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Vaporware.com: The Failed Promise Of The Health Care Internet

Why the Internet will be the next thing not to fix the U.S. health care system.

by J.D. Kleinke

ABSTRACT: Contrary to the claims of its well-financed promoters, the Internet will not solve the administrative redundancies, economic inefficiencies, or quality problems that have plagued the U.S. health care system for decades. These phenomena are the result of economic, organizational, legal, regulatory, and cultural conflicts rooted in a health care system grown from hybrid public and private financing; cultural expectations of unlimited access to unlimited medical resources; and the use of third-party payers rewarded to constrain those expectations. The historic inadequacy of information technology to solve health care’s biggest problems is a symptom of these structural realities, not their cause. With its revolution of information access for consumers, the Internet will exacerbate the cost and utilization problems of a health care system in which patients demand more, physicians are legally and economically motivated to supply more, and public and private purchasers are expected to pay the bills.

Since the advent of personal computer (PC)–based computing in the mid-1980s, successive generations of information technology (IT) have been promoted as the panacea for what ails the U.S. health care system.1 Better health care information systems, most agree, mean a better health care system: less fragmentation of care delivery across geographic space and time; an infrastructure to identify and reduce variations in care; robust data sets to better predict and manage costs; and so on. Our pursuit of these goals as an industry has generated a long and wearying list of IT’s bold promises and spectacular failures: the smart card, Community Health Information Networks (CHINs), telemedicine, the electronic medical record (EMR), client-server “enterprisewide” systems, and, most recently, the commercial clinical data warehouse.2

Now comes the Internet, billed as nothing less than the next panacea for what ails the U.S. health care system.3 The health care Internet company presentations that dominate today’s major health
care investment conferences are a colorful blur of computer graphics touting products and services that, for the most part, do not yet exist. Suspend your disbelief, and you will quickly discover from these presentations that because of the ubiquity of the Internet, health plans are hungry to install Web-based systems allowing them, finally, to accelerate their processing of provider payments; competing physician and hospital groups will soon be sharing patient information; and patients with chronic diseases will be so well managed from afar by computer-savvy doctors that they will never again darken the doors of the emergency room.

The Internet has proliferated a new generation of as yet unfulfilled IT promises—“vaporware,” as skeptical IT purchasers refer to the nonexistent products—across the health care investment universe, for two reasons. First, investment mania and media hype have inspired countless oversold and underbuilt Internet businesses in general; second, several technical aspects of Internet-based computing can easily be misinterpreted as the breakthrough the health care industry needs to overcome earlier IT failures, including cheap connectivity, open computing platforms, and data “portability.” Judging from my conversations with colleagues across the health care business and policy communities, this sudden faith that the Internet will fix health care’s chronic IT problems seems also to have affected those who understand how complicated health care is, how resistant it is to easy fixes, and how all of its boldest IT promises have failed so miserably.

This paper sets out to address this health care Internet fever with a bucket of cold water. The Internet’s underlying technologies, superior as they are to previous generations of IT, will not necessarily fix the U.S. health care system. Health care’s fundamental problems are not IT-based problems; they are economic, legal, regulatory, organizational, and cultural. If anything, the Internet—by providing patients with instant, universal access to more medical knowledge and resources than they ever knew existed—is certain to exacerbate health care’s fundamental problems, almost all of which stem from irrational consumer behavior, uneven patterns of utilization, and runaway costs. Given that these are the same problems that “managed care” was supposed to fix—for the most part by adding still more paper-based processes specifically to constrain consumer demand, utilization, and costs—one can argue that the last thing the U.S. health care system needs is the Internet.

A Fix For Health Care’s Permanent ‘Love Triangle’?

If an IT-based system that connected all health care constituencies were ever implemented, third-party payers would drive the process.
Unlike chronically fragmented providers, misfunded government agencies, and employers focused on their core businesses, third-party payers have the critical mass, scale, and relatively easy access to funding to effect true interconnectivity. Payers also have the closest thing to a connectivity mandate: They are already in the transactions processing business. A central feature (and flaw) of the health care information business is the financial origin of most of its medical data. Most databases used to analyze medical utilization, costs, provider performance, and patterns of care started out as transactions databases for paying medical claims.5

Healtheon (now part of WebMD) has been trying to “Web-enable” the major national payers since its inception in 1997. Three years later the company is still struggling to do so. This is evidenced by WebMD’s dearth of new payer customer announcements and by the fact that the payer still featured in its advertising is the Beech Street preferred provider organization (PPO), the second payer for which Healtheon announced a demonstration project back in 1997.6 Other “connectivity” companies have met with the same fate: Their press releases are chock-full of marketing and distribution agreements with each other, but few announce any major adoptions of their technologies by national payer organizations.

