VITAL SIGNS

THE IMPACT OF E-HEALTH ON PATIENTS AND PHYSICIANS

UNITED STATES, FEBRUARY 2001
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FEBRUARY 2001
A REPORT ON THE U.S. MARKET

DEBORAH LOVICH
MARTIN B. SILVERSTEIN, M.D.
RICH LESSER

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Acknowledgments

The authors would like to thank the advisory team: Philippe Guy (Paris), Peter Lawyer (Chicago and Tokyo), David Matheson (Boston), Arnon Mishkin (New York), Andreas Poensgen (Hamburg), Christine Spadafor (Los Angeles), and Craig Wheeler (Boston). The authors would also like to acknowledge the contributions of the project team: Jennifer Fujii, Chris Mark, Elizabeth Perez, and Steve Prokesch.

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Many companies that have tried to roll out e-health offerings have slammed into a hard reality: doctors and patients do not want to pay for them.

Does that mean e-health has no future? Hardly. It just means that designing an e-health tool or service that appeals to physicians and patients isn’t enough to guarantee success. The offering must also influence both groups to take actions that create economic value for pharmaceutical companies, managed care organizations, medical product manufacturers, or other health care players.

Designing offerings that will influence patients and doctors requires a deep understanding of their attitudes and online behavior. To develop that understanding, The Boston Consulting Group is conducting extensive research. In January, BCG published its first report on the results, “Patients, Physicians, and the Internet: Myth, Reality, and Implications,” an analysis of the e-health landscape in Europe.

This report looks at the behavior of patients and physicians in the United States and focuses on where and how e-health can create value. It is designed for business managers—of both incumbents and new ventures—who need to understand the implications of e-health for their companies. We plan to issue updates later this year, and we welcome your questions and comments.

Philippe Guy
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This report takes an in-depth look at patients and physicians in an effort to understand what e-health tools they use, to what extent, and why. To that end, BCG gathered qualitative data from one-on-one interviews and focus groups that were conducted in the fall of 2000.

Patients—by which we mean people with medical conditions—were grouped into three categories: the general population (18- to 65-year-olds who visited a doctor at least once in the 12 months prior to our survey); 55- to 70-year-olds with two or more conditions; and insulin-dependent diabetics and parents of diabetic children. Patients were prescreened to determine the degree to which they use the Internet, and the interactions with them included live Internet-surfing sessions. Doctors were prescreened to select those with busy schedules (approximately 100 patient visits per week) and to determine the degree to which they use the Internet. The interactions with them included live Internet-surfing sessions and demonstrations of hand-held-computer use.

We supplemented our qualitative findings with a quantitative analysis of data from Harris Interactive’s surveys of 10,000 patients and 769 physicians in 1999 and 2000.1 BCG and Harris Interactive, which uses proprietary technology to survey its database of more than 7 million Internet users, plan to collect additional data on patient and physician behavior in 2001.

1. Harris Interactive 10,000 Patients Survey and Harris Interactive Computing and Physicians’ Practice Survey.
A critical determinant of a health care company’s success is its ability to influence the behavior of and the relationships between patients and physicians. After all, they are the ones who ultimately decide how care is delivered.

Emerging Internet-based tools and services, collectively known as e-health, present new opportunities for health care companies to increase their influence. But the impact of e-health on patient and physician behavior is much bigger—and is increasing much more rapidly—than many companies may realize. The result is that patients are already becoming more knowledgeable about their health and actively involved in their care, and doctors are already starting to change how they work with them. Consequently, pharmaceutical companies, managed care organizations, hospital groups, and other health care players must begin to address e-health in their business strategies.

Web sites, hand-held devices, and new networks are all part of the e-health mix. They promise to improve the richness and the reach of health care information, wiping out the traditional asymmetry between doctors and patients by giving patients access to deep wells of information. By extending the clinical interactions between patients and physicians outside the office, these offerings should also improve treatment compliance rates, boost the effectiveness of disease management programs, and more. Finally, they will create administrative efficiencies that will dramatically lower the cost of health care.

Few health care companies, however, have a deep enough understanding of what patients and physicians are doing online to design and deploy e-health projects effectively. To assist them, this report examines the tools that are being used in the United States and the reasons they are used. From our research, six primary implications emerged:

**The collapse of e-health stocks last year does not mean that e-health has no significant long-term potential.** The real economic promise of e-health lies in its ability to influence the behavior of doctors and patients in ways that benefit incumbent health-care companies. Therefore, this is not the time for incumbents to retreat from e-health; it is the time for them to determine how to participate.

**The most valuable patients are the biggest users of health-related Internet services.** Patients can be segmented into four broad categories on the basis of the severity of their medical condition and their attitude toward physicians: accepting, informed, involved, and in control. The patients in the last two categories are usually the ones who have the most serious conditions and who take the most active role in making decisions about their care. They are also the ones who use the Internet the most to obtain health-related information. This means that the Internet is already an essential—not an optional—channel for reaching and influencing patients. In fact, the Internet, which has already proved its usefulness as a platform for managing relationships with individual customers in a wide range of industries, is likely to become the most powerful means of reaching and interacting directly with patients.
The importance of the Internet in health care will increase. By giving patients access to more information, the Internet promises to reshape the health care market. Almost all patients will become more active in their own care, and many will even migrate to the more active, and therefore more influential, segments. The speed and size of the migration should increase when e-health moves beyond basic information sites and when patients begin to use more interactive tools, such as care management programs, with their physicians.

