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Virtual health care in the era of COVID-19

Patients are under lockdown and health workers are at risk of infection. Paul Webster reports on how telemedicine is being embraced like never before.

In the face of a surge in cases of coronavirus disease 2019 (COVID-19), physicians and health systems worldwide are racing to adopt virtualised treatment approaches that obviate the need for physical meetings between patients and health providers. But many doctors are watching warily.

"I'd estimate that the majority of patient consultations in the United States are now happening virtually", says Ray Dorsey, director of the Center for Health and Technology at the University of Rochester Medical Center (Rochester, NY, USA). "There has been something like a ten-fold increase in the last couple of weeks. It's as big a transformation as any ever before in the history of US health care. But the real question is whether these measures will stay in place after the pandemic subsides?"

In shifting towards virtualised care in response to COVID-19, health-care planners worldwide are drawing from China's experiences. In China, patients were advised to seek physicians' help online rather than in person after the pandemic first emerged in Wuhan in December, says Yanwu Xu, principal health architect for Baidu Health, one of China's largest internet corporations, and one of three companies contracted by the Chinese

Government to implement virtual care technologies.

Speaking to *The Lancet* from Beijing, Xu, who is a member of WHO's Digital Health Technical Advisory Group, and a researcher at the Chinese Academy of Sciences' Ningbo Institute of Materials Technology & Engineering, explained that China's virtual care

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transformation was unleashed when the country's national health insurance agency agreed to pay for virtual care consultations because the hospitals and clinics were full.

"For the first time, Chinese physicians have really embraced virtual care", says Xu. "Thanks to these technologies physicians can consult with upwards of a hundred patients a day, which is a very significant increase in the daily caseloads they handled in person in the past."

Following China's example, on March 30, at the direction of US President Donald Trump, the Centers for Medicare & Medicaid Services (CMS), which oversees the nation's major public health programmes, issued what it termed "an unprecedented array of temporary regulatory waivers and new rules to equip the American healthcare system with maximum flexibility to respond to the 2019 Novel Coronavirus (COVID-19) pandemic".

In a press release, the CMS explained that its new measures will allow for more than 80 additional services to be furnished via telehealth. "During the public health emergencies, individuals can use interactive apps with audio and video capabilities to

visit with their clinician for an even broader range of services. Providers also can evaluate beneficiaries who have audio phones only. These temporary changes will ensure that patients have access to physicians and other providers while remaining safely at home."

Eric Topol, director of the Scripps Research Translational Institute in La Jolla (CA, USA), praises these efforts, but laments that they have been so long coming. "This is a very big moment for virtual health care. But, of course, there isn't a lot of readiness. There are so many ways to monitor people's health that we aren't doing at any scale, in large part due to interstate regulatory barriers that have meant we are in no way ready for this moment."

Similar steps to sweep aside regulatory and hegemonic professional barriers are being taken in Canada, according to Sandy Buchman, president of the Canadian Medical Association. "As we confront [COVID-19], we're racing to implement virtual health-care technologies as quickly as we can. The scale and pace of change is unprecedented for Canadian health care."

Topol warns that the sudden rush to virtualisation risks diminishing the quality of clinical care. "It's inexpensive and expedient, but it'll never be the same as a physical examination with all of its human qualities of judgment and communication. But with COVID, this is a trade-off we have to accept."

Similar developments are sweeping health care in the UK, says Trisha Greenhalgh, co-director of the Interdisciplinary Research In Health Sciences Unit at Oxford University (Oxford, UK).

"We have a research project that has been tracking the use of video



conferencing in Scotland over the past 6 months, and in the space of the last 2 weeks we've seen [a] 1000% increase in use", said Greenhalgh. "It's incredible. [COVID-19] has done what we couldn't do until now, because, suddenly, it's not just the patient who might die—now it's the doctor who might die. So the doctors are highly motivated. The risk-benefit ratio for virtual health care has massively shifted and all the red tape has suddenly been cut."

In Italy, although all 20 regions had implemented national telemedicine guidelines as of 2018, hospital managers have been largely caught off guard by the explosion in digital demand, says Elena Sini, information officer for GVM Care & Research, a network of nine private hospitals in northern Italy.

Many Italian hospitals lack the necessary hardware and technical resources, she noted in a March 23 webinar. "Burnout is also a concern for IT staff, so set up some psychological support for IT staff", she advises.

