

# New study mixes vaccine doses to boost immunity to COVID and variants

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The University of Rochester Medical Center (URMC) is participating in a new clinical trial that will mix-and-match the initial regime of an approved vaccine with a booster dose from a different manufacturer.

The research will help inform public health decisions around re-vaccination schedules and the deployment of boosters that target COVID variants.

"As the number of Americans receiving a vaccine continues to rise, we now need to think about the long-term strategy to combat coronavirus," said Ann Falsey, professor of Medicine, Infectious Diseases at URM. "This effort will probably look like vaccination programs for other [infectious diseases](#), like the flu. This study is a critical step and will show if doses from different vaccines are safe, tolerable, and sufficiently boost the [immune system](#) enough to fight off reinfection by SAR-CoV-2 and variants."

Falsey and Angela Branche, M.D., are co-directors of the URM Vaccine and Treatment Evaluation Unit (VTEU), part of a network of National Institute of Allergy and Infectious Diseases (NIAID)-funded research sites that have led the scientific response to the coronavirus pandemic. Falsey, Branche, and David Dobrzynski, M.D., an assistant professor of Medicine, Infectious Diseases at URM, are leading the Rochester site of the study.

Coronavirus continues to circulate at high rates globally and scientists speculate that COVID could evolve to become a seasonal, mutating virus that remains with us for years to come. [While researchers have speculated that the immune system could provide protection that lasts years](#), it remains unknown how long the immunity from vaccines will last. As is the case with other vaccines, it is assumed that over time the immune response to COVID will weaken, necessitating a [booster](#) dose to keep the immune system primed to fight off infection.

The emergence of variants is another complication that will dictate future coronavirus booster dose strategies. As of now, the Pfizer-BioNTech and Moderna vaccines appear to be very effective against

most of the identified variants of COVID, including the Indian variant that is spreading across South Asia. However, it is possible that variants could emerge that render existing vaccines less effective or potentially even evade the protection provided by vaccines altogether, necessitating new versions of the vaccine.

The optimization and distribution COVID vaccines is of critical public health priority. The National Institutes of Health, Centers for Disease Control and Prevention, and World Health Organization have prioritize the study of "mixed schedules" to determine whether immunity is sufficiently strengthened if someone gets their original vaccine and a booster dose from different manufacturers. If shown effective, the findings from this study could help resolve some of the distribution challenges that often beset large-scale vaccination programs by removing dependency on a single company for national and global vaccine supply.

The new phase 1/2 clinical trial, which is being funded by NIAID, will recruit two groups of volunteers:

- Individuals 18 years or older who have not yet been vaccinated; and
- Individuals 18 years or older who have completed their initial vaccination within the last 12-20 weeks.

Unvaccinated participants will receive the Moderna vaccine and then a booster dose of either the same vaccine or a Moderna variant vaccine 12 weeks later. Volunteers who have already been vaccinated with either the Moderna, Pfizer-BioNTech, or Johnson & Johnson vaccines will receive a booster dose of the Moderna vaccine. The study seeks to enroll 500 participants in the U.S., including approximately 50 local volunteers.

"One of the key scientific question we are trying to answer is whether vaccines that use different platforms—such as mRNA, adenovirus, and

protein-based—can sufficiently strengthen the original immune response generated by a different [vaccine](#) technology," said Branche. "If we can show that the immune response to COVID and variants can be prolonged by booster doses, regardless of the manufacturer, then that will inform vaccination plans in future years."

**More information:** For more information about the study, visit: [Bring Roc Back](#) or call (585) 273-3990.

Provided by University of Rochester Medical Center

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