

Telemedicine transforms response to COVID-19 pandemic in disease epicenter

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A rapid increase in "virtual" visits during the COVID-19 pandemic could transform the way physicians provide care in the United States going forward, according to a new study led by researchers from NYU Grossman School of Medicine.

The findings, published online this week in the *Journal of the American Informatics Association*, captures the largest experience to date of the speed, scale and rapid expansion of video-enabled visits by patients and providers in varied and diverse settings. Specifically, between March 2 and April 14, 2020, virtual urgent care visits at NYU Langone Health grew by 683 percent and non-urgent virtual care visits grew by an unprecedented 4,345 percent in response to COVID-19, in daily averages.

Also participating in the study were researchers from NYU Tandon School of Engineering and NYU School of Global Public Health.

"The pandemic created an urgent need to divert patients from in-patient care and prevent the

flooding of our emergency rooms beyond capacity," said Devin Mann, MD, associate professor in the Departments of Population Health and Medicine and senior director for Informatics Innovation and Medical Center Information Technology at NYU Langone Health, and the study's lead author. "Through telemedicine, we pushed the frontlines to locations far from our hospitals and doctor's offices. And because NYU Langone invested early in this technology, we quickly leveraged digital health to help hundreds of thousands of patients."

In recent years, telemedicine's growth has been incremental, utilized by only eight percent of Americans in 2019, according to the researchers. Outside of rural medicine and prior to COVID-19, there were few compelling reasons to replace in-person care. In order to facilitate the rapid expansion in telemedicine captured in this study, U.S. insurers expanded coverage to include all telemedicine visit types, including from home, and states relaxed licensing requirements so that care can be delivered across state lines. Additionally, the U.S. Department of Health and Human Services allowed the use of consumer audio and video communication for telemedicine visits.

Responding to a Pandemic: Study Findings

Using NYU Langone's enterprise electronic health record system Epic, the researchers captured COVID-related visits using diagnostic codes containing relevant respiratory issues and matched them with keywords describing symptoms including fever, shortness of breath, cough, and more.

Over a six-week period, the investigators found:

- There were 144,940 video visits conducted involving 115,789 unique patients and 2,656 unique providers.
- Of all virtual visits, 56.2 percent of urgent care and 17.6 percent of non-urgent visits were COVID-19-related.

- The increase in telemedicine urgent care was enabled by a rapid increase in urgent care providers. A pool of 40 emergency medicine providers, managing less than 100 visits on a typical day, grew to 289 "surge" providers from multiple specialties.
- On March 19, NYU Langone Health expanded video visits to all of its ambulatory care settings, reaching more than 7,000 visits within 10 days and representing more than 70 percent of total ambulatory care volume during this time.
- Telemedicine usage was highest by patients aged 20 to 44 years, particularly for urgent care. However, patients of all ages were able to use the technology across NYU Langone's telemedicine platform.
- Patients' satisfaction ratings with telemedicine visits remained positive, despite the rapid expansion of the program to thousands of new providers.

"Through this massive expansion, the numbers of providers and patients who experienced telemedicine for the first time increased dramatically, facilitating transformation of technologies and work practices across multiple medical specialties," said Oded Nov, Ph.D., professor and chair of the Department of Technology Management and Innovation at the NYU Tandon School of Engineering, and the study's senior author. "An important question going forward is how much this will continue beyond the COVID pandemic. While we expect patients and providers who got a crash course in telemedicine to continue using it long term, regulators and insurers' decisions will have a major impact."

Virtual Healthcare at NYU Langone

Anticipating that the future of medicine would include virtual delivery of care, NYU Langone was uniquely positioned to expand services with tools that had already been successfully integrated across the health system. As a centralized virtual health ecosystem, all technology is built into NYU Langone's website and the NYU Langone Health MyChart app, where patients have a central point of access for all their healthcare needs.

At the forefront of this strategy is ensuring a seamless and positive patient experience, whether an appointment is in-person or via video visit. Through the MyChart app, patients are easily able to make appointments for Virtual Urgent Care (now operating 24 hours a day, seven days per week) as well as other types of doctor appointment either through video visits or in person.

In addition, providers can see COVID patients remotely at the hospital in ICUs through tablets, which helps save on PPE and exposure to patients. The use of clinical mobile companions also allows providers to communicate with each other using digital health tools.

"Our ability to scale and expand telehealth quickly has allowed us to battle overcrowding and human spread of the disease," said Paul A. Testa, MD, assistant professor, the Ronald O. Perelman Department of Emergency Medicine and Chief Medical Information Officer at NYU Langone Health, and a study co-author. "It also pushes our ability to care for patients beyond any physical boundary, which you can only do digitally."

To further expand the reach of telemedicine services both inside of our hospitals as well as patient homes via remote patient monitoring and other technologies, NYU Langone Health as well as NYU Grossman School of Medicine were each recently awarded grants from the Federal Communications Commission's COVID-19 Telehealth Program.

More information: Devin M Mann et al, COVID-19 transforms health care through telemedicine: evidence from the field, *Journal of the American Medical Informatics Association* (2020). [DOI: 10.1093/jamia/ocaa072](https://doi.org/10.1093/jamia/ocaa072)

Provided by NYU Langone Health

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