

HealthCast 2010SM E-Health Quarterly

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E-Connectivity Producing Measurable Results

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Executive Summary

Healthcare is local. So is connectivity.

Our U.S. research found a handful of providers and payers who are beginning to connect over the Internet. It's working. Rather than sitting on the phone, faxing and mailing, hospital and group practice clerks are using their computers to connect to other computers for insurance verification, referrals and claims status checks online. Although enabling these tasks doesn't sound earth-shattering, it represents a historic first step by healthcare onto the Internet.

Connectivity companies with broad agendas are finding they can't boil the ocean. The best strategy is to work with local groups of providers and payers to automate the simplest, most repetitive tasks related to the nearly \$5 billion medical claims filed annually.

This type of incremental, market-by-market change won't make e-health companies rich as fast as they'd hoped, which may be distressing for their shareholders. However, blue-sky expectations of how the Internet will revolutionize healthcare have too often overshot their marks. Connectivity companies must pragmatically assess what the industry can reasonably move to in incremental stages.

Restructuring processes to take advantage of Internet-based claims-related transactions should begin now.

The opportunity is huge and success is measurable. However, technology sits on the sidelines while various sectors of the industry wait for one another to invest first.

At the end of this report we have listed 22 U.S. companies that provide online claims-related transaction capabilities. A shake-out is inevitable and the survivors will be those companies that have customer-service driven models that track return-on-investment for payers and providers.

Technology is a tool, but it will not pay for itself unless organizations deploy it in practice and track how their clinicians and administrative workers are using it. To do so, managers must design processes and metrics for productivity. Otherwise, it's like expecting someone to drive a car when their previous experience is limited to a 10-speed bicycle.

We understand that getting providers and payers connected through the Internet involves much more than administrative transactions -- the focus of this *E-Health Quarterly*. However, healthcare organizations will find that getting this workstream web-enabled offers the most opportunity now, and that other functions -- disease management, outcomes management, demand management -- can be web-enabled as well.

Conclusions

- **Health plans and hospitals are beginning to migrate to the Internet for claims-related transactions as the first step in a broader Internet strategy.** Because many organizations continue to use EDI for claims submissions, we believe the transactions surrounding claims - eligibility, referrals, etc. will be the first to be adopted for e-health connectivity. Those health plans that are adopting Internet connectivity for these functions view them as the foundation on which to build other Internet-enabled partnerships with patients and providers.
- **The growth of healthcare transactions is outpacing the growth of health spending, creating a critical need to automate.** The number of claims submitted increased by about 7% during the past five years, according to the Health Data Directory. In contrast, healthcare spending has increased between 5% and 6% during the past five years. If there is a correlation between spending and the number of claims submissions, one could conclude that transaction volume will choke non-automated organizations in the years ahead. Many of the functions associated with

claims submissions and payment are repetitive tasks that are more efficiently done by computers. The most expensive processes are not the claims submissions themselves, but the tasks surrounding the claims process, such as eligibility checks and referrals. Couple that with increasing labor shortages, and the onus is on organizations to re-engineer.

- **Providers and payers may have conflicting incentives for adopting online claims-related functions.** Providers want to improve cash flow, but that could come at the expense of health plans and other payers. In addition, electronically paying providers may take longer to migrate to the Internet.
- **If providers and health plans don't look at this as a win-win, online capabilities may result in no improvement overall.** Payers want to reduce expenses, but their productivity increases can only be achieved if providers cooperate and participate. Health plans must understand physicians' needs when designing Internet-based solutions.
- **First-mover advantage isn't as important as a system that works.** Many e-business companies have benefited from first-mover advantage, which means they get the most capital, the best partners and brand recognition. However, healthcare is a "show-me" business and successful models will replicate market by market.
- **Grab your partners, and get ready to dance because HIPAA is calling.** HIPAA will force payers and providers to use electronic transmission, and the Internet provides a less expensive way to get on board.

The State of Connectivity between Providers and Payers

The most highly trafficked connection in healthcare runs between physicians and payers, and it's a bottleneck.

As a group, physicians process about four times more claims than hospitals. However, while hospitals used electronic connections to transmit 85% of their claims in 1999, physicians' offices used such connections for only 43%, according to Faulkner & Gray's *Health Data Directory*. (See Chart 1.) For physicians, paper remains the primary means of filing claims.

When critics talk about the paper-choked healthcare system they often refer to claims processing. In 1999 nearly 5 billion medical claims were filed, according to the Health Data Directory. Yet, that's just the tip of the iceberg in terms of transactions.

As few as two or as many as 10 additional transactions take place before and/or after the claim is submitted. Such transactions include:

- Verification of insurance eligibility
- Verification of specific service eligibility (information included in a patient's EOB)
- Referral requests and authorizations
- Claims status tracking
- Payment, such as electronic funds transfer
- Information about amount of patient's co-pay or deductible
- Co-insurance information

- Address verification
- Coding inquiry
- Credentialing information

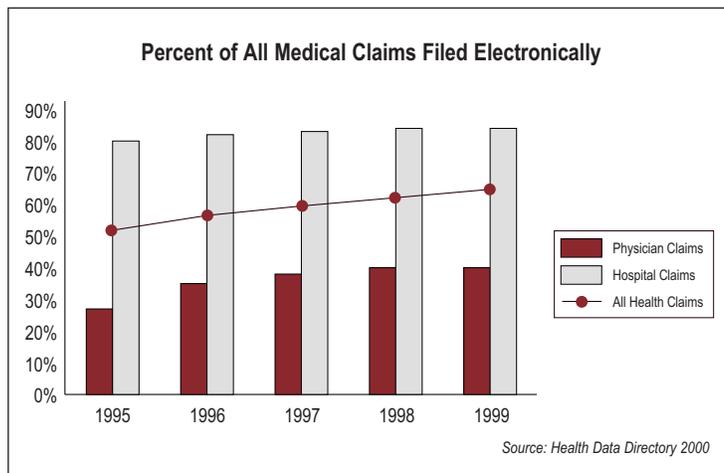


Chart 1

If you add in all of these individual transactions, the number of claims-related transactions balloons to as many as 50 billion.

Hospitals file more claims electronically than physicians, probably because of their access to capital for information systems and the economies of scale involved. A single hospital files four to five times as many claims per patient as a single physician. That sheer volume has prompted many hospitals to invest in Electronic Data Interchange (EDI) systems that transmit claims electronically. However, most physicians still work in small groups, and they don't have the volume to invest in expensive EDI networks. Instead, many

contract with clearinghouses for that process.

Clearinghouses sort, process and edit claims before forwarding them to the appropriate payers. These services charge a per-transaction fee or a monthly fee. Providers like clearinghouses because they can forward a variety of claims to them, and the clearinghouse will edit them and send them on.

Nearly all clearinghouses use proprietary EDI networks. Much of EDI is done in batch transmissions, in which an organization sends multiple requests and responses are sent back in batches later. Some claims go through multiple clearinghouses, which clogs the process even more because this routing and re-routing delays payment to providers.

The Problem: Billions Spent on Paper Claims

The government has claimed that one-fourth of healthcare spending is spent on administrative tasks, and that much of that is wasted and duplicative. The current system has two key problems:

Cost. The cost to transmit a claim or complete a claims-related transaction varies depending on which study you read. For example, the American Medical Association reported the cost of paper claims processing at between \$6 and \$12 per claim in labor and overhead. Other studies have reported similar figures ranging from \$1 to \$10. If one assumes a conservative \$7 cost per claim, that amounts to \$28,000 per physician and \$12.7 billion for all physicians each year. (See Chart 2.)

Providers and payers often use different EDI clearinghouses, which can cause delays and complications. If a claim gets "bounced back," the insurance company may have no record of receiving it, but the provider thinks the insurer has the claim. This

can cause delays and miscommunication, which increases costs to both the payer and provider.

Quality. That same AMA study reported that one-third of all claims have errors. Claims are frequently denied for a plethora of reasons, such as coding, eligibility, coverage exclusions, and unapproved referrals. Even more interesting, the AMA study said that 50% of claims that are denied are never resubmitted. That means that these costs must be shifted elsewhere.

Interestingly, many physicians' offices send claims on without verifying many of these details, possibly because they don't have enough staff. A recent comprehensive study commissioned by the New Jersey Legislature and performed by the New Jersey Institute of Technology and Thomas Edison State College showed that physicians were fairly lax about checking on insurance eligibility. More than half of hospitals and pharmacies check eligibility on more than half of their patients. In contrast, only 21% of physicians checked eligibility on more than half of their patients, the study concluded.

However, physicians would argue that even when their staff checks insurance coverage, they sometimes receive incorrect information from the patient or the insurer. Patients may provide incorrect or out-of-date insurance cards. Without real-time verification, patients might have dropped coverage, left their employers or changed their designated physician.

The Solution: Engaging Physicians

By understanding where the biggest claims-related costs reside, organizations can focus on how to get the biggest savings. It's not in the claims submission itself. It's in those related functions listed earlier. A 1993 study by the Workgroup on Electronic Data Interchange (WEDI) showed that it was costing physicians three times more to carry out a claims status inquiry than a claims submission. (See Chart 3.)

Even for payers, the highest costs were involved in claims status inquiry, WEDI found. In addition, eligibility inquiry was about twice as expensive as claims submission for doctors and HMOs.

For providers, claims status inquiry boils down to a simple question: "When will I get paid?" To get the answer, physicians hire office staff to phone, fax and prod insurance companies, which may involve 30 minutes to an hour on the phone for a single inquiry.

