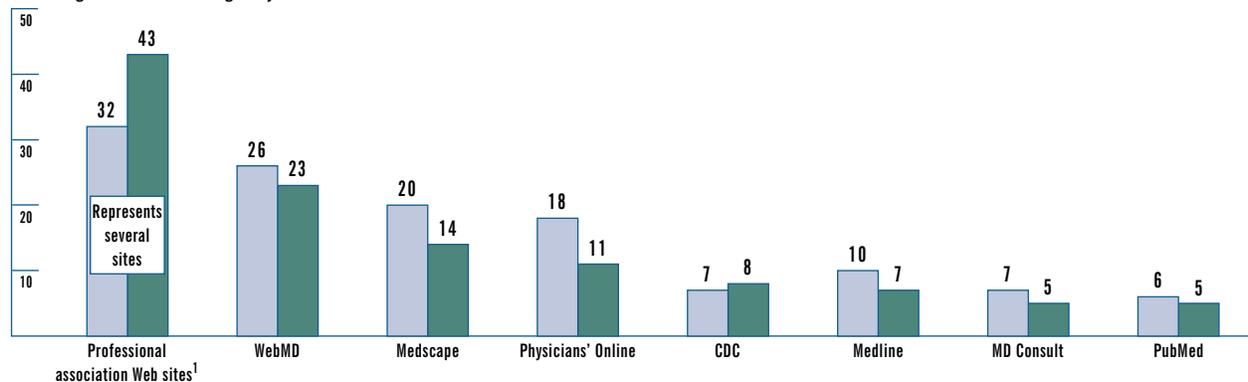
EXHIBIT 3

Doctors Are Adding Sites Sponsored by Professional Associations to Their Online Repertoire

Which three Web sites do you visit most often for health-related information?

2001 survey 2002 survey

Percentage of doctors who regularly visit at least one health-related site



Sources: BCG proprietary physician surveys, 2001 and 2002.

Note: In 2001 the number of respondents who regularly visited at least one health-related site was 297; in 2002 it was 341.

¹Examples include the American Academy of Family Physicians, the American Academy of Pediatrics, and the American Medical Association.

convinced of the medium's benefits, physicians are beginning to share the wealth of online medical information. Sixty-five percent of the physicians we surveyed recommended health-related Web sites to their patients. They did so because they found the information on the sites valuable and because reviewing the information outside office visits was convenient for both their patients and themselves.

More than one-third of doctors who recommended Web sites directed patients to professional association sites, many of which feature patient-reference sections. More than one-fifth of doctors directed patients to WebMD, and about another fifth referred them to disease-specific sites.

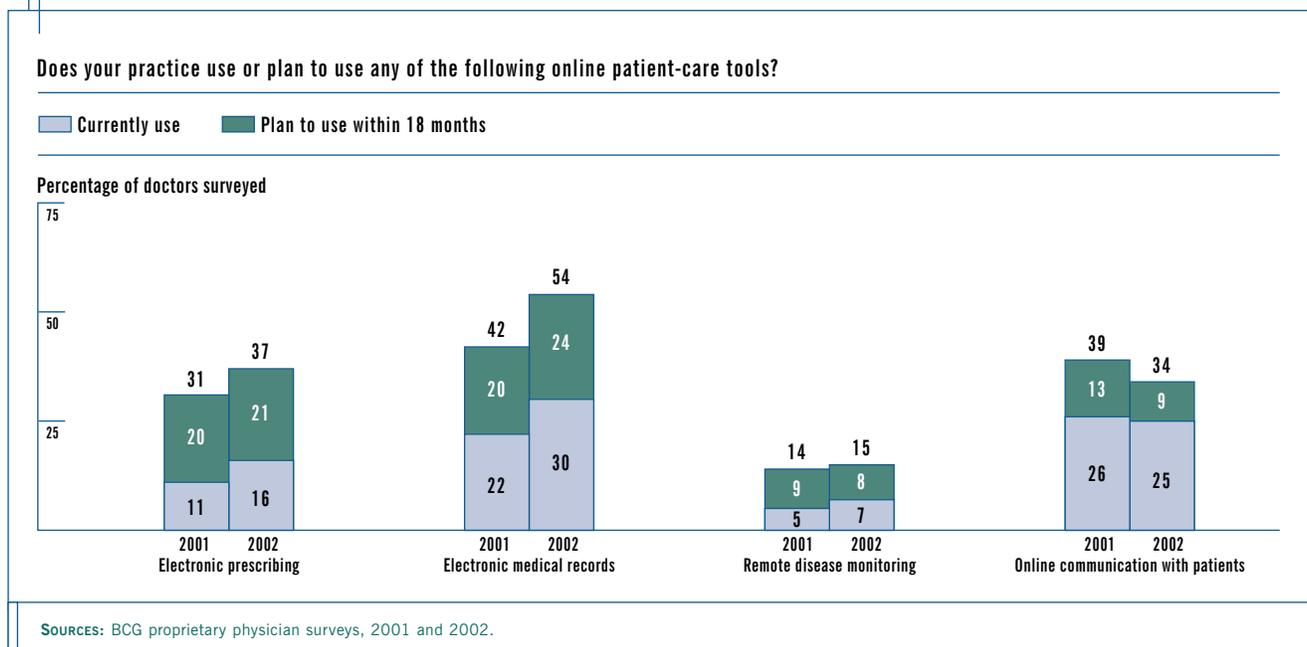
Such behavior presents an unparalleled opportunity for health care players. It creates a *convergence*—an avenue that reaches both patients and physicians, even if they don't use the same portions of the site or consult it for the same types of information. As a result, integrated marketing to physicians and patients is not just possible but necessary. The look and feel of the messages delivered across both audiences should be consistent and share a single vision.

Physicians Embrace E-Health Tools to Improve Patient Care

Just as more and more physicians have begun to use interactive formats for learning online, increasing numbers have embraced the interactive electronic tools that aid in delivering care to patients. Over the past year, about 40 percent more physicians online have adopted at least one of the following tools: electronic prescribing, electronic medical records, and remote disease monitoring. (See Exhibit 4.) Physicians' use of online communication with patients—the fourth tool assessed in our study—held relatively steady compared with the 2001 figures. Physicians' predictions about their planned usage—which may be slightly optimistic—indicate that penetration of the tools will be even greater within 18 months. Because of the differences in their underlying economics, technologies, and industry standards, however, adoption of the tools will continue to progress at different rates.

The growth in patient-care tools is noteworthy—particularly since standards have not yet emerged to ensure that the tools are compatible with existing health-care processes and technologies. Indeed,

EXHIBIT 4
More Physicians Are Embracing Interactive Electronic Tools



technology and information standards remain a critical missing link for all the tools. Moreover, obstacles such as the cost of the tools, their lack of compatibility with other technologies and office processes, and their exposure to breaches of privacy hinder their growth and threaten their viability. Certainly, as e-health evolves, its customers and vendors will evolve, too, in ways that could make the current obstacles obsolete or create new ones.

Once standards do emerge in the years ahead, we expect patient-care tools to become still more pervasive among physicians. The history of online practice-administration tools provides one example of how such tools could spread throughout the physician population.

Originally, a core of early adopters embraced online practice-administration tools for claims submission, reimbursement, and other administrative functions. Once the value of the tools in accelerating payments was demonstrated and standards were set for sharing claims and administrative data online, the medical community turned to the tools in droves. Today most doctors online use the tools to submit electronic claims (78 percent) and receive payments (55 percent). We anticipate the same type of growth among patient-care tools once standards are set and the tools' contributions to productivity and efficiency have been demonstrated.

Although doctors ranked efficiency as one of the primary reasons for adopting several of the patient-care tools in 2001, the 2002 study shows a general rise in the number of doctors citing improved patient care as the key reason for their trial and use of the tools. This heightened emphasis on quality underscores the potential that the tools offer health care players seeking to have a positive impact on care. And the fact that the tools are still making good on their promise to improve care, deliver efficiency, and aid doctors in other ways bodes well for their continued acceptance by physicians.

Below we explore each of the four patient-care tools we researched, analyzing the factors that drive and limit their adoption, the ways in which physicians deploy them, and how well they perform.

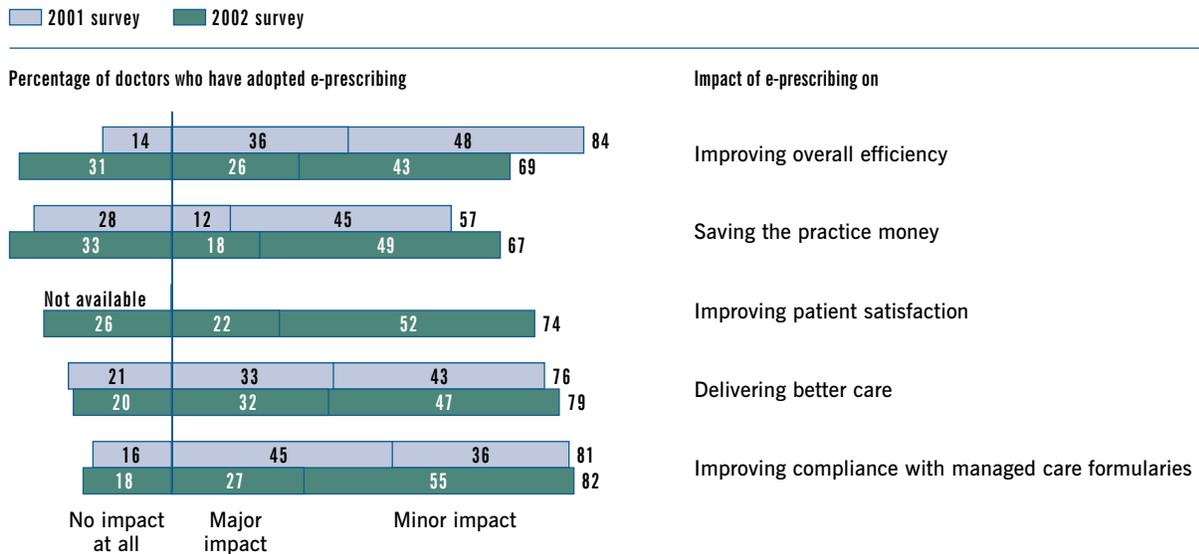
Electronic Prescribing. The fastest growing of all the patient-care tools is e-prescribing, which allows physicians to use Web-based technologies to check prescriptions automatically against drug formularies and potential interactions. In addition, doctors could use the tools to send prescriptions to the pharmacy for fulfillment. Indeed, our survey shows that the proportion of physicians "writing" prescriptions electronically has risen from 11 percent to 16 percent of all physicians online.