If they would not buy, would they build? It was not until well into 2000 that six major national payers announced their own “cooperative” initiative to build a shared Web-based system to accomplish what Healtheon/WebMD and the other “connectivity” companies have been trying to do since their inception.7 Another symptom of Internet fever, this announcement overcorrects the payer industry’s sluggishness to embrace the Internet with a grandiosity matched only by the ambitions of WebMD. It is highly unlikely that a coalition including Aetna, CIGNA, WellPoint, Oxford, PacifiCare, and Foundation Health Systems will be able to successfully schedule a meeting, let alone plan, build, and implement anything that actually works. The national health plans’ track record on developing other IT standards has been willfully nonexistent, hence the need for standardization via legislation, such as the Health Insurance Portability and Accountability Act (HIPAA) data submission standards.8

With the Internet a part of the public consciousness for several years, why have the national payer organizations failed to embrace it through vendors like WebMD, or actually created their own Web-based connectivity system? There are two reasons: First, payers have embraced connectivity to the degree that they can; second, they do not want to embrace it to any greater degree because of perverse economic incentives built into the third-party payment system.

Contrary to what Internet entrepreneurs argue in their investor
presentations, enormous volumes of medical claims are already moving from providers to payers electronically: 45 percent of all commercial claims; 80 percent of all Blue Cross claims; and 97 percent of all hospital claims to Medicare. These submissions occur through fast, reliable, and secure private systems, many of which WebMD now controls through its acquisition of three electronic data interchange (EDI) “claims clearinghouse” companies. One of the goals of WebMD’s business, if we are to read it literally, is to move these and the remaining claims submitted in paper form to the slower, less reliable, less secure public Internet. Why? Because the Internet will give patients and providers access to the progress of the adjudication of all those claims. Let us assume, for a moment, that payers actually did want to invest in an IT system that allowed patients and providers to track the adjudication of their claims, and thus be equipped to demand their reimbursements faster. Is this really possible?

Faster adjudication does not occur today on claims submitted electronically for the same reason that the “thirty-day payment” rules currently in legislative vogue are ultimately toothless: Claims do not fail to clear payers quickly because they are not submitted electronically; claims fail to clear payers quickly because the entire process of third-party payment presumes that every claim is potentially rife with errors and/or misrepresentations and thus needs to be checked for a multitude of potential frauds and abuses. The “thirty-day payment” rules being enacted by states around the nation are all based on “clean” claims, a legal loophole through which payers can drive the whole payment train. Fraud-and-abuse monitoring is still mostly a manual process, given the complexities and ambiguities associated with medical care. Also, given the sad fact that fraud-and-abuse policing has turned out to be the Health Care Financing Administration’s (HCFA’s) best idea in the past decade to “manage” the care it is purchasing for Medicare and Medicaid beneficiaries, it is safe to say that intensive fraud-and-abuse monitoring of claims is not going away any time soon.

Policing claims for fraud and abuse may be the easy part. The adjudication of claims also involves mediating a series of complex and ambiguous medical codes against the mind-numbing number of variables associated with the nation’s proliferation of health insurance benefit plans. The people from Silicon Valley who thought that health care was an easy Internet fix waiting to happen should have taken heed from earlier generations of IT companies new to health care. Established companies such as credit card payment processing giant First Data Corporation also thought it saw within this enormous volume of claims paperwork a ripe business opportunity.

