

The future of COVID vaccines could be sprays, not shots

Experts gathered at a summit Tuesday to talk the next generation of

By [Cheyenne Haslett](#)
July 27, 2022, 7:01 AM



Vaccines explained by Dr. Jen Ashton
ABC News Chief Medical Correspondent Dr. Jen Ashton explains how vaccines work.

The future of COVID-19 vaccines might not be shots in the arm or leg. Instead, picture a nasal spray or a patch stuck onto the skin for a few minutes.

A group of scientists, doctors and administration health officials gathered at the White House on Tuesday to discuss the next generation of inoculation against COVID and its viral cousins; they were in agreement that there is room for improvement.

The future could include vaccines that protect equally against all variants -- or even vaccines that stop infections from happening in the first place.

"Innovative approaches are clearly needed to induce broad and durable protection against coronaviruses known and unknown," Dr. Anthony Fauci, the White House's chief medical adviser, told the audience.

There's broad consensus that despite the benefit of the currently available vaccines, the "job is not done," Fauci said.

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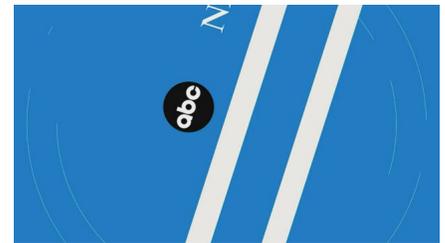


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"We've already averted well over 2 million deaths, approximately \$1 trillion in health care costs and tens and tens of millions of infections, as well as close to 20 million hospitalizations. That's the good news," Fauci said. "What's the sobering news? Sobering news is why we're here today -- because our job is not done."

There are a few options on the table.

One is a pan-coronavirus vaccine, which could cover a broad array of future COVID variants and perhaps other coronaviruses, giving people protection for longer periods of time.

Another is a vaccine that people would spray into their noses, called a mucosal vaccine, or even a small patch that would be applied to the skin and carry the vaccine in microneedles.

All are promising innovations, with the potential to be combined with one another -- but all are in very early stages of development.

The "holy grail," Fauci said, is "not only to protect against disease, but to protect against acquisition, and by acquisition, transmission."

Sprays and patches

Dr. Akiko Iwasaki, an expert on nasal vaccines from Yale University who spoke at the summit, said the only way to fully achieve that goal -- Fauci's "holy grail" -- would be nasal vaccines.

She compared them to "stopping the virus from spreading right at the border," because the virus enters through the nose.

"This is akin to putting a guard outside of the house in order to patrol for invaders, compared to putting the guards in the hallway of a building in the hope they would capture the invader," Iwasaki said, contrasting the nasal vaccines to the current shots, which are injected and produce an antibody response throughout the body.

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Mark Prausnitz, the chief scientific officer of Micron Biomedical, which is developing a vaccine administered through a skin patch, also pitched it as a better option to the current generation of vaccines.

"Leave it in place for a few minutes, peel it off and discard it. We think this can not only make vaccines more readily accessible, but improve immunogenicity," Prausnitz said.

administered by people at home, he said, and wouldn't require inaccessible cold storage.

A summit for ideas, but also a pitch to Congress

For both the new types of vaccines on the horizon, there are still huge scientific hurdles to developing such new innovations. And without significant resources, that could take upwards of three to five years, experts estimate.

So while Tuesday's summit was a display of potential new advancements and an acknowledgement of where the current vaccines are falling behind, it was also in a pitch to lawmakers for substantial focus and investment.

"It's very important to note that we need to move quickly to start testing these nasal vaccines in humans, and that requires a significant U.S. government input, both resources and help with manufacturing and delivery as well as acceptance across society," Iwasaki told the audience.

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Marty Moore, founder and chief scientific officer of another nasal vaccine company, Meissa Vaccines, said the benefits would significantly outweigh the risks.

"I think developing transmission-blocking vaccines, of course, will come with great challenges and some cost," he said. "But I think the probability of success warrants this investment based on what we know about vaccines. And the potential benefits are just enormous, direct and indirect."

White House COVID coordinator Dr. Ashish Jha has said he's hopeful the timeline for these new vaccines could be drastically reduced -- if investments are made.

But the Biden administration has faced reluctance from congressional Republicans to approve even more funding, with conservatives citing questions and objections over how past monies were spent.

ABC News' Yuri Benadjaoud contributed to this report.

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