Fueling this growth is a powerful value proposition: many doctors reported that e-prescribing improves both their compliance with drug formularies and the quality of the care they deliver. (See Exhibit 5.) Physicians are able to realize these gains because e-prescriptions reduce their need to address queries from pharmacies about prescriptions that are illegible, that were accidentally written for inappropriate or nonexistent dosages, that threaten to interact with a patient's other medications, or that are not covered by a health plan's formulary. The Institute for Safe Medication Practices estimates that pharmacists make about 150 million phone calls to physicians annually to clarify prescriptions. Similarly, more than half of the clinical calls that physicians deal with are related to pharmacy issues.

It would seem that e-prescribing tools are indeed better mousetraps—that is, superior approaches to handling the prescription-writing process. It's not surprising, then, that the medical world is beginning to beat a path to the door of e-prescribing vendors. Although many vendors have subsidized the costs of the technologies that make e-prescribing possible for doctors, one-third of current users reported that they employ the tools even though they receive no subsidies at all. The fact that these physicians foot the bill for e-prescribing technologies demonstrates that they are drawn to—and willing to pay for—tools they consider valuable.

Forecasting the growth of e-prescribing is difficult at this stage. Growth will depend in part on how well the makers of the technologies address the issue of technological incompatibility—the primary reason physicians cited for not adopting e-prescribing tools. In addition, several types of play-

EXHIBIT 5
E-Prescribing Improves Formulary Compliance and Quality of Care



Sources: BCG proprietary physician surveys, 2001 and 2002.

NOTE: In 2001 the number of respondents who started writing prescriptions electronically was 42; in 2002 it was 63. Figures do not always add up to 100 percent because respondents could also choose “not sure” or “decline to answer.”

ers are jockeying for the greatest recognition among physicians in this still-emerging space. And a significant number of start-up players, such as PocketScript and LogonHealth, have already gone out of business. Others, such as iScribe, have succumbed to consolidation in the industry.

The evolution of e-prescribing will be determined by the industry standards that emerge. Will they be the standards currently advocated by retail pharmacies through SureScripts, by pharmacy benefit managers through RxHub, by the nation’s health plans through MedUnite, or by some combination of (or alternative to) these proposals? In fact, the future of e-prescribing may not hinge entirely on the free market: threatened government regulation could mandate that all players take e-prescribing more seriously.

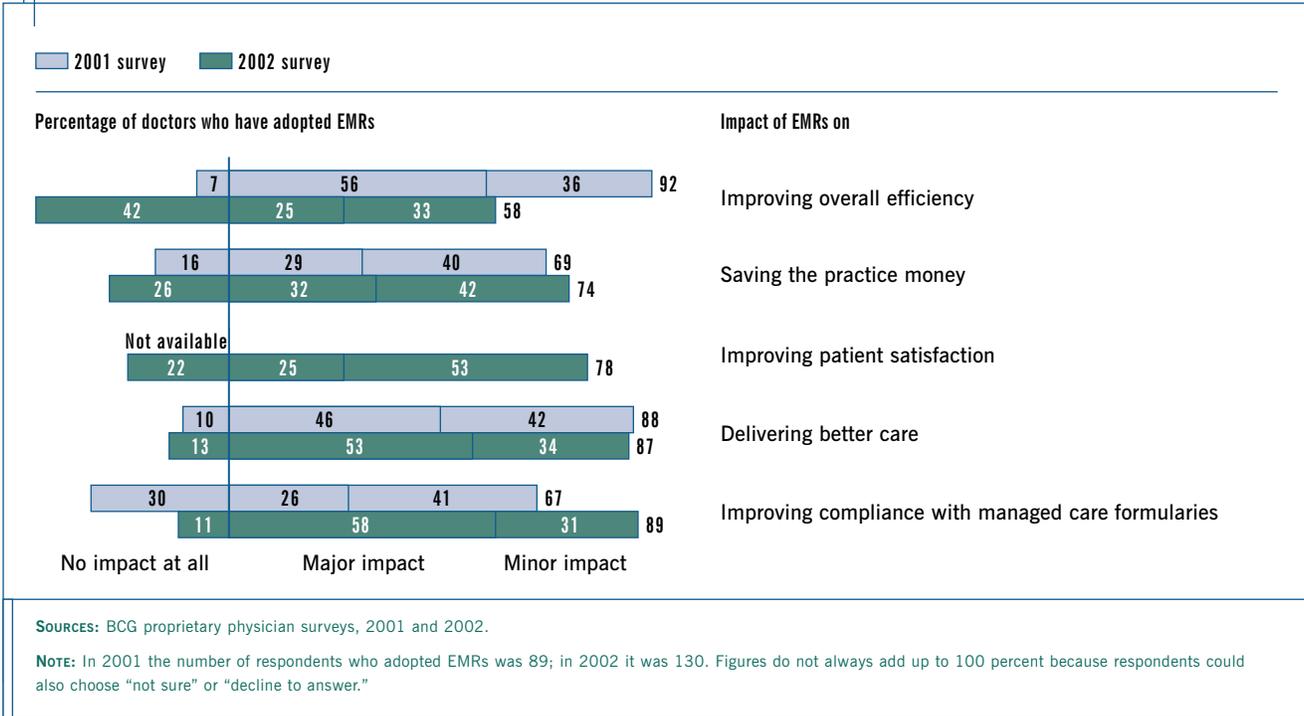
Electronic Medical Records. EMRs—which capture patients’ medical history, prescribing information, x-rays, and other data for convenient access by providers online—are the most widely used of all the patient-care tools. Thirty percent of physicians

online currently use EMRs—up from 22 percent in 2001. An additional 24 percent said they plan to adopt the tools within 18 months.

Physicians first turned to EMRs for the efficiencies that the paperless systems offered—in particular, less time spent filing and searching for files. But efficiency has declined in comparison with physicians’ other goals: about 20 percent fewer physicians cited it in 2002 as a primary reason for adopting EMRs than in 2001. A higher percentage of doctors reported that they equipped their offices with EMRs primarily to meet mandates from managed care companies and group practices, and to improve the quality of care. By ensuring that the most complete patient-health information is instantly accessible, the tools enable physicians to treat patients more comprehensively by integrating care across illnesses and coordinating treatments and medications. In fact, 87 percent of EMR users said that the tools help them deliver better care, and 78 percent said that they improve patient satisfaction. In addition, 89 percent said that EMRs

EXHIBIT 6

Electronic Medical Records Improve Formulary Compliance and Quality of Care



improve their compliance with managed care formularies. (See Exhibit 6.)

Most physicians who made the switch from paper records to EMRs have converted at least three-quarters of their documents to online files. Given the large initial expense of the technological hardware, there are obvious scale advantages to proceeding wholeheartedly. But when it comes to actually using EMRs, many physicians have not yet been able to exploit all the tools' intended features. Almost three-quarters of physicians use the records solely to store data for their own in-office use. Limiting the full-scale exchange of data is the absence of widespread standards for technology and information, which would facilitate data sharing across hospitals and offices.

The cost of implementing EMR systems—perceived as prohibitive by many doctors—remains a leading impediment to their widespread adoption, cited by 44 percent of nonusers. For that reason, the tools tend to be used by physicians in practices with higher revenues—namely, specialist and larger

practices. Some 35 percent of specialists use EMRs compared with 25 percent of primary-care physicians. Similarly, 43 percent of physicians in practices with more than 25 physicians employ the tools, whereas only 19 percent of physicians in practices with fewer than 25 do so.

Also hindering the adoption of EMRs is widespread uncertainty about still-developing HIPAA regulations. It remains to be seen how the regulations will affect the collection, sharing, and storage of medical data—as well as how compliance with the federal rules will affect the delivery of patient care. Even though the regulations have been relaxed under the current administration, many physicians and health delivery systems believe that a balance remains to be struck between the quality and comprehensiveness of patient data and privacy protections for the data.

As hospitals upgrade their computer systems and as standards emerge for sharing data across medical facilities, physicians will find it easier to use EMRs to their full capacity. The advances in technology

and standards will help make the tools not only more compatible with other systems but also more time and cost effective.

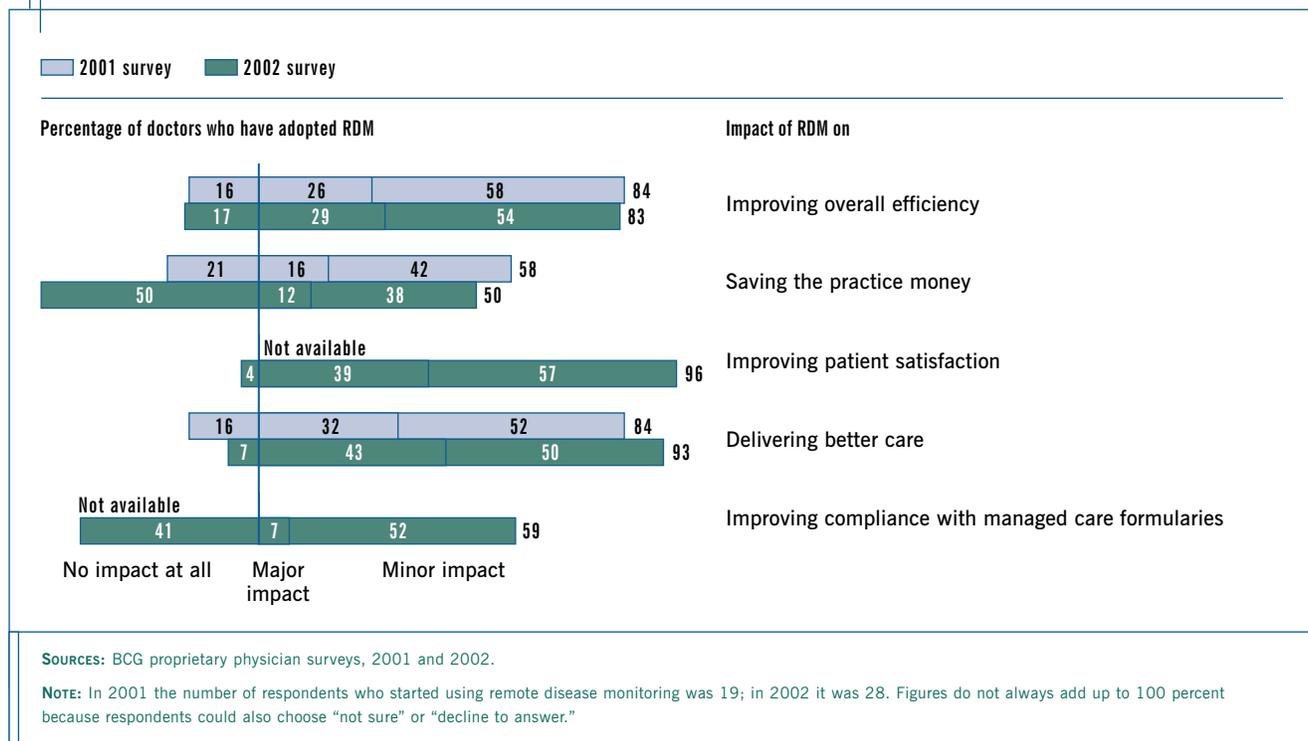
Remote Disease Monitoring. RDM uses technology to capture, report, and analyze patients’ health data so that doctors and patients alike can take a more active role in managing chronic conditions between office visits. The monitoring typically includes communication about how patients can adjust their lifestyles to prevent their conditions from worsening or complications from arising. RDM is applied selectively to patients whose symptoms require frequent monitoring, such as those with diabetes, chronic hypertension, or heart conditions. Specifically, of the small group that has adopted RDM tools, the vast majority use them to monitor blood glucose levels; monitoring blood pressure and pulse rates are the next most common uses.