For physicians, the predominant appeal of e-health today is its ability to improve their efficiency. At this point in time, most physicians are not looking to e-health to provide new and better ways to practice medicine. They are mainly interested in tools that save them time and money.

The Web will change the way physicians stay current on medical issues. Companies that use offline media to deliver medical content to doctors will need to develop an online presence to maintain their level of influence. But there is relatively little new economic value for them to create, because doctors are simply changing the way they receive this information. In contrast, clinical e-health offerings will provide the biggest rewards for both physicians and health care companies: for physicians, by helping them improve efficiency and the quality of care they can give; and for companies, by allowing them to increase their influence over how doctors practice medicine. However, the hurdles to persuading doctors to adopt them are high.

To persuade physicians to adopt clinical e-health tools, companies must roll them out the way new drugs are launched. This means that health care companies must address “safety” (concerns about privacy and security), demonstrate “efficacy” (data on how tools have improved efficiency), cultivate opinion leaders, and leverage their traditional means of winning doctors over.
For most patients today, e-health simply means getting health information on the Web, not managing their own care online. That new information, however, is having a big impact on how they approach health care.

The reason patients go online—they have health problems and they want information about their conditions and treatment options—shapes how they behave. People with medical conditions do not browse or wander. They go online with a predisposition to act and have very specific medical issues and questions they want answered. In addition, the first instinct of many patients is not to begin with broad health-related Web sites such as WebMD or InteliHealth. Nor are the sites of their health plans, hospitals, or drug companies their first choice. Instead, patients begin with all-purpose search engines such as those on Yahoo!, Excite, or Ask Jeeves, and they look for multiple sources of information. “I was getting a procedure done, so I typed in the name and hit ‘search.’ I really use the Web for health only when I have specific questions,” said a 45-year-old woman we interviewed.

People who go online for health information behave very differently from those who go online for matters other than health. Most online consumers tend to stick with a few sites that serve most of their needs. Patients, however, do not believe that a single e-health site can be an expert on different conditions. Because their health is at stake, they look for many sources of information and they want reassurance from multiple points that the information is correct. “If more than one source says the same thing, you tend to believe it,” said one patient.

**THE CREDIBILITY PARADOX**

However, the criteria that patients use to determine whether a particular e-health site is credible appear to be surprisingly lax. When asked about this issue, patients insisted that they want accurate, objective information (say, from a medical center, a patient association, their health plan, or even a pharmaceutical company). But when we watched them on the Web, they were much less demanding in practice and considered an e-health site credible if it passed two rudimentary tests:

- Does the site look professional?
- Does the site provide the widely accepted answer to a simple or common question? (For example, does it recommend that people who have suffered or are at risk of suffering a heart attack take aspirin regularly?)

In similar research in Europe, BCG found that patients demand much greater assurances that the information they receive online is factual and trustworthy. Whether patients in the United States become more like their European counterparts remains to be seen. Especially since e-health is still in its early days, the threshold for credibility will be an important issue to monitor.

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Although e-health sites have not been able to get people to pay for health information, there is an upside: they are having a powerful impact on patients’ behavior. This is one of the main reasons why e-health can be so valuable for health care companies.

E-health sites, in fact, appear to be more effective than many other e-commerce services in influencing people, or issuing effective calls to action. When patients who use the Web often for health were asked about its impact, 36 percent said it had a major impact on how they comply with their prescribed treatments. (See Exhibit 1.) In contrast, online retailers generally see 4 to 10 percent of visitors take action—that is, make a purchase either on the site or in a store after researching the product online.4

Admittedly, the impact on patient behavior is self-reported. But even discounting for the possibility that the actual impact is lower, the data indicate that the probable success of calls to action would still be significantly greater in e-health than in other online markets.

Why is health care different? One likely reason is patients’ more focused purpose and higher degree of motivation: they are predisposed to act. Another is the way they behave online. Because patients seek out multiple sources of evidence, they receive multiple points of reinforcement. A patient may visit four different sites about a particular condition, and if all four advocate the same treatment, the patient is likely to seek and follow it. “I learned about Celebrex from several Web sites and asked my doctor about it,” said a 57-year-old arthritis patient. “He prescribed it for me, but I didn’t like it. So I went back to the Web and saw information about Vioxx. Then I had my doctor change my prescription.”

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EXHIBIT 1
THE INTERNET HAS A SUBSTANTIAL IMPACT ON HEALTH-RELATED BEHAVIOR

<p>| Does the Internet have an impact on your understanding of your health problem? |</p>
<table>
<thead>
<tr>
<th>Internet use</th>
<th>Percentage of respondents who said the Internet has a major impact</th>
<th>Percentage of respondents who said the Internet has a minor impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Often use</td>
<td>70</td>
<td>24</td>
</tr>
<tr>
<td>Sometimes use</td>
<td>49</td>
<td>47</td>
</tr>
<tr>
<td>Hardly ever use</td>
<td>20</td>
<td>45</td>
</tr>
</tbody>
</table>

