

WHAT A TANGLED WEB WE WEAVE

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The meteoric rise of the medical Internet has been most impressive. Until recently it lagged behind the entrepreneurial Internet in pushing e-commerce's and e-information's envelope, but I'm not sure that's still true. A large percentage of web searches now involve health-related topics and the marketplace is responding. I am unable to open any current medical journal or newspaper without seeing multiple references to medical web sites. Internet home pages such as msn.com have physician and hospital locators as well as articles on health issues and recent medical advances. Microsoft® has even allied with WebMD.com to share content including columns authored by physicians and other healthcare professionals. The explosion of readily available information is beyond belief. Web pages (individual pages within a site) in current circulation number many hundreds of millions.

Since Gutenberg's invention of movable type in the mid-1400s, knowledge has been less and less the prerogative of civilization's elite. The dissemination of technical or other specialized information has empowered people through the ages. Our open society harnessed atomic energy to the steam turbine electric generator 50 years ago but now is forever enslaved by the threat of thermonuclear war. As a result our Internet-based society must bear the burden of having plans for atomic bombs posted on uncensored web sites.

Knowledge pollutes the predictability of tyranny. History is littered with regimes that attempted to restrict the exchange of information between its citizens. The brutally enforced censorship of the Soviet Union crumbled with the Berlin Wall, and the personal computer played an important role. With the raised fist of anarchy replacing the iron hand of Communism, Russia today resembles our 19th-century western frontier. The power of accessible information can topple kingdoms and may push the revolutionary pendulum too far to the other side. Communist China faces a similar threat as it tries to restrain newly annexed Hong Kong's freewheeling capitalism.

Programs exist to filter web content but are inherently flawed, their algorithms incapable of differentiating the intricacies of English or circumventing the human mind bent on subversion. While an Internet monitor set to recognize the words "skin" or "naked" may filter out a few sexually explicit sites, it cannot distinguish between these and a dermatology web site or one key-worded to "naked truth". Conversely, a trip to WhiteHouse.com will even shock most gynecologists.

The only real limitation on today's Internet is available bandwidth. Those of us who regularly surf the net often encounter long waits while downloads try to jam many bytes of data through existing copper-wire telephone lines. You may have discovered cable modems or Digital Subscriber Lines (DSLs), but even these occasionally become overloaded. Technology will eventually triumph but until then we must wait one or two minutes for a single complex page to download. Just as DSLs raised the information highway's speed limit by a factor of 30, even faster technologies will be developed for legacy data pipes. As we speak worldwide consortiums are laying fiberoptic cables capable of channeling data at 180 megabits per second, 3000 times faster than your poky 56K modem. Tomorrow's information will literally travel at the speed of light. Imagine MedLine searches completed in milliseconds or the entire text of Williams' Obstetrics including photos written to your hard drive in minutes. Patients already have more free medical information at their fingertips than any physician will read.

Americans tend to be impatient, with unreasonably lofty expectations of our medical care system. Dennis Streveler, a senior strategist at Healtheon Corporation, claims the Internet will "become a sort of

central nervous system for healthcare". His column in the December 1999 issue of *California Physician* characterized this change as fiercely resisted by some physicians while embraced by others "who know that personal care is what healthcare is all about".

"I'm going on record as saying that I will never again choose a PCP who refuses me to be able to communicate with him or her by e-mail when I need advice, want to get a prescription filled or make an appointment. Of course, I fully expect that my e-mail will be triaged and answered by the appropriate party in the office... An empowering era has been thrust upon us, signaling the demise of the *patient* patient."

Our patients now have the opportunity to become experts on certain diseases, particularly their own. Tom Ferguson, editor of *The Ferguson Report: The Newsletter of Online Health*, observes,

"A doctor may have a working knowledge of 50 conditions and be able to treat, with some consultation, another 200. A patient only needs to know about one."

We will be challenged to keep up with our patients' questions like never before. Sometimes I am relentlessly cross-examined by these Internet-empowered patients. While pleased that they take responsibility for their health care, and remembering the intoxication of newly acquired wisdom, I deplore pop knowledge masquerading as legitimate medical tenet.

Occasionally a patient will become adamantly defensive if I question her independently acquired information, apparently valuing unattributed opinion over formal medical education, training and experience. When this happens I listen openly, debate fairly, offer references, and try to use logic when counseling a misled patient. If she can cite the web so can I. It is certainly reasonable to supply patients with web bookmarks for physician-audited sites dispensing authoritative, scientifically sound information.

I also have a considerable advantage over any Internet source. I meet patients face-to-face, giving me the opportunity to form a bond of trust that can ultimately withstand any threat electronic quackery might pose.