In 2001, 5 percent of doctors online used RDM. In 2002 that figure rose to 7 percent—still a small percentage, but growing. Today the tools are used primarily to improve care (by 71 percent of physicians

who employ them), and they deliver powerfully on that goal and on patient satisfaction. Ninety-three percent of those using RDM said that it enables them to deliver better care, and 96 percent said that it improves patient satisfaction. (See Exhibit 7.) We expect RDM’s exemplary performance to generate a “buzz” among physicians in the near future, which will in turn encourage more of them to adopt the tools.

RDM’s success can also be measured on the bottom line. For example, the managed care organization PacifiCare determined that hospitals using RDM devices for patients with chronic heart failure realized a 174 percent return on their investment. The devices helped patients return home sooner and avoid further cardiac events that would have required emergency care and readmission. In another study, researchers at the University of Colorado concluded that teenagers with type I diabetes who share their blood-sugar readings with physicians every two weeks through a modem device could manage their disease as effectively as they could with quarterly office visits. The modem

EXHIBIT 7
Remote Disease Monitoring Improves Quality of Care and Patient Satisfaction



transmissions, although not yet covered by insurance, cost about one-sixth of the \$300 office visits.

RDM may face one of its biggest hurdles not because physicians have negative perceptions about it but because they have no perceptions about it at all. In fact, of all the patient-care tools, nonusers of RDM are the most likely to cite lack of awareness (17 percent) as the reason they haven't yet tried it. The costs of the systems and a lack of clarity about their benefits also prevent doctors from using RDM. A number of other factors may be hindering awareness and adoption as well:

- Unlike tracking medical data, prescribing drugs, and communicating with patients, RDM is not merely a traditional health-care process moved online. Rather, it requires significant changes in physician behavior—most notably, the addition of activities that are not currently reimbursable, such as a daily review of patients' vital signs and instant notification or treatment adjustments when the signs modulate even slightly.
- The monitoring technologies themselves tend to be cutting-edge and are typically offered by small start-ups or niche companies. In combination, these factors hinder widespread promotion of the tools and make it difficult for physicians practicing general medicine to stay actively informed about the latest developments. For example, high-tech RDM devices outside the normal practice of medicine include Cygnus's GlucoWatch Biographer and a new personal urinalysis machine. The GlucoWatch Biographer, one of the products in Cygnus's glucose-monitoring niche, is worn on the wrist as a transdermal substitute for traditional blood tests. Similarly, the Food and Drug Administration has recently approved palm-size monitors that can perform daily tests on small urine samples for patients at risk of developing renal disease.

Despite those obstacles, proven results in saving costs and improving care are bound to win the attention of managed care organizations, which already consider managing chronic disease an essential element of their offerings. By sponsoring

RDM, these players can help convert doctors into users of the tools.

Online Communication with Patients. The proportion of doctors currently communicating with patients over the Internet is holding steady at about 25 percent. Growth has stalled because there are more physicians who are afraid of getting bogged down in Web communication than who view themselves as liberated by its enhanced reach and connectivity. This fear has kept many from embracing or even experimenting with handling requests for drug refills, addressing queries about minor ailments, and providing other, less critical consultations online.

In particular, 22 percent of those who don't communicate with patients online avoid the medium because they fear that online communication might not be secure enough to protect their patients' privacy. Many of these physicians worry that doctors might be held responsible if patient information got into the wrong hands. Other doctors (15 percent of nonusers) avoid online communication with patients because they fear an unending stream of informal—and unpaid—consultations.

Nevertheless, penetration among even one-quarter of the physicians online is a respectable showing—and one that will improve once the issues about liabilities and reimbursement are resolved. Specifically, we expect that online communication will grow slowly but steadily as more and more patients request it. In fact, demand is already the leading reason why physicians communicate with their patients online, cited by 51 percent of those who use the tool—up from 41 percent in 2001. (See Exhibit 8.) In addition, physicians continue to see patient satisfaction as the area where online communication delivers the greatest impact. (See Exhibit 9.)

Patients themselves told us that they want to communicate with their physicians online. Over 40 percent of the more than 10,000 patients surveyed said they would like to have their medical test results e-mailed to them, and over 45 percent want to receive e-mail responses to their queries.

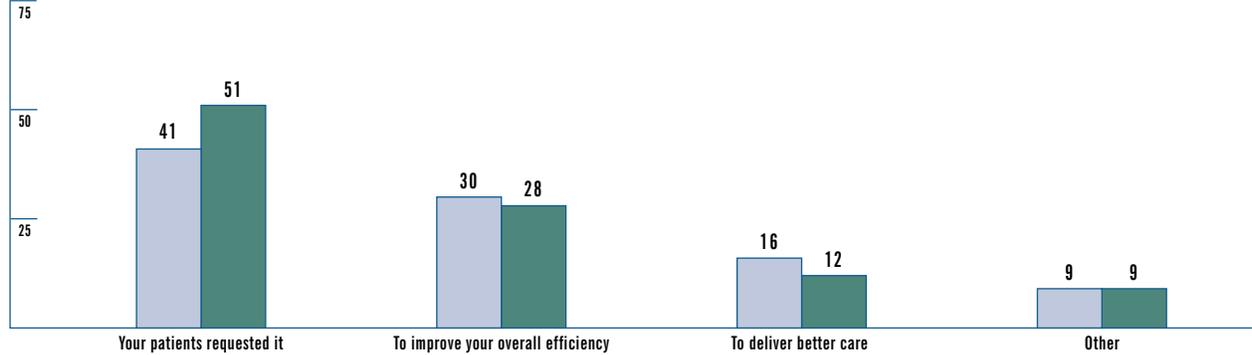
EXHIBIT 8

Doctors Are Communicating Online Because Patients Request It

What is the primary reason you started using the Internet to communicate with your patients?

2001 survey 2002 survey

Percentage of doctors who have adopted online communication



Sources: BCG proprietary physician surveys, 2001 and 2002.

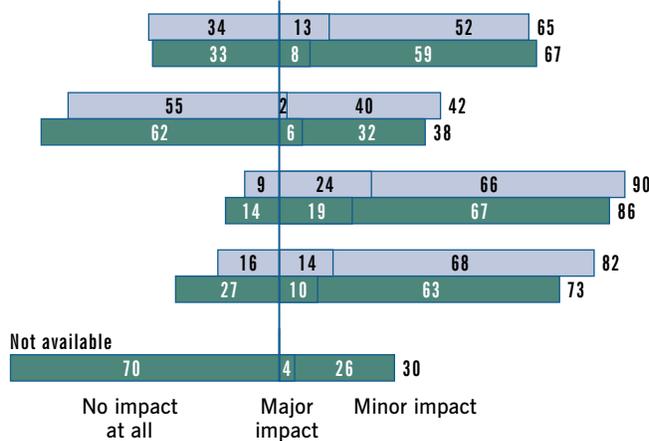
Note: In 2001 the number of respondents who communicated with patients over the Internet was 103; in 2002 it was 100.

EXHIBIT 9

Online Communication Improves Patient Satisfaction and Quality of Care

2001 survey 2002 survey

Percentage of doctors who have adopted online communication



Impact of online communication on

Improving overall efficiency

Saving the practice money

Improving patient satisfaction

Delivering better care

Improving compliance with managed care formularies

Sources: BCG proprietary physician surveys, 2001 and 2002.

Note: In 2001 the number of respondents who communicated with patients over the Internet was 103; in 2002 it was 100. Figures do not always add up to 100 percent because respondents could also choose "not sure" or "decline to answer."

The vast majority (89 percent) of doctors who communicate with patients online opt for e-mail—which is widely available and easy to use—over other online interfaces offered by vendors such as MyDocOnline and RelayHealth (formerly Healinx). They use the medium to send test results, diagnose common ailments, schedule appointments, and share medical information that will aid patients in managing diseases and administering their own care. But most doctors use e-mail selectively, with 76 percent who communicate online limiting

those interactions to fewer than 5 percent of their patients.

* * *

Clearly, physicians are using e-health to enhance their practice of medicine—and they are using it in increasingly interactive ways with increasing impact. This means that the Internet and Web-based technologies are critical avenues for reaching and influencing physicians.

E-HEALTH IS GAINING GROUND AMONG PATIENTS



E-health is gaining ground and influence not just among doctors but among patients as well. That's because the Internet offers round-the-clock accessibility and can tailor information to specific medical conditions and knowledge levels. Also, because of consumers' growing confidence in it as an information channel, the Internet is pulling alongside physicians as one of the primary sources of medical information for patients.

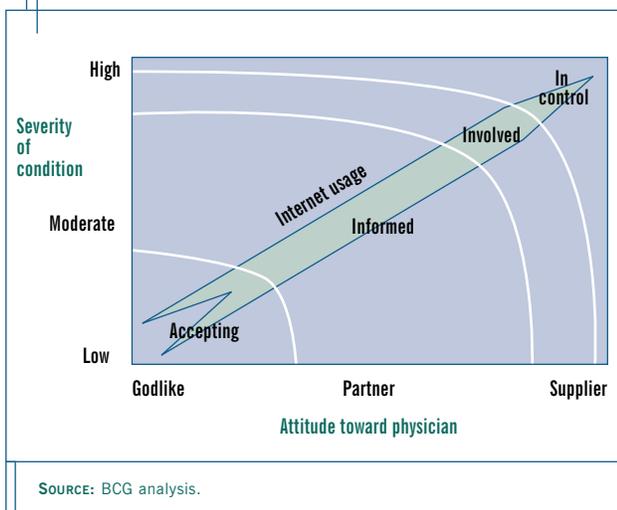
The information that patients find online is having more and more of an impact on their understanding and management of their conditions—including how they interact with their doctors, the questions they ask, the diagnoses they themselves suggest, and the treatments they request. The impact of the online medium has become par-

ticularly pronounced among the patients whom health care players most wish to educate and influence: those whose medical conditions are most severe and those who are most in control of their health care.