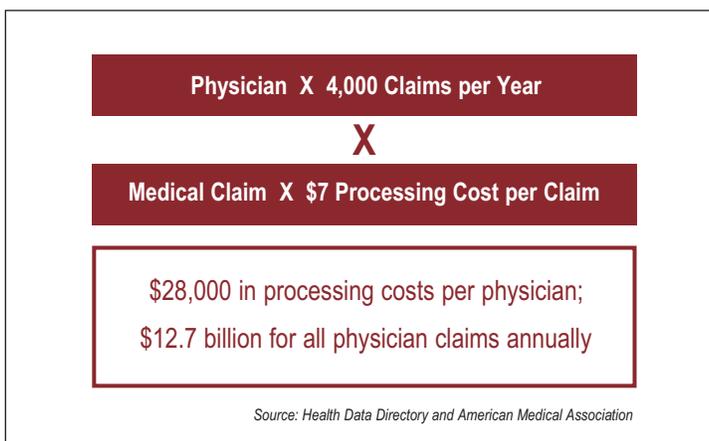


Chart 2

Our research indicates that clinics and hospitals find that doing these claims-related functions through the Internet:

- Increases productivity of office staff
- Reduces claims errors
- Increases percentage of clean claims
- Reduces days in accounts receivables
- May ultimately reduce the number of administrative staff necessary

By automating that function, hospitals and clinics let the system do the work and become less dependent on the memories of workers. For example, clerk Sally knows what Plan A requires for claims submissions, which is different from what HMO B asks for. What if Sally quits?

Automating this function means the provider no longer depends on individuals to complete these routine tasks. Just as a pilot goes through a checklist before each flight, an online system checks off for a worker the eligibility information necessary to get paid.

To focus on the higher cost areas, several connectivity vendors have outsourced the claims submission function to specialty e-health firms like Dallas-based Claimsnet.com and Louisville, Ky.-based Zirmed. In other cases, providers stayed with their EDI clearinghouses for claims submissions, preferring to work on the other claims-related tasks.

For example, Highmark Blue Cross and Blue Shield, a large Pennsylvania insurer, this year contracted with NaviMedix for claims-related transactions, but the focus is not on claims submissions. That's because all of Highmark's hospital partners and 80% of its physicians already use EDI for claims submission to Highmark. "We're leaving that in place because it works really well," said Elizabeth Bierbower, Highmark's vice president of program management. For small practices that don't use EDI, Highmark and NaviMedix provide an Internet-enabled claims submission function.

Highmark is paying to have its physicians connected through NaviMedix for claims-related functions. The Blues plan expects to have 1,800 physicians online by the end of 2000 and 14,000 by the end of 2001. In the second quarter of 2001, hospitals will be added.

Bierbower said early estimates indicate the cost for these functions will be about 10% of the current cost of faxing, calling and mailing information: "We really felt that this was something that would benefit us in

maintaining our cost structure, and that the provider was doing their part by using it." She figures the system will pay for itself at the end of a year.

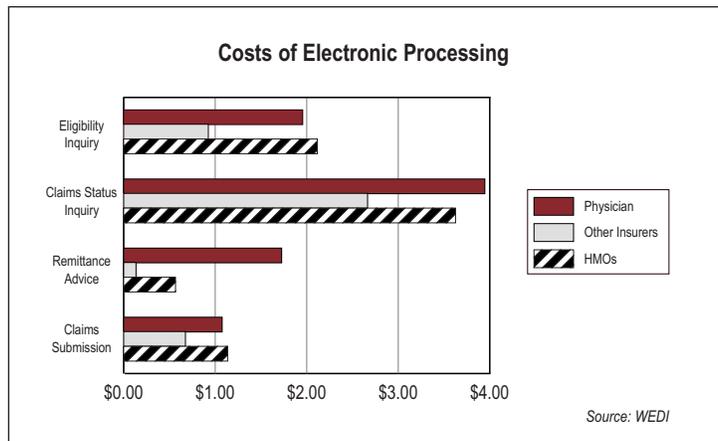


Chart 3

The response from physicians has been positive. When Highmark went out to physicians' offices to gauge their reactions they encountered "office staffs that were gleefully ripping up paper - it was like a little ceremony," Bierbower noted.

Wishes to be Wired

The leap to the web is getting shorter. Physicians are already using information technology for billing, according to the 2000 *Modern Physician/PricewaterhouseCoopers Survey*. (See Chart 4.) That survey showed that some type of computerized billing was used by more than 90% of the 800 U.S. practices surveyed. If they're already billing electronically – presumably through EDI and clearinghouses – they may segue to the Internet for other claims-related transactions.

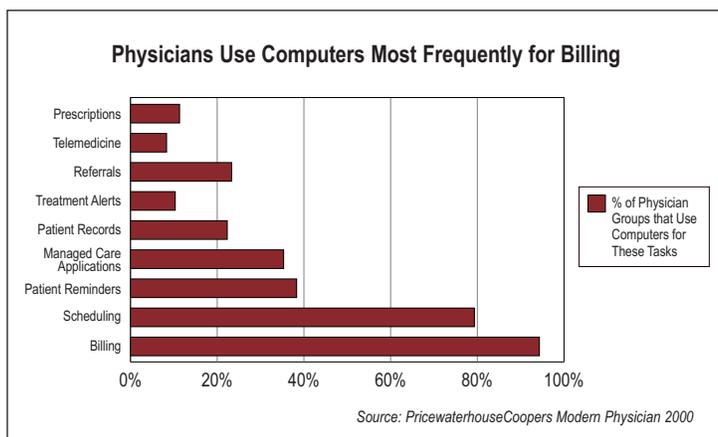


Chart 4

In addition, two-thirds of medical groups surveyed said they would be using computer-based medical records systems within three years, up from 21% using them today. Half of medical groups said computers will have automated many of their managed care tasks within three years, such as eligibility checks, from 33.9% today. (See Chart 5)

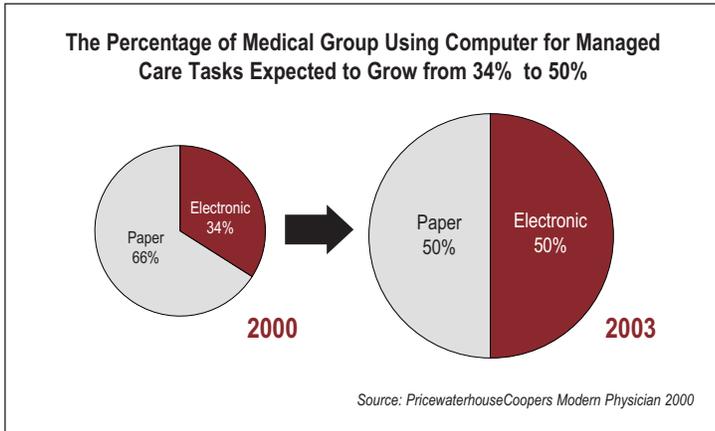


Chart 5

In addition, Internet access is starting to become more pervasive with physicians. Seventy percent of physicians now have Internet access in their offices, according to Medem's June 2000 Physicians' Use of the Internet study. Medem is a network portal founded by the American Medical Association.⁽¹⁾

Assisting physicians with getting online are hospitals, health plans and other vendors, some of whom offer discounted deals on PCs and agreements with preferred Internet Service Providers (ISP) and telecommunications companies. For example, Aetna struck a deal with Netzero for free Internet access for its physicians.

While many small businesses are moving to faster DSL lines, connectivity services report success with slower 56K modems. Highmark's vendor, Boston-based NaviMedix, said about 35% of its 2,800 physicians online were using 56K modems for transmission.

The *Modern Physician/PricewaterhouseCoopers Survey* also showed fairly strong Internet usage - about half said most of the physicians in their group use the Internet. However, even more interesting was what these medical groups said they wanted the Internet to do for them.

The top five reasons for Internet use, listed in order of preference, were:

1. Access to clinical journal information
2. Results reporting

3. Link with payers
4. Continuing medical education
5. Medical records access

Linking with payers was number three. One reason it didn't rank higher may be physicians' lingering suspicions in dealing with payers. Linking with payers electronically has pros and cons in their minds. They seriously question what payers will do with the data and how the data will be used. Connectivity vendors are finding they can use their independence to their advantage by bringing solutions to providers that drive usage and thereby help payers.

Physician groups desperately need such Internet tools to better manage their business. Ineffective IT systems are the biggest reason for Independent Practice Association (IPA) failures, according to a survey done earlier this year for the IPA Association of America by PricewaterhouseCoopers and Michael Skolnick and Associates. That survey was commissioned to look at the root of the alarming trend in IPA failures during the previous two years.

Ineffective IT systems are often at the core of a physician group's financial woes. This study concluded that that's how IPAs get caught in a vicious circle involving what the study found were the second and third most common reasons for failure: poorly negotiated contracts and undercapitalization. (See Chart 6.)

Without effective IT systems, IPAs inevitably negotiate poor managed care contracts. That cripples the financial

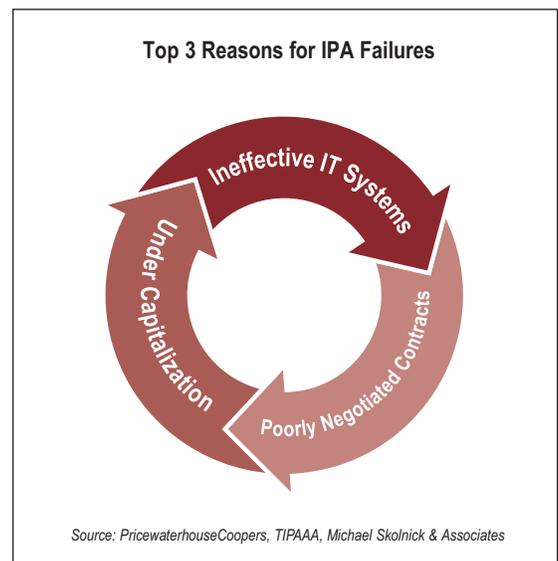


Chart 6

status of the IPA, which lacks the financial ability to buy better, more effective IT systems.

