



# TELEMEDICINE

## Health Care Unconfined by Walls

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ALAN PITT, MD

**O**ver the past two decades, the telemedicine industry has morphed from a grant-funded research project into a tangible tool for delivering care. In part, this has been the result of technological improvements from other industries. High-speed internet, increased computing power and video conferencing all have contributed to a provider and patient experience rivaling in-person encounters. Though adoption has been uneven, radiology, my specialty, made the transition quickly. Teleradiology now is an indispensable tool for competitive practices.

Other clinical areas have taken longer, but telemedicine in general is reaching a tipping point. Access issues — both rural and urban — and rising consumerism are pushing health care systems to be more available. Newer “at risk” reimbursement models make collaboration the priority. Paper schedules, pagers and phones have been replaced with text, voice and video. Better patient access, improved clinical outcomes and a highly efficient workforce of providers are critical components for a competitive health care delivery system. Telemedicine can help health care systems achieve these goals.

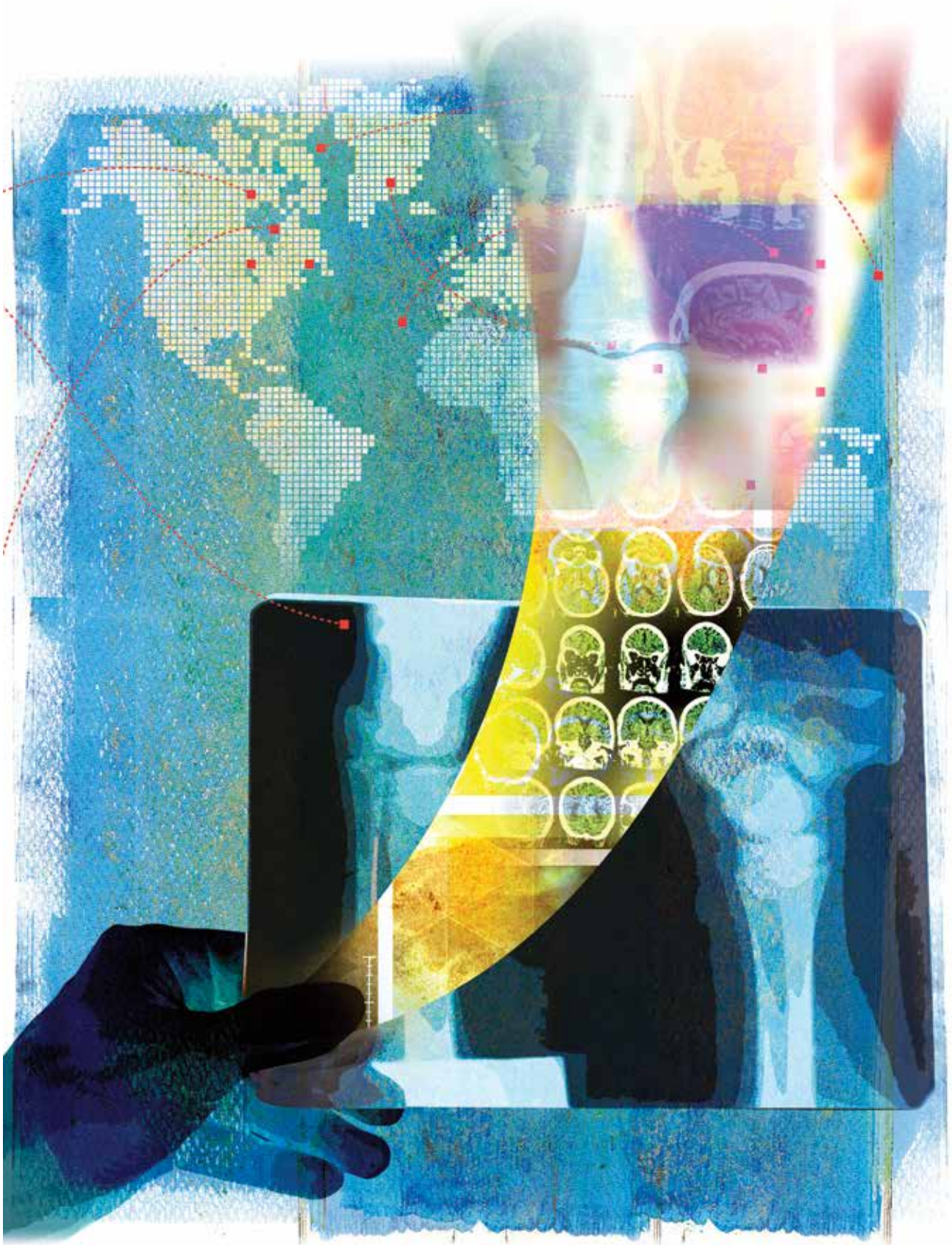
### THE TELEMEDICINE ORIGIN STORY

Telemedicine started as a military-run effort. NASA, concerned that astronauts’ health issues could compromise missions or even cause mission failure, devoted significant funding to telemedicine research. Early meetings of the American Telemedicine Association opened with military-sponsored presentations from the Tele-

medicine and Advanced Technology Research Center, a branch of the Army.

Once Uncle Sam got the ball rolling in telemedicine research, academia followed suit. The government offered millions of dollars in grant money, but innovators were no longer motivated by research for the space program. Instead, they turned their gaze to solving a known problem in earthbound health care: how to provide care from a distance to citizens of rural America. Many early leaders of the American Telemedicine Association came from the universities that built and deployed that technology.

Entrepreneurs were the third wave in the development of telehealth. As in many industries, early adopters often experienced epic failures and lots of wasted capital. Initially, the market simply wasn’t ready: The technology ecosystem wasn’t mature, which raised costs and hampered a positive user experience. Furthermore, the business models of entrepreneurs didn’t align with those of health care systems — reimbursement and



monopolist medical licensure limited the type of care that practitioners could provide across state lines (think: policy stuck in the 1970s). Luckily for patients and providers (and yes, entrepreneurs), the times have changed, bringing innovative care strategies.