<p>| Does the Internet have an impact on how you manage your overall health? |</p>
<table>
<thead>
<tr>
<th>Internet use</th>
<th>Percentage of respondents who said the Internet has a major impact</th>
<th>Percentage of respondents who said the Internet has a minor impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Often use</td>
<td>46</td>
<td>43</td>
</tr>
<tr>
<td>Sometimes use</td>
<td>21</td>
<td>53</td>
</tr>
<tr>
<td>Hardly ever use</td>
<td>11</td>
<td>41</td>
</tr>
</tbody>
</table>

<p>| Does the Internet have an impact on how you communicate with your doctor? |</p>
<table>
<thead>
<tr>
<th>Internet use</th>
<th>Percentage of respondents who said the Internet has a major impact</th>
<th>Percentage of respondents who said the Internet has a minor impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Often use</td>
<td>33</td>
<td>37</td>
</tr>
<tr>
<td>Sometimes use</td>
<td>15</td>
<td>39</td>
</tr>
<tr>
<td>Hardly ever use</td>
<td>7</td>
<td>23</td>
</tr>
</tbody>
</table>

<p>| Does the Internet have an impact on how you comply with your prescribed treatments? |</p>
<table>
<thead>
<tr>
<th>Internet use</th>
<th>Percentage of respondents who said the Internet has a major impact</th>
<th>Percentage of respondents who said the Internet has a minor impact</th>
</tr>
</thead>
<tbody>
<tr>
<td>Often use</td>
<td>36</td>
<td>36</td>
</tr>
<tr>
<td>Sometimes use</td>
<td>17</td>
<td>36</td>
</tr>
<tr>
<td>Hardly ever use</td>
<td>11</td>
<td>21</td>
</tr>
</tbody>
</table>

SOURCE: Harris Interactive 10,000 Patients Survey.
NOTE: In general, 19% of patients use the Internet often, 45% use it sometimes, 23% hardly ever use it, and 13% never use it.

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THE FOUR SEGMENTS OF E-HEALTH PATIENTS

Of course, all patients are not alike. Just as every brand manager and medical director knows, individual patients fall into distinct segments that must be addressed on the basis of particular sets of needs and characteristics. Diabetics, for example, are often more involved in their own care than patients who suffer from depression. And even within diseases, there are psychographic and demographic segments that take very different approaches to their own care. Within arthritis, for example, there are “active deniers,” “attackers,” and the “walking wounded.”

In our research, we found that different segments of patients use the Internet differently and that two factors significantly affect behavior. The first, and most obvious, is the severity of the patient’s condition, including:

- Its seriousness (Is it life threatening?)
- Its impact on the patient’s daily life (How much does it restrict his or her lifestyle?)
- The time since it was diagnosed (Has the patient already learned to deal with it?)

The second factor, which is often overlooked, is the patient’s attitude toward his or her physician. The patient may see the physician in one of three ways:

- Godlike (“My doctor is the expert. Who am I to challenge what she says?”)
- A partner (“My doctor and I work together to discuss treatment options and decide what’s best for me.”)
- Merely a supplier (“I’m the one who knows what’s best for me, and I will suggest diagnoses and treatments to my doctor.”)

Patients’ attitudes toward their physicians are typically a result of their past experiences with doctors, the personalities and behaviors of their current doctors, and their relationships with them.

When viewed through this two-dimensional lens, patients fall into four segments in terms of their online and offline behavior. (See Exhibit 2.)

Accepting. These patients rely on getting information primarily from the doctor; even those who use the Internet rarely use it to obtain health-related information. This segment represents about 11 percent of the total online patient population.

Informed. These patients recognize that the doctor is busy, don’t want to waste his or her time, and may even be embarrassed to ask questions; they use the Web after an office visit to learn more about specific drugs and treatments prescribed by the doctor. The largest segment, it accounts for about 57 percent of the total online patient population.

Involved. These patients want more interaction with the doctor; they use the Web before and after office visits for information and treatment options to discuss with the doctor, and they often visit Web sites

EXHIBIT 2
THE ONLINE PATIENT POPULATION FALLS INTO DISTINCT SEGMENTS

5. “Can Pharma Sell Wellness Like Widgets?” In Vivo: The Business & Medicine Report. November 1999. “Active deniers” are people whose osteoarthritis interferes with their otherwise active lifestyle; “attackers” are those who aggressively seek any new therapy; and the “walking wounded” are those who follow a treatment regimen but have lost hope of becoming pain free.
that the doctor recommends. These people represent about 23 percent of the total online patient population.

**In Control.** These patients don’t completely trust the doctor to arrive at the best diagnosis and treatment; they use the Web before office visits to diagnose themselves and to determine what treatment they want from the doctor. *About 9 percent of the total online patient population belong to this segment.*

Each segment has distinguishing characteristics. (See Exhibit 3 and the insert “The Four Segments: Profiles of Patients.”)

**Patients with the most severe conditions are the most active in their own care.** In the in-control segment, for example, high-severity cases represent almost one-quarter of the population. By contrast, the accepting segment has very few patients (2 percent) with high-severity conditions, while 60 percent have low-severity conditions. *Therefore, despite the smaller size of the involved and in-control segments, they represent a larger portion of the health care dollar because the patients in them have more severe conditions and take a more active role in their own care.*

**Women take a more active role than men do in managing their own health care.** Females represent the majority of the involved and in-control segments, and only about one-third of the accepting segment. (Men make up 64 percent of the accepting segment and the minority of the involved and in-control segments.) Moreover, women in the in-control and involved segments may have even greater influence than their numbers alone suggest. That is because they not only control the decision making for their own care but also tend to serve more often as caretakers for others, especially the elderly and young in their families.