Many IPAs have outsourced their claims administration, but in some cases that worked out poorly as well. Said one IPA administrator whose organization filed for bankruptcy: "Our TPA (third-party administrator) was bad and when we fired them, they dumped boxes of claims on our doorstep." Paper claims, of course.

Overcoming the Lack of Standardization

Despite the lack of standardization in claims-related functions, the Internet allows disparate organizations to communicate through a software language called XML (extensible markup language). That language enables the creation of a standard for describing information transmitted online.

The XML standard has enabled digital exchanges to blossom in other industries, such as steel and paper, where buyers can find sellers and negotiate electronically. The online exchanges in other industries are embracing XML. Healthcare organizations are likely to do the same because otherwise they must spend heavily to integrate systems.

Through this language, providers can work online through a series of pull-down menus to populate the fields necessary for a claims transaction or related task.

With healthcare as such a diffused industry, to gain any real administrative relief physicians need a large-scale XML-based exchange that can connect any and all payers and providers. That explains the substantial buzz in the media and among securities analysts around the formation of MedUnite by leading health insurers. This independent corporation had not, by publication time, made any public statements about its plans. However, PricewaterhouseCoopers has been working closely with MedUnite. The new firm will benefit from the unprecedented cooperation among competitor health insurers who agree on the pressing need for a completely open access technology solution for business transactions. With the founding insurers' intimate knowledge of how these transaction processes work, and their millions of transactions to offer as a customer base, MedUnite can avoid the usual stumbling blocks facing similar start-ups. Since it will act only as a communication conduit, like an ATM, and retain no data, security is essential but confidentiality is not an issue. As a new entrant into the field, MedUnite's system will start out HIPAA compliant.

HIPAA will drive a certain amount of standardization.

HIPAA regulations require the industry to adopt uniform formats for healthcare transactions and uniform code sets to identify internal and external hospital operations. Adoption of the standards eventually will eliminate the need for healthcare organizations to manage multiple formats for data processing.

Many e-health intermediaries are claiming they can solve all the problems but providers and payers must be sure that their vendors are HIPAA compliant. The Electronic Healthcare Network Accreditation Commission, an independent not-for-profit agency, is a regulatory compliance accrediting organization that is certifying compliance.

To Whom Should I Send the Bill?

There are two common ways in which e-health connectivity vendors charge for claims-related transactions: per-transaction and/or per month. Per-transaction fees range up to 50 cents; 20 to 40 cents is quite typical. Monthly fees range up to \$50.

However, who picks up the check varies from vendor to vendor. Some hospitals pay for their physicians' claims submissions, but only for their heaviest admitters.

Many physicians "want to adopt and they can see the savings," noted Al Holloway, president of the IPA Association of America. "However, most are waiting until someone gives it to them."

Indeed, that's what is happening in several markets. WebMD charges a monthly fee, but thanks to capital underwriting infusions from Microsoft and DuPont, physicians receive the service for free. Health plans pay the per-transaction fee of about 30 cents. Other vendors, too, such as HealthFusion, San Diego, only charge payers.

In contrast, Nashville, Tenn.-based Passport Health Communications charges both payers and providers. "Passport places an emphasis on customer service and listening to our clients about enhancing our products," said Jim Lackey, Passport's CEO. "The convenience of having a full suite of administrative services and information in one place is something a provider is willing to pay for and to us." Passport provides information from eight of the 10 largest payers plus many other services.

Completing the Circle: Where's the Money? (Part I)

It's only logical to assume that electronically linking payers and providers will speed payment. That's what will drive physicians to the Internet for business

functions. Although quickening the flow of transactions between payers and providers may decrease the number of days they wait for payment, it may not be as fast as they'd like.

Just because providers file claims electronically doesn't mean payers will pay electronically. Even though consumers increasingly buy merchandise online with credit cards, businesses today still pay their bills the old fashioned way. As many as 80% of all online business-to-business transactions are paid by a paper check, according to the Gartner Group Inc., of Stamford, Conn.⁽²⁾

However, the rise in electronic payment services and security tools means the situation could change rapidly, according to some experts. The Electronic Signatures Act was signed into law in June 2000, and many see that as a catalyst that will spark electronic check initiatives.

Where's the Money? (Part II)

The most frequent complaint heard about payers is that they don't pay quickly because they don't want to. They're accused of holding onto the money because they earn interest on it.

Private payers claim that this is a non-issue because they've already been legislated in many states to pay a clean claim in a prescribed number of days. With the coming standardization of forms and online verification presumably increasing the percentage of clean claims, payment is bound to flow sooner.

However, the issue is more black and white with government payers. A bill pending in Congress would mandate that HHS provide real-time eligibility, claims submission and claims status for providers who bill Medicare Part B. That same bill would put a moratorium on the mandatory delay of payments for 13 calendar days. Sounds great for providers, but critics are worried about lost interest income for the government. If the average time to pay a Medicare Part B claim drops from the current 17.5 days to 5 days, the government would lose an estimated \$130 billion a year in interest income.⁽³⁾

Proprietary Posturing

Apart from the economic benefits of online transaction, emotional issues remain. Healthcare organizations have long felt proprietary about their information. They don't share it easily. Health plans are hesitant to let providers into their information circle and vice versa. In addition, healthcare organizations tend to think that their own data is good data, and other healthcare organizations' data is poor, or at least, dysfunctional.

Connectivity requires that these walls come down. Not completely, of course. But, in order to connect providers and payers, they each must be able to peek at one another's data. A physician's office that requests an online eligibility check must be able to get into a database that has that information.

Case Studies

A Payer Viewpoint in Dallas/Fort Worth

Dallas/Fort Worth is a pilot market in which Louisville, Ky.-based health insurer Humana has teamed with WebMD (formerly called Healtheon/WebMD) to connect with physicians. WebMD is the largest player in the connectivity space with connections to 900 payers, 400,000 physicians, 4,500 hospitals, 46,000 pharmacies, and every major lab in the U.S. Many physicians are aware of the medical content provided by WebMD, but largely unaware of the administrative services offered, including connectivity to payers.

Even though thousands of doctors have signed up for WebMD on a national basis, only a small percentage are using it for transactions. Humana aligned with WebMD to cut its administrative costs, which it believes are between \$4 and \$6 per transaction. In February, Humana brought on a new CEO who is directing the company with e-health commerce strategies. Using WebMD, Humana pays 29 cents per transaction and physicians pay nothing.

Realizing that physicians relate best in peer-to-peer situations, Humana hired a Dallas physician leader, Stan Pomarantz, M.D., to meet with physicians and show them the system. Within months after Pomarantz's hiring, WebMD had signed on 2,000 physicians in the Dallas/Fort Worth area.

Back office staff for physician groups has doubled in the last five years because of managed care, Pomarantz said. Now, physician groups are telling him that the time spent for insurance verification has dropped from an average of 15 minutes to 30 seconds through WebMD.

"Physicians have been asking for it, saying, 'Call me when it's ready.' So I'm calling," Pomarantz said.

A Hospital Viewpoint in Southern New Jersey

Since Cooper Health System started using Passport Health's online system for eligibility, its days in accounts receivables have dropped from the mid 70s to the mid 50s. Why? Cleaner claims.

Christina Kulina, Cooper's assistant vice president of managed care, said that a study prior to Passport's installation showed that the information gathered when a patient registered was 73% accurate for managed care companies. After using Passport, the hospital's own audit showed a 96% accuracy factor.

As a result of utilizing Passport OneSource, Cooper was also able to reduce its rate of denied claims from 24% to 3%. The financial improvement at Cooper resulted in the removal of the hospital from Moody's Investor Services Bond Watch List earlier this year. Cooper officials have given the service part of the credit.

"We put it anywhere a patient could possibly wander in for service," she said. Kulina receives weekly reports on usage, and when individuals are not using the system, she can follow up. The Internet-enabled PCs default to Passport's portal, making it easy for hospital personnel to register patients electronically.

Cooper does not use Passport for claims submission, only the claims-related functions. The hospital is happy with its EDI connections to payers and has continued to use those.

One byproduct of the system is accountability. Hospital staff members who perform registration duties no longer have excuses about why they couldn't get all of the information into the record. "This has given us the ability to look objectively at productivity," Kulina said. For example, some workers didn't like the new accountability and ended up quitting, she noted.

A Group Practice Viewpoint in Washington State

Tom Carli, practice administrator at Spokane (Wash.) Internal Medicine, remembers when he had a full-time staff person dedicated to physician referrals. Now, that task takes just two hours a day. "We were online in 1997, but we were looking for secure connectivity," Carli said. The company signed on with Bellevue, Wash.-based Pointshare for that and other online administrative services.

"It started with a phone call, and then you waited on hold, then you routed internal paper forms, then you filled out different forms for each provider, and then you faxed forms," Carli said. This process was especially frustrating for patients needing a quick referral. Today, even if a referral is lost by another office, Carli's staff can instantly search on the Pointshare network for the electronic referral and re-send it before the patient gets off the phone.

Pointshare's strategy is to connect healthcare services within a discrete geographic area, known as a "basin." Within a healthcare basin, Pointshare works to gain maximum market penetration by signing up a majority of the healthcare plans, physicians, and hospitals. CEO Tim Kilgallon explains that "we focus locally, identify key players and then get them to sign up." In its Washington State basins, Pointshare has nearly 100% of the health plans in their network and 80% providing eligibility information. The company has real-time connections to First Choice Health Plan and will add real-time claims status checks with Group Health Cooperative and Regence Blue Shield by the end of the year.

Pointshare charges physicians a flat fee of \$48 per month while hospitals, labs and insurance companies pay on a transaction basis. Transaction fees are negotiable based on volumes. For a five-physician practice generating about 170 referrals and 2,000 patient visits per month, Pointshare estimates a \$9,000 savings after transactions fees.