Still, the rise of e-health is not supplanting the role of physicians but transforming it. Ultimately, patients no longer need physicians to dispense information as they dispense medicine—with unquestioned authority and when *they* determine it is needed. Rather, patients today are beginning to view physicians as expert guides, interpreters who can aid them in navigating a sea of information on their own.

This trend offers health care players an opportunity to design an integrated and complementary marketing effort that reaches patients and physicians at once. To exploit this and other strong trends, health care players must explore in detail the continuing and emerging patterns in patients' online behavior.

EXHIBIT 10
The Online Patient Population Falls into Distinct Segments



Expanding Online Usage

About 80 percent of all patients look online for information about health-related topics. But exactly how they use the Internet and how they are influenced by the information they find there continue to differ with the severity of their condition and their attitude toward their doctor. (See Exhibit 10.) On the basis of those differences, patients fall into the following four categories, first identified in our original *Vital Signs* report in February 2001:

Accepting. These patients rely almost entirely on doctors for health information and decisions. *This segment represents 17 percent of the patients surveyed in 2002.*

Informed. These patients also rely on doctors to make decisions but typically go online to learn more about a diagnosis or prescribed treatment without, in their view, wasting the doctor’s time with questions. *This group accounts for 55 percent of patients.*

Involved. These patients view themselves as partners with their physicians in making health care decisions. Before and after visits, they seek information online to discuss with their doctors; but they still rely on them to make the ultimate decisions. *This category represents 24 percent of patients.*

In Control. These patients believe that they are best suited to determine their own care. They use online information to diagnose their conditions before visits, determine which treatments they want, and persuade their doctors to treat them accordingly. *This segment accounts for 4 percent of patients.*

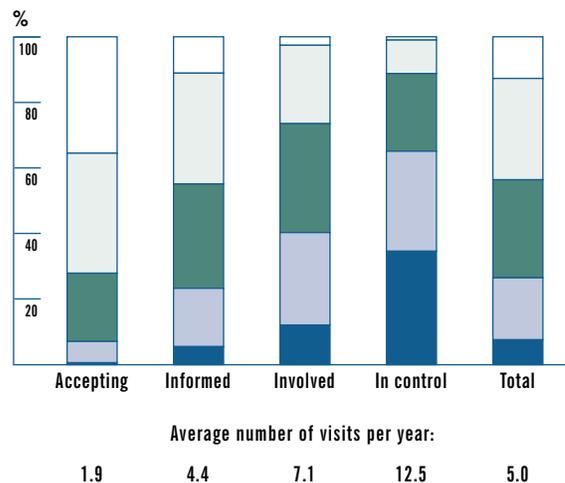
Every patient falls into one of the four segments, but the size of each segment varies by disease. (See the insert “Some Patients Are More in Control Than Others,” page 27.) For health care players seeking to influence treatment decisions, the in-control and involved patients are the most valuable targets. That’s because the severity of their illnesses and their active engagement in treating their diseases drive them to visit their doctors more often than patients in the other two segments. Furthermore, whereas the average patient with a chronic disease takes 3 prescription medications per month, the involved patient takes 3.4 and the in-control patient takes 4.9. (See Exhibit 11.) As a result, these two groups receive the greatest volume of treatments and services.

Across the patient population overall, BCG’s segmentation has held relatively steady in the surveys conducted since 1999. (See Exhibit 12.) This year’s decline in the involved and in-control groups suggests that as the Internet has gained broader

EXHIBIT 11
Involved and In-Control Patients
Are the Most Frequent Users of Health Care

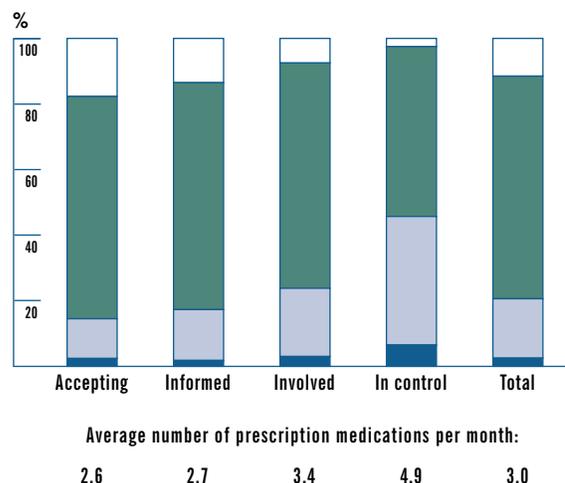
How many visits have you made to the doctor in the past 12 months?¹

>12 **6–12** **3–5** **1–2** **None**



Approximately how many prescription medications do you take in an average month?²

>10 **5–10** **1–4** **None**



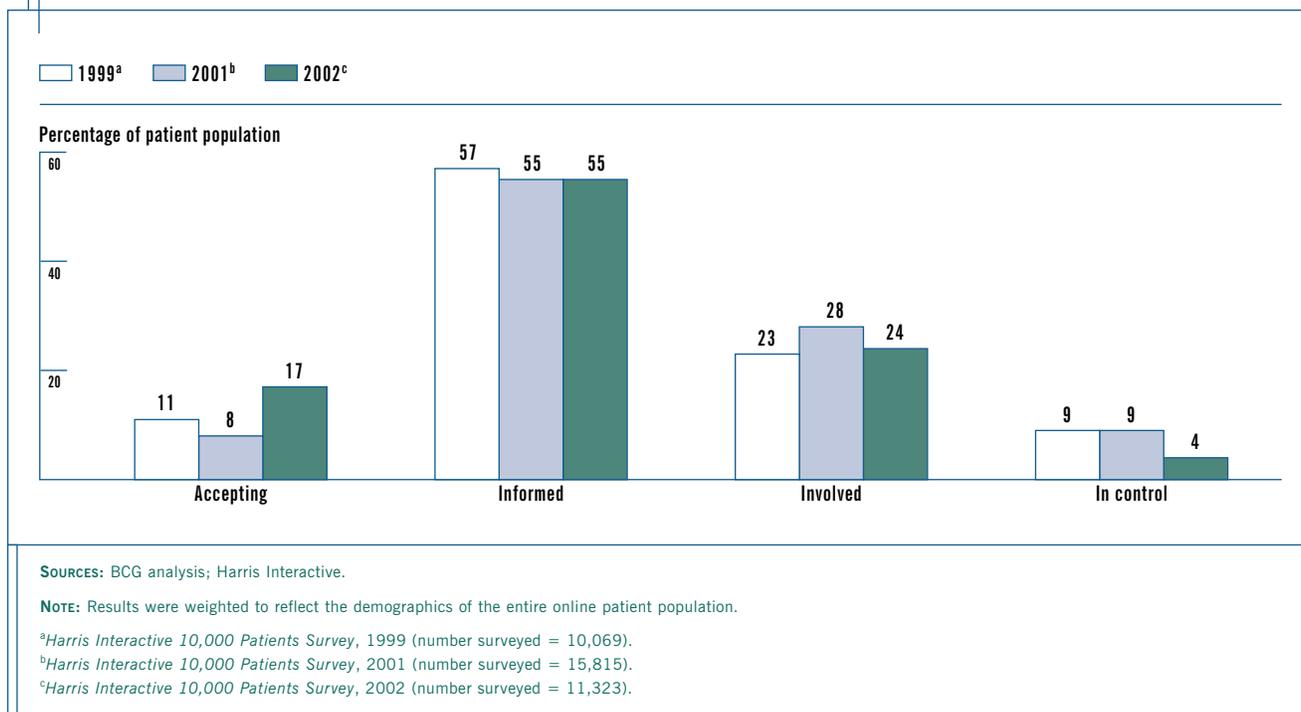
Sources: BCG analysis; Harris Interactive 10,000 Patients Survey, 2002.

¹The number of respondents was 11,323. Results were weighted to reflect the demographics of the entire online patient population.

²The number of respondents was 9,412. Results were weighted to reflect the demographics of the entire online patient population.

EXHIBIT 12

BCG's Patient Segmentation Is Holding Relatively Steady



acceptance, patients with less severe illnesses—who therefore are less compelled to act on the information they find online—have come to embrace e-health. But even though the impact of the Internet among patients overall appears slightly diluted, the channel’s influence has actually increased among the involved and in-control segments.

Our research into patients’ behavior on the Internet examined both their online activities and their online destinations.

Online Activities. Although most doctors we surveyed expressed concerns about communicating online with patients, patient demand may force them to adopt e-mail messaging and virtual visits. Nearly half (47 percent) of the more than 10,000 patients surveyed said they wanted their doctors to respond to their queries by e-mail. About as many (41 percent) expressed a desire to receive test results by e-mail. In addition, slightly more than one-third of patients (37 percent) want online access to medical records and appointment scheduling. And one-fifth (20 percent) want to be able to monitor their conditions online. In fact, 17 percent

of patients in the in-control segment already use a software program to track and manage their own health or that of a family member—a finding that may anticipate the future success of RDM.

Online Destinations. Overall, patients’ online-usage trends, identified in earlier *Vital Signs* reports, are continuing. About three-quarters of patients still visit two to five health sites regularly. Most Internet users are still finding those sites primarily through search engines.

Like doctors, patients are broadening the range of sites they visit. The health portal WebMD continues to lead the pack of e-health sites. The health sections of mass-market portals—Yahoo! Health, MSN Health, and the AOL Health Channel—continue to round out the four sites mentioned most frequently by patients. (See Exhibit 13, page 24.) The continued presence of these sites—as well as the bursting of the *e* bubble—have squeezed out the runaway leader of e-health’s early days: drkoop.com.

Since WebMD provides content for three of the top four sites—and since these online services

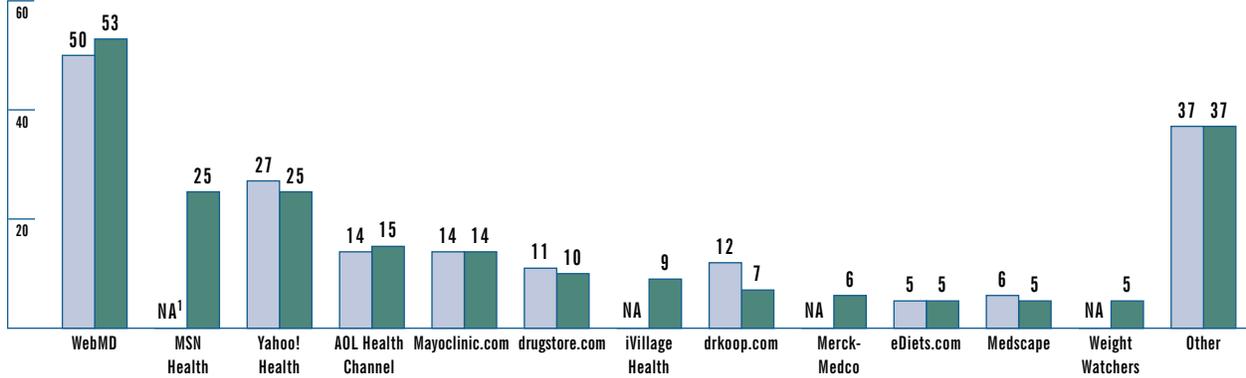
EXHIBIT 13

WebMD and Mass-Market Portals Lead the Pack of E-Health Sites

Most frequently visited site (up to three choices)

2001 survey 2002 survey

Percentage of patients accessing health information online



Sources: BCG analysis; Harris Interactive 10,000 Patients Survey, 2001 and 2002.

