

What doctors want patients to know about new coronavirus variants



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New variants of SARS-CoV-2, the virus that causes COVID-19, are circulating in the U.S. and have raised international alarms as they continue to spread in other countries around the world. The emergence and rapid spread of at least three coronavirus variants has intensified the push to better understand how the novel coronavirus mutates and what this means for vaccine efficacy.

Variants of the virus that causes COVID-19 are circulating globally. Three are:

- B.1.1.7, first identified in the United Kingdom, spreads more easily and quickly than other variants. This variant was detected in the U.S. in December.
- B.1.351 emerged in South Africa and shares some mutations of B.1.1.7. This variant appeared in the U.S. at the end of January.
- P.1 originated in Brazil and contains a set of additional mutations that may affect its ability to be recognized by antibodies. It was first detected in the U.S. at the end of January.

Two physician experts took time to help clear up confusion around the different coronavirus variants: AMA member [Peter Hotez, MD, PhD](#), dean of the National School of Tropical Medicine and professor of pediatrics and molecular and virology and microbiology at Baylor College of Medicine and Texas Children's Hospital in Houston, and AMA Chief Health and Science Officer Mira Irons, MD.

Information is evolving

The novel coronavirus “is an RNA virus and RNA viruses do mutate,” said [Dr. Hotez](#). “The problem is we’ve allowed so much transmission to go on globally that there are some variants that have emerged that have excessive numbers of mutations.



Peter Hotez, MD, PhD

“We don’t quite know why these three have risen and have such an extreme level of mutations,” he added. “Rather than just a couple of mutations, we’re talking about more than a dozen in some cases, and some of them in the receptor-binding domain.”

“The ones that stand out most in my mind are the Brazilian variant, the South African one and the United Kingdom one because they’re so highly transmissible. And the fact that they seem to be outcompeting the other.”

While the variants are spreading, “how they arose compared to the small numbers of mutations in others is unknown,” said Dr. Hotez. “We just don’t know ... that is the harsh reality.”

Read this Viewpoint published in *JAMA*, “[Genetic Variants of SARS-CoV-2—What Do They Mean?](#)”

Variants are appearing in the U.S.

“We’re only kind of finding out about these variants pretty late in the game,” said Dr. Hotez. “We know the South African variant [B.1.351] is in South Carolina, the Brazil variant [P.1] in Minnesota and the U.K. variant [B.1.1.7] in several areas.

“However, we have underperformed nationally in terms of the number of variants we have sequenced,” he added. “With all of our genomic sequencing capacity at places such as the Broad Institute of MIT and Harvard, New York Genome Center, Baylor College of Medicine, Washington University in St. Louis, University of Washington, we should have 5–10 million viruses sequenced and we’re not anywhere close to that number.”

“It’s also a bad sign because it means these viruses are likely going to dominate in the U.S. just like they’ve dominated everywhere else they appear,” said Dr. Hotez, noting that about “95% of the new South African variants in South Africa is this one variant. And in the UK, it’s at least half or all parts of England. We should expect that here in the United States.”

“There is a lot of talk about the South African and the Brazilian variant,” said Dr. Irons. “Health officials in South Carolina last Thursday said that they detected two cases of the South African variant and it’s also been reported in Maryland.”

At this article’s deadline, there had been more than 600 cases of the B.1.1.7 variant reported in nearly three dozen states, according to the Centers for Disease Control and Prevention (CDC). There have been a handful of the cases reported for the other variants in the U.S.

U.K. variant more transmissible

Among the three main variants, the B.1.1.7 variant from the U.K. “is more highly transmissible and that translates into the fact that it could take less virus and less time in the same room with an infected person for someone to become infected themselves,” said Dr. Irons during a recent episode of the [“AMA COVID-19 Update”](#) about [COVID-19 variants and vaccines](#).

“Hundreds of cases of the variant first detected in Great Britain have been found,” she said. She noted that Anthony Fauci, MD, has said “the U.K. variant might become the dominant strain in the U.S. by March.”

Public health experts have said these emerging coronavirus variants “could lead to a spring surge if people don’t continue to protect themselves and use the public health measures that we’re talking about,” said Dr. Irons.

Number of cases will accelerate again

“We’re starting to see the numbers come down in the U.S., from 250,000 new cases a day down to 125,000 new cases,” said Dr. Hotez. It is “a 40–50% decline, but I have to give the bad news that I think with these new variants, the numbers of cases are going to go way back up.”

“There’s also a California variant [CAL.20C] as well and that may account for this steep rise that we’ve seen in Los Angeles and Southern California,” he said, noting that “California was doing really well, especially compared to Texas, up until December and now the cases are really accelerating.

“That’s a concern as well ... there may be other homegrown ones out there that we don’t even know about, so the numbers are going to accelerate again,” Dr. Hotez added.

Learn about [eight coronavirus tips that doctors want patients to follow](#).

New urgency for vaccinations

“While the Moderna and Pfizer vaccines appear to be protective against the new variants, they may be somewhat less effective against the one found in South Africa, but still have adequate neutralizing antibody levels, from what we are hearing,” said Dr. Irons. “However, we’re still waiting on more data.”

“There’s about a six- to eightfold decline in the virus-neutralizing antibodies made to the original vaccines against some of these new variants like the South African variant,” said

Dr. Hotez. “The key is the fact that this is going to be so highly transmissible. You don’t want to allow these variances to continue to propagate.

“The best way to do this is to snuff it out by vaccinating the American people now,” he added, noting that “there’s this new urgency to blanket the U.S. population with vaccines at this point.”

“Our original timetable is to fully vaccinate the American people by the fall, but I no longer feel this is adequate. We need to accelerate this to a point where we can vaccinate everyone by late spring, early summer,” said Dr. Hotez. “It’s a challenge, but we need to consider bringing along additional vaccines now, such as the Johnson & Johnson vaccine, and the ones from AstraZeneca Oxford, Novovax, or even our recombinant protein vaccine produced in collaboration with Biological E in India.”

Read about [what doctors want patients to know about COVID-19 vaccination](#).

Continue to #MaskUp

To help contain the spread of the coronavirus variants while people wait their turn to get vaccinated, people are turning to double masking.

“I’ve always double masked, just for the practical reason that you don’t know if your one mask may have a small micro tear in it that you’re not paying attention to,” said Dr. Hotez. “Wearing the mask is the key part and double masking is preferable if you’re interfacing with a lot of people,” especially indoors.

Dr. Irons said the double-masking practice started gaining wider notice with the inauguration of President Joe Biden, “where we saw people that were double masking.”

“What physicians should consider telling patients is the best mask is a well-fitted two- or three-layer mask or keep the masks you’re using and double mask when you go to the store or find yourself spending time with people outside your household,” she said.

The CDC is reportedly studying the efficacy of wearing two masks to help stop the spread of COVID-19. Learn more about the [AMA’s efforts to spread the #MaskUp message](#) and discover the [six things doctors want patients to know about masks](#).