**Patients who are the most active in their own care use the Internet for health information the most.** The most active groups use the Internet frequently for finding health information—46 percent of the in-control segment and 30 percent of the involved segment. In contrast, patients in the accepting segment who use the Internet are less likely to use it for health information: 62 percent said they *never* use the Internet to obtain such information. (See Exhibit 4, page 16.)

**Patients who are the most active—and who use the Internet most often—are more willing to pay out of their own pockets for treatments or services.** For certain prescription drugs, medical procedures, diagnostic tests, and medical equipment, in-control patients are three to nine times more likely than accepting patients to pay expenses themselves. (Differences in income are not a factor.) As their role in managing their own health expands, patients are also more likely to pay to see a specific doctor or visit a particular hospital. (See Exhibit 5, page 17.)

**HOW PATIENT BEHAVIOR WILL EVOLVE**

Patients fall into the four segments whether they go online or not. By providing them with more information, however, the Internet makes it easier for—and even encourages—informed patients to become more informed, involved patients to become
## THE FOUR SEGMENTS: PROFILES OF PATIENTS

### ACCEPTING

Bob, 63, has high blood pressure and is overweight. He says he has faith in his doctor and does things “strictly by the doctor.” His main sources of medical information are newsletters sent by his doctor and hospital brochures. Bob discusses health matters with friends, but he always relies on his doctor for the right answers to his questions. He would not consider using e-mail to communicate with his doctor because, he says, “if something is bothering me, I just go see him.”

### INFORMED

Jan, 44, has high blood pressure and asthma. She takes medication to control her blood pressure and uses preventive inhalation therapies for the asthma. “I’ve had these conditions for such a long time that I don’t really think about them,” she says. But while Jan considers herself knowledgeable about medicine, she always goes to a doctor for a diagnosis. “No matter how much information you have, you can’t diagnose yourself,” she says. Once she knows the diagnosis, however, she will “take the ball from there” and scour the Internet and other sources for more information.

### INVOLVED

Debra, 45, has Type 2 diabetes and gastroesophageal reflux disease (GERD). She says that finding out she had diabetes was devastating and that she has relied on her doctor and other diabetics to “put things into perspective and deal with it.” The Internet is her first source of information about the disease and its treatment. Debra began with the American Diabetes Association’s Web site but now finds it too general. Instead, she uses a variety of all-purpose Web search engines to find the specific information she wants. She says she shares information with her doctor but would never change any part of her regimen without his approval.

### IN CONTROL

Sandra, 59, is a breast cancer survivor who suffers from osteoporosis and arthritis. When she learned three years after a doctor told her she did not have osteoporosis that she did have the condition and should have been treated earlier, she decided she should always “question and challenge” physicians. Now Sandra uses the Internet as a first line of defense when she’s looking for health information for herself and her family. On the basis of her research on arthritis, for example, she asked her doctor to prescribe a chondroitin sulfate/glucosamine regimen. And after researching prostate cancer, she became worried about her father’s PSA (prostate-specific antigen) levels and urged him to see a specialist.

As patients become more active, some will jump to the next segment. This means that the involved and in-control segments, which are relatively small now, will grow larger. When that happens, the Internet will no longer be an option to consider; it will be an essential tool for health care companies. That is because the more active patients are in making decisions about their health care, the more they tend to use the Internet, and the greater will be the power of e-health offerings to influence their behavior.

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6. While many forces can prompt patients to become more involved in their own care—a new diagnosis, for example, or an event that erodes their confidence in a physician—the Internet may be one of the most powerful because of the rich information it puts at the fingertips of so many people.
Our research suggests that few health care companies are using the Web effectively to deepen relationships with individual patients and influence their behavior. In contrast, many companies in other industries are already capitalizing on the Web. Perhaps the best-known example is Amazon.com, which uses the Web to build an extensive database of customers’ purchasing behavior. It then employs that database to suggest books and other products to customers with similar interests.

Many health care companies have tried a similar approach. They have used information on patients’ conditions, relationships with doctors, and insurance status to customize the information on the products and services that they provide on the Web. However, the impact of these efforts to date has been modest. That, of course, is because health care is a much more complicated market than books. Health care companies seeking to segment patients and deepen relationships with them must address the following two challenges:

Finding the patients. Given the way patients search for health information, they are much harder to find than general online consumers. In developing e-health strategies, companies must consider patients’ focused searches for health-related information and their need for multiple sources of evidence on any issue. For example, if a company wants to reach diabetic patients, it should know which search sites they are likely to visit, the terminology they are most likely to use in requesting a search, and the responses of the sites to such queries. (For instance, searches for diabetes, diabetic, and diabetes treatments on Yahoo! produce totally different results, or “site matches.”)

Traffic-building strategies should be built on a deep understanding of how patients in each segment are searching and what they are seeking. Most companies are already moving beyond simply assuming, “If we build it, they will come.” But our research suggests that few companies are using partnerships effectively to develop a presence in multiple places on the Web. Nor are many companies using permission-based Internet marketing tools to develop ongoing dialogues with patients. Similarly, only a small number of companies are successfully using offline tools such as waiting-room advertising and free offers to drive online traffic.

