

Vaccination greatly reduces odds of MIS-C in teens who get COVID

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Early on in the pandemic doctors observed that some children and teens

infected with COVID-19 went on to develop a relatively rare, but potentially life-threatening, complication known as [multisystem inflammatory syndrome in children \(MIS-C\)](#).

But new research out of the U.S. Centers for Disease Control and Prevention suggests that COVID-19 vaccines are highly protective against MIS-C, causing an already low risk to dramatically plummet.

"Multisystem inflammatory syndrome in children is a condition where different body parts can become inflamed, including the heart, lungs, kidneys, brain, skin, eyes or gastrointestinal organs," explained study lead author Dr. Anna Yousaf. She's a medical officer with the CDC's COVID-19 Response Team's MIS unit.

How and why COVID-19 triggers MIS-C is still unclear, said Yousaf. Equally murky is why some kids infected with COVID-19 develop the condition—typically two to six weeks after an initial infection—while others don't.

But what is clear, she said, is that prior to the introduction of vaccines the risk that a young person with COVID-19 would develop MIS-C was about 200 out of every 1 million patients. In contrast, the new investigation pegged the risk among vaccinated kids at just one in a million.

"Today's results suggest that MIS-C cases following [COVID-19 vaccination](#) are rare, and that the likelihood of developing MIS-C is much greater in children who are unvaccinated and get COVID-19," Yousaf said.

In the study, all MIS-C cases among U.S. children were tracked between December 2020 and the end of August 2021.

That period represents the first nine months of the COVID-19 vaccine rollout in the United States. During that time, the only vaccine authorized for use among children under the age of 18 was the Pfizer shot.

In all, 21 children—at an average age of 16—were identified as having developed MIS-C in that timeframe. Just over 60% were boys. All were hospitalized as a result, with 57% admitted to an intensive care unit.

All of the children had been vaccinated: 11 with one dose, and 10 with two doses. And eventually all recovered, and were discharged from the hospital.

The study team determined that by the end of the study period more than 21 million U.S. children between the ages of 12 and 20 had been vaccinated at least once. That translated into a risk for MIS-C amounting to about one of every 1 million vaccinated children.

Yousaf added that it's not clear whether getting vaccinated with two doses of the vaccine actually causes MIS-C risk to drop even more than a single dose, or whether three would be more protective than two.

"This was not addressed in our data," she said.

At the same time, Yousaf added that "a recent study showed that vaccination with two doses of Pfizer BioNTech COVID-19 vaccine was 91% effective against preventing MIS-C." And she emphasized that the findings strongly suggest that vaccines (which are now recommended for everyone aged 5 and up) are an effective shield against MIS-C risk.

The new report was published online Feb. 22 in *The Lancet Child & Adolescent Health*.

Dr. Mary Beth Son serves as the section chief of the rheumatology program at Boston Children's Hospital, and is an author of an accompanying commentary.

Because MIS-C is a known postinfection complication, "it wasn't totally unexpected that vaccination would prevent it," Son noted.

"However, it is very important to document the safety of these highly scrutinized vaccines," Son stressed, adding that a number of other investigations in the United States and France have found a far lower risk for MIS-C among vaccinated children.

The latest study "demonstrates that vaccination against SARS-CoV-2 is rarely associated with MIS-C, and contributes to a growing body of literature that vaccination against SARS-CoV-2 decreases risk of MIS-C," she added.

More information: Anna R Yousaf et al, Reported cases of multisystem inflammatory syndrome in children aged 12–20 years in the USA who received a COVID-19 vaccine, December, 2020, through August, 2021: a surveillance investigation, *The Lancet Child & Adolescent Health* (2022). [DOI: 10.1016/S2352-4642\(22\)00028-1](https://doi.org/10.1016/S2352-4642(22)00028-1)

There's more on MIS-C at the [CDC](https://www.cdc.gov).

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