Selecting A Connectivity Partner

In our report on e-procurement and the supply chain, we introduced three measures by which to measure those e-business vendors.⁽⁴⁾ Those measures were **capital**, **market share** and **technology**. While those continue to be important with connectivity vendors, we would like to introduce four other screens through which to view connectivity partners.

Security. Security must be one of the highest business priorities of any healthcare organization. The HIPAA regulations require that providers and plans communicate in a secure environment. Some vendors are providing security themselves. Others outsource this function to vendors such as Health2Health, Denver. Payers and providers using networks must ensure that their vendors have instituted the proper safeguards or

they may be opening themselves up for increased risk. However, healthcare organizations may be surprised to find that Internet vendors have higher security standards than some of the electronic clearinghouses with which they've been dealing.

As more transactions are done electronically, healthcare organizations must ensure a level of security that protects patient data as it travels electronically among healthcare partners. To meet compliance with HIPAA regulations, healthcare organizations must know who is viewing which data, who is making changes and what those changes are. In addition, they must be willing to provide those types of details to patients who request them. For that reason, healthcare organizations may want to investigate the use of encryption, digital certificates or digital signatures, and user authentication.

Scalability. A vendor must have the ability to expand its services to accommodate growth, which may be rapid and unexpected. For example, vendors must have sufficient bandwidth to handle the volume of claims that will be flowing through them.

Accountability. Many vendors offer the ability to monitor usage. Physicians are notorious for signing up for an online service, then never using it. The ability to track how often specific physicians are using the network for claims-related transactions will make the connection more efficient. If physicians aren't using it, you'll want to know why. Connection too slow? New staff that hasn't been trained on its use?

Cooperation. In e-business, cooperation and partnerships are the sustenance of life. Maybe you won't need everybody playing, but you need something close to a quorum. Several regional Blues plans offer free Internet verification to physicians. However, physicians want one-stop, all-payer. Many vendors claim to be all-payer, but that doesn't necessarily mean all-payer, real-time. All-payer, real-time is the ideal and no one is there yet. For example, WebMD has access to some 900 payers, but not all of those are real-time connections. Through its purchase of Envoy, WebMD has access to insurer data, but it may be updated infrequently by the insurer.

Implications

- **New Web-based intermediaries will come between health plans and providers, prompting price wars and forcing health plans to stress customer service to providers.** Health plans are setting up their own Internet-based services, but some providers will opt for an independent intermediary. Competition among these intermediaries will be customer-service driven and price sensitive. In addition, it will take considerable volume to succeed.
- **If you build it, they will come.** Physicians want an Internet solution for claims-related transactions. That's particularly true if it improves their cash flow or standardizes what they see as a fractured and inefficient process.
- **Information about transactions must be action oriented. Healthcare transactional data must be a platform for change within organizations.** Employees must understand how the data will be used to measure them and how their organization will be measured against others, using that data. As claims functions become more automated and computerized, hospitals, providers and health plans will realize that they can better manage their organizations.
- **Ability to execute an e-business strategy will divide the winners from the losers among health plans.** Although an e-business solution to fax, paper and telephone transactions could lead to substantial savings for physician offices, the numbers are more startling for health insurers. If health insurers are spending 15% of revenues on administration, it's possible that e-commerce could add five percentage points to its bottom line. There's a large opportunity here for insurers to lower their cost structure.
- **Hospitals can invest in Internet technology through non-traditional means.** Providers have traditionally underinvested in information systems. By paying a monthly or per-transaction fee, the expense for online connectivity comes out of the operational budget rather than the capital budget. That makes it easier for healthcare organizations to make the switch.

Bandwidth - Volume of electronic traffic. For example, most home personal computers transmit data through modems that have a bandwidth of between 24,000 and 56,000 bits per second.

Clearinghouse - A firm that provides a service to providers to process electronic or paper claims, ensuring the information is correct and forwarding them to the appropriate payer.

DSL - Digital Subscriber Line. A telephone connection to the Internet that is more than five times faster than an ISDN (Integrated Services Digital Network) line, which transmits at between 64K and 128K. It sends data directly in a digital format.

Digital signatures - Electronic passports that provide functionality for encryption, decryption and authentication. These passports electronically query users to determine whether they are who they say they are. They also authorize them to have access and/or make changes electronically. They also validate the electronic signature to other users.

Electronic Data Interchange (EDI) - The computer-to-computer transfer of business information in a standard electronic format. EDI messages usually travel over a private, value-added network (VAN), but could be transmitted via the Net. Software at either end translates the data into a format useful to the users.

Encryption - Using computer hardware, software, or both to transform data from its original form into a cipher form for security and privacy reasons.

Explanation of Benefits (EOB) - A statement provided by the health insurer that explains the details of an individual's insurance benefits. The statement typically includes information about deductibles, co-pays, allowable reimburseable amounts and amounts paid. The provider typically compares what the EOB guarantees to the service provided to determine whether the service is covered and how much the patient needs to pay. The patient often receives a copy of the EOB when notified that a claim has been paid or with a claim reimbursement check.

HIPAA (Health Insurance Portability and Accountability Act) - In addition to assuring the portability of health insurance, this 1996 federal legislation is designed to enforce health information standards and guarantee health information security and privacy. The regulations apply to providers, payers and clearinghouses.

ISP (Internet Service Provider) - A company, such as America Online, that provides access to the Internet.

User authentication - A way to limit and/or control access

XML (Extensible Markup Language) - A sophisticated computer language that structures and standardizes data elements to efficiently transfer them over the Internet.

Notes:

(1) *Physician-Patient Communication is Empowered by Growing Number of Internet-Savvy Physicians*, press release, June 12, 2000.

(2) *B2Bs stuck on cash*, John S. McCright, eWEEK from ZDWire, Aug. 14, 2000

(3) *E*Offering*, July 26, 2000

(4) *E-Health Quarterly*, PricewaterhouseCoopers, August 2000

Publicly Traded Companies Providing Claims-related Transactions through the Internet

Name	Ticker	Headquarters	CEO	FY End	1999 Revenues (millions)	1999 Net Income (millions)	6 months Revenues (millions)	6 months Net Income (millions)
AHT Corp.	AHTCQ	Tarrytown, NY	Jonathan Edelson	31-Dec	\$1.1	(\$20.8)	\$0.41	(\$7.72)
Cybear	CYBA	Boca Raton, Fla.	Edward E. Goldman	31-Dec	\$0.3	(\$10.8)	\$1.5	(\$11.8)
McKesson HBOC	MCK	San Francisco, Calif.	John Hammergren David Mahoney	31-Mar	\$36,734.2	\$723.7	\$9,728.5	\$63.6
Per-Se Technologies	PSTI	Atlanta, Ga.	Allen W. Ritchie	31-Dec	\$322.1	(\$33.6)	\$157.7	(\$35.4)
ProxyMed	PILL	Ft. Lauderdale, Fl.	Michael K. Hoover	31-Dec	\$29.0	(\$21.8)	\$15.7	(\$16.2)
TriZetto Group	TZIX	Newport Beach, Calif.	Jeffrey H. Margolis	31-Dec	\$32.9	(\$7.9)	\$35.5	(\$16.5)
WebMD	HLTH	Atlanta, Ga.	Martin J. Wygod	31-Dec	\$102.1	(\$288.0)	\$167.0	(\$949.8)
XCare.net	XCAR	Englewood, Colo.	Lorine R. Sweeney	31-Dec	\$4.9	(\$3.2)	\$5.5	(\$8.3)

*McKesson year-end figures are for 1999-2000 year ended March 31, 2000; June 30, 2000 figures are for 3-month period

All Companies Providing Claims-related Transactions through the Internet

Company	HQ	CEO	URL	Sample Customers	Significant Allies	Comments
AHT Corp.	Tarrytown, N.Y.	Jonathan Edelson	www.ahtech.com		Cybear	Recently filed Chap.11 bankruptcy
claimsnet.com	Dallas	Bo W. Lycke	www.claimsnet.com	Pediatric Ophthalmology	Passport Health, ProxyMed	online claims filing
Cybear	Boca Raton, Fla.	Edward E. Goldman, M.D.	www.cybear.com		Eliginet, Merallis Co., FamilyMeds, AHT Corp.	ISP and ASP for health care organizations
eHDL	Miramar, Fla.	Kester Nedd, D.O.	www.ehdl.com	Parity Healthcare	IPA Association Of America	
Eliginet	Des Plaines, Ill.	Jack Stone	www.eliginet.com	Independent Health	Cybear, Merallis Co.	Specializes in mid-tier payer market; processing about 20,000 claims-related transactions per month
HealthFusion	San Diego		www.healthfusion.com			2,000 physicians now using system; estimates growth to 25,000 by year-end; projects 40,000 Internet transactions a month by January 2001
iMcKesson	Alpharetta, Ga.	David L. Mahoney	www.imckesson.com			Owned by healthcare information systems giant McKesson, iMcKesson handles more than 2 million physician-related Internet clinical transactions per month
MedUnite	San Diego	David Cox	www.medunite.com		Aetna U.S. Healthcare, Cigna, WellPoint Health Systems, Oxford Health Plans, Foundation Health Systems, PacifiCare, Anthem	A coalition of some of the nation's largest health insurers

Companies Providing Claims-related Transactions through the Internet (Continues)