So what does all this have to do with forensic obstetricians and gynecologists? A lot. Internet-armed patients' cutting-edge knowledge creates loftier expectations. Every attorney with Internet access can research all relevant medical literature on a potential medical malpractice case in less than an hour, including multiple medical expert witnesses' opinions and immediate analysis of strengths and weaknesses. There's nothing wrong with that, and medical expert witnesses should welcome better-prepared attorney clients. However, that means we have to be better prepared as well, and that's not easy considering we have to be conversant with much more of our specialty's literature than ever before. Like the patient who has become an expert on her specific illness, her attorney can likewise become an expert on a specific obstetrical or gynecological topic. Lawyers today expect and are entitled to more from their medical expert witnesses than in the past. We can similarly expect a more sophisticated cross-examination. What's a forensic obstetrician/gynecologist to do?

We have computers, too. A recent American Medical Association (AMA) survey found that an increasing number of physicians are using the Internet. Our extensive medical knowledge will assist us when we go online since we will be better prepared, wading through the detritus to find pertinent articles and data bolstering our opinions. We will then be better armed to refute other medical expert witnesses' baseless opinions or junk science presented as medical fact. All concerned should welcome the introduction of scientific truth into medical malpractice courtrooms.

The practice of medicine on the Internet raises much more troubling issues. There are an estimated 20,000 health sites currently on the web. What assures the accuracy of information available to our patients? It's not much of a stretch to imagine yourself as a medical expert witness against a celebrity web doctor. The October 18, 1999, issue of *American Medical News* reported that talk-show doc Dean Edell, an ophthalmologist, inked a fifteen-year deal with Healthcentral.com for use of his name plus help in creating and marketing the site's medical content.

Even highly respected former Surgeon General of the United States C. Everett Koop came under fire in mid-1998 shortly after opening his web site. With more than 5 million hits per month DrKoop.com had become a wildly popular Internet destination for surfers seeking health information. Not only is there canned information, but visitors can ask physicians' advice. An exposé in *The New York Times* criticized Koop for taking money from site advertisers such as pharmaceutical manufacturers, and *Yahoo! Internet Life* magazine (YIL) reported his interest in the site to be worth \$50 million, quoting Koop as saying,

“I realized there were two messages that were very important to my patients. One was: Take charge of your own health... The other was: There is no prescription that I can give you that is more valuable than knowledge... The Internet is invaluable in this.”

YIL also reported fourteen healthcare institutions paid \$40,000 each for the privilege of being described as the “most innovative and advanced...across the country”. Koop maintained that the site made several changes in response to *The New York Times* article, adding that he was 83 years old and his \$50 million was only paper money. “If I were going to sell out to someone for money, I would have done it long ago on [the issue of] tobacco.” He believes the biggest problem in healthcare is uninsured patients, with the Internet possibly the only reasonable solution. “E-mail can bring doctors and patients much closer,” says Koop. “There will be a new relationship between doctors and patients, with the Internet as an intermediary and educator.” Although he agrees that people may follow incorrect or dangerous Internet advice, Koop believes this is analogous to the availability of good and bad physicians, both of whom have always been around. He feels the problem “will sort itself out” and is a proponent of “branded” web sites which would assure medical content conform to established ethical and medical standards.

Branded health sites may never become a reality. Besides, don't patients already spurn brand name pharmaceuticals for unregulated over-the-counter herbal and holistic medicines? It's impossible to prevent people making flawed decisions but we all know what will happen if a judgment-impaired web-surfing patient suffers harm after taking advice from an Internet medical site. Her web browser will soon be searching for the keywords attorney, plaintiff and medical malpractice.

What will the complaint allege? For starters how about failure to obtain a complete medical history, failure to examine before treating, and failure to obtain proper informed consent? Maybe the advising physician is not licensed to practice in the patient's home state. What if the cyberdoc prescribes or even provides medications across state lines and serious harm or death results? The attorneys general of Michigan, Kansas and Missouri have already brought actions against Internet clinics and pharmacies. It's not hard to imagine every federal agency from the DEA to the FBI battling state authorities for jurisdiction in regulation, enforcement, and litigation. Why think small? Telemedicine crosses international borders as easily as state lines.

Health law attorney Wayne J. Miller authored an excellent review of the liability risks associated with medical web sites in the Winter 2000 issue of *California Physician*. Miller specializes in Internet medicine and that alone speaks volumes. He recognizes the risk exposure inherent in medical web sites and advises they have legal counsel throughout site planning and implementation. He specifically decries e-mail as inappropriate for on-line medical consultations because it is often neglected or answered sporadically. It also limits information available to both the physician and the patient.

According to Miller, California law requires telemedicine consultations be conducted in real-time through two-way video and audio links. Any web site providing diagnosis and treatment cannot base its services only on patient questionnaires and must make in-person follow-up available. Finally, cyberdocs are expected to comply with all 50 states' medical practice laws.

Another specter raised by Miller is fee splitting. If a physician gains patients through on-line commerce and receives compensation either indirectly through equity investment or directly from patient billing and collection, he is subject to state and federal self-referral and anti-kickback legislation. Direct payment from the site may violate the federal prohibition against corporate practice of medicine.