### TELEMEDICINE TODAY

Telemedicine has evolved from its early grant-funded, care-from-afar model to a tool that is as helpful for resolving medical issues as an in-person visit. We are able to use modern text, voice and video tools to bring the right person to the bedside at the right time, even if that provider is as little as one or two floors away. An example is timely medical collaboration with emergency department triage, which helps to reduce length of stay and prevent unnecessary readmissions.

It is understandable that for many hospital CEOs, using telemedicine for driving down the cost of care while driving up revenue and patient satisfaction is much more top-of-mind than using it to provide medical access to people in hard-to-reach communities.

With the recent merger of two major players in telehealth, Avizia, Inc. of Reston, Virginia, and Boston-based American Well (of note: I am the former chief medical officer of Avizia), telemedicine is moving into a more mature phase, one in which health care systems can trust that vendors will be around for the long haul. Rapid growth and innovation are great, but hospital systems thrive on reliability and predictability. Health care is a business, and care delivery networks must care for patients at lower costs with higher revenue if they hope to survive.

### LESSONS FROM FILM-TO-DIGITAL TRANSITION

My career in radiology spans 50 years — half through my father's career, and half through my own. My dad started his radiology residency in 1967, when I was 5. At that time, the lion's share of imaging was limited to radiographs, what most people refer to as X-rays — large, floppy sheets of film that showed bones, belly and chest. Although Dad didn't have the advanced imaging modalities commonly used today, the radiology department

was a place for collaboration among clinical services. There was only one film — no copies — and other specialists came to the radiology department to review radiographs and discuss their findings. This collaboration was key in arriving at the right diagnosis.

I began my residency in the early 1990s. By then, X-rays were being replaced with ultrasound, computed tomography and magnetic resonance imaging — digital exams that, initially, were converted to film for interpretation by the radiologist.

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But by the late 90s, people figured out that computer-generated exams could stay digital and be read on the computer. By 2000, picture archiving and communication systems, known as PACS, became an essential technology.

Overall, the transition to digital images was great for the business of radiology. Beyond the film cost savings, PACS offered additional efficiencies. Anyone could review and interpret an exam from anywhere. My first practice quickly looked for ways to consolidate. For example, instead of having two radiologists on call for two hospitals, a single person could cover the evening hours and read cases from both hospitals. My practice took it one step further by sending a radiologist to work in Europe, where the time difference meant American overnight cases were interpreted during the day in London.