Like the IT engineers working today at Internet start-ups, what
they actually found was a bit more complicated than they expected. They discovered that clearing a typical insurance claim involves, for starters, the following queries: (1) Is the patient a member of the plan? (2) Is this particular service covered by the patient’s benefit plan? (3) Is there secondary insurance that should cover this service? (4) Is this service related to an incident that may be subrogatable to a workers’ comp, disability, or accident event? (5) Is this service consistent with the patient’s clinical diagnosis, history, age, and sex? (6) Is the service, if covered, medically necessary? (7) Has the service, if covered, been preauthorized? (8) Is this submitting provider qualified to provide this service? (9) Is the provider a member of the network? (10) How much do we pay this particular provider for this particular service? (11) Has the patient’s deductible or major medical been met this year? (12) Did the patient pay up front, and who are we reimbursing, patient or provider? This is not quite as simple as clearing a typical credit card transaction, which involves checking on the cardholder's available credit amount.

Several dozen major corporations like First Data entered the health care IT business in the early 1990s. They all believed that automating the payment of claims was an extension of their core competency of automating financial transactions. They were wrong, and almost every one of them exited the business, often with significant write-downs of the companies and other assets they acquired to enter it. What they discovered at the heart of claims adjudication was a computing, content, and analytic nightmare, not the lack of a telecommunications infrastructure. In health care, connectivity is not the problem; complexity is. This has been one of the hardest lessons for the health care Internet “connectivity” companies to learn.

In contrast, the complexities that have sullied the ambitions of today’s vaporware entrepreneurs and yesterday’s well-meaning corporations alike are a huge convenience for the health plans. These complexities obfuscate the larger barrier to payers adopting a universally accessible Web-based system to speed up claims adjudication: In the language of the insurance business, the “float” rules. The “float” is a pool of dollars generated by prepaid premium dollars the health plan invests while not paying claims from it. If the process of claims adjudication is haunted by a computing, content, and analytic nightmare, this nightmare is good business for health plans that make money by sitting on money.
As many Internet vaporware companies like to point out, the queries included in the list above can be carried out across disparate payer information systems via one of the Internet’s most important technical advantages: open access to legacy databases. Unfortunately, open access is the last thing health plans want to promote. If they did, they would have provided that open access—to eligibility, claims status, deductible amounts, and so on—via earlier generations of IT, including the electronic claims systems now in use. However, precisely the opposite works in the plans’ economic favor. Blocking online access to benefits eligibility information, asking providers for clarification after a service is rendered, denying reimbursement to patients pending additional documentation—in the process losing a certain percentage of all paper-based transactions and forcing everyone to start the process all over again—are “administrative inefficiencies” that pump the financial lifeblood of a health plan, when the premium dollars to pay those claims are earning 10 percent on Wall Street. For a health plan, the incremental administrative costs associated with managing a mess larger than it really needs to be are trivial compared to the investment gains associated with not cleaning up that mess in the first place.

**Is There A Doctor In The Corporation?**

What other efficiency, quality, and cost problems built into the traditional health care system is the Internet ready to fix? Web-based connectivity is commonly promoted by health care Internet companies and their investors as a belated solution to the multidimensional fragmentations among physicians, physician groups, hospitals, hospital departments, other providers, and ancillary services. If you believe the advertisements for some of the leading Internet companies, then you believe that a common Web-based system will finally “integrate” care delivery, allowing physicians and hospitals to resolve an economic and professional conflict that has existed since the nineteenth century.

Unfortunately, the obstacles to achieving this long-sought integration have nothing to do with IT and everything to do with the modern health care system. They range from the most obvious, tangible regulatory hurdle, like the anti-kickback and Stark self-referral laws that have foiled numerous efforts to integrate doctors and hospitals over the past ten years, to several more subtle, even more intractable cultural problems deeply embedded in our system. Put bluntly, physicians and hospitals do not play well together; they never have and never will. A shared Web site will not change this fact. At both the individual and group levels, physicians and hospitals compete for large numbers of patients (for example, hospital
outpatient versus office-based surgery); they function at economic
cross-purposes for other patients (for example, Medicare Part A
payment compels hospitals to speed up the discharge of patients,
while Part B payment compels physician specialists to slow it
down); and they have a long and bitter history of failing to work
together to accept economic risk for patient populations (for exam-
ple, the failure of most physician/hospital organizations [PHOs] and
many independent practice association [IPA]–based management
services organizations [MSOs] in the 1990s).11