These legal opinions notwithstanding, an AMA survey found 27% of responding physicians have a web site promoting their practice and providing patient education. I'm one of them. Those who haven't made the transition certainly have access to lots of advice. I get offers for web site design assistance every month. Recently I got a brochure from Aspen Publishers advertising *E-Healthcare*, a book guaranteed to provide "Internet strategies and e-solutions that help reduce overhead costs, find new business and improve patient care!" Chapter headings included "Meet the Empowered, Interactive SuperNet Woman", "e-Communication and Interactive e-Care: The Next Generation of Disease Management", and of course "e-Health and the Law".

I didn't see a chapter on "How to shorten patient waiting times" but one might be helpful to Americasdoctor.com. Marilyn Chase's August 23, 1999 *The Wall Street Journal* column discussed 36 people logged-in ahead of her in the virtual waiting room for the site's Physician Chat Room. "Just like a real doctor's office, without the old magazines!" Chase finally got to converse e-chat-style with AmDoc 8, who spoke in generalities about treatment of migraine headaches with the disclaimer that "(b)ecause I cannot evaluate your medical problems on-line, I cannot discuss your case." Maybe AmDoc 8 had previously enjoyed a telelaw consultation with attorney Miller.

David Toub, MD, discussed his own experience with medical chat sites in the August 1999 issue of *Medical Economics*. He initially expected general medical questions on his web health forum but was surprised to receive twice as many requests for medical diagnoses or second opinions. It's easy to see how a well-meaning physician might be tempted to dispense a little free medical advice in such a situation but he reminds us that this could create a de facto doctor-patient relationship, recommending instead the use of disclaimers and avoidance of online referrals. "Medical Web sites are thriving because patients no longer have easy access to physicians," according to Toub.

American Medical News in its November 22-29, 1999, issue reported on the phenomenon of virtual house calls. Health Hero Network markets Health Buddy, an electronic device that monitors cardiac patients for congestive failure by transmitting weight, diet and medication usage data via telephone to a monitoring site. Similarly, Alere Medical, Inc., has developed an electronic scale that monitors cardiac patients. The University of Southern California has a pilot program for homebound multiple sclerosis patients allowing physician contact via the Internet. It's hard to criticize obviously good intentions, and undeniably these patients benefit from expert medical care that they might not otherwise receive, yet critics fear the loss of face-to-face interactions may erode the physician-patient relationship plus encourage dangerous diagnostic and therapeutic shortcuts.

Perhaps the scariest medical Internet problem is record confidentiality. A fair amount of medical information is provided via e-mail even though such transmissions may be easily intercepted. Several recent articles such as Kevin Taylor's "The Clinical Email Explosion" in the January 2000 issue of *The Physician Executive* and Cheryl Moyer et al's "'We Got Mail': Electronic Communication Between Physicians and Patients" in the December 1999 issue of *The American Journal of Managed Care* attempted to define guidelines for medical e-mail usage. Several start-up companies like ehealthline.com in addition to larger concerns such as PCS Health Systems and Healtheon-WebMD are moving rapidly toward on-line collection of, maintenance of and provision of access to confidential medical and

pharmaceutical records by physicians and patients. Some propose that patients should be able to access and edit their medical record on-line. According to Dennis Streveler of Healtheon,

“The ‘working medical record’ that each of us uses to become our own most important caregiver will be with us on the ‘Net, in our pockets, or both. We will share the data as we see fit, and the whole notion of a ‘personal health record’ will help mitigate the patient confidentiality battles which no doubt will rage over the next five years.”

Only the most prescient forensic obstetrician/gynecologist can foresee the results if patients are given access to alter the very record upon which medical diagnosis and treatment depend. Who would be the defendant in *that* medical malpractice case?

Technical experts believe data encryption with 128- or 160-bit algorithms, providing virtually infinite coding possibilities, will make confidential Internet storage and transmittal of medical information a reality. But it is still sobering to consider a hacker selling medical information to plaintiffs’ attorneys, overzealous journalists or insurance companies bent on underwriting only the healthiest, genetically pure lives. In spite of the above no one realistically believes the electronic medical record is avoidable. As J. Arthur Gleiner, MD, Primetime Software Vice President notes in the January 2000 issue of *The Physician Executive*,

“One thing seems certain. The first organization to successfully realize a significant amount of the potential benefit from electronic medical records will have a huge competitive advantage in its marketplace.”

Electronic medical records will occur because there’s money to be made.

I enjoy considering the boundless possibilities of Internet medicine, but at the same time keep a critical eye toward its excesses. I’m no longer surprised when today’s curious news blurb becomes tomorrow’s headline. For example, Alternative Technology Resources and Healtheon have developed a joint venture for referring uninsured patients to doctors who will accept discounted cash payments equal to large health insurers’ usual and customary fee schedules. Medicineonline.com is planning a surgery reverse-auction, allowing a patient to advertise her desired surgical procedure on the Net for competitive bidding by surgeons. Caveat emptor.