Company	HQ	CEO	URL	Sample Customers	Significant Allies	Comments
Merallis	Rocky Hill, Conn.	G. Allen DeGraw	www.merallis.com		Cybear, xcare.net	Has processing arrangements with MD Health Plan and ConnectiCare HMO
NaviMedix	Boston, Mass.	William R. Cowen	www.navimedix.com	Highmark, Neighborhood Health Plan, SummaCare		Venture-backed company; Highmark agreement is significant expansion that will eventually include 40,000 doctors
OfficeMed.com	Decatur, Ga.		www.officemed.com			Healthcare insurance verification transactions online
Passport Health Communications	Franklin, Tenn.	James V. Lackey	www.passporthealth.com	Vanderbilt University Medical Center, QuorumHealth Resources, BCBS of Tennessee, Baptist Memorial Health System	Claimsnet.com, WebMD, Third Millennium, ExpertPractice, Axolotl, DR2DR	
payerpath.com	Glen Allen, Va.	Jim Brady	www.payerpath.com	Sentara Health System	Third Millennium	Web-based processor for financial transactions, including claims, remittance, eligibility
Per Se Technologies	Atlanta, Ga.	Allen W. Ritchie	www.per-se.com			Claims-clearing
Physmark	Dallas	Jacob Kurian	www.physmark.com	HealthSouth, Scripps, Health Midwest	VHA, iHealth Exchange, PricewaterhouseCoopers, Sun	Oracle-based Internet solutions for providers and payers stress quick implementation and robust reporting and datamining tools
PointShare	Bellevue, Wash.	Timothy J. Kilgallon	www.pointshare.com		First Choice Health Plan	Online healthcare services
ProxyMed	Fort Lauderdale, Fla.	Michael K. Hoover	www.proxymed.com		Claimsnet.com, Unilab	Former president of Healtheon and co-founder of ActaMed, Michael Hoover, joined as CEO in August
TriZetto Group	Newport Beach, Calif.	Jeffrey H. Margolis	www.trizetto.com	Humana, Sierra, Kelson Pediatric Partners, Maxicare	Millbrook Corp., WellMed,	ASP-model of practice management solutions; recently purchased Erisco from IMS Health
US Medical	New York, N.Y.	Stephen W. Ellis	www.usmedicalnetwork.com	PrimeCare IPA, Office Brain Network	Exodus, Sun, University of Utah, TIS	ASP-model, manages practice medical records and external transactions, correlates clinical guidelines to transactions
WebMD	Atlanta	Marty Wygod	www.webmd.com	Brown & Toland, Humana, Hill Physicians Group,	Humana, United Healthcare, Microsoft, DuPont, CVS	Largest provider of electronic transactions (2.4 billion annually) and most visited healthcare website; also largest IT partner to physician offices
XCare.net	Englewood,	Lorine R. Sweeney	www.xcare.net	MethodistCare, Delta Health Systems, NotifyMD	Merallis, e-Medx, HealthGrades.com	Patent-pending, eXTensible XML/XTM-based environment
Zirmed	Louisville, Ky.	Kenneth Dicken	www.zirmed.com			

Executive Summary

From smart card systems to EDI approaches to web-based solutions, many European countries are becoming connected. Although some of these initiatives began as long as 10 years ago, meaningful volumes of data only started to flow over some networks during the past 18 months. In most countries, use of such systems has been voluntary. However, we are starting to see movement toward mandatory use of connectivity for certain administrative transactions.

Compared to the U.S. where much of the focus is on achieving web-based connectivity for claims, European connectivity initiatives are more broadly based and include electronic patient referrals and authorizations, eligibility checks, transmission of admission and discharge notices, electronic prescriptions, and, finally, claims. In Europe, claims submission and payment may not be the top priority for connectivity initiatives because in many European countries, there is basically one payer — the central government. Private insurance does exist, but at fairly low levels. In addition, some countries don't require detailed invoicing as providers may be funded with annual block budgets.

Smart Cards

France, Germany, Belgium, Spain, and the Netherlands all have smart card initiatives, with France's Sesame Vitale system the most developed of those we examined. The Vitale system's initial goal is to replace all paper bills with "electronic care sheets" that are transmitted directly by the provider to the insurer with electronic refunds to the patient, who pays a portion of the bill at the time of service. The Vitale system, a national intranet operated by a private telecommunications company, uses two smart cards, one for the patient (the Vitale card) and one for the provider (the Health Professional Card). (See Chart 7.) The information contained in each health professional's card varies by the provider's specialty, allowing access only to relevant portions of the patient's file. The card also allows for professionals to provide electronic signatures, check insurance eligibility, and issue a secured electronic care sheet to the national health insurance department. In a second phase, clinical information will be added to the cards.

To date, 39.4 million Vitale cards and 250,000 Health Professional Cards have been distributed. Complete coverage has not yet been achieved, especially on the patient side, due to slow geographical deployment. Among providers, 72% of physicians and approximately 55% of physical and speech therapists have a Health Professional Card. Annual operating costs of the system are 4 billion Francs per year (approximately \$0.5 billion) while estimated savings in labor costs and postage total approximately 3 billion Francs per year. Clearly the system is not yet at break-even but is expected to reach that point when 50% of claims are filed through the system. Today, the electronic transmission rate is approaching 30%.

Germany, like France, has achieved widespread dissemination of patient smart cards with 80 million health insurance cards issued in 1995. Almost all German citizens have and use the cards, which contain basic administrative information about the patient and his insurance status. Health Professional Cards, on the other hand, are just beginning to be tested using a recently agreed upon national protocol for medical personnel identification and authentication. It is anticipated that another 2 to 3 years is needed before these cards will be used on a national basis.

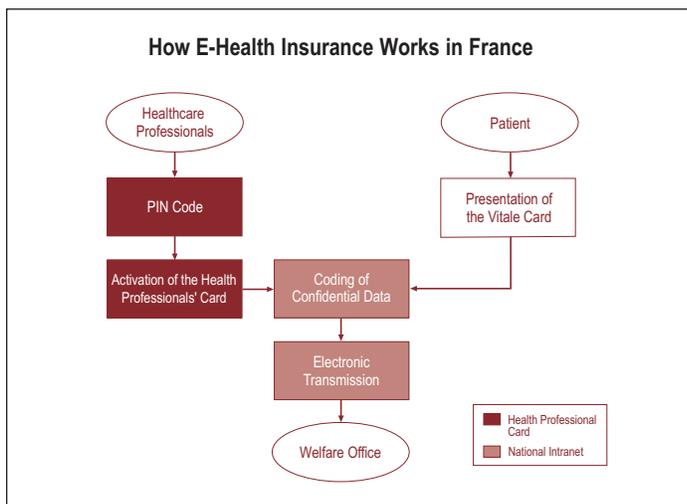


Chart 7

For those initiatives that do focus on claims payment, however, the Europeans are one step ahead of the Americans when it comes to payment mechanisms. Paper checks are non-existent for consumers and providers, and electronic banking is well-established and accepted.

In Belgium, a web-based pilot project known as Carenet was launched in 1998 by the National Inter-Sick Fund College. The pilot includes all Belgian sick funds (health insurance companies), 12 hospitals, and telecommunication and information technology partners. The focus of the pilot is to simplify the financial and administrative relationship between healthcare providers and funding entities using a Social Insurance Smart card (SIS card) that all covered individuals receive. In the first phase of the pilot, three different types of messages are being transmitted from hospitals to funding entities:

- Notification to the sick fund of patient admission and payment registration
- Notification to the sick fund of an extended stay in the hospital
- Notification of patient discharge

In addition, 30 other types of messages are being defined for hospital use. Carenet will be rolled out to all Belgian hospitals and other providers starting in 2001.

In Spain, several large private health insurance companies have adopted systems that enable physicians to use patient smart cards to confirm patient eligibility, check if the patient's insurance covers the specific service requested, and bill the insurance company electronically. However, at the moment, there are four different smart card systems operating independently with no standard for medical coding and no known efforts to migrate the approach to a web-based system. Regional public healthcare funding entities, known as health authorities, are also getting involved with their own smart card systems. The health authority of Andalusia has introduced a smart card with basic administrative information. The Catalan health authority is planning to adopt a similar solution but on a web-based platform.

In the Netherlands, a regional pilot program (Zorgpasgroep) is underway to develop a web-based national electronic infrastructure for a patient health smart card. As with other smart card initiatives we saw, initial areas of focus are personal and insurance data with a goal to add medical information in later phases.

EDI

A number of European connectivity initiatives were born on EDI platforms. Now, with the explosion of the Internet, the leaders of many of these efforts have intentions to migrate to web-based technology although there is some hesitation due to security concerns and costs of funding additional infrastructure for those that have already invested in EDI.

One of the more well-developed EDI initiatives is MedCom, a Danish healthcare data network, used to transmit electronic discharge letters to medical practices, referrals, lab requisitions and results, prescriptions, and health insurance claims. According to Knut Bernstein and Lars Hulbaek Frog of the Danish Centre for Health Telematics, the nationwide MedCom initiatives have established near full-scale B2B healthcare connectivity in Denmark and are already providing visible benefits to both patients and healthcare businesses. Indeed, the volume of messages moving through the MedCom network, while highly variable by region, continues to increase, with a goal of 68% of all such messages flowing through the system in 2000. Dissemination of the network is also widespread — almost 100% of counties and hospitals are connected as are 75% of general practitioner offices. MedCom's next-generation efforts will focus on migrating to Internet-based communication, services and applications, adding telemedical B2B applications, and achieving broader coverage in municipal health care services (e.g., local care centers, home care).

In Norway, the National Health Insurance Administration already performs electronic claims settlement with hospitals through EDI/EDIFACT with electronic signature. According to Bjorn Erik Fjeldheim of the National Insurance Board, "There are plans to offer Internet-based services but these will not completely replace the EDI solutions for the 700 collaborators who have already invested in this." The Norwegian government also is increasingly focused on large-scale realization of electronic connectivity in the healthcare sector and in other industries. Norway has a national e-plan to organize efforts, which specifies concrete initiatives in the health sector, including a national health network with secure access, solutions for electronic referrals, and developing standards for other key healthcare messages, all to be achieved over the next two years.

In the Netherlands, several hospitals use a health network service provider called Lifeline/Uzorg to send EDIFACT messages to GPs about admissions and discharges and lab and x-ray results. Lifeline is experimenting now with secured web-based messaging facilities. Other proprietary EDI connections are in place between health insurers and regional providers for claims processing and patient eligibility checks.

