

# Pandemic sparked key innovations in health care, experts say

December 1 2021, by Stephan Benzkofer

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Lessons learned over the past two years will not only improve the nation's ability to handle the next pandemic but also lead to substantive gains throughout the health care system.

That was the message from industry, government, health care and academic leaders who spoke live or in pre-recorded conversations during the final session of The Pandemic Puzzle: Lessons from COVID-19 symposium series on Nov. 19. The Stanford School of Medicine and Stanford Graduate School of Business hosted the series.

"Now that we know that mRNA vaccines work, there is no reason we could not start the process of developing those for the top 20 most likely pandemic pathogen prototypes," said Francis Collins, MD, Ph.D., the director of the National Institutes of Health, adding that this groundwork could allow for even quicker vaccine development. "We could have that part of the research already down the road a bit so if called upon, we could do this in faster than 11 months."

Collins, who is retiring at the end of the year after leading the NIH for 12 years, praised the scientific community, calling its response to the pandemic a bright spot in an otherwise "pretty dark and difficult couple of years."

"I can't say enough about the way in which all of the scientists who were called upon basically said, "Yes, count me in,"" he said.

The first three Pandemic Puzzle sessions hammered home the dire impact of a long-term disinvestment in public health, the need to build partnerships with community leaders to eliminate health disparities, and the importance of creating a data system to collect key information to be used in a coordinated federal response.

In the fourth session, speakers found reasons for optimism across a range of activities, including regulatory adaptations, digital health care, [technological innovation](#) and private-public partnerships.

Janet Woodcock, MD, acting commissioner of the Food and Drug

Administration, said the virtual inspections of clinical trials and manufacturing facilities necessitated by the pandemic could endure. "We had been pushing for more statistical monitoring versus physical monitoring of clinical trials because we feel it's more effective," she said. "Many of the practices are probably superior, and we'll probably be sticking with those."

In the same vein, telehealth technology not only helped hospitals ensure continuity of care through the pandemic but also accelerated acceptance of the tool by physicians and patients.

David Entwistle, president and CEO of Stanford Health Care, said that while the rapid jump to telehealth was sometimes hard to manage—virtual visits spiked from just 2% before the pandemic to more than 70% at the peak—its popularity has not waned. Stanford Health Care saw video visits nearly double from fiscal years 2020 to 2021.

Entwistle noted that the average in-person visit was 67 minutes whereas the average telehealth visit was 22 minutes, freeing up access with physicians, especially in-demand specialists.

"Technology has allowed us to be able to meet demand in a new way," he said. "It allowed us to see more patients and to see them more frequently."

Telehealth also greatly expanded access to mental health services, said Julia Hoffman, PsyD, head of mental health strategy at Teladoc Health.

"Stigma is a huge issue in getting mental health care," she said. "We have used this opportunity to bring those folks into the fold via a lower level of commitment because they can do whatever kind of care they need on their phones, from the comfort of wherever they're willing and able to

receive it."

Telehealth also enables patients to more actively manage their health, according to Megan Zweig, [chief operating officer](#) at Rock Health. "I think the power of virtual care is really unlocked when you think about continuous management and all the other solutions that can be integrated along that journey: dynamic content, asynchronous check-ins with a coach or a nutritionist or a therapist, ongoing patient-reported tracking."

## **Tech and drug companies leap into the fray**

One of the early challenges of the pandemic was in helping patients decide whether they needed to go to a hospital. David Rhew, MD, global chief medical officer and vice president of health care at Microsoft, said the pandemic sparked "incredible amounts of innovation" and that one of the first he saw take hold was an artificial intelligence-based chatbot, available online or via a mobile app, that walked people through a series of questions to help them decide the level of help they might need.

"That information was incredibly important because it had to be done at scale with large populations," Rhew said, adding that the advice provided could continually be updated based on new guidance from the Centers for Disease Control and Prevention. "It was our first opportunity to be able to start deploying these technologies."

The potential of AI to process "small data"—an individual's continual stream of health information—gathered through apps and wearables, has immense potential for signaling changes in that person's health, Hoffman said.

Similarly, Entwistle said that AI's potential with telehealth visits is immense, from helping process nonverbal cues to collecting fine data points.

Yet, for all the recent advances, the [health care system](#) is still in the early stages of digital health, Rhew said. Much work needs to be done to improve data interoperability and to create the data collection and analysis system to provide the vital information needed to stop an epidemic from becoming a pandemic, he said.

Dean Li, MD, Ph.D., president of Merck Research Laboratories, said he was struck by how much biotech and pharmaceutical companies communicated, cooperated and then pitched in during the pandemic. Each explored how their platforms and products might be used to help combat the pandemic.

"Every company was committed to doing something," he said. "Not all of them succeeded, but I do want to give credit to everyone."

## **Impact on children**

Paul King, president and CEO of Stanford Children's Health, said that it is understandable that parents want to make informed decisions about their children's [health care](#). "Some still have questions and are looking for assurance that getting their kids vaccinated is safe and the right thing to do," he said. It's important to communicate effectively and build trust with the public about vaccines, he added.

"A highly effective vaccine does no one any good if it remains idly on the shelf," he said.

Grace Lee, MD, a professor pediatrics at Stanford Medicine and associate chief medical officer for practice innovation at Stanford Health Care, said the [pandemic](#)'s impact on children goes far beyond physical health, affecting their social and emotional well-being, educational outcomes and more. She said COVID has become the eighth leading cause of death in children in the U.S. and urged parents to get

their children vaccinated.

"A COVID-19 infection can cause serious disease, hospitalization and death in children," she said. "And it is now preventable."

Lee, who is also chair of the U.S Advisory Committee on Immunization Practices, said the committee considers multiple factors in approving a vaccine, including safety and efficacy, but also how it will impact equity and access. That's why it is critical that clinical trials include diverse populations, including diverse racial and ethnic groups but also children, pregnant women and people who are immunocompromised, she said.

Lee emphasized the importance of addressing public health crises in partnership with the community. "We really need to invest in prevention, and that includes our prevention infrastructure, including [public health](#), [health](#) systems and community partnerships," she said. "It's often not the top priority for investment even though it has the greatest yield."

Provided by Stanford University Medical Center

Citation: Pandemic sparked key innovations in health care, experts say (2021, December 1) retrieved 27 April 2024 from

<https://medicalxpress.com/news/2021-12-pandemic-key-health-experts.html>

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