Overcoming the privacy barrier. While patients are comfortable retrieving health information from the
Web, many are reluctant to provide sites with their personal data. Our research, however, makes it clear that this barrier is surmountable and that all patients are not equally worried about privacy. For example, a diabetic patient told us that he had few concerns about disclosing his condition, whereas an HIV patient said he would never give such information to strangers. These contrasting attitudes reinforce the value of segmenting patients effectively.

### Exhibit 5

**Patients Who Are More Active in Their Own Care Are More Likely to Pay for Medical Services**

<table>
<thead>
<tr>
<th>Service</th>
<th>Accepting</th>
<th>Informed</th>
<th>Involved</th>
<th>In Control</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prescription drugs</td>
<td>1</td>
<td>1.3</td>
<td>2</td>
<td>3.2</td>
</tr>
<tr>
<td>Procedures</td>
<td>1</td>
<td>1.5</td>
<td>2</td>
<td>3.5</td>
</tr>
<tr>
<td>Diagnostic tests</td>
<td>1</td>
<td>2</td>
<td>2.5</td>
<td>4.1</td>
</tr>
<tr>
<td>Equipment</td>
<td>1</td>
<td>3.3</td>
<td>4.9</td>
<td>8.6</td>
</tr>
<tr>
<td>Physicians</td>
<td>1</td>
<td>1.4</td>
<td>2</td>
<td>3.4</td>
</tr>
<tr>
<td>Hospitals</td>
<td>1</td>
<td>1.4</td>
<td>2</td>
<td>3.8</td>
</tr>
</tbody>
</table>

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

**Note:** Data were weighted to the online population of patients with chronic conditions.

*For prescription drugs, 16% of accepting patients paid out of pocket; for specific procedures, 10%; for diagnostic tests, 8%; for medical equipment, 2%; to see a particular doctor, 9%; to visit a certain hospital, 4%.

Using e-health to build closer relationships with patients will become even more valuable as e-health moves beyond relatively simple information tools and toward interactive care-management tools. Such offerings will enable companies to have a more direct influence on clinical decisions or actions—for example, whether or not a patient complies with a prescribed treatment.

Several online care-management tools are already on the market, but they face two big hurdles. The first is that many patients fear that clinical e-health tools sponsored by their health plans or provider networks will result in much less face-to-face contact with their doctors. Some patients who received diagnoses over the telephone said they disliked the experience intensely. And when thinking about the prospect of using online care-management tools, they worried about missing the intonation and body language that they would pick up from their doctor during an office visit. The second hurdle is the mixed feelings many doctors and other caregivers have about online care-management tools, which we will discuss in the next section. Obviously, the caregivers’ support is essential.

We believe these hurdles will also be overcome. The main reason, quite simply, is that many patients want to use these tools, provided that they supplement—rather than replace—their face-to-face interactions with physicians. “I have no problem with computers in medical care, as long as they don’t take the place of the doctor,” said a 44-year-old woman, echoing the sentiments of many other people we interviewed. Our research shows that there are also ways to address physicians’ concerns and persuade a critical mass of them to embrace e-health tools.
Trained from the outset of their careers to use new information technologies, the next generation of doctors will consider e-health tools an integral part of their practice. They are likely to see them as a critical means of improving both the quality of care and the efficiency of their work.

The vast majority of doctors today, however, care primarily about the ability of e-health to improve efficiency. They are not very interested in tools or services that promise new or different ways to practice medicine. They want tools and services that will help them save time—in both their clinical and administrative work—and, as a result, improve the economics of their practices.

“I see approximately 60 patients a day. For me the issue is efficiency,” said one specialist we interviewed. This attitude raises obvious questions about the near-term prospects for standalone e-health offerings that might improve the quality of care but will not necessarily improve efficiency.

E-health offerings for physicians must be able to fulfill two promises. The first is enhancing efficiency in the three activities that make up a doctor’s workflow: medical knowledge enrichment, practice administration, and clinical work. The second is influencing physicians to behave in ways that create economic value.

EXHIBIT 6
EXISTING E-HEALTH ACTIVITIES:
KNOWLEDGE ENRICHMENT

<table>
<thead>
<tr>
<th>Examples</th>
<th>Level of adoption</th>
</tr>
</thead>
<tbody>
<tr>
<td>Update continuing medical education</td>
<td></td>
</tr>
<tr>
<td>Join professional associations</td>
<td></td>
</tr>
<tr>
<td>Read journals</td>
<td></td>
</tr>
<tr>
<td>Undertake research</td>
<td>49%</td>
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<tr>
<td>Attend conferences and symposia</td>
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<td>Receive drug details</td>
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SOURCES: Harris Interactive Computing and Physicians’ Practice Survey; BCG analysis.

Many doctors are already using the Internet to stay current because the technology involved is easy to access and use, and the gains in efficiency are readily apparent. Of the physicians surveyed by Harris Interactive, 49 percent said they were using the Internet to increase their medical knowledge. (See Exhibit 6.)

When using the Internet for this purpose, physicians behave much more like online shoppers than online patients do: once doctors are comfortable with a few broad medical-content sites, they tend to stick with them. Doctors say they find the quality of the offerings on sites such as Medscape and Physicians’ Online to be comparable to their offline sources of information. Once they find a few sites they like, they don’t want to take the trouble to find and learn how to use others.