NOTE: In 2001 the number of respondents who used the Internet for health-related information was 9,908; in 2002 it was 9,505. Results were weighted to reflect the demographics of the entire online patient population.

¹Data are not available because survey choices differed in 2001 and 2002.

account for the vast majority of e-health visits—players should be able to blanket much of the online population with health care messages delivered in some way through WebMD. At the same time, even as mass-market online services experience overall growth, health-related portals and highly focused disease-specific sites are continuing to make headway among involved and in-control patients.

Not surprisingly, at a time when expenditures on direct-to-consumer drug advertising have skyrocketed to \$3 billion, pharmaceutical companies are doing an effective job of attracting patients to their sites. Respondents ranked sites sponsored by pharmaceutical companies as the second-most-frequent type of site they visit—slightly higher than sites sponsored by academic or research institutions, medical journals, and patient support or advocacy groups. (See Exhibit 14.) Both the amount of traffic these sites are attracting and their relative share suggest that patients view them as objective, reliable, and valuable repositories of product- and disease-specific information. Indeed, almost three-

quarters of all patients online said they find sites sponsored by pharmaceutical companies somewhat or very credible.

The Enhanced Importance and Impact of the Internet

E-health is becoming an increasingly important channel for educating patients. As a result, it has emerged as a persuasive medium for influencing patients and it is having a powerful impact on the care they request and ultimately receive.

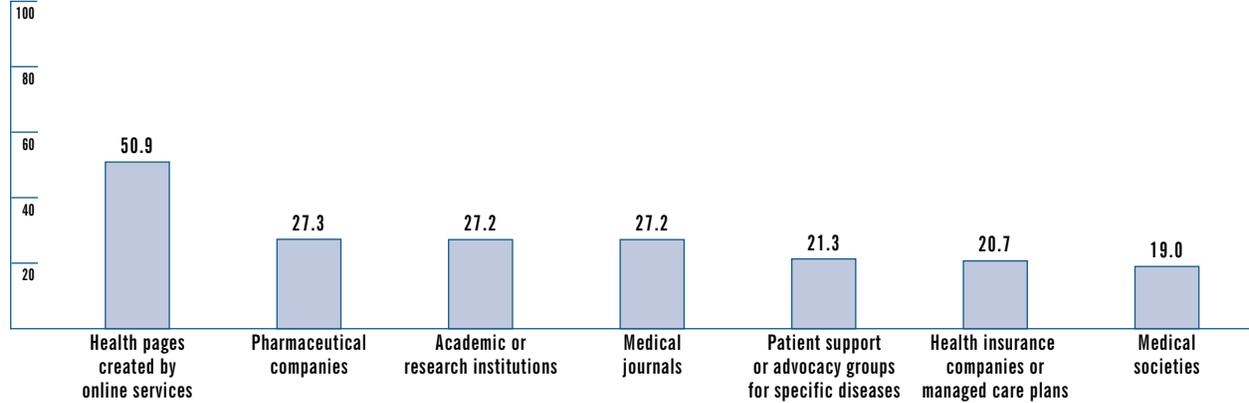
The Importance of the Internet. Thirty percent of the patients we surveyed said that they are most likely to turn to the Internet when seeking information about a specific disease or medication. One-fifth of patients in the accepting segment said they prefer the Internet when researching a disease or a medication. And when it comes to the in-control group, the Internet actually outpaces physicians—46 to 45 percent—as the preferred medium for receiving such information. (See Exhibit 15.) Today the average patient with a chronic condition goes

EXHIBIT 14

Sites Sponsored by Pharmaceutical Companies Rank Second Among Patients

Which of the following have sponsored the health care Web sites you have visited?

Percentage of patients accessing health information online



Sources: BCG analysis; Harris Interactive 10,000 Patients Survey, 2002.

Note: The number of respondents was 9,505. Results were weighted to reflect the demographics of the entire online patient population.

online 9 times a year—almost twice as often as he or she visits the doctor. The average in-control patient goes online 24.5 times a year and visits the doctor 12.5 times a year.

The Impact of the Internet. With patients embracing the Internet to educate themselves, it’s no wonder that e-health is having a more pronounced impact on the questions that patients ask their doctors, the treatments they request, and the specific diagnoses they suggest. More than 90 percent of all patients online said that the medical information they find on the Internet has enhanced their understanding of their health problems. Similarly, more than 80 percent said that e-health has affected how they manage their overall health. About 75 percent said that it has changed the way they communicate with their doctor, and around 65 percent said that it has improved their compliance with treatments their doctor prescribes.

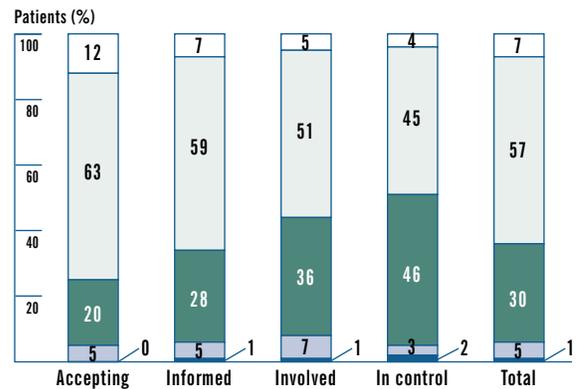
In addition, the Internet’s call to action continues to be heard among the patient population overall—and is growing among the involved and in-control segments. Twenty-eight percent of all patients now

EXHIBIT 15

Physicians and the Internet Are the Most Common Sources of Medical Information

Which resource are you most likely to turn to for information about a specific disease or medication?

Relative/friend Physician Internet
Journal articles Patient group

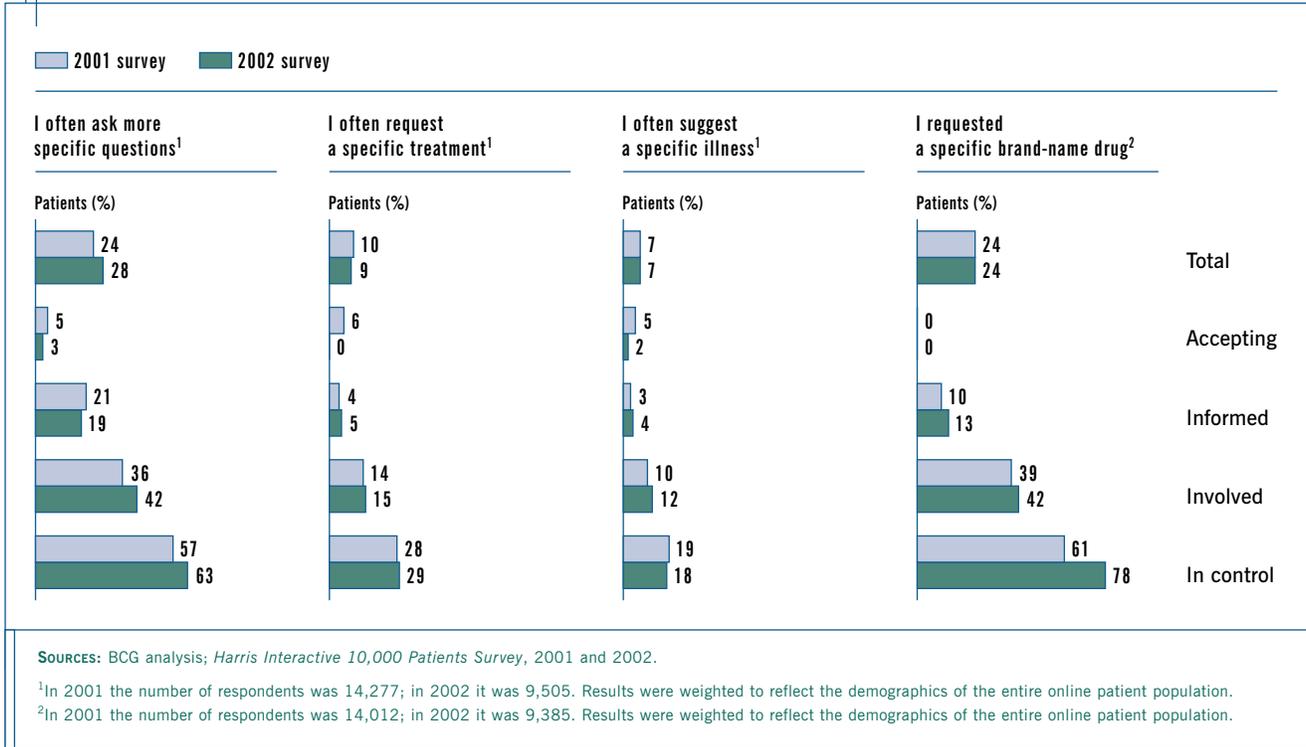


Sources: BCG analysis; Harris Interactive 10,000 Patients Survey, 2002.

Note: The number of respondents was 11,323. Results were weighted to reflect the demographics of the entire online patient population.

EXHIBIT 16

The Internet Is Having the Greatest Impact on the Involved and In-Control Segments



often ask their physicians more specific questions—a step up from the 24 percent who did so in 2001. In addition, the percentages of patients who request specific treatments and suggest particular diagnoses on the basis of their symptoms have remained steady. (See Exhibit 16.) Again, the Internet’s impact is greatest on the in-control and involved segments, as the following data suggest:

- Seventy-eight percent of patients in the in-control segment requested a brand-name drug—up from 61 percent in 2001 and more than three times the 24 percent of patients overall who have done the same
- Sixty-three percent of in-control patients—twice as many as the overall patient population—and 42 percent of involved patients often ask more specific questions
- Twenty-nine percent of in-control patients—three times as many as the overall patient population—

and 15 percent of involved patients often request specific treatments

- Eighteen percent of in-control patients—more than twice as many as the overall patient population—and 12 percent of involved patients often suggest to their doctors that their symptoms indicate a particular illness

* * *

With patients frequently turning to the Web for medical information, health care players need to understand how important e-health is for communicating with patients and educating them to participate in decisions regarding their care. This is particularly true for the patients who are the most frequent consumers of health care and therefore the most motivated to take action on information they find online. But the channel is viable for communication across all segments and patient populations.