Hospitals interviewed in the Netherlands indicated fairly high use of electronic claims (ranging from 50-80% of total claims) but lower use of electronic patient eligibility checks (20-40% of total eligibility checks). When asked what electronic transmission percentages might look like one year from now, respondents estimated only slight increases of about 5% with some predicting they would begin processing claims over the Internet within 12 months.

Web-based Efforts

In Europe, 100% web-based initiatives are happening mainly at the local or individual provider level in pilot programs. Many Spanish regional health authorities have started pilot projects to enable physician appointments and referrals to be made over the Internet. Norway also has small test projects where web-based information exchange is taking place. PricewaterhouseCoopers has initiated a project at Orbis Hospital in the Netherlands to provide Internet connectivity with GPs and to create full integration with the hospital's patient logistic system and electronic medical record. Given all the prior development activity with smart cards and EDI, it is not surprising that Internet efforts are lagging behind although we expect most European connectivity initiatives eventually will have at least a web-based access option.

Who Pays?

A variety of funding approaches have been used to date. France has provided subsidies to health professionals for the equipment required to read smart cards. At more than \$1,000 a machine, this could cause problems for small physician practices. This funding assistance, however, will no longer be provided in 2001 when use of the Vitale system becomes mandatory. Carenet in Belgium has been funded by the sick funds in the pilot phase, but it is anticipated that a monthly or annual fee will be paid by hospitals when the system goes operational on a national scale.

Charges for EDI solutions vary from fixed annual amounts paid by providers, to per transaction charges, to no charges for some systems developed by individual insurers. In the Netherlands, one insurance company pays for the costs of the telecommunications link. Similar to the approach taken in France and Belgium, the funding to establish the MedCom network in Denmark came from national government as well as the initiative's collaborators. On an operational basis, each message transaction now requires a small fee.

Beyond figuring out how to pay for development and ongoing operations, countries have been exploring different incentives and penalties to encourage widespread dissemination and use. In Norway, the National Health Insurance Board will have incentives for electronic insurance claim reporting. Also in 2000, the Norwegian Ministry of Health and Social Affairs intends to cover all monthly expenses for medical offices who begin using electronic messaging to communicate with hospitals and will also pay the costs of establishing communication links for all new users. All other providers have to pay the monthly expense.

Taking a different approach, France has indicated that penalties will be charged to providers who do not transmit bills electronically through the Vitale system in 2001. Although the penalties are only a few francs per transaction, they could add up quickly for high-volume providers. The Belgian Carenet system will be programmed to issue warnings to providers who continue to submit paper bills for patients with SIS cards.

Overcoming Barriers

In spite of numerous connectivity activities at local, regional, and national levels, several issues are holding back the widespread adoption of electronic connectivity and, in particular, connectivity over the Internet.

Security. Security was a unanimous concern for all those we interviewed and was one of the most frequent reasons given by those involved in EDI initiatives for not moving rapidly to the Internet. In addition to overcoming confidentiality concerns, European healthcare organizations want protections against hackers and viruses and the ability to "guarantee" security to both providers and patients.

Infrastructure. In our last report on e-procurement,

(E-Health Quarterly, August 2000) we found that the wide variety of non-integrated legacy information systems used in healthcare was a significant limiting step in interfacing with e-procurement initiatives. These information systems require significant upgrades to link to web-based initiatives. The Internet may be free, but the hardware and software to access it require a certain level of investment that not all organizations are ready to take on. These investment difficulties have been a key reason in the United Kingdom for delays in implementing NHSNet. Touted as a secure intranet to link all parts of the health system, the implementation is far behind schedule as GPs and others struggle to get even basic personal computers into their offices.

Smart card approaches have their own set of infrastructure problems. Getting the cards, machine readers, and software out and installed in all care sites is an expensive and time-consuming undertaking. In addition, some sites of care, like a patient's home, do not lend themselves to carrying a smart card reader and a computer with the right software to take the patient's information. Another difficulty experienced in France is updating the smart cards with changes in personal information. Unlike the good old days when a simple phone call could accomplish an address change or add a new family member, these changes must be made in person at a local insurance office so the smart card chip can be updated. To some, this feels like going backwards.

Lack of Standards. A lack of national and international standards for unique patient identification numbers, messaging, and definition of terms has slowed implementation and probably resulted in several versions of reinventing the wheel. Some standardization efforts are taking shape, but they are not viewed as significant drivers of the connectivity process.

Industry Complexities. Historically, the healthcare industry has not been well organized in adopting new information technology in a coordinated way. The various needs of different healthcare actors has led to a number of specific approaches that are difficult to organize, especially when no one is taking the lead. In Europe, where healthcare funding is much more in the public domain, there is also a feeling among some we interviewed that the culture of public healthcare limits the drive for organizational change and even causes some to avoid change in order to protect their employment. We saw similar issues in

our e-procurement report in which head count reduction due to improved efficiency was not a top priority in some countries, meaning that such initiatives need to provide value-added benefits beyond labor savings in order to be adopted.

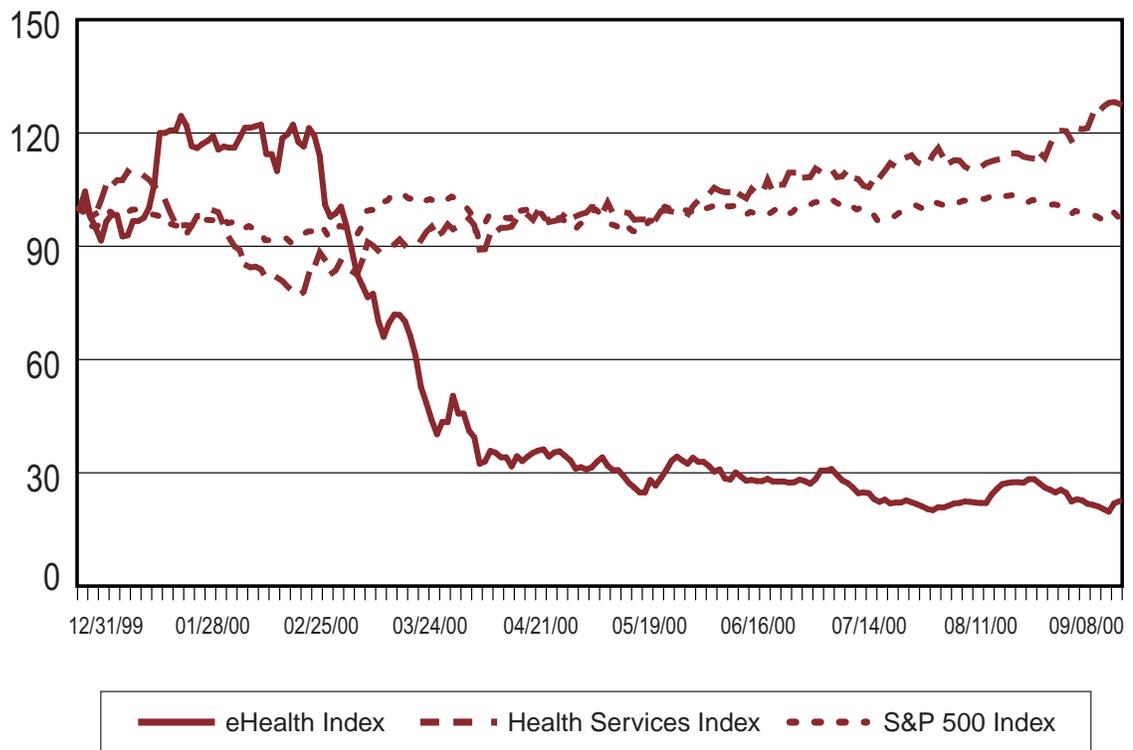
So How do We Get There?

A number of suggestions were offered by interviewees on how to expand connectivity in healthcare. Bjorn Erik Fjeldheim from Norway's National Insurance Board believes success will be achieved by those who stick to basics: "The approach must be easy, secure, and at reasonable cost." Jim Yang from the Norwegian Center for Medical Informatics added, "The legal framework should allow and also demand electronic information handling and exchange." Clear incentives, whether legal, financial or otherwise are critical to getting all parties moving in the same direction.

Beyond these frameworks, creative thinking is required to solve the infrastructure funding issues. Collaborative funding by participants has provided a jumpstart to some programs, but more comprehensive efforts will be needed to bring everyone along. In many countries, national governments are starting to re-examine their approaches to technology in healthcare. Perhaps more coordinated approaches are soon to follow.

Given a number of the factors we have reviewed here, national connectivity is, perhaps, going to be easier to achieve in European countries. It's not clear, however, how much of that will be web-based. Until security issues can be resolved, participants are unlikely to abandon their EDI systems. Given the relative size of some European countries, a fewer number of healthcare funding entities, strong experience with electronic banking, and an ever-growing connectivity experience base, the right ingredients are coming together to achieve the promise that connectivity can deliver.

Quarterly E-Health Stock Index



With increasing question as to the long-term cash position and viability of e-health companies, investors continue to flee to other markets, driving the eHealth index to new lows. While a few e-health companies have recently managed to raise capital in the public market, the sustainability of IPO market capitalization appears to be correlated to existing revenue base and proximity to profitability. In contrast, the health services market has recovered from early year skepticism, outpacing the S&P500. Initial health service company earnings reports indicate continued positive market reception.

Shattuck Hammond Partners' *eHealth Index* is designed to reflect the stock market performance of Internet-related healthcare service-focused companies. The market capitalization-weighted index is comprised of a representative selection of eHealth companies across each of the Internet sub-sectors, including content, connectivity, B2B, B2C, and eCare. Likewise, Shattuck Hammond's *Healthcare Service Index* is comprised of a representative selection of healthcare service companies across each of the service sectors, including managed care, hospitals, long-term care, assisted living, home health, laboratory management, physician practice management (PPMs), behavioral health, preferred provider organizations (PPOs), rehabilitation/physical therapy, and pharmaceutical benefit management (PBMs). These two indices are contrasted with the S&P 500, a broad market index of 500 of the largest companies as selected by Standard & Poors. All three indices are "indexed" back to January 1, 2000, and, therefore, illustrate public market volatility during that period of time.

