

Tri-Cities Regional Occupational Program

COVID-19 and Variants of the Virus

Viruses constantly change through mutation, and new **variants** of a virus are expected to occur over time. Sometimes new variants emerge and disappear. Other times, new variants emerge and persist. Multiple variants of the virus that causes COVID-19 have been documented in the United States and globally during this pandemic. Currently, several variants of the virus (SARS-CoV-2) that causes coronavirus disease 2019 (COVID-19) are creating concern because they contain mutations in the spike-like S protein that the virus uses to bind to and infect human cells. These variants include:

- A variant identified in the U.K. (B.1.1.7). This COVID-19 variant appears to spread more easily and might have an increased risk of death.
- A variant identified in South Africa (B.1.351). This variant appears to spread more easily. It also has a moderate impact on the effectiveness of monoclonal antibody medications and moderately reduces the effectiveness of antibodies generated by a previous COVID-19 infection or COVID-19 vaccine.
- A variant identified in Japan/Brazil (P.1). This variant has a moderate impact on the effectiveness of monoclonal antibody medications. It also reduces the effectiveness of antibodies generated by a previous COVID-19 infection or a COVID-19 vaccine.
- A variant identified in the U.S. (California) (B.1.427). This variant appears to spread more easily. It also has a significant impact on the effectiveness of some treatments and moderately reduces the effectiveness of antibodies generated by a previous COVID-19 infection or COVID-19 vaccine.
- A variant identified in the U.S. (California) (B.1.429). This variant appears to spread more easily. It also has a significant impact on the effectiveness of some treatments and moderately reduces the effectiveness of antibodies generated by a previous COVID-19 infection or COVID-19 vaccine.

The U.S. Centers for Disease Control and Prevention is also monitoring two variants identified in New York — B.1.526 and B.1.525 — and another variant identified in Brazil — P.2. COVID-19 vaccines were developed based on the SARS-CoV-2 S protein before it had the mutations identified in these variants. While research suggests that COVID-19 vaccines have lower efficacy against the variants, the vaccines still appear to provide protection against severe COVID-19. Further research is needed.

In addition, vaccine manufacturers are also creating booster shots to improve protection against variants and further study is being researched. Vaccinations against the coronavirus is highly encouraged and studies have shown individuals who have been vaccinated are less susceptible to the COVID-19 virus. In the meantime, keep following precautions for avoiding infection with the COVID-19 virus.