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Just a click away

Internet revolutionizing Americans' encounters with the healthcare industry

By John Morrissey

Alyssa turned on the high-definition television set, plopped down on the precisely positioned chair and told the TV to call up the Internet connection. Her mind was on the medical test results: Were they in yet?

As she waited a few seconds for the World Wide Web to come up, a tiny opening above the screen was reading her identity by scanning her retinas.

Alyssa matter-of-factly clicked her home page on her doctor's Web site, oblivious by now that the security sentry was clearing her access to the page and passing the confirmation to the selected site automatically.

The year is 2020, and the Internet has changed everything.

From homes to doctors' offices and from hospitals to consumer health cooperatives, Web technology has powered the pinpoint delivery of medical information to the places it can do the most good.

The transformation was anything but orderly, and provider and patient groups still argue about whether the Internet's independence from the medical establishment caused as much harm as it did good.

But on this day in 2020, as Alyssa looked at diagnostic findings from her family room, she took comfort in two tested truths about healthcare data.

First, more is known about her healthcare status than anyone thought possible, and everything is secret—accessible only to her and others who need to know.

Second, more is known about the healthcare performance of her caregivers than anyone thought possible, and nothing is secret. That information is accessible to everyone, because everyone has a need to know.

Alyssa had found most of what she needed to know about her primary-care physician from information on his own Web site, though she knew where to go on the Web if the data seemed suspiciously incomplete.

Comfortable with her doctor's expertise, she merely skimmed a summary on why an office visit was recommended based on test findings.

A time slot, already proposed for later in the afternoon, took into account the private list of job-related and other scheduling limitations she recently updated on line. A note suggested she bring a companion; the odds of receiving anesthesia while in the office triggered such an alert.

Alyssa clicked OK and added the visit to her day.

The origins of innovation

Behind that five-minute encounter is a two-decade streak of rapid Internet-engineered innovation, prodded in part by a series of political and business challenges that increased the stakes for medical information.

Once disorganized and remarkably expensive, U.S. healthcare was brutally reformed during a watershed period early in the millennium when consumers and providers both discovered the Internet could save money and protect their interests in a shrinking economic climate.

The common thread in the tumultuous first decade was a phenomenon called "managed care," which employers attempted to use in the late 1900s to control healthcare costs and then gradually abandoned under pressure after 2000 in favor of the model that puts the consumer in charge.

Managed care was a crude attempt to control costs without considering how to make providers operate efficiently and coax consumers into the arena of healthcare economics.

In a nutshell, managed care was a premium-based payment system centered on providing a comprehensive set of services for a preset price. However, it mainly focused on treatment of health problems after they got out of hand instead of preventing or catching them early.

Consumers, accustomed to having all their ills taken care of, had no great incentive to take charge of their own healthcare. Meanwhile, doctors practiced medicine patient by patient, with little grasp of how they did over the long haul and even less solid evidence of what was adding expense without improving care.

It's little wonder that no one was happy with the results. Employers chafed at paying too much for healthcare, providers chafed at not being paid enough and consumers chafed at a key

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1773 **1847**

1773—Eastern State Hospital, Williamsburg, Va., founded as North America's first public psych hospital.

1796—British physician Edward Jenner gives first officially recognized vaccination, against smallpox. Smallpox, which killed hundreds of millions worldwide and blinded and scarred millions more, was the first infectious disease conquered by humans—through vaccinations.

1816—Stethoscope invented by French physician Rene Laennec

1842—American surgeon Crawford Long first to use anesthesia—ether—to mask pain during dental surgery.

1847—American [illegible]

consequence of uncontrolled costs: growing limits on coverage of selected medical treatments.

The nation's hospitals, backed into a corner by reimbursements that didn't cover their high costs, were the first to discover Internet technology as a catalyst of productive change. Besides bringing order and value to their internal operations, the hospitals' initiatives brought physicians and then consumers into the Internet information mainstream.