Distress Sales May Be Next Big M&A Wave in E-Health

The e-Health industry is about to get hammered with a series of painful closures and bankruptcies, suggesting that the next big wave in merger and acquisition activity may be from distress sales or from companies attempting to acquire their way to profitability, according to a Corporate Research Group analysis. That's especially true because the capital markets have all but dried up for e-Health companies. And with e-Health losses mounting, time is running out on many ill-conceived operations. In the third quarter alone, several companies on the verge of extinction scrambled to find a savior—with mixed results.

The following are highlights of **third-quarter affiliation, merger and acquisition activity** compiled by *eHealth Insider*, a publication of Corporate Research Group (New Rochelle, NY).

- Hit with heavy losses, **HealthAxis.com** (E. Norriton, Penn.), a subsidiary of Health Axis Inc. (formerly Provident American Corp.), sold its consumer web site to Digital Insurance for \$1 million in cash, \$6 million in other payments and an 11% stake in Digital Insurance. HealthAxis.com will now focus on its application solutions division.
- **HealthCentral.com** (Emeryville, Calif.), which lost \$23.4 million in the second quarter, says that the acquisitions of DrugEmporium.com in September and Vitamins.com in June "will accelerate its path to profitability by reducing its cash burn." HealthCentral acquired DrugEmporium.com with preferred shares convertible into 2.4 million common shares, as well as assumption of certain liabilities.
- **DrKoop.com** (Austin, Texas) was able to stave off closure by raising \$27.5 million new equity funding after talks about a possible merger with **MilleniumHealth** collapsed.
- **WebMD** (Atlanta, Ga.) completed its mergers with Medical Manager, Carelnsite and OnHealth, installed Marty Wygod as co-chief executive, and almost immediately announced plans to cut 1100 jobs and take a pretax restructuring charge of \$35 million to \$45 million in the third quarter. WebMD issued 140 million new shares and assumed 67 million warrants and options to acquire the companies.
- **AHT** (Tarrytown, N.Y.), a failing supplier of e-prescription and e-lab applications, filed for Chapter 11 bankruptcy protection in September after a deal to be acquired by BioShield Technologies (Atlanta, GA) fell apart. BioShield had originally agreed to pay about \$20 million in stock, but now is providing interim financing and purchasing AHT's assets for about \$15 million in cash and stock.
- Among other third-quarter deals, **Pentegra** (Phoenix, Ariz.), a dental practice management firm, agreed to acquire Dexpo.com, an online dental supplies shopping site, for \$473,000 in stock; **HCA** sold its majority owned Empacthealth.com unit to **Medibuy.com** for a 16% stake in Medibuy; **HealthyConnect.com**, the Internet subsidiary of Med-Emerg (Toronto, Ont.), completed its purchase of Harmonie Group for 2.6 million shares of stock; **GoToMyDoc Inc.** (Avon, Conn.) merged with KidsGrowth.com; **Data Critical** (Bothell, Wash.) acquired **Paceart** (Fairfield, NJ) for \$6 million in cash and \$2.6 million in stock; Paceart shareholders will get an additional \$400,000 in 2001 if it meets financial targets; and **Rx.com** (Austin, Texas) acquired the assets of Prescription Care, Inc. (Dallas), a mail-order pharmacy.

(Corporate Research Group, Inc. (New Rochelle, N.Y.) is the publisher of leading healthcare newsletters and research reports, including eHealth Insider, Managed Healthcare Market Report, and Seizing the eHealth Market Opportunity. For more information on products, custom research and consulting, contact Carl Mercurio at 914-235-6000 or visit www.corporateresearchgroup.com.)

Following is a listing of the affiliation, merger and acquisition deals in the third quarter as compiled by PricewaterhouseCoopers.

e-Health Affiliation and Partnership Activity

Date	Company	Company	Comments
27-Sept	SoftWatch	SeraNova	Alliance to offer SeraNova services to SoftWatch Relationship Server customers
26-Sept	HEAR USA	The Corporate Partnering Institute	To develop the consumer-oriented Tinnitus web site
20-Sept	Claimsnet.com	ProxyMed	To develop co-branded Internet claims submission solution
14-Sept	Sybase	National Imaging Associates	Partnership concerning RadMD
13-Sept	HealthCentral.com	BATNET1	Makes HealthCentral's Vitamins.com channel available to more consumers
11-Sept	Telstra	Concord	Concord's eHealth Solution Suite
9-Sept	HealthGate Data Corp.	GE Medical Systems	Co-branded platform with consumer and physician-oriented content
6-Sept	Skyscape.com	PocketMedicine.com	To develop medical content for hand-held devices
1-Sept	XCare.net	Boundary Information Group	To offer HIPAA compliance services
1-Sept	HealthGate Data Corp.	NBC Internet, Inc.	Co-branded consumer health and medical information website
24-Aug	XCare.net	Merallis Co.	To provide Merallis' QuickSilver Web solution set for claims processing
24-Aug	Omnicom Group	Healthology; CareSoft; eMedicine.com; WorldMedicalLeaders. com; and, eResearchTechnology	Advertising giant Omnicom buy minority stake in 5 ehealth companies
22-Aug	HealthCentral.com	eMachines, Inc.	eMachines will add a dedicated "Health" key on keyboard to connect to HealthCentral.com
22-Aug	Rx Remedy	TriZetto Group	To provide HealthSCOUT wellness management tool to health plan members using TriZetto's portal
21-Aug	Cerner Corp.	LifeOutcomes	To enhance disease management technology for pulmonary disease patients
14-Aug	W3Health	Confer	Utilization management, disease management, and case management solutions for providers
14-Aug	Rx Remedy, Inc.	Yahoo!	Rx Remedy's HealthSCOUT to provide consumer health news and info to Yahoo!
10-Aug	LanVision Systems, Inc.	eSmartHealth	Web-based electronic medical record to hospitals and clinics
09-Aug	HealthGate Data Corp.	Superior Consultant Co.	To provide access for hospitals to Internet services
02-Aug	TriZetto Group, Inc.	Americas Doc and Medsite	Adding medical reference content and online chats with physicians to TriZetto's HealthWeb site
02-Aug	National Data Corp.	InfoCure Corp.	Physician practice management services provided via NDC Health Information Network
01-Aug	Rx Remedy	CANOE	Expand RxRemedy's HealthSCOUT to Canadian audience
01-Aug	eGerminator.com	Corporate Partnering Institute	Joint venture development of DiseasesRx, a collection of web sites with patient-oriented information about specific diseases
31-Jul	W3Health	HealthTrio	Marketing alliance
27-Jul	Sniffer Technologies	Concord Communications	To improve performance of Internet infrastructure
27-Jul	El Sitio	Salutia	To develop Spanish and Portuguese content for U.S. and Latin American market

e-Health Affiliation and Partnership Activity (Continued)

Date	Company	Company	Comments
25-Jul	Med-Emerg International	travelbuyus.com	Travel and consumer health information including international access to personal medical records for travelers
21-Jul	HealthGate Data Corp.	WellMed	Distribution agreement to enable HealthGate's hospitals access to the WellMed Personal Health Manager, a health profiling tool
21-Jul	Franklin Electronic Publishers	Skyscape	Strategic distribution partnership for medical reference content on hand-held devices
19-Jul	Web of Care	AccentCare	Co-branding agreement providing care planning services and other content for seniors
18-Jul	Synermedics	InSite One	Telemedicine and digital imaging storage services
18-Jul	Oncology.com	SelfCare Partner	Co-branded cancer store providing online sales of specialized products
18-Jul	MedPlus	United Audit Systems	Marketing alliance for coding and electronic patient records
14-Jul	eParadigm	Aon	Financial and risk management tools for healthcare providers
13-Jul	WellMed	HEALTHvision	Distributor agreement to place the WellMed Personal Health Manager on HEALTHvision
13-Jul	Lycos	Planet Medica	To provide content to 7 European countries in their native languages
12-Jul	eHealth Latin America	Pan American Health Organization	Creation of a virtual network allowing access to PAHO publications
10-Jul	ClinicManager	MDplanet.com	ClinicManager to license MDplanet's search and storage technology
05-Jul	ProxyMed	Unilab	Electronic delivery of lab results to physician desktop

e-Healthcare Mergers and Acquisitions Activity

Date	Acquirer	Target	Value
25-Sept	BioShield Technologies, Inc.	AHT Corp.	\$12 million (cash) and \$3.5 million in restricted BioShield common stock
19-Sept	HealthCentral.com	DrugEmporium.com	Preferred shares convertible into 2.4 million common shares, as well as assumption of certain liabilities
12-Sept	WebMD Corp.	OnHealth Network Co.	Shareholders will receive 0.189435 shares of WebMD stock for 1 share of OnHealth stock
12-Sept	WebMD Corp.	Medical Manager Corp.	Merger
11-Sept	Data Critical Corp.	Paceart	About \$6 million cash and 300,000 shares of common stock and an additional \$400,000 if certain conditions are met
22-Aug	Rx.com	Prescription Care, Inc.	Terms not disclosed
10-Aug	Pentegra Dental Group	Dexpo.com	Asset purchase for 750,000 shares of Pentegra stock upfront and an additional 500,000 shares in escrow pending the meeting of performance criteria
03-Aug	GoToMyDoc	KidsGrowth.com	Merger
02-Aug	I-trax.com	MyFamilyMD	Stock exchange
24-Jul	Medibuy.com	empactHealth.com	n/a
10-Jul	Digital Insurance, Inc.	HealthAxis.com	\$1 million (cash) plus \$6 million (in other payments plus 11% stake in Digital Insurance)
27-June	HealthyConnect.com, a subsidiary of Med-Emerg International, Inc.	Harmonie Group, Inc.	2.6 million shares of HealthyConnect.com common stock

E-Health Insurance Companies Get Venture Capitalists' Attention

Despite an investor community that has become increasingly cautious about investing in dot-coms, e-health companies continued to garner the lion's share of venture capital in the healthcare sector, according to the PricewaterhouseCoopers Money Tree Survey and Shattuck Hammond/PricewaterhouseCoopers Securities Healthcare Venture Capital Report.