SOME PATIENTS ARE MORE IN CONTROL THAN OTHERS

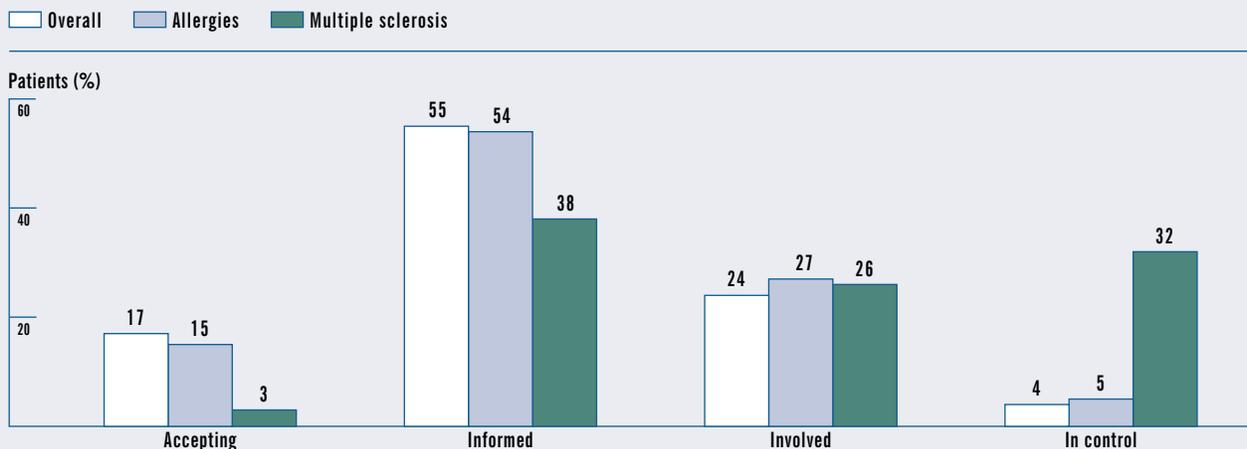
About 300,000 people in the United States are afflicted with the degenerative disorder multiple sclerosis (MS)—a tiny fraction of, say, the estimated 50 million to 60 million who suffer from allergies. But the way the smaller population of MS patients use the Internet to search for information online—and particularly the way their offline behavior is influenced by the information they find there—makes it far easier for health care players to reach them through the Web and to have a greater impact doing so.

MS patients are about six times more likely than allergy patients to fall into the in-control category. (See the exhibit “Patients with Multiple Sclerosis Are the Least Accepting and the Most in Control.”) Why? The consequences of MS include immobility and sometimes even death; most allergies, by contrast, cause only drowsiness, breathing irregularities, or skin irritations. And the greater the discomfort or risk associated with a disease, the more motivated the patient is to seek out advice that will help alleviate or treat the condition.

As a result, people with multiple sclerosis across all four patient segments search the Internet for medical insights and treatment options for their condition and are moved to act by the information they find online. (See the exhibit “And They Are Also Influenced More by Information They Find Online,” page 28.) For example:

- MS patients go online for medical information 20 times per year on average—more than twice the 9 annual online visits the average allergy patient makes and the 9 annual visits made by the average chronic online patient.
- MS patients are about twice more likely than allergy patients (68 percent versus 26 percent) to read or post messages to an online news group or bulletin board that focuses on health care or their condition.
- MS patients are over five times more likely than allergy patients and average chronic online patients to participate in forums or chat sessions about health care or their medical condition.

Patients with Multiple Sclerosis Are the Least Accepting and the Most in Control . . .



SOURCES: BCG analysis; Harris Interactive 10,000 Patients Survey, 2002.

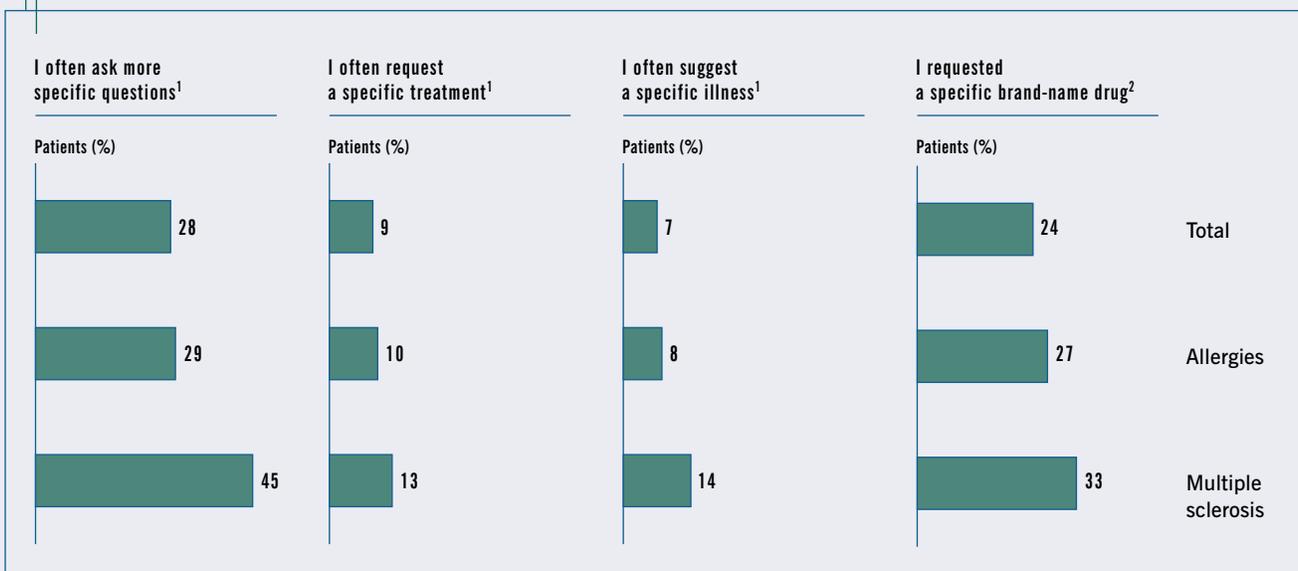
NOTE: The number of respondents overall was 11,323; of respondents with allergies, 6,093; of respondents with multiple sclerosis, 86. Results were weighted to reflect the demographics of the entire online patient population.

- Unlike chronic patients overall and allergy patients, MS patients search for health-related information more often through disease-specific Web sites and company- or product-sponsored Web sites. Such focused online-usage patterns make it easier for health care players to home in on these patients with messages and products specific to MS.
- Once they find information online, MS patients are also more likely to act on it before, during, and after consulting with their doctors. Higher percent-

ages of MS patients reported that as a result of information found online, they ask more specific questions of their doctor, suggest specific illnesses, and request specific treatments.

- Although allergy patients are flooded with direct-to-consumer advertising, MS patients are more likely to request brand-name drugs (27 percent versus 33 percent).

... And They Are Also Influenced More by Information They Find Online



Sources: BCG analysis; Harris Interactive 10,000 Patients Survey, 2002.

¹The number of respondents overall was 9,505; of respondents with allergies, 5,194; of respondents with multiple sclerosis, 82. Results were weighted to reflect the demographics of the entire online patient population.

²The number of respondents overall was 9,385; of respondents with allergies, 5,180; of respondents with multiple sclerosis, 79. Results were weighted to reflect the demographics of the entire online patient population.

HARNESSING THE POWER OF THE INTERNET



How e-health will evolve remains unknown, but several truths will hold as the arena develops. First, as e-health tools become more cost effective, user friendly, and better at enhancing the quality and efficiency of care, more physicians and patients will have an economic and emotional incentive to try them. Second, new legal, technological, and medical standards are certain to emerge and expedite the sharing of patient and other health data online. Already, Congress has proposed legislation that would mandate e-prescribing as a condition for reimbursement under an expanded Medicare drug benefit. The mere threat of such a requirement will no doubt compel the industry to embrace e-prescribing technologies in even higher numbers.

In this environment, health care players must actively consider how to help shape e-health tools and their scope today or risk ceding that role to their competitors and other players in the field. Almost every player has made an initial investment in the area, with some investing more than others. Still, the evolving nature of e-health requires a constant revisiting of these strategies.

The approaches for further exploiting the advantages of the Internet fall into two general categories: boosting existing capabilities or forging new ones. On the one hand, players can deploy the online channel to reinforce many of their current offerings. Pharmaceutical companies, for example, can use e-health to reinforce and augment the messages they are already sending through drug reps, advertising, and communications. Although this sounds straightforward, many companies today

treat the online and offline channels as an either-or proposition: they compare the costs and benefits of each and then choose one over the other. But the channels are complementary and far more powerful when used together.

On the other hand, companies can use e-health to broaden their focus beyond their current capabilities in order to engage with sectors of the health care industry—as well as with portions of the health care value chain—in which they haven't previously played. Academic medical centers and large integrated delivery systems, for example, can exploit their credibility with and access to doctors by providing continuing medical education online. Some are already deploying e-health to link patients and doctors to their systems in ways that could only have been imagined a decade ago.

Of all the forces at work in e-health today, at least one phenomenon will have a major impact on all categories of players: over the next three to five years, e-prescribing is certain to become a widespread reality and to change the competitive landscape in the industry. Already, 36 percent of patients report that they desire computerized prescriptions, and more than one-third of doctors use or plan to use the tool. The tool's economics are becoming increasingly compelling for many health-care players, particularly managed care players. That's because e-prescribing makes formularies automatically and electronically accessible—and therefore considerably more enforceable—at the point of prescription. In the extreme, doctors' enhanced compliance with formularies would

dilute the influence that drug reps and DTC advertising enjoy today, shifting the greatest influence over treatment selection to managed care players that develop and administer formularies.

Simultaneously, e-prescribing also promises to spur further changes in health care by collecting and utilizing more information about prescription writing and filling:

- E-prescribing could boost patients' compliance with drug regimens, which translates directly into higher drug sales and better health. Twenty percent of the patients we surveyed reported that they don't fill the prescriptions their doctors write: they either don't take the prescriptions to the pharmacy or they don't pick them up. E-prescribing could solve both problems. First, because it can be used to send prescriptions directly to the pharmacy, it can eliminate one obstacle to compliance among busy patients. In addition, the data captured by e-prescribing could be used to track—and alert—doctors when patients are not picking up their medicines.
- E-prescribing will capture a wealth of electronic data on which drugs physicians prescribe—data that organizations can use to tailor their messages

to doctors. Today the providers of pharmaceutical data derive their information from filled prescriptions. As a result, no data are currently captured on the 20 percent of prescriptions that are written but not filled. Because e-prescribing will capture data at the point of prescription, it will offer a far more comprehensive look into physicians' drug preferences.