The anti-kickback and Stark laws have grossly complicated nu-
merous efforts by hospitals and physician groups to work together.
Attempts to comply with these outdated, cynical laws have forced
providers to create additional, often multiple corporate layers for
the simple purpose of joint contracting with payers for selected
types of patients or populations. These laws also have thwarted
numerous attempts at economic alignment between hospitals and
physicians, most recently the “gain-sharing” arrangements that
would have rewarded physicians for helping hospitals manage in-
patient costs more efficiently.12 If precedent is any guide, these same
laws will affect the deployment of Internet-based systems across
hospital and physician groups. Both the Stark and anti-kickback
laws have complicated—and in many cases fully precluded—the
building and installing of software systems that connect physicians
and hospitals.13 The easiest and most obvious application of a shared
hospital/physician group Web site—marketing and coordinated
scheduling—flies directly in the face of these laws because the effort
would be designed specifically to direct patient referrals.

Those are the obvious impediments to Web-based integration.
The less obvious ones involve deeply ingrained economic distrust
and cultural conflict between physicians and hospitals, the defini-
tive history of which fills much of Paul Starr’s landmark 1982 book,
The Social Transformation of American Medicine.14 If these conflicts did
not exist, then the shared computing systems promised by the In-
ternet would have been a fait accompli three computing generations
ago. Looking well beyond shared Web sites for marketing purposes,
the Internet’s more energetic promoters argue that the Internet rep-
resents a new generation of open computing technology that will
finally allow patient information to be shared across legacy clinical
and administrative IT systems. The same claims were made about
clinical data repositories in the late 1990s, EMRs and CHINs in the
middle 1990s, and “enterprisewide” client-server technology in the
eyear 1990s. None of these technologies attained broad market accep-
tance, leading to the collapse of an earlier generation of IT vendors.15

Why this numbing succession of IT failures, when so much of our
economy embraces new generations of IT so readily? After all of the other economic, legal, regulatory, and cultural barriers to IT adoption are controlled for, there is one explanation left: The practice of medicine really is an art; it is too complex to be digitized; it involves elements of chaos theory that the typical IT vendor executive would be hard pressed to grasp intellectually, let alone incorporate into product design; and it involves a level of accountability that no other class of professionals in our economy ever comes close to facing.

As every practicing physician knows (or should know), when the survival of a human being is the “work product,” an information system that is not 100 percent reliable is 0 percent useful. This hard, unalterable fact has made building usable closed clinical IT systems extremely difficult. This same fact will make building a usable clinical IT system out of the slew of emerging “open” technologies—collectively described as “Internet-based computing”—next to impossible. In medicine there are myriad variables at play, many of them subtle and intuitive, that have always forced physicians (despite generations of new IT systems) to revert to paper charts, ask patients to bring their actual pills to appointments, and treat patients more conservatively than they would if they had full access to all pertinent patient information.

For years IT executives have blamed physicians’ resistance to computers as a major impediment to widespread IT adoption in health care. The real impediment, interestingly enough, has been perpetuated by those same IT executives: Included in the training manuals and other documentation of every health care IT product, usually on the very first page, is the vendor’s legal disclaimer for any negative clinical consequences that occur with the use of that product.

**Whose Preferred Provider?**

In one significant way, the Internet is different from previous generations of health care IT, and different enough as an IT phenomenon, to fundamentally alter the economic future of health care in the United States. The Internet is the first generation of health care IT to engage the same stakeholders who have driven the health care system to its current size and sprawl: 180 million consumers with insatiable medical demands and close to unlimited insurance coverage. The Internet gives patients equal, universal, and unlimited access to clinical information; comparative quality and cost data on providers; information on treatment alternatives; and each other. In the short run, at least, this access will drive demand for alternative providers, new products, and more services.

Patients with chronic diseases have always had a vested interest in researching their conditions and various treatment options; the
Internet greatly accelerates and simplifies this process. Patients who previously were forced to comb through traditional libraries (an obvious barrier for those weakened or immobilized by disease) now have at-home access to library resources from around the world. Thus, those most disabled by their diseases should experience, as a population, the greatest net gains in access, clinical self-education, and demand for leading-edge (read, more expensive) drug therapies. This process of consumer empowerment will be encouraged by those with the strongest commercial interest, ranging from the dozens of commercial consumer health care Web sites to the drug companies that provide most of the advertising and other sponsorship revenues for such sites.