During the second quarter ended June 30, 2000, more than two-thirds of the healthcare venture capital flowed into e-health companies.

Overall, venture capital investments in the healthcare services industry cooled off somewhat in the second quarter after breaking records in each of the previous four quarters. In the latest quarter, 54 healthcare services companies received venture funding of \$442 million, down 17% from the previous quarter.

The percentage of investments in healthcare also fell off in the 2nd quarter as total venture funding across all industries reached another new high of \$19.5 billion, up from \$17.1 billion in the first quarter. As a result, the amount going to healthcare represented just 2.3% of the total for the quarter, the smallest share ever recorded for this sector in the history of the Money Tree Survey. Even so, the healthcare sector is on track for another record-breaking year in overall VC dollars.

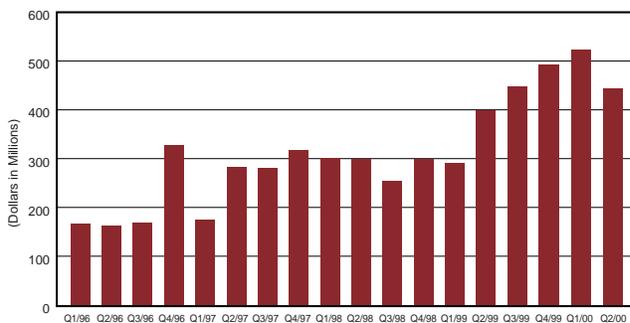
The most active firms by deal count:

- Acacia Venture Partners, San Francisco, Calif. (8 deals)
- U.S. Bancorp/Piper Jaffray Ventures, Minneapolis (7 deals)
- Sprout Group, New York (6 deals)
- New Enterprise Associates, Baltimore (5 deals)
- Salix Ventures, Nashville (5 deals)

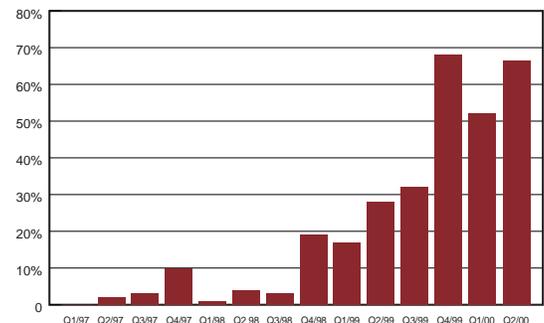
The five largest healthcare VC deals were all Internet plays:

- Ingenuity Systems, life science portal for bio-informatics (\$49.8 million)
- Lumenos, online defined contribution health plan (\$34 million)
- HealthAllies.com, online consumer exchange for health services (\$32 million)
- Salu, builder of online business hubs for physician specialists (\$28.5 million)
- SimplyHealth.com, online business aimed at individual and small business health insurance purchasers (\$26million)

Healthcare Services Venture Capital 1996 - Q2 2000



Percent Healthcare Venture Investment in Internet



Source: The PricewaterhouseCoopers Money TreeTM survey is conducted under the sponsorship of the Global Technology Industry Group and Shattuck Hammond Partners. Shattuck Hammond Partners is the healthcare-focused division of PricewaterhouseCoopers Securities LLC.

Traffic to Healthcare Websites Remains Volatile

Three out of five home Internet users visited a healthcare site in the past year, making healthcare websites some of the most popular sites on the worldwide web, according to a recent survey by PC Data Online.

WebMD was the most visited healthcare website with four times as many unique users as the next most visited healthcare website, according to PC Data Online's website tracking results for the 3rd quarter of 2000. The acquisition of Onhealth.com by WebMD contributed to the boost in the number of visitors to WebMD's site. Onhealth.com had been the most visited healthcare website prior to its acquisition with WebMD a close second.

Allhealth.com, drkoop.com, Aetna US Healthcare's and Harvard Medical School's intelihhealth.com, and the National Institutes of Health's (NIH) nih.gov rounded out the top five most visited healthcare websites.

An analysis of usage statistics for these sites demonstrates the volatility of healthcare sites. The change in the number of users visiting the most popular healthcare sites ranged from an increase of 24% to a decline of 50% during the 3rd quarter of 2000, according to an analysis of PC Data Online's website tracking results. The analysis underscores the importance of content management and the need for continuous site marketing and enhancements to retain and increase visitors.

While commercial sites were the most visited, users spent the most time at the NIH's website. Users spent about 20 minutes at nih.gov viewing about 12 pages, according to PC Data Online's website tracking results.

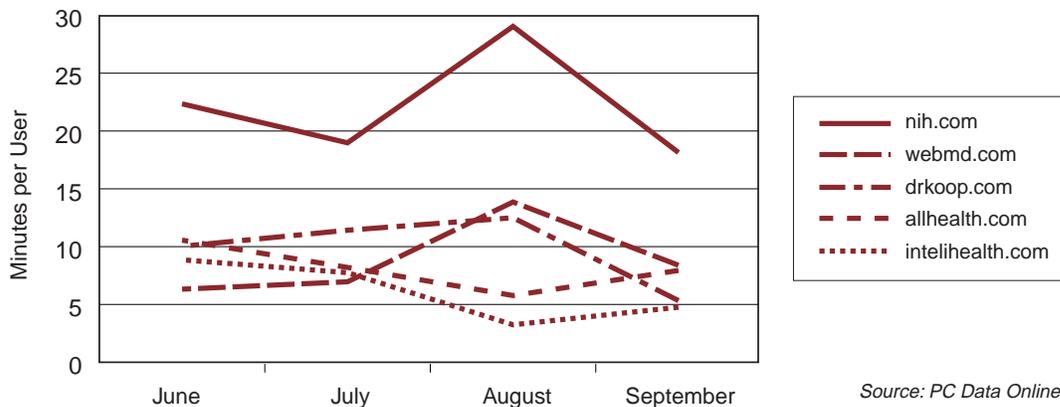
As consumers demand more healthcare information on the web, site sponsors should keep in mind the need for user friendly sites that are easy to navigate. If not, they may find users visiting someplace else.

Top Healthcare Websites, September 2000

	Website	Unique Users
1	webmd.com	7,973,000
2	drkoop.com	2,126,000
3	allhealth.com	1,912,000
4	intelihealth.com	1,854,000
5	nih.gov	1,766,000
6	healthandage.com	1,476,000
7	discoveryhealth.com	1,031,000
8	healthcentral.com	836,000
9	medicinenet.com	712,000
10	mayohealth.org	707,000
11	medscape.com	702,000
12	healthscout.com	658,000
13	merckmedco.com	599,000
14	mdchoice.com	549,000
15	health.org	459,000
16	realage.com	406,000
17	lookingyourbest.com	381,000
18	pslgroup.com	373,000
19	selfcare.com	352,000
20	adam.com	336,000

Source: PC Data Online

Average User Time @ Site



Source: PC Data Online

Featured Conference

Health Internet Congress, December 11-12, 2000, and Inaugural E-Care Forum, December 13, 2000, Doubletree Hotel, San Jose, Calif.

The Health Internet Congress is the premier conference and exhibition focusing on financing, partnering and value creation for e-health companies. Attendees are expected to include leading financiers, innovative e-health companies, hospital executives/clinicians, managed care executives/clinicians and pharmaceutical/biotech executives. PricewaterhouseCoopers' E-Health Quarterly is a sponsoring publication of the Congress. Congress presenters include Sandy Lutz, E-Health Quarterly editor and director of research for the healthcare practice, and Deborah Buresh, Internet Business Development, Shattuck Hammond Partners. Shattuck Hammond Partners is the healthcare-focused division of PricewaterhouseCoopers Securities LLC, which is a wholly-owned subsidiary of PricewaterhouseCoopers LLC.

The Inaugural E-Care Forum is an intensive one-day program on e-care, the use of Internet-based applications to optimize the delivery of care. Program features timely and practical case studies from leading healthcare organizations including Beth Israel Deaconess Medical Center, Blue Cross Blue Shield of New Hampshire, Catholic Healthcare West, Cedars-Sinai Health System, Harvard Medical School, Kaiser Permanente, Legacy Health Systems, MD Anderson Cancer Center, Sharp HealthCare and Sutter Health.

For additional information about these meetings, please visit www.tcbi.org or phone 310-265-6630

Other Upcoming E-Health Conferences

Date	Event Name	Location	Website
11/15/2000 to 11/17/2000	Healthcare in the Era of Consumerism: Harvard School of Public Health	Boston, MA	www.hsph.harvard.edu/ccpe/healthcare/qhc.html
2/04/2001 to 2/08/2001	Annual HIMSS Conference and Exhibition	New Orleans, LA	www.himss.org
2/25/2001 to 2/27/2001	2nd Annual Symposium on E-Healthcare Strategies for Physicians, Hospitals and Integrated Delivery Systems	Miami	www.e-healthcareconnections.com
3/18/2001 to 3/20/2001	Symposium on Healthcare Internet and E-Commerce Legal, Regulatory and Ethical Issues	Grand Hyatt Hotel in Washington D.C.	www.hcca-info.org
3/25/2001 to 3/29/2001	ACHE Congress on Healthcare Management	Chicago Hilton/ Palmer House	www.ache.org

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