One implication is that companies with traditional knowledge-enrichment offerings must move online in order to maintain their level of influence. Another is that the overall opportunity to generate new economic value is small because doctors are simply changing the way they receive the same type of information.

**PRACTICE ADMINISTRATION**

While the considerable amount of time and money required to put administrative e-health tools in place is a formidable barrier to adoption, the potential improvements in administrative efficiency are substantial. The possible gains include smaller staff, less time on the phone, and faster, more effective claims processing. “We do electronic billing for anyone who will let us. It saves time and money,” said a general practitioner, echoing many of the physicians we interviewed. (See Exhibit 7.)

A substantial number of doctors are already using these tools. According to our analysis, the weighted rate of adoption of administrative tools is 36 percent. The doctors who have adopted them tend to have the following in common:

- **They work in group practices of all sizes, not just very large ones.** In fact, only solo practitioners are holding back. The reason is that the potential gains in efficiency are much greater for group practices: although such tools may allow a practice with a ten-person administrative staff to be reduced to six employees, they may not allow a practice with a two-person support staff to be cut back to one. In addition, group practices can spread the costs of these systems over more than one doctor.

- **They feel substantial financial pressure.** Pressure from managed care on practice economics makes these doctors want to find and achieve all possible efficiencies.

- **They have an affinity for technology.** Not surprisingly, a physician with a strong personal interest in technology is more likely to adopt electronic administrative tools. (See Exhibit 8, page 20.)

**CLINICAL TOOLS**

Getting doctors to use clinical e-health tools is much more complicated, which is why these applications have achieved only an 11 percent weighted rate of adoption. (See Exhibit 9, page 21.) Physicians have a number of concerns that are slowing adoption. They include the following:

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8. For administrative tools, the weighted rate of adoption is defined as the actual use of the tools in practices compared with total possible use. The actual use of each tool was scored from 0 to 4. A 0 indicates that a doctor does not use and does not plan to use the tool within 18 months, and a 4 indicates that a doctor uses the tool for all of his or her patients. The tools measured include those used for submitting claims electronically, recording billing information and generating bills, looking up billing codes, scheduling patients, looking at the status of claims, inquiring about patient eligibility, authorizing referrals, precertifying hospital admissions, receiving electronic payments, receiving earned remittance advice, looking up directories of providers, and providing an office Web site.

9. For clinical tools, the weighted rate of adoption is defined as the actual use of the tools in practices compared with total possible use. The actual use of each tool was scored from 0 to 4. A 0 indicates that a doctor does not use and does not plan to use the tool within 18 months, and a 4 indicates that a doctor uses the tool for all of his or her patients. The tools measured include those used for e-mailing patients, giving directions to preselected Web sites, recording patient history, automating note taking, receiving and implementing practice protocols and guidelines, checking formularies and drug interactions, and communicating clinical information to colleagues or health plans through e-mail, a Web site, or a private network.
• The tools will create more activities that are not reimbursable
• Patients' privacy will be compromised
• The cost to integrate these tools with current systems will be high
• The tools will be too hard to use and will not fit into a doctor’s workflow
• The training needed to learn how to use the tools will require a substantial amount of time

This category, however, holds the most promise for influencing doctors' behavior and the most potential for improving their efficiency.

The reason for the great potential is that clinical tools are at the heart of what physicians do: care for patients. Doctors will use them while they are interacting with patients, which is when they make the most important decisions about how health care resources are utilized. The tools also allow the doctor-patient interaction to extend beyond the office visit. One of the most basic tools is e-mail. At the other end of the spectrum are disease management applications that let doctors monitor and adjust patients' therapies remotely.

Our research found that many physicians who are not yet using these tools are excited about the potential gains in efficiency. (See the insert “Profiles of Two Early Adopters” and Exhibit 10, page 22.) And, judging from how early adopters have overcome perceived drawbacks, we believe the hurdles facing clinical e-health tools are surmountable. For example, one physician we interviewed said he was initially worried that giving patients his e-mail address would result in a flood of messages. But he was able to prevent that outcome by setting clear guidelines for when and how patients could use e-mail to contact him and by giving his e-mail address only to patients he thought would adhere to the rules. The American Medical Association is trying to help physicians deal with this issue. Toward that end, it has offered guidelines for electronic communications between patients and physicians.
How to Drive Clinical Adoption: Lessons from a Drug Launch

Many physicians—especially those employed by or heavily dependent on large provider groups—will be forced to adopt clinical e-health tools. CareGroup Healthcare System and Kaiser Permanente, for example, are aggressively pushing e-health initiatives into their physicians’ practices. Both companies are developing integrated e-health systems to assist doctors in their daily activities. These include giving physicians rapid access to patients’ records and piloting services that offer prescription decision support, which, among other things, will prompt doctors to select less expensive medicines. (See the insert “How CareGroup Is Driving the Adoption of E-Health,” page 24.)

Physicians outside large provider groups, however, must be persuaded to adopt these tools. “Unless someone is in my face, I won’t seek them out. I just don’t have time,” said one physician we interviewed. Given this attitude among doctors, companies should treat the launch of an e-health tool like the launch of a drug or any other medical product. Some basic guidelines follow.

Take the new products directly to doctors and provide training. Doctors will not actively search for new products. They usually learn about new drugs when a sales representative grabs them between appointments or at sponsored lunches and loads them up with free samples and glossy brochures that explain the product’s medical benefits and provide supporting data.