Along with the wealth of accessible clinical information on the Internet is the large number of “e-communities” of fellow patients. While the supporting technologies vary, the social structure of a patient e-community is essentially the same: A group of patients with the same disorder converses electronically about their disease, treatment experience, quality of their providers, and other matters central to their medical struggles. Patients participate by posting comments to groups engaged in an ongoing, topic-specific electronic discussion, submitting articles or other resources to a common repository, and “chatting” in real time. They also subscribe to mailing lists and request that topical information be e-mailed to them as it becomes available, whether from a single, authoritative source or from other members of the mailing list. As of this writing in mid-2000, the Internet hosted more than 90,000 list groups and more than 30,000 newsgroups. Traditional medical literature confirms the existence of clinical, educational, and psychological advantages associated with a patient’s ability to communicate with other patients with the same condition. Despite their well-documented wariness regarding patients’ retrieval of medical information on the Web, even physicians endorse the use of online support groups by their patients. As a result of these advantages, no illness lacks its own Web site and e-community. The pervasiveness of e-communities is evident across the epidemiologic spectrum: At this writing there were more than 500 Web sites and more than 570,000 Web pages associated with diabetes; there were 9,705 Web pages associated with Huntington’s disease, a much less prevalent condition.

This unprecedented information access will increase demand for medical resources, many of which patients would never have known existed. It is too early to test this hypothesis with controlled populations, but it can be inferred from the actor within the health care system (the pharmaceutical industry) that spends the most on health care Internet services. Drug companies have spent lavishly
on traditional direct-to-consumer (DTC) advertising over the past five years, and the continued increase in this expense item for television and print media indicates that it pays.\textsuperscript{24} Such spending has coincided almost perfectly with increases in aggregate pharmacy cost inflation, defined as prices multiplied by utilization—an important distinction from the supposed price inflation claimed by opportunists in the managed care and legislative arenas.\textsuperscript{25}

The Internet is the DTC movement in overdrive. Web-based DTC advertising allows drug companies to target specific patients with specific diseases. It does the same thing for Web-savvy hospitals and other providers seeking to attract patients for their more profitable service lines. The goal of both types of Web-based DTC promotion is patient “pull-through,” a business strategy designed specifically to neutralize the utilization and cost control goals of today’s health plans. According to a \textit{Wall Street Journal} report, more aggressive use of the Internet for DTC drug marketing and distribution is one of the explicit goals of the recent $75.7 billion merger of GlaxoWellcome and SmithKline Beecham into the largest global pharmaceutical company.\textsuperscript{26}

What happens when you combine Web-based DTC advertising by drug companies and providers with hundreds of thousands of independent Web sites and communities? You get the biggest run on the health insurance bank in the history of the industry. As plans have learned over the past few years, when access to new treatments is withheld from consumers, they will use the courts—and their legislators—to break down managed care’s controls. The first wave of this consumer sentiment was expressed in the development and overwhelming popularity of point-of-service (POS) plans and the dissolution of small, closed-panel networks. The tidal wave of consumer preference for choice and access comes in the form of the infinite provider network represented by the Internet. When fully swamped, the plans will be what Jeff Goldsmith calls “virtualized.”\textsuperscript{27} Goldsmith argues that “consumers are bypassing both the health care delivery and health insurance systems and seeking the information they need to frame their interactions with both systems.”\textsuperscript{28} Indeed, consumer demand is asserting its ultimate, inevitable primacy on the Internet, while continuing to insist in the courts and labor markets that the bills be paid by someone else.

The Internet provides the first feasible way of transforming large data sets into provider and health plan performance information for consumer use. A number of Web businesses have emerged to do just this, ranging from niche Web start-ups like HealthGrades.com, which is seeking to become the \textit{Consumer Reports} of provider performance on the Web; to large, established health “portals” such as
the Health Network, a heavily trafficked Web site that publishes the Mercury Awards, a scoring of hospitals by market and service line; to several independent Internet content companies acquired by WebMD.