Corporate efforts, independent of local radiology groups, came next. NightHawk Radiology Services, based in Idaho, was one of the first national groups that offered to read cases overnight for other radiology groups. As NightHawk grew, it became something of a threat by competing with smaller, local practices. As a larger group, NightHawk had the resources to offer greater sub-



specialization and more substantial investments in technology, improving report turnaround times and communication back to other clinical staff.

The result has been something of a battle between local radiology practices and better-funded, national groups. On the one hand, all care is local: community radiology practices have strong ties with local doctors. Physicians like sending patients to people they go to church with, play golf with, eat lunch with. Local radiologists presumably have a greater commitment to the community.

However, the same technology that enabled radiologists to move out of hospitals has a critical drawback: It has eroded their relationships with the local hospitals. When anyone, anywhere, can interpret a radiological image, the radiologist becomes a commodity. There is a national trend for radiology practices to sell to larger, well-funded corporate entities, which are well-funded and fortified with large information technology budgets. Each has hundreds of radiologists across the country, making round-the-clock access to subspecialists a reality.

#### OTHER SPECIALTIES AREN'T FAR BEHIND

The development of teleradiology was natural, intuitive. Savings on the cost of film alone largely paid for the transition to computerized reading of digital images. The modalities — ultrasound, MRI, etc. — were all digital. And for the most part, patients never saw the radiologists, making them somewhat interchangeable. The same things couldn't happen in other medical and surgical specialties ... could they?

Frankly, yes. The commoditization of health care isn't unique to radiology. Over the past 50 years, the mentality has shifted from "my" doctor to "the" doctor. When my father began his practice, most physicians didn't have a sense of time — when patients were sick, their doctor generally managed the case throughout the illness. Duty hours (now enforced for medical trainees) and shift work (common for today's practicing radiologists, hospitalists, emergency department physicians and even deliverists in obstetrics) were uncommon.

From a technical perspective, not much sepa-

rates teleradiology specifically from telemedicine generally. In the case of teleradiology, a CT is sent securely over the internet, a report is generated and the treating physician gets a message. During a standard telemedicine encounter, a remote physician is notified that a patient is in the queue. The physician then reviews patient information from the electronic medical record, visits with the patient over phone or video, documents his or her findings and communicates recommendations to the requesting physician. Except for minor differences based on specialty and video availability, the infrastructure is the same.

From a business perspective, radiologists had the luxury of being paid for remote services early on. For the most part, Medicare and other payers recognized that the radiologist was not at the bedside, therefore he or she was paid for teleradiology. Payment for other clinical services, however, has been caught up in a legislative battle. Providers who wish to care for patients eight floors, eight blocks or 800 miles away can be prohibited by outdated legislation and miles of red tape. Many state medical boards oppose telemedicine, fearing an erosion of the doctor-patient relationship. Some in the telemedicine community regard this as monopolist protectionism.

Some payers argue that the mainstream use of telemedicine will open the floodgates to fraud and overutilization. The fraud concern always

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puzzled me: Telemedicine, by its very definition, results in better documentation than an in-person visit would. In terms of utilization, some data suggested that telemedicine brings in a new consumer class: patients who wouldn't seek care

at all if they had to drive to see a doctor.<sup>1</sup> Thus, improved access to health care is a benefit, but it comes at an overall cost because more people are receiving care for the first time.

Personally, I'd like to see more telemedicine shift from treating the walking well to treating the chronically and acutely ill. These are distinct markets and should be treated accordingly.

## The aging population and the increasing complexity of medical care demand innovation in care delivery models.

Regardless, current advocacy efforts by provider organizations in each state favor liberalizing telemedicine reimbursement. Most urge regulators to treat a patient visit as a visit whether it occurs in person or over a screen — referred to as parity legislation.

