COVID-19 Vaccine Effectiveness in Youth Varies by Age, Variant

Two doses of the BNT162b2 (Pfizer-BioNTech) vaccine were more effective for reducing infections with the Delta variant of SARS-CoV-2 than the Omicron variant, a multi-institution study showed. Adolescents also received greater protection from vaccination than younger age groups.

Between July 25, 2021, and February 12, 2022, the study investigators administered weekly SARS-CoV-2 testing to 1364 individuals aged 5 to 15 years regardless of symptoms. They also tested participants when they developed symptoms. Vaccinated and unvaccinated youth participated at sites in Arizona, Florida, Texas, and Utah.

Two vaccine doses were 31% effective against symptomatic or asymptomatic Omicron variant infection among children aged 5 to 11 years and 59% effective among adolescents aged 12 to 15 years. In contrast, 2 doses provided 87% protection against Delta variant infection among adolescents. Still, the authors recommended that all children and adolescents should receive COVID-19 vaccines as recommended, as they reduce the risk of infection even with the Omicron variant.

The study also revealed differences in the variants’ effects among unvaccinated youth. About half of unvaccinated children and adolescents with Omicron infections were asymptomatic compared with 34% of those with Delta variant infections. Omicron symptoms lasted 3.4 fewer days and resulted in fewer missed school days than infections with the Delta variant. Vaccination reduced the time children infected with Omicron spent in bed by about a half-day.

Behavioral differences between vaccinated and unvaccinated children may also have contributed to some of the differences between the groups. For example, vaccinated children spent more time wearing masks at school and in their community. Individuals with infections also reported lower proportions of mask-wearing time than youth who did not become infected during the study.

End-stage Kidney Disease Doubles

The number of people living with end-stage kidney disease (ESKD) more than doubled between 2000 and 2019—from 358,247 to 783,594—according to an analysis of data from the United States Renal Data System (USRDS). A 41.8% increase in new cases also occurred during the study period, from 92,660 cases to 131,422 cases. Hypertension and diabetes were driving factors.

Substantial racial and ethnic disparities in ESKD rates remain a concern. Among Asian people, new ESKD cases increased from 2507 cases in 2000 to 6256 cases in 2019—a 149.5% increase that was the largest in any racial or ethnic group. During the study period, new cases increased from 25,917 to 33,700 among Black people, from 11,297 to 20,790 among Hispanic people, from 742 to 1458 among Native Hawaiian or other Pacific Islander people, and from 51,156 to 67,919 among White people.

American Indian or Alaska Native people had the smallest increase in new cases, from 1041 to 1299, representing a 24.8% increase. The authors attribute the slowing of new cases in this population to targeted interventions funded by the Special Diabetes Program for Indians, a $150 million annual grant program established in 1997.

They anticipate that ESKD prevalence will continue to increase due to a growing and aging population, high rates of hypertension and diabetes, and better survival of individuals with ESKD.

“The continued increase in the number of ESKD cases will increase strain on the health care system and lead to higher costs,” the authors wrote. They note that in 2019 alone, Medicare spent $37.3 billion or 7% of all claims on ESKD, according to USRDS data.

– Bridget M. Kuehn, MSJ

Note: Source references are available through embedded hyperlinks in the article text online.