Furnish compelling data on the product’s “efficacy” and “safety.” In the context of e-health tools, the equivalent of “efficacy” is gains in efficiency, and the equivalent of “safety” is privacy protection. Doctors are not looking for data that show how a product will make them better physicians. They want data that prove a product will save time, lower costs, enhance revenues, or all three. “Before I invest, it’s going to have to be at a reasonable cost—and a cost analysis will have to prove it to me,” a general practitioner said.

Identify the opinion leaders and focus efforts on them. Doctors rely heavily on recommendations from respected colleagues and friends when they make decisions about new technologies, in much the same way that they decide on new therapies. The opinion leaders for e-health tools, however, may be very different from the traditional opinion leaders for new clinical approaches.

Use strategic partnerships. E-health businesses will need more than a good offering. To get the offering adopted, they will need access to large sales and technical support forces, an established base of physician users, attractive incentives, or all of the above. Incumbent health-care players, for their
EXHIBIT 10
PHYSICIANS ARE EXCITED ABOUT THE POTENTIAL GAINS IN EFFICIENCY FROM E-HEALTH CLINICAL TOOLS

Electronic medical records

“I am very interested in EMRs, especially for coding and better record keeping. If it’s done right, it would save time and hopefully money.”

—Specialist

“Anything that cuts down on my paperwork and makes it more manageable, I just want to hug!”

—General Practitioner

“The technology keeps getting better and faster. At some point it will be our time to do it because it will be fast, portable, and low cost.”

—Specialist

Electronic prescribing

“I think prescription writing is what takes most of our time. If you could just click and send, that would be great!”

—General Practitioner

“That thing I would like! It would be great. It would save so many pharmacy callbacks that it would reduce the stress level by 25 percent.”

—General Practitioner

“That electronic prescribing device would be a great thing. It would cut down on phone calls and reduce errors.”

—General Practitioner

Remote monitoring

“It’s a great idea. Right now patients are faxing. It would be great because all of the faxes come in and pile up on my desk.”

—Specialist

“I would do it in a heartbeat. In a managed care environment, you don’t want people coming in for everything. This would help keep them satisfied.”

—General Practitioner

“This would be very helpful, especially if you have EMRs. All of that information could go directly into the charts.”

—General Practitioner

Source: BCG interviews.

PROFILES OF TWO EARLY ADOPTERS

DR. GREEN
Dr. Green is an endocrinologist in a small group practice. Because he wants his patients to be more informed, he tells them which Web sites he thinks are the most appropriate. Dr. Green has used electronic medical records since he started in practice more than 20 years ago, and he has updated the system to handle his clinical record keeping as well. He uses a laptop computer to gain immediate access to the records.

Dr. Green pays for a Web site that lets patients enter their blood sugar levels, e-mail him, and obtain a variety of information. Currently, only 2 or 3 percent of his patients use the online forms, but he hopes the number will grow substantially. For his part, he uses e-mail to communicate with patients, colleagues, and drug company representatives.

DR. JONES
Dr. Jones is a family physician in a group practice with more than 30 physicians. He expects that within two years he will be “paperless and no longer tied to a desk.” His practice recently began using electronic medical records. Despite some early concerns that EMR would be unreliable and hard to use, Dr. Jones now thinks it is “fantastic because all the information is there when I need it.” And although he still finds it somewhat of a nuisance to type notes, he says he has found “tremendous time savings.”

Dr. Jones uses the Internet to obtain general clinical information, to complete his requirements for continuing medical education, and to join national medical organizations. He also uses it to communicate with colleagues and make referrals to specialists.

Note: The doctors’ names have been changed.
part, should recognize the value of their sales forces and existing relationships with physicians, and should use those assets as a way to gain preferred access to the most promising e-health technologies. Start-up companies are already realizing that they may not have the resources to approach doctors effectively and are pursuing partnerships.

When evaluating partnerships, companies must recognize that the interests of the many players involved in e-health will often not align perfectly. Some managed care organizations, for example, may want to use electronic prescription tools to encourage physicians to prescribe less expensive drugs. But such tools will threaten some pharmaceutical companies. In building e-health partnership strategies, companies must address these conflicting interests.
WHAT IS CAREGROUP?

CareGroup Healthcare System is an integrated delivery system affiliated with Harvard Medical School. It was formed in 1997 from the merger of two Massachusetts hospital systems, Beth Israel and Deaconess. It now includes six hospitals, 11 affiliated centers, approximately 1 million patients, and 3,000 doctors.

WHY E-HEALTH?

“To be able to seamlessly exchange every piece of information, from both a clinical and an administrative standpoint, so our patients can be more involved in their care,” says John D. Halamka, M.D., CareGroup’s chief medical information officer. CareGroup is also counting on e-health to slash costs, which is something it badly needs to do: the provider system lost $130 million in 1999.

WHAT ARE CAREGROUP’S INITIATIVES?

CareGroup is using the Web to connect all of its patients, physicians, and payers. Its aim is to put patients more in control of their health care, to help doctors be more efficient, and to keep insurance companies happy.

To improve interactions with and among physicians, the new tools include electronic medical records, wireless computers in emergency rooms, and some electronic diagnostic support. The challenge has been to develop a seamless network of information because patients may enter the system in dozens of different ways. As a result, they may be known under three or four different names and have different reference numbers. “Once we know who they are, we can query all the various legacy systems we have across the enterprise and retrieve information in real time,” Halamka says.