The provider performance information the Internet content companies are publishing is built from public data sets compiled by HCFA, the National Committee for Quality Assurance (NCQA), state hospital associations, and others, and used by the health plans for their own selection of “preferred providers.” Such data sets have always been available to the public; however, because of their size, they were not readily accessible to consumers until the emergence of the Internet. These same data sets fostered the growth of the pre-Internet health care information industry, which generally used them to develop products and market them to hospitals, health plans, drug companies, and other businesses. These “business-to-business” information products were restricted to institutional users because it was impossible, before the Web, to deliver focused, user-friendly information to consumers who need ad hoc information, not entire information systems. At HCIA we struggled through most of the 1990s to come up with a business model under which we could develop and market our large, clinically rich hospital databases for consumer use. In those pre-Internet days we were unable to find one, and neither could our competitors.

As patients finally do get access to everything from Web-distributed Health Plan Employer Data and Information Set (HEDIS) data to hospital performance scores, they will flock to the higher-quality plans and providers, not only driving up costs in general but emboldening those same plans and providers to raise prices. Many have argued that patients using the Web to find providers will finally bring price-sensitivity to health care consumption, and a number of emerging Web businesses are based on this principle. The exact opposite is more likely to occur. The retail purchasing of a major medical product or service such as a cardiac bypass surgery assumes the existence of a rational consumer at a time of extreme personal crisis. Not only will people never seek the lowest bidder when it comes to their own physical and emotional well-being; they will actively seek out and select the highest bidder, presuming (usually correctly) that higher cost connotes higher quality, just like in the rest of our economy. And why would they not, when the bills are paid by someone else?

Open Your E-Mail And Say ‘Ah’

There is a corollary argument popular among health care Internet companies and their backers that even if the Internet does induce
demand for more medical resources, the associated costs will be offset by various types of “remote doctoring” that the Internet will soon enable. Such remote doctoring falls into two categories: formalized e-mail-type physician “visits” by patients, and disease management systems that route patients’ clinical measurements from their home computers and/or medical devices to centralized nursing stations. If we believe that either of these new services will displace costs from, rather than adding new costs to, the health care system, we should look, respectively, at the realities of medical practice and the sad fate of telemedicine over the past decade.

Many have argued that “e-visits” between physicians and patients have the potential to replace entire office visits. This is one of several predictions made by Jerome Kassirer, who observed in the *New England Journal of Medicine* that “on-line, computer-assisted communication between patients and physicians promises to replace a substantial amount of the care now delivered in person.” The key issue associated with the supplanting of office visits by e-mail is not privacy, as many have argued. For physicians, it is the same as the obstacle to the widespread acceptance of telemedicine: reimbursement. Because telemedicine represented a significant improvement in access to and quality of care for patients in remote locations, it also represented induced costs for their insurers. With telemedicine, patients get to “see” leading specialists without onerous all-day drives; without telemedicine, those same patients may delay the encounter or forgo it altogether. Small wonder HCFA and the health plans have not rushed to figure out a way to regulate and pay for the bulk of telemedicine services.

Similarly, until insurers figure out a way to reimburse them for e-visits, physicians are not likely to embrace them as alternatives to seeing patients. This concern about e-visits is the reason most commonly cited for physicians’ reluctance to enter into e-mail communication with patients. This leads us into one of the Internet’s biggest health care puzzles: If e-visits add new services and costs, payers will not pay for them; if they supplant old services and reduce costs, physicians will not deliver them. This same conundrum will extend to the Web-based remote monitoring systems, which are really e-visits of another variety: If this extra IT-driven service is cost-additive, payers will not pay; if it displaces physician visits, physicians will not authorize its use for patients for whom they retain
ultimate liability.

As with the sad fate of telemedicine ten years ago, the real obstacle to remote doctoring is not a lack of connectivity. Motivated consumers started trading e-mail messages with the advent of Prodigy and America Online in the early 1990s, and most would probably be delighted to e-mail their physicians for all the same reasons of privacy, access, and convenience. The real obstacles to remote doctoring are the economic and legal disincentives—not to mention the myriad clinical complexities—that amount to an unsatisfactory result: Their physicians do not want to e-mail them back.

**Nightmare On Wall Street**

Despite all of the historical, administrative, political, cultural, and clinical realities described in this paper, vendors continue to receive funding from investors, despite the tenuousness of their business plans. If anything, the investment community’s hunger to fund what will ultimately prove to be vaporware grows only more rabid with each successive generation of IT failures.