Below we explore in greater depth how individual players—pharmaceutical companies, managed care organizations, health delivery systems, and e-health vendors—can take steps to harness the power of e-health. (For some steps that all players can take, see the insert “Effective Marketing.”)

Implications for Pharmaceutical Companies

For pharmaceutical companies, e-health is changing the competitive landscape in a way that unlocks several significant opportunities for reaching patients and physicians. It also poses at least one major threat.

Understanding and Addressing the New Environment for Prescribing. As we noted above, e-prescribing could undermine the influence of drug

EFFECTIVE MARKETING

In rolling out new e-health technologies and services, health care players will want to embrace an approach for marketing that we advocated in earlier *Vital Signs* reports: the drug launch process. That process, already proven successful, engages the forces that move doctors and patients to trial: demonstrated efficacy, key opinion leaders, and targeted marketing. It consists of five steps.

Detail aggressively. Take the new products directly to doctors and train them in how to use the tools. Engage reps not only in sales but also in training and customer service and support.

Provide evidence of efficacy. Furnish doctors with compelling data on the tools' effectiveness.

Cultivate a network of key opinion leaders. Respected peers can provide professional recommendations and personal testimony.

Engage in strategic partnerships to copromote tools. This includes relying on incentives from managed-care, pharmaceutical, and e-health technology players, as well as on the broad relationships of health delivery systems.

Educate and mobilize patients. Deploy an integrated online/offline DTC campaign to arm patients with the information they require in order to request the Web sites and e-health services that may best suit their needs.

reps and DTC advertising by making formularies considerably more accessible and more enforceable at the point of prescription. But this risk does not mean that pharmaceutical companies should steer clear of e-health in general and e-prescribing in particular. Instead, companies must continue to hone their e-health strategies or forfeit their place in the examination room to other types of players gaining enhanced access to doctors through the Web. What steps, then, should pharmaceutical companies take in the short term? Can they minimize or perhaps even eliminate the potentially negative impact that e-prescribing may have on formulary selection and pricing negotiations with managed care organizations (MCOs)?

How companies behave in the short term should vary depending on the scope and shape of their individual product portfolios. For example, companies with blockbuster, unique, patent-protected, or particularly efficacious drugs may find it easy to win the coveted top spot on the formulary for treatments in their therapeutic area. In such cases, sales of these products would be minimally affected by e-prescribing—and might see a gain without a significant compromise on price. At the same time, companies that produce the most cost-effective drugs might also do well in the new environment.

By contrast, me-too drugs in crowded product categories will need to differentiate themselves or risk exclusion from the formulary—and potential exclusion from the market. Such players could mitigate that risk by, for example, deepening their relationships with doctors, MCOs, and vendors. Companies with powerful sales forces may determine that they have the presence and manpower to influence doctors' drug selections effectively whether or not their drugs are on the formulary. Still other players, however, might feel the need to make price concessions in order to secure their place on the formulary.

Whether—or how—pharmaceutical companies decide to engage with e-prescribing in the short term, no company can afford to ignore the tool or the major consequences that its adoption might have on the industry over the long run.

Finding and Targeting Unique Patient and Physician Audiences. Novartis has created a Web site—called Novartis Transplant in the United States and TransplantSquare in other countries—that educates physicians and the public about the organ transplant field while collecting data from potential prescribers and patients for its antirejection drugs. Similarly, Knoll—maker of the popular thyroid treatment Synthroid—sponsors Gland Central, a site where patients must enter personal data, including which thyroid medications they take, to secure a “library card” that allows them access to the materials at the site. In this way, the companies identify potential customers and micro-market to them in a situation where mass-market channels might be less appropriate—an approach that could prove critical in the future. Finally, developments in genomics promise one day to deliver drugs uniquely effective in patients genetically susceptible to certain diseases. Such niche marketing will benefit from new channels where customer targeting is more precise and cost effective.

Already, such approaches may hold promise for drugs like GlaxoSmithKline's Lotronex, which can be prescribed for irritable bowel syndrome only very narrowly in order to qualify for approval by the FDA. For such products, pharmaceutical companies could minimize the risk of contraindications by using the Internet to deliver detailed information to patients and physicians. They also could rely on targeted marketing to build a database of the narrow patient and physician audiences for the drug. That's because the Internet affords not only enhanced access to the critical audiences in health care—physicians and patients—but also an increased understanding of those individuals' online and offline behaviors, attitudes, health status and histories, and lifestyles. At each point of online access—corporate Web sites, health portals, aggregated information collected by e-prescribing—e-health makes it possible for health care organizations to track the details about the patients and doctors they serve—or want to serve.

Online forms and site memberships collect names, disease information or areas of specialty, and con-

tact preferences—a wealth of data that could be used in general market analysis, recruitment for drug trials, or marketing. When these data are juxtaposed with, for example, the four-part patient segmentation, they could give organizations detailed insight into the type of patients they serve and how they can best reach and motivate those patients to action. Furthermore, companies should track the behaviors and attributes of their physician contacts online, including whether the physicians are e-prescribers or users of EMRs, online communication, or RDM. This knowledge will indicate which tools and channels companies can use to reach and serve different groups of physicians.

Enhancing Relationships with Physicians. Pharmaceutical companies looking to exploit e-health to the fullest should embrace Web-based communication as a secondary channel—and in some cases as a primary one.

E-health tools offer large pharmaceutical companies the opportunity to enhance their existing communication with physicians and patients. Companies can use the online tools that doctors employ for gathering medical information to augment ever shorter sales-rep visits with more detailed follow-up information.

Similarly, the Internet continues to be a low-cost alternative to sales-rep visits for contacting rural doctors, low-volume prescribers, and other physicians who are difficult to reach through sales-rep visits. In an environment where pharmaceutical companies face pressures to squeeze revenues out of shrinking pipelines, the Internet can also be used to continue promoting drugs later in their life cycle—after sales-rep support is traditionally pulled and transferred to newer drugs with greater revenue potential.

By contrast, small pharmaceutical companies can use e-health to expand their marketing reach to doctors and patients whom they cannot afford to contact. These players often lack a vast sales-force presence to call on doctors, as well as the resources to reach consumers with DTC advertising. Therefore, they should seriously consider the Web as a

cost-effective communication channel with doctors and potential users of their products.

Another way to build relationships with physicians is to help enhance relationships between physicians and patients. To that end, pharmaceutical companies can increase traffic to and boost the credibility of sites that feature messages about their products by drawing on the rise in physicians' recommendations to patient Web sites. Ultimately, they can also ensure that doctors and patients alike find consistent messages that prepare them for a dialogue about the appropriateness of a particular treatment option.

For example, pharmaceutical companies could create prepackaged content for physicians' personal Web sites or for other sites that offer patients background information and details about diseases and treatments. The approach has three benefits. First, it ensures that information about a company's product is perceived as objective and credible because it appears on a site sponsored by a third party rather than by the drug company itself. Second, it provides doctors with online destinations where they can send their patients for medical education. Third, it draws on word of mouth from respected physicians—a powerful force—to build patient traffic to the sites and disseminate the medical information.

Implications for Managed Care Organizations

Virtually every managed-care organization has seriously explored how best to engage in e-health and how to build online capabilities. Thus, most have invested significantly to deploy the online medium in enhancing their relationships with their customers. But the resulting investments and outcomes have varied widely among MCOs. Some have positioned e-health at the heart of their interface and interaction with physicians, patients, and employers—hoping to redefine their operations as they redefine their relationships with customers. Others have simply tweaked their offline strategies to reflect online realities so that they can better manage costs.

Given the physician and patient behaviors identified in this survey, however, it's clear that none of these players have achieved overwhelming success in driving e-health utilization. In fact, one could argue that MCOs have largely failed to leverage e-health successfully for enhanced influence in the health care market.

Consider that nearly every individual covered by private insurance in the United States—160 million people—carries a health plan card in his or her wallet, but few turn to health plan sites when they seek medical information online. Most individuals turn instead to nationwide mass-market Web portals when they desire information about their illness and potential treatments or the latest health news. Equally telling is the fact that the patients we surveyed ranked pharmaceutical companies as a more trusted source than their own health plans, even though MCOs offer personal relationships with local providers and highly customized knowledge about individual patients.

These facts suggest that managed care players must take more steps, but which ones should they take? It's not simply a matter of how *much* MCOs invest—*how* they invest is important as well. MCOs must align their investments in e-health with their overall strategic priorities, among them managing medical care for cost and quality, managing administrative costs, and building closer affiliations with patients and physicians.

Managing Medical Care for Cost and Quality. The connectivity and automation made possible by e-health increase the potential impact of many of the most rudimentary tools in the managed care handbook—and introduce several additional tools as well. The most tangible effect that e-health will have in managed care, for example, is the potential impact of e-prescribing on enhanced formulary compliance. Automating formularies and making them interactive gives teeth to the mechanism that MCOs rely on to influence physicians' choices at the point of prescription. By making formularies accessible to doctors at the precise moment they are writing prescriptions, e-prescribing has already

begun to improve doctors' cost-effective selection of drug treatments. Ultimately, heightened formulary compliance should afford MCOs a better bargaining position when they sit down to negotiate drug prices with pharmaceutical companies or performance-based contracts with employer customers.

In the short to medium term, pharmacy benefit managers and retail pharmacies stand to gain the greatest efficiencies and cost savings from e-prescribing. But over the long haul, the automation of formularies could make redundant some of the services the pharmacy benefit managers provide. As a result, these organizations may have to redefine themselves to remain valuable to those they serve. The fight over exactly who will hold the keys to adjudication of pharmacy claims remains hotly contested.

But lower prescription costs are just part of the promise of e-health. Online tools and interfaces could also afford MCOs a more integrated and effective means of managing other elusive opportunities to save costs—such as finding less expensive ways to serve high-cost patients and reducing out-patient costs overall. In serving high-cost patients—such as those with major illnesses or serious complications—technology-based solutions are already becoming commonplace.

Today national managed-care companies, such as UnitedHealthcare, and regional MCOs, such as Tufts Health Plan and Blue Shield of California, are starting to deploy computer-enabled predictive modeling to deliver higher-quality and lower-cost care. The modeling uses aggregated data from past patients to identify current patients who may become costly to serve. As a possible next step and logical extension of the success MCOs already enjoy online, MCOs might use Web-based channels to collect and disseminate medical information and to communicate with these high-cost patients and their physicians.

Similarly, MCOs are the most appropriate sponsors for RDM because the tools take disease management to the next level—automating monitoring

and making the management of specific diseases possible around the clock. The cost-effectiveness of RDM—particularly in preventing illnesses from escalating to emergency situations that require more invasive treatments—is an obvious boon to payers at risk for shouldering the cost of patient care. Even for self-insured accounts, however, such electronically enabled disease management can serve as an attractive part of an MCO’s offering. Thus MCOs should focus on helping to accelerate the adoption of RDM programs, particularly among specialists—perhaps by leveraging their relationships with network providers and possibly by steering patient referrals to physicians who actively embrace the tools.

