UC SANTA BARBARA
THE Current

July 23, 2021
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Unraveling the Delta Variant

The Delta variant, a highly contagious form of the SARS-CoV-2 virus, has arrived in Santa Barbara County. Detected as part of the UC Santa Barbara/Santa Barbara County Public Health/Cottage Health COVID-19 surveillance program, the Delta variant is now found in the vast majority of samples sequenced. Known also as B.1.617.2, it now dominates the global caseload.

The coronavirus has been mutating and evolving throughout the entire pandemic but many of these changes have been of little or no consequence, according to UCSB virologist Carolina Arias, who conducts the genomic sequencing of samples for the surveillance program.

“However, in some cases new variants evolve with mutations that confer advantages to the virus,” she said in a video update published by Cottage Health in early July. Among the red flags the team is watching for are variants that are more transmissible, cause more severe disease, or that may overcome immunity gained by vaccination or previous infection with the virus.

In the case of Delta, its most worrisome aspect is its ability to spread.

“The Delta variant is the most infectious variant that we have observed in the COVID-19 pandemic,” Arias said.

For more information about the recently arrived variant and how to respond to it as we emerge from pandemic restrictions and begin to resume normal activity, The Current spoke with Arias, Vejas Skripkus, M.D., executive director of UC Santa

Barbara Student Health; Scott Grafton, M.D., the campus's COVID-19 mitigation manager and a professor in the Department of Psychological and Brain Sciences; and Stuart Feinstein, COVID-19 Response Team coordinator and a professor in the Department of Molecular, Cellular and Developmental Biology. Feinstein also leads the campus's asymptomatic testing effort.

The Current: What is this variant and how does it differ from other variants?

Vejas Skripkus: The Delta variant is more contagious than the other SARS-CoV-2 virus variants. Random changes in virus variants are a natural process. Some of these changes can increase the infectiousness of the virus. When this occurs, a new version of the virus will infect more and more people, quickly taking over the at-risk population. This has already happened with earlier variants of the SARS-CoV-2 virus infecting our community, including the large spike in cases that occurred just prior to the release of the vaccines.

Scott Grafton: The Delta variant taking over right now is far more infectious than the variant that drove that prior spike. Delta is spreading 50% faster than Alpha, which was 50% more contagious than the original strain of SARS-CoV-2, making the new Delta variant 75% more contagious than the original.

Carolina Arias: The Delta variant of SARS-CoV-2 has some small changes in its genome, which have conferred new properties to the virus. It transmits faster and easier, and as a consequence, this variant is fueling the surge of cases seen throughout the world.

TC: How well do the vaccines currently in use perform against the Delta variant?

VS: The three vaccines in use in the United States all confer excellent protection against the Delta variant; thus, unvaccinated people are the ones at highest risk.

SG: We can expect large, local outbreaks in communities where there are many unvaccinated people. As older age groups get vaccinated, those who are younger and unvaccinated will be at higher risk of getting COVID-19. The Delta variant

appears to be impacting younger age groups more than the previous variants.

Stu Feinstein: Not getting vaccinated can have serious, even fatal consequences: More than 99% of deaths from COVID-19 in June were unvaccinated patients.

TC: Some individuals are still holding off from getting vaccinated, citing concerns about how rapidly the vaccines were developed and a desire to better understand the vaccines' potential side-effects or long-term negative impacts. What information or data might allay their fears and encourage them to get vaccinated?

SF: The mRNA technology for vaccines has been in development for well over a decade as a general approach to developing new vaccines against many different pathogens. It was all ready to go when SARS-CoV-2 came along. And the clinical testing of the vaccines involved many tens of thousands of people before the vaccines received the Emergency Use Approvals from the FDA.

VS: More than 150 million Americans have been fully vaccinated already. That's a lot of people! The take home messages are that the three vaccines in use in the U.S. have proven to be incredibly effective at preventing COVID-19. Even in the rare "breakthrough" case where a vaccinated person does get COVID-19 — this occurs about once per few thousand vaccinated people — it is almost always very mild.

TC: If the vaccines don't offer 100% protection against COVID-19 and it's still possible to have outbreaks, why get vaccinated and risk the side effects?

SG: All medicines, medical procedures and vaccinations have potential side effects; even over-the-counter medications such as aspirin or vitamin supplements carry risks. With respect to SARS-CoV-2 vaccines, there are transient and mild to modest side effects (body aches, headache, fatigue, insomnia) in roughly half of all recipients. These most commonly follow the second dose of the Pfizer and Moderna vaccines. More dangerous side effects like the heart inflammation seen in adolescents and young adults are exceedingly rare. The CDC is looking into 500 cases of heart inflammation out of more than 170 million fully vaccinated people.

That puts it at 0.00025%, which is very rare. On the other hand, even if you survive COVID-19 the disease can do permanent damage to your heart.

You can assume that if you have not already had COVID-19 or one of the vaccines for it, the Delta variant is going to infect you. Once you have it, you will probably infect others close to you. How well you tolerate that infection is up to chance — a chance that is not worth taking.

CA: The vaccines available in the U.S. have been incredibly effective and essential to control this virus. It is important to remember that the more people we have infected with SARS-CoV-2, the higher the chances are for the virus to continue evolving and mutating, and for a new and more threatening variant to appear. Getting vaccinated will protect you, your loved ones and your community from infection, and it will help us control COVID-19.

TC: How might the Delta variant impact plans for COVID response on campus and in the UC Santa Barbara community?

SF: We don’t know everything about the Delta variant. This entire SARS-CoV-2 pandemic has been an exercise in learning as we go, because it is all new. We have been modifying our approaches to protect at-risk populations as we learn more and more. Delta is no different. We don’t know everything about it, but are studying it intensively and will continue to adjust our approaches as the situation warrants.

VS: To reiterate Dr. Grafton’s earlier point, outbreaks are going to happen in communities with many unvaccinated individuals, and that will only prolong the pandemic. The bottom line is, getting a vaccine is the best protection against the Delta variant and COVID-19 in general. It’s free, it’s easy and it will protect you and the people around you.

About UC Santa Barbara

The University of California, Santa Barbara is a leading research institution that also provides a comprehensive liberal arts learning experience. Our academic community of faculty, students, and staff is characterized by a culture of interdisciplinary collaboration that is responsive to the needs of our multicultural and global society. All of this takes place within a living and learning environment like no other, as we draw inspiration from the beauty and resources of our extraordinary location at the

edge of the Pacific Ocean.