



Perspective

Covid-19 and Health Care's Digital Revolution

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In the face of the Covid-19 outbreak, Americans are waking up to the limitations of their analogue health care system. It seems clear that we need an immediate digital revolution to face this crisis.

In a very real sense, the spread of Covid-19 is a product of the digital and technological revolution that has transformed our world over the past century. Unlike the “Spanish flu” of 1918, which became an international epidemic over the course of a year, Covid-19 has spread to every inhabitable continent within weeks, outpacing our health system’s ability to test, track, and contain people with suspected infection. To continue functioning, private companies and institutions of higher education have made an abrupt transition to remote videoconferencing and other digital solutions, while the health care system is still managing this crisis largely through risky brick-and-mortar visits.

As an analogue system, health care is ill equipped to cope with this swiftly emerging epidemic.

The U.S. health care industry is structured on the historically necessary model of in-person interactions between patients and their clinicians. Clinical workflows and economic incentives have largely been developed to support and reinforce a face-to-face model of care, resulting in the congregation of patients in emergency departments and waiting areas during this crisis. This care structure contributes to the spread of the virus to uninfected patients who are seeking evaluation. Vulnerable populations such as patients with multiple chronic conditions or immunosuppression will face the difficult choice between risking iatrogenic Covid-19 exposure during a clinician visit and postponing needed care.

As health care systems nationwide brace for a surge of Covid-19

cases, urgent action is required to transform health care delivery and to scale up our systems by unleashing the power of digital technologies.¹ Although some digital technologies, such as those used for telemedicine, have existed for decades, they have had poor penetration into the market because of heavy regulation and sparse supportive payment structures.² In a 2019 Price Waterhouse Cooper survey, 38% of chief executive officers of U.S. health care systems reported having no digital component in their overall strategic plan; 94% of respondents pointed to data-protection and privacy regulations, the Health Insurance Portability and Accountability Act (HIPAA, 1996), and the expansion of HIPAA rules and penalties under the Health Information Technology for Economic and Clinical Health (HITECH) Act (2009), as factors limiting implementation of digital strategies.³

With the first emergency Covid-19 authorization, Congress lifted provisions that limited tele-

medicine services to rural areas, allowing the use of telemedicine services for all beneficiaries of fee-for-service Medicare.⁴ To enhance the technology infrastructure available to clinicians to support these visits, the Office of Civil Rights (OCR) at the Department of Health and Human Services (HHS) has announced that it is using its enforcement discretion and will not impose penalties for using HIPAA-noncompliant private communications technologies to provide telehealth services during this public health emergency.⁵ These are important initial responses, but the crisis demands a broader strategy to address three specific areas: reimbursement for new digital services, expanded regulatory relief, and evaluation of clinical care provided by means of these technologies.

The menu of new remote service options that health systems are rapidly attempting to adopt requires payment structures to support its growth. Beyond video visits, these services include text, email, and mobile-phone applications and can expand to include uses of wearable devices and “chatbots.” These services could be deployed to provide synchronous and asynchronous support both for patients with Covid-19 and for those requiring other routine clinical services. Reimbursement could be structured around time-based models or fixed fee-for-service payments. Evaluation and management (E&M) billing codes can be expanded beyond the existing telemedicine modifiers to reflect a more expansive conceptualization of digital service provision. For example, the Centers for Medicare and Medicaid Services (CMS) could remove requirements for in-person physical ex-

ams as part of E&M services, leaving determinations about the need for, and mode of, such exams to the discretion of the clinician.

Technical fees to support the required technology infrastructure can be developed on the basis of existing software-as-a-service models. Any relevant payment rules should allow for creative applications of emerging digital technologies, such as voice-interface systems (Amazon Alexa, Google Voice, Apple Siri) or mobile sensors such as smartwatches, oxygen monitors, or thermometers. Concurrently, the federal government could move to classify and regulate these digital services as activities of interstate commerce subject to federal rather than state jurisdiction, in order to provide a single set of rules for this emerging market.

A second set of services is needed to expand our capacity for caring for patients who are acutely ill. Hospital-at-home models for infected patients have been well described, and payment approaches for these models have been proposed but never widely adopted. Hospital-at-home care will be an important option for otherwise stable patients with newly diagnosed SARS-CoV-2 infections and for early discharge of patients admitted to hospitals.

Another new category of service is oversight of persons under investigation in home quarantine. Physicians and health systems may need to track large populations of patients on a daily basis. Again, digital technology can support this service under new payment models — existing models for remote-monitoring services are personnel-intensive rather than technology-intensive and require approval of monitoring devices by the Food

and Drug Administration; they could not be applied to patient surveys conducted by digital assistant. The HHS secretary and the Center for Medicare and Medicaid Innovation (CMMI) have authority to enact such changes in the payment structure. CMS can ensure that the private market also adopts these provisions by, for example, leveraging participation requirements for Medicare Advantage.

An emergency update of privacy and communication regulation would have to accompany implementation of the payment models for these new digital services. Stringent and outdated technological requirements under HIPAA, coupled with confusing or vague regulatory guidance, have greatly slowed adoption of digital solutions in health care. Allowing for the use of secure technologies, such as commercial videoconferencing solutions that offer 256-bit end-to-end encryption — technologies that surpass anything that existed in 1996, when HIPAA was passed — will ensure security while expanding services. HHS's announced enforcement discretion recognizes the importance and timeliness of this issue.

HHS could expand the impact of its approach by defining telehealth broadly to include digital tools beyond audio and video. To ensure that health care systems are aggressive in adopting these solutions, the agency could expand its enforcement discretion to any provider adopting a digital solution for patient care. Providers could document their technical solution in a memo to the OCR to allow HHS to build a record of these new approaches. When such a notice was filed, the implemented solution could be considered compliant for 24 months, the du-

ration of the emergency, or until the provider receives further updates from HHS. Over the next several months, HHS can change HIPAA to allow the use of commercial encrypted technologies for telehealth services as a permanent solution.

The final part of this policy response should include a provision for evaluating these emergency measures. There has long been a debate in the United States about the risk of fraud resulting from adoption of digital services in health care. Obviously, it will be important for us to understand whether these new authorizations were used appropriately by providers and patients, and to assess the quality of care provided. At the same time, there has been an ongoing quest to adopt digital technologies to improve the quality

and reduce the cost of health care services. It will also be important to understand whether these new approaches help to increase clinical productivity during the Covid-19 pandemic. Such information will be critical to understanding whether these emergency authorizations should be made permanent once the immediate crisis has resolved.

Fortunately, the world is a different place than it was in 1918. We have the technology to strengthen our health care system for our patients. It's time we put these tools into practice.

Disclosure forms provided by the authors are available at NEJM.org.

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