For patients, CareGroup has launched PatientSite, a Web site that offers online appointment scheduling, prescription renewals, access to electronic medical records, billing information, and preventive medicine reminders (for example, for mammograms and immunizations). Halamka describes PatientSite as CareGroup’s form of electronic customer-relationship management. “We should be able to know who you are and what your preferences are, share your medical information, and Web-enable all the standard medical transactions,” he says.

To improve transactions with insurers, CareGroup helped found the New England Health EDI Network in 1998 with a group of other providers and insurers. NEHEN’s purpose is to process the claims of almost all providers and payers in the region quickly and efficiently. Its members decided that instead of choosing new players such as WebMD, they would build the system on their own at cost. NEHEN went live a year ago and now handles about 40,000 transactions a day.

HOW IS CAREGROUP DRIVING ADOPTION?

CareGroup asked a respected physician to be its chief evangelist. Once a week he meets with colleagues to explain why they should use e-health tools and how they save him time and money.

WHAT IS THE IMPACT OF THE INITIATIVES?

On the clinical side, approximately 70 percent of CareGroup’s doctors are now linked electronically. They say e-health is significantly reducing inefficiencies in their workflow, saving them time.

The information that e-health tools generate is also invaluable, Halamka says. CareGroup knows what its doctors are doing, how the care they give compares with that provided by other doctors, and what the treatment outcomes are. It now has a database of every physician transaction in the last three years. For example, because it has information on the brand, dose, price, doctor, and patient for every prescription written in the system, CareGroup can see which doctors are the most lax in adhering to the system’s formulary guidelines.

Halamka says that the total economic benefits that CareGroup is reaping from e-health are substantial. For example, he estimates that the impact of its e-health initiatives contributed almost $30 million to the bottom line in 2000.
E-health is still in its early days, but it is already having a powerful impact on patients and is poised to have a major impact on doctors’ practices. To understand how to use the Internet effectively, companies must understand not only which e-health offerings are being used but also why they are being used and what the strategic implications are for their core businesses. The first step in this process is to answer some fundamental questions.

**Patients**
- Given the distinct way in which patients search for health information, how likely are they to find you?
- In light of patients’ desire for reassurance from multiple sites, how visible is the message that you are trying to convey?
- Does your site target the most valuable segments of online patients (or their caregivers)—namely, people with relatively severe conditions who exert a great deal of control over their own care?
- How will you capitalize on patients’ predisposition to act when they go online to search for credible, useful information?

**Physicians**
- Given that physicians are moving online for knowledge enrichment, how can you create an online presence to complement your offline presence? Where do the physicians you want to target spend their time online?
- Will the potential gains in efficiency offered by your e-health tool be readily apparent to physicians?
- Does your offering help physicians engage effectively with their online patients?
- Is your distribution strategy sufficiently aggressive and does it employ the tactics traditionally used to launch drugs or other medical products?

Despite the battering of e-health stocks in the past year, companies should not dismiss e-health. The collection of new Internet-based tools and services for doctors and patients has the potential to reshape the health care landscape. So now is not the time to sit on the sidelines. It is the time to begin incorporating e-health into strategies—that is, to use e-health to unlock value in core businesses.

To that end, incumbents and new ventures alike must closely monitor the pace of adoption and the evolving behavior of their most important constituents: patients and physicians. That knowledge will allow companies to shape the development of e-health to their own advantage. BCG will continue its research in e-health, and we look forward to sharing more findings soon.
The Boston Consulting Group has published a series of reports on e-commerce. It includes the following:

- **Patients, Physicians, and the Internet: Myth, Reality, and Implications**
  A report on the European market by The Boston Consulting Group, January 2001

- **After the Land Grab: B2B E-Commerce in Australia and New Zealand**
  A report by The Boston Consulting Group, December 2000

- **Mobile Commerce: Winning the On-Air Consumer**
  A report by The Boston Consulting Group, November 2000

- **The Business-to-Business Opportunity: Creating Advantage Through E-Marketplaces**
  A report by The Boston Consulting Group, October 2000

- **Online Retailing in Latin America: Beyond the Storefront**
  A BCG report in partnership with Visa International, October 2000
  *(Available in English, Spanish, and Portuguese)*

- **Organising for E-Commerce: Global and Asia-Pacific Challenges**
  A BCG NetBizAsia strategy report, September 2000

- **The U.S. B2B E-Commerce Landscape Through 2004**
  A research bulletin by The Boston Consulting Group, September 2000

- **Racing Season: B2B E-Commerce in Germany**
  A report by The Boston Consulting Group, August 2000
  *(Available only in German)*

- **Organizing for E-Commerce**
  A discussion paper by The Boston Consulting Group, April 2000

- **The State of Online Retailing 3.0**
  A Shop.org study by The Boston Consulting Group, April 2000

- **E-Tail of the Tiger: Retail E-Commerce in Asia-Pacific**
  A BCG NetBizAsia strategy report, March 2000

- **Winning the Online Consumer: Insights into Online Consumer Behavior**
  A report by The Boston Consulting Group, March 2000

- **The Race for Online Riches: E-Retailing in Europe**
  A report by The Boston Consulting Group, February 2000

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