For many medical specialties, partnering with hospitals on a subscription basis makes sense. Teleneurology/telestroke is a prime example. Although a stroke neurologist couldn't afford to be available 24/7 for a single hospital's stroke cases, that same neurologist could cover several hospitals remotely, and a scalable financial model would be possible. Without this kind of out-of-the-box thinking, many patients would go without lifesaving intervention such as tissue plasminogen activator (tPA) for a stroke. Other specialties presently in short supply are looking to build similar partnerships; these include behavioral health, nephrology, eICU and neonatology.

### IMPLICATIONS FOR CONTINUUM OF CARE

As the majority of telemedicine moves from being an urgent-care alternative to being a tool for managing the continuum of care, there are implications for people at every level of the health care system, from patients to providers to administrators.

■ **Patients.** Even the most streamlined, efficient health care systems have no choice but to suspend patients in “wait states,” that is, put a patient on hold while awaiting a consultation from a provider in another specialty. When telemedicine is an option, such wait times are drastically reduced, which has a positive effect on the

patient's perception of the quality of care. It also reduces overall length of stay, which improves the hospital's bottom line. Perhaps more critically, telemedicine offers patients a person-to-person interaction with their health care providers. Even if the interaction takes place over a video screen, it is still personal in nature, and that type of patient-to-provider connection leaves a mark on the patient.

For patients who have chronic conditions, telemedicine allows for more frequent visits with their providers. Of course, this same ease of access opens the door to overutilization by those abusing the system, but, overall, the ability for patients with chronic illness to confer with their physician more easily and more regularly is far better than the current system.

■ **Providers.** As with any new-wave technology or policy, there will be winners and losers as telemedicine gains traction. Private organizations that historically have monopolized geographic regions will be under great pressure to stay competitive as the market is opened up to newcomers. Those looking to grow their practice will find new opportunities — namely, the ability to conduct more frequent face-to-face visits via video. Alternative business models based in subscription services offer a novel way to build a virtual practice. One physician can be on call at multiple institutions, which helps compensate for the shortages in certain specialties.

■ **Hospitals.** Of course, many types of care demand a hands-on practice. However, for specialties that do not, telemedicine should allow hospital systems the opportunity to partner with top-tier clinical services.

## The unrealistic expectation that every hospital should offer every service line eventually will be eliminated.

Just as the internet has broadened the scope of goods that people can order from almost anywhere, so, too, will telemedicine present hospital systems with access to some of the best providers in the world. Another advantage comes with com-



munication technology, a slow but steady transition from pagers and phones to the text, voice and video capability necessary for telemedicine. Once their systems are updated and care is available via telemedicine, hospitals should see improvements in triage, length of stay and readmission rates.

With any luck, the unrealistic expectation that every hospital should offer every service line eventually will be eliminated. Systems that include three or more hospitals should evaluate whether they are in a position to leverage service lines across the network. Providers in subspecialties then can treat patients at each of the hospitals.

Change is hard. Telemedicine will continue to challenge our established perceptions of health care, forcing us to redefine the norms of the doctor-patient relationship. However, the aging population and the increasing complexity of medical care demand innovation in care delivery models.

The technological advances that made telemedicine a reality now make it possible to deliver care via text, voice or video — no matter the dis-

tance between patient and provider. The risk, though, is that as health care grows more efficient, providers become virtually interchangeable and lose touch with their patients and their communities.

Such an outcome, however, is a choice. How we use the opportunity to deliver care is up to us.

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#### NOTE

1. J. Scott Ashwood et al., *Health Affairs* 36, no. 3 (March 2017): 485-91.

## QUESTIONS FOR DISCUSSION

Alan Pitt, MD, is a neuroradiologist who has been an early and constant advocate for telemedicine. He believes that telemedicine has the potential to improve patient care, allow greater opportunities for providers and help hospitals gain access to top-tier clinical specialists at more reasonable costs.

1) To what extent has your hospital or health system expanded services through telemedicine? Discuss what other areas you think would benefit from having telehealth care in respect to the needs of patients and the services of providers.

2) Pitt reports that although patients appreciate the increased access to health care professionals, physicians and other clinicians sometimes feel the loss of shared expertise and consultation they used to value. How does your ministry deal with professional isolation, whether it is due to telemedicine or other factors?

3) How does telemedicine impact holistic care? What are the opportunities and concerns for pastoral care and for palliative care?

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