A final e-health opportunity for payers is exploring emerging online platforms for secure patient-physician interactions, such as those used by RelayHealth and MyDocOnline.com. These new channels not only insert the MCO into the relationship between the physician and the patient in a way that allows them to add value, but the channels also appear to offer potentially attractive economics for health plans and providers, according to recent studies reported by RelayHealth. The hope, which players are beginning to realize, is that lower-cost “virtual” visits can substitute for higher-cost office visits when patients’ health needs are less urgent. Once MCOs address the major obstacles to such visits—security of information and reimbursing physicians for time spent online—adoption of the platforms should accelerate, boosting satisfaction levels among both doctors and patients alike.

Managing Administrative Costs. With their original foray into e-health, most MCOs have sought to capture the scale economics of a Web-based platform in order to lower the administrative burden of their transaction-intensive business. That has meant empowering all stakeholders to navigate their questions and issues through self-directed online menus that eliminate the dependence on costly call centers. Initially, this move transferred mundane transactions to the Web, such as changing a patient’s home address. Today MCOs are successfully encouraging patients to migrate more complex tasks

online, such as queries about claims and referrals—mirroring the transformation that FedEx made when it shifted its package tracking online. For some players, the challenge has been to build an electronically enabled administrative functionality quickly, economically, and in a way that coordinates with legacy systems. But players that have already deployed the basic platforms have turned their focus to driving patients and physicians to the online interface.

Nevertheless, too few patients think of their health plan’s Web site as a favorite or frequent online destination. To combat underuse and limited impact, MCOs should focus on offering the functionality that patients most desire in order to make the sites more attractive and viable. They also must market the unique online services they offer in order to draw patients to the site.

In addition, MCOs shouldn’t overlook the opportunity to use the online realm to improve service to and relations with the final “payer” for health care: employers. No doubt, these clients will value disease management initiatives with high proven returns on investment. They will also be drawn to MCOs that offer streamlined administrative interfaces with plans and that simplify tasks such as enrollment. Fortunately, these moves simultaneously lower the cost of distribution for MCOs.

Building Affiliation Among Patients and Physicians.

When all their strategic priorities are considered in combination, MCOs stand to gain the greatest advantage if they can foster loyalty among—and build close ties to—patients and physicians. They can accomplish this last goal while pursuing the others, using the Web to enhance the ease and reduce the cost of every step in the health care experience of patients and physicians. And if they are successful, MCOs could win the hearts and minds of patients who currently prefer mass-market sites, such as WebMD, as their primary source of medical information. Undoubtedly, MCOs could take any number of paths to accomplish this goal, depending on their scale, scope, geographic focus, competitors, and offerings.

Implications for Health Delivery Systems

Health delivery systems already reach a great number of patients and physicians—individuals who themselves lack the relationships and resources to investigate and invest in e-health technologies, tools, and systems. Thus, academic medical centers and integrated delivery systems are positioned to draw on their scale and their role as a central source of information in order to guide patients and physicians looking to exploit the advantages of e-health more fully.

In doing so, health delivery systems can enhance many of their own critical and strategic functions—and not just by increasing the volume of patients in their system or reducing the costs to serve them. In fact, the greatest advantage that e-health affords health delivery systems is the opportunity to bolster relationships with patients and physicians through the full range of online offerings: the management and training of physicians, the education of patients and physicians, the dissemination of protocols, the administration of formularies, and the collection and management of patient data. Several players, such as CareGroup Healthcare Systems, Ohio State University Health System, and Intermountain Health Care, have begun to use Internet and intranet capabilities in this way, offering their patients and affiliated physicians a highly individualized and unique service that differentiates the system in the marketplace.

Improving the Quality of Patient Care. The wealth of patient data that e-health unleashes is a strong remedy for inaccurate diagnoses, less-than-optimal treatments, and poor medical outcomes. Because e-health permits more comprehensive and easily accessed medical records, automatic screening for drug interactions, and enhanced medical monitoring, it improves accuracy and reduces human error in the delivery of health care.

Hospitals that successfully deploy a well-integrated and comprehensive EMR platform will be best positioned to analyze electronically stored and detailed patient data for maximum preprocedural planning

and case management. Having the right data at the right time will help ensure that the most accurate diagnoses are made, that the most appropriate procedures are performed, and that treatments are successful.

Attracting and Building Affiliation with Patients. Although many patients value their relationships with their physicians, most don't consider themselves as having a relationship with their hospital. Brand loyalty in this area is rare, often because experiences throughout the system seem disconnected, inconsistent, and unrelated. To combat this problem, health delivery systems can use e-health interfaces to collect and disseminate patient information in a seamless, consistent, and highly tailored way—over the individual's lifetime.

First, e-health can be used to recruit patients who may be well served by a program or service at the hospital—both by culling its databases for target patients and by tailoring the marketing and messages through the online and other channels.

Second, e-health tools like EMRs make it easier to collect information about patients and share it across visits, providers, and facilities. The value of these steps is widely recognized, of course, but the steps themselves remain challenging and highly controversial. Today most hospitals have not yet merged their administrative and patient-care data systems. Their reluctance is primarily the result of the threat of HIPAA sanctions. But these players also share a general concern that capturing the value of fully integrated patient data must not violate the patient's trust or privacy.

Third, hospitals that truly embrace patient tracking and data collection through e-health could use the aggregated results of their findings—such as data about how a group of patients responded to a particular treatment—to attract and manage clinical trials and outcomes research. These activities would provide hospitals with additional revenues outside their core business.

The challenge here will be reaching out to patients who have not yet moved online or who do not yet

share medical information online because they fear breaches in confidentiality. Thus, creating trustworthy interfaces and delivering markedly higher-quality care as a result of those data are essential if health delivery systems are to draw patients to their online channels and build affiliation once they arrive.

Building Affiliation with Physicians. Health delivery systems can serve as cost-effective clearinghouses for promoting and rolling out patient-care tools to affiliated physicians. Their contact with a broad range of doctors makes them well suited to help advocate for standards for the technologies that will apply throughout their systems.

But health delivery systems can disseminate patient-care tools for their own advantage as well. For example, by deploying a highly effective EMR platform, a health delivery system could attract and strengthen relationships with physicians who value the connectivity, ease of use, and comprehensiveness of the automated records. A hospital that offered such a connection could afford doctors a major productivity and efficiency advantage—one that would motivate the physicians to refer patients to the hospital over its competitors. In fact, once the issues of trust and confidentiality are resolved, the strength of e-health technologies and offerings should serve as a potent means for health delivery systems to differentiate themselves.

Furthermore, academic medical centers and university hospitals at the core of most health-delivery systems could use e-health to draw on their existing strengths with physicians to achieve success in a new sector of the industry. Already well-respected resources for the latest in medical research, academic medical centers and university hospitals could offer online CME for physicians, who, as noted, are increasingly turning to virtual classes to meet continuing education requirements.

Managing Administrative Costs. The efficiencies gained by integrating all administrative and care functions online will save health delivery systems significant costs and time. In addition, these players could see a slight increase in reimbursement if they

successfully deploy EMRs throughout their provider networks. Because the tools capture in greater detail the diagnoses that doctors make and the services that they provide, EMRs will improve the accuracy of the coding used in claims. At the very least, the number of queries that doctors receive about bills—and the time it takes to resolve them—may decline.

Implications for E-Health Vendors

There has been an enormous shakeout among the vendors that deliver e-health content and technologies: most of the providers that emerged on the scene in 1999 have now folded or been absorbed. Although the number of players has declined in the wake of consolidation, the variety across vendors and their offerings remains. Some vendors focus on only one type of tool, such as MyDocOnline with online patient communication. Others offer a broad range of products to a defined audience. For example, Amicore—the collaboration of Pfizer, Microsoft, and IBM—offers complete clinical automation for small doctors' practices.

No matter what the scope of their offering, e-health vendors face the same opportunities and constraints. The following measures will help them succeed:

Automating Processes to Streamline Work Flow.

E-health must add value to physicians by increasing reimbursement, saving time, or cutting costs. If new technologies don't deliver on these imperatives, doctors won't be able to justify the costs of adding them. For example, to foster wider acceptance among physicians of online communication with patients, the vendors that provide these interfaces will need to prove three things: patients will not be able to use the Internet to inundate physicians with demands, information shared online is secure, and payers will reimburse physicians for time spent with patients online.

Medem, MyDocOnline, and RelayHealth continue to explore the first and second requirements. The companies have designed secure sites and pro-

tected interfaces that allow streamlined and secure patient-physician consultations over the Web. And these same players have begun to investigate the third requirement by establishing pilot programs that explore how these “visits” are best reimbursed. All the pilots bill for online consultations at rates lower than those for office visits. For example, RelayHealth, which uses a simplified form to collect patient information and a secure Web site to facilitate streamlined interactions online, has initiated a one-year pilot project. The project experimented with a \$25 reimbursement fee for online visits paid by insurers Blue Shield of California, ConnectiCare, and several self-insured employers. Initial results indicate that the pilot has reduced

unnecessary medical visits, thereby generating significant cost savings among MCOs as well as high levels of satisfaction among patients and physicians.

Meeting the Needs of Both Physicians and Patients.

Navigating the reimbursement issues will prove to be no small feat. The long-term viability of online communication between patients and physicians hinges on how and when the payers and providers agree on the revenues they should generate for doctors and the costs they should incur for MCOs. Ultimately, a tool that meets both patients’ increasing demands for e-mail communication and physicians’ demands for efficiency and reimbursement could very well be a blockbuster.



CONCLUSION

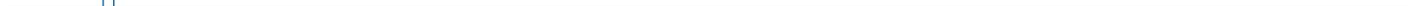


No player that has sat on the sidelines in e-health has yet missed out on a blockbuster opportunity. But as e-health continues its journey and gains ground and influence among physicians and patients, the nature of the opportunity—and the window for exploiting it—could change swiftly and suddenly. E-health is on the road to altering the competitive landscape and making the health care value chain highly dynamic. Already, it is effecting change that eases the delivery of health care, including gains in quality, efficiency, accuracy, and cost-effectiveness. Of course, e-health is also posing challenges for industry players as it changes patients' expectations about and involvement in their health care and requires physicians to reconsider how they interact with patients and what kind

of information they share. E-health also blurs the line between providing care and marketing products and services.

In this environment, players must be well informed about their own choices—as well as those of other health-care companies. They also must stay abreast of regulatory developments and their consequences, and must remain sensitive to individual and societal concerns about the privacy of personal medical data. Finally, they must be ready to explore, experiment with, and exploit the advantages of e-health in their core and extended businesses.

Players in all sectors must stay involved or risk being left behind. How will you take advantage of the e-health opportunity?



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