Those ties, however, would be tested severely by an abrupt shift in health-premium financing by employers—from defining the benefit levels of health coverage to defining the contributions put toward the cost of each employee's coverage.

In the ensuing skirmishes between consumers and providers, the Internet would become first the battleground and eventually the operational hub of healthcare.

The medical-data explosion

In the late 1990s, hospitals and physician practices plainly did not know enough about what they were doing or how they could do it better.

Without easy access to feedback on their performance or the ability to systematically spread medical knowledge around, providers ran their institutions like pilots flying in foggy conditions without instruments.

Plenty of information on care costs and clinical activity was collected. It just wasn't accessible in many cases for use in diagnosis, education and analysis. Hospital databases, for example, were clunky and unfriendly cyberplaces. They did not surrender data easily. They weren't designed to distribute their value throughout a wide healthcare network without costly interfaces.

The lowly Web browser changed all that. Mimicking the way it mined Web site computer servers of all types for specific information, Internet technology proved able to open up the locked treasure chests of data and combine their contents with other sources of information to get at patterns of care and analyze outcomes.

For the first time, hospitals had tools to tackle costs and improve care techniques in a big way, instead of constantly carping about the extra revenues they needed to sustain inefficient norms of operation.

The Internet would become the operational hub of healthcare.

It was the beginning of hospitals' pivotal transformation into high-powered centers of medical information. And it spread to physician offices, which were finally able to receive computer applications cheaply over Internet connections and rapidly create databases of primary-care performance on a scale never before imagined.

Meanwhile, a new industry had sprung up around consumer-oriented information on healthcare conditions, medical advances and helpful hints on mending bad health habits. Aided by Internet entrepreneurs, physicians and hospitals paid small monthly fees for Web sites to encourage responsible consumer behavior.

In addition to channeling accurate healthcare content to consumers, the Web sites allowed secure access to individual home pages in which doctor and patient could correspond and exchange specific healthcare details without the need for office visits.

It took a while for individual patient home pages to catch on because security was in its infancy. But technology quickly caught up to demand, and by 2002, cryptology was deployed with confidence to grant access to predefined individuals.

The chief threats to managed care's financial formula were finally getting some attention. But for fed-up employers, it was too little, too late.

The lessened pressure on premiums was replaced by renewed sniping about coverage denials by employees armed with ever more data on available remedies and drugs for their ills.

The reaction from *Fortune* 500 businesses (and gradually the larger economy) to their dissatisfied work forces could be summed up like this: If you think you can do any better with the money available, here it is.

Given a lump sum to work with, consumers who had been insulated from the variables and trade-offs involved in negotiating health benefits had to figure it all out.

They could buy only so much without either paying more out of pocket or accepting high deductibles. Suddenly consumers realized the cost of ignorance or indifference about their health status and healthcare options.

Healthcare providers saw the chance to move in with the health information and value-added services that consumers needed to make intelligent choices about health plans, providers and lifestyle changes. It was the spark everyone was waiting for to launch the long-delayed consumer movement in healthcare.

People visited physician-sponsored Web sites in hordes, trolling for the data that would make a difference. Personal home pages for patients became a must for providers seeking to maintain and expand their market share, as consumers sought extra access to their doctors for advice on how test results and

1853

...Charles Gerhardt, but its medicinal value isn't fully known until 1899.

1863—Red Cross founded in Switzerland.

1864—French scientist Louis Pasteur suggests that dangerous microbes could be killed through application of controlled heat. Leads to process of Pasteurization.

1866—Following the Civil War, Congress establishes the National Home for Disabled Volunteer Soldiers, the beginnings of the nation's veterans healthcare system.

1867

1867—First report by British physician Joseph Lister on use of carbolic acid to fight micro-organisms. Year is now regarded as the birth date of antisepsis.

treatment plans affected them economically as well as physically.