Sini reported a lack of hardware due to broken supply chains and insufficient bandwidth capacities as the demand increased by about 90% on fixed landlines and 40% on mobile networks in Italy. "We have to ramp up telemedicine capabilities, but for most hospitals in Italy this is an issue. We just don't have the capabilities to deliver."

Speaking alongside Sini, Henning Schneider, chief information officer for Asklepios Kliniken, one of Germany's largest private hospital networks, said the COVID-19 pandemic is highlighting a need for intensified IT collaboration between German hospitals. In New Delhi, India, Anurag Agrawal, director of the Council of Scientific and Industrial Research's Institute of Genomics and Integrative Biology, says Indian health-care providers have become similarly preoccupied with virtual health care while the country is in near-total lockdown. "Suddenly, after years of resistance to virtual health

care, our physicians keenly want it", said Agrawal. "[COVID-19] is breaching the barriers to virtual health care faster than anything in history."

Access to virtual health care is far easier within India's publicly financed health-care systems than among private providers, Agrawal notes. However, as India's response to COVID-19 escalates, many private physicians are providing virtual

"It's inexpensive and expedient, but it'll never be the same as a physical examination..."

consultations for free. "That could change if the lockdown runs longer", Agrawal explains. "Meanwhile, the national and state governments will need some time to ramp this up, and the lockdown is buying us time."

To expedite the transformation, he adds, the Indian Government is copying China's tactics by releasing a set of newly developed applications that use instant messaging platforms, such as WhatsApp, to enable a suite of virtual health-care services, including public messaging about behavioural modifications, epidemiological tracing, and access to virtual health-care providers. "The Chinese had a national advantage with their WeChat messaging platform, which is better-suited to hosting virtual health-care apps than WhatsApp is."

Like Topol, Agrawal warns that virtual health care comes with a trade-off in the quality of patient care. "Physicians, too, we should keep in mind, benefit from the in-person consultations as much as patients", he suggests. "We may mourn that."

African health-care providers have yet to join the global rush en masse, observes Chris Seebregts, chief executive of Jembi Health Systems, a Cape Town-based non-governmental organisation that advises health-system strategists in digital technologies in Cameroon, Ethiopia, Kenya, Malawi, Mozambique, South Africa, South Sudan, and Uganda.

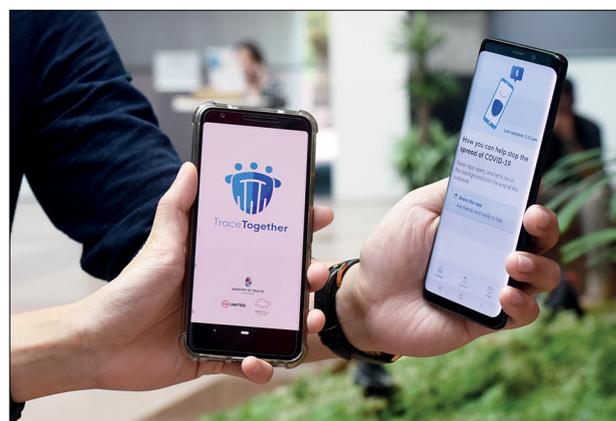
"Digital health technologies are being adopted at a huge rate now here in South Africa in response to [COVID-19]", Seebregts said via video conference from Cape Town, "but we're not seeing much adoption yet elsewhere in Africa. [COVID-19] may accelerate it, but it's too soon to say."

With mobile phone use now globally ubiquitous, technological barriers to the adoption of virtual health care are easily surmountable, even in the most resource-scarce settings, notes Alex Jadad, founder of the Centre for Global eHealth Innovation at the University of Toronto, ON, Canada, where he is the director of the Institute for Global Health Equity and Innovation.

"Whether I'm deep in Malawi or deep in the Amazon, all I need is a mobile phone and a connection that allows me to talk to a clinician. That's all it takes for a clinical encounter. These are god-like tools for medicine. There's no need for us to wait for any more sophisticated infrastructure than that", says Jadad, who is advising on virtual health-care adoption strategies for health groups in Colombia.

"The regulatory barriers that have held virtual health care back for all these decades were never justifiable", Jadad avers. "[COVID-19] is an opportunity to blow all these barriers away. And the question now is 'how far are we willing to go?'"

Paul Webster



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