Moreover, the vaporware entrepreneurs have created a tremendous cynicism about the Internet in the health care community. As start-up companies burn through investors’ cash to buy up other noncompanies and issue press releases instead of building real products, IT executives at hospitals, physician groups, and health plans grow ever more contemptuous toward what could have been the first truly revolutionary computing platform to come along since the invention of the computer itself.

Beyond the squandered investment capital, their contempt is the real, if intangible, cost society pays for the continuing proliferation of vaporware in the U.S. health care system. With focus, discipline, and patience, Internet technologies could fix some of the things wrong with health care in the United States. But as long as its loudest promoters continue to sell the Internet as snake oil to fix everything in the system, it has less and less of a chance to fix anything.

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**NOTES**

1. This is conventional wisdom, summed up most succinctly in a comment made by Lynn Etheredge during the Clinton health care reform debate that “true health care reform will require a health care information revolution.”
3. This is evident in the thousands of pages of research analysis by Wall Street
investment banks, most of which are produced by the same stock analysts who have witnessed the rise and fall of the earlier IT companies.

4. See the “risk factors” sections in the investment materials for Internet connectivity companies Healtheon, Cybear, XCare.net, and others. To paraphrase, they all point out that the company seeking the funding has not built or installed the products described, has no customers, and has no certainty that the market will purchase its products, when they become available.

5. Two major commercial and governmental examples are, respectively, MEDSTAT’s outpatient claims database and HCFA’s MedPar file inpatient claims database, two of the industry’s most popular sources of data for analysis. Kleinke, “Release 0.0,” 23.

6. Advertisements for the Healtheon side of the WebMD business, featuring Beech Street PPO, appeared in Modern Healthcare throughout the first six months of 2000. Also, see Healtheon press release announcing Beech Street deal, 18 December 1997.


8. A major provision of HIPAA is the development of standards for electronic claims submissions, which the health plans could never agree on, despite more than a decade of attempts. See HIPAA legislation, P.L. 104-191, 21 August 1996. Section 261 is the portion of the act relative to health IT standardization.


13. At HCIA we attempted to deploy numerous such systems in different ways, for different purposes, but legal counsel advised clients that the deployment of these systems would invoke both the Stark and anti-kickback laws.


15. Kleinke, “Release 0.0,” 23.

16. The 180 million figure is calculated as the U.S. population of 280 million, less approximately 42 million uninsured, less approximately 40 million children under age eighteen, less 18 million adults covered by staff/group-model HMOs with no out-of-network provisions.


18. D. Bennehum, “The Hot New Medium Is...E-Mail,” Wired (April 1998): 104. This is a masterful review of the structure, current uses, and future commercial and other uses of e-mail mailing list technology.


21. T. Miller, “The Health Care Industry in Transition: The Online Mandate to


23. In my observation, nearly every Web vendor’s investor presentation claims pharmaceutical clients as its major source of revenue, through either DTC advertising, sponsorship, “data mining,” or other services and processes.

24. IMS Health, “U.S. Pharmaceutical Industry Spent More Than $5.8 Billion on Product Promotion in 1998” (Press release, 21 April 1999), reports that $1.32 billion of this total was spent on DTC advertising, up 23 percent from the previous year. This outstripped the 19 percent increase for total drug product promotion expense.


26. Waldholz and Moore, “GlaxoSmithKline to Market Drugs Over the Internet.”


28. Ibid.

29. A representative sample would include the Georgia Hospital Association, <www.gha.org>; the West Virginia Hospital Association, <www.wvha.org>; and the North Carolina Hospital Association, <www.ncha.org>. Knowledge of the default by health plans to public data sets as a result of the insufficient size, currency, or reliability of their own claims data bases is derived from the author’s experiences designing and deploying medical informatics systems for numerous national managed care organizations.

30. The pre-Internet version of the health care information industry still providing these business-to-business information services consists of various HBO and Company—acquired firms that are now a part of McKesson; Protocare Sciences; IMS Health; HCIA-Sachs; SMG Marketing Group; MEDSTAT, a subsidiary of Thomson SA; MediQual, a subsidiary of Cardinal Health; and numerous smaller companies.

31. The author served in a variety of development and management roles with HCIA Inc., a publicly traded provider of health care information products and systems, from 1992 until 1997.