Power to the people

But after a few years, consumers began to complain that some information was missing.

The details on health plans, available mainly from a data bank called HEDIS, may have been fine for large employers purchasing coverage for a heterogeneous mass, but individual families were looking for different and more specific information.

The Joint Commission on Accreditation of Healthcare Organizations had some snippets about hospitals' performance but largely talked theoretically about facilities meeting standards that indicated a capacity to do things right.

Most of all, consumers wanted to know the track record of doctors—how they practiced medicine, if they were up to date with those disease-management protocols that parents were reading so much about, and how things turned out for their patients.

Impossible, said providers, who had guarded that information for decades. There was no good and fair way to gather and release such specific data.

So little by little, consumers started compiling provider performance data themselves. They created chat rooms on the Web to talk about experiences with doctors and hospitals. They formed informal user groups, attracting people interested in a particular health plan.

Track records of hospital departments and physician specialists soon were shared and compiled. Rogue databases on providers showed up, and consumers flocked to them. Some repositories were accurate, but others were cavalier with observations about facilities and physicians.

Some providers tried to sue for assaults on their reputations, but the independent nature of the Internet confounded attempts to pin liability or keep up with the shell game of shifting Web locations.

Ironically, the Web had created such a comprehensive data loop between physicians and hospitals that the controversial information on provider-specific outcomes and performance had indeed become easily available within healthcare networks. Some providers began releasing such data for defensive purposes to counter misinformation on the Web.

Most of all, people wanted to know the track record of their doctors.

Consumers ate it up. Eventually more providers parted with their performance data, and the uptick in business was immediate. Informal user groups matured into formal consumer health cooperatives, positioning themselves as trusted repositories of accurate data.

Health plans got into the act, offering better payments to providers whose performance demonstrated an ability to keep people healthy or cure them efficiently. Consumers got breaks on premiums for meeting measurable targets of health status.

Next the cooperatives took on consumer-satisfaction surveys, compiling pointed evaluations of physicians that eclipsed the prevailing generic reports, which invariably scored all providers above 90%.

Slowly, physicians and hospitals found it in their interests to cooperate with the routine polling of patients.

A routine office visit

When Alyssa stepped into the doctor's office, the customer satisfaction specialist was right there to greet her, as usual. Leading her to an exam room, the specialist reminded her to stop by the liaison office on her way out to summarize the encounter for the database kept by her health cooperative.

The physician came in and turned on the video Web connection to a specialist on call at a remote location. They discussed the test findings and arrived at a preliminary decision on outpatient surgery. But first the primary-care doctor consulted a Web database that kept track of new medical research—just to make sure something new hadn't been reported.

Physicians long ago had dropped the pretense that they could keep track of all developments in their field. Between the fast pace of drug innovations and patients' easy Web access to the latest data on their conditions, providers had no choice but to embrace online efforts to compile and cross-reference breakthroughs.

And indeed, the surgical option had been superseded by a drug technique. That meant no anesthesia, and no reason after all for Alyssa's brother Patrick to be there as a driver.

But not so fast. A nurse tapped Patrick on the shoulder with a printout of his personal prevention checklist, showing two exams missed. A chip on Patrick's health card automatically trips an electronic sentry whenever he enters a doctor's office or hospital, giving prevention specialists a chance to check for unmet routine exams or tests before he leaves the building.

It looks like Alyssa will be driving Patrick home. ❑

1881 **1900**

1881—American Association of the Red Cross founded through work of Clara Barton.

1891—First school of osteopathic medicine founded by Andrew Taylor Still, D.O.

1895—Discovery of X-rays by German physicist Wilhelm Roentgen.

1896—Victor Electric Co., Chicago, builds first diagnostic X-ray machine.

1898—Association of Hospital Superintendents formed in Cleveland, predecessor of the American Hospital Association.

1900—St. Rose's Free Home for Incurable Cancer[illegible] York[illegible]