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Unvaccinated kids bear brunt of COVID-19, studies show

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A trio of scientific papers on the effects of COVID-19 in children emphasizes its risks and the strong benefits of vaccination.

The articles come from Overcoming COVID-19

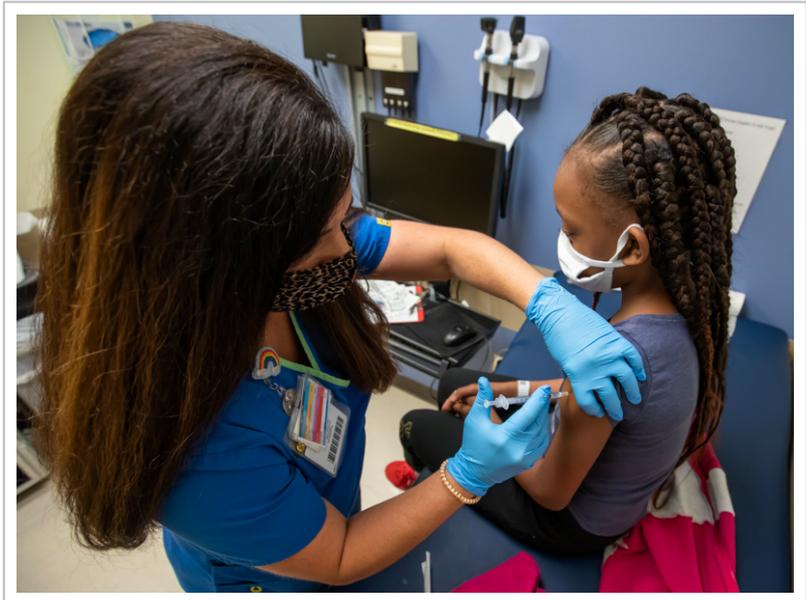
(<https://overcomecovid.org/>), a national study on COVID-19 in children and adolescents. Children's of Mississippi at the University of Mississippi Medical Center is one of 70 pediatric hospitals working with the Centers for Disease Control and Prevention to conduct the wide-ranging research.

Dr. Charlotte Hobbs, professor of pediatrics in the Division of Infectious Diseases at UMMC, is a co-author of the articles. She says all three include children treated at the Medical Center.

"It's important for Mississippians to know that these studies include patients from here," Hobbs said, because it shows the contributions of the state of our understanding of COVID-19, and that the study findings represent what's happening in Mississippi and elsewhere.

One paper

(https://journals.lww.com/pidj/Abstract/9000/Frequency,_Characteristics_and_Complications_of.95583.aspx) published online December 21, 2021 in the Pediatric Infectious



(/news/News_Articles/2022/01/Images/vaccinationkids-20211112-05.jpg)

Nurse manager Gretchen Holloway gives Jayla Smith of Jackson a vaccination protecting her from COVID-19 in Nov. 2021.



(/common/People-

Headshots/Charlotte Hobbs.jpg)

Hobbs

Diseases Journal looked at a sometimes-ignored population of COVID-19 patients: infants.

The study identified 630 patients aged 0-18 with severe COVID-19 across 50 of their hospital sites between March-December 2020. Of those, 128 were under a year old, and half of those were under two

months old.

This finding – 20 percent – is a “disproportionate” result, Hobbs and her co-authors wrote.

What makes it more alarming is the relative health of the babies: two-thirds of the infants had no serious health conditions prior to their COVID-19 diagnosis. However, 77 percent had respiratory complications and 13 percent needed a ventilator during their treatment.

“This paper is the first to characterize infant COVID-19, which can be severe,” said Hobbs, the first author on the paper. “Because it can be severe and infants are not yet eligible for vaccine, maternal vaccination should be underscored as important to protect those infants.”

Maternal vaccination (https://www.umc.edu/news/News_Articles/2021/08/Maternal-Fetal-COVID.html) includes pregnant women and postpartum mothers. She also encourages vaccination for every eligible person in the household, child or adult, in order to protect infants and other children under age five who are not yet eligible.

Vaccinating older children has another benefit: personal protection for themselves.



(/News/News_Articles/2022/01/Images/PICUCovid-20210812-13.jpg).
Infectious disease nurse practitioner Spencer Brooks puts on personal protective equipment before checking on a COVID-19 patient in pediatric intensive care at Children's of Mississippi.

A second paper (<https://www.nejm.org/doi/full/10.1056/NEJMoa2117995>) published January 12 in the New England Journal of Medicine looked at how well the Pfizer-BioNTech vaccine protected adolescents aged 12-17 from severe COVID-19.

In a group of more than 1200 people followed from July-October 2021, the study found that the two-dose vaccination was 94 percent effective at preventing hospitalization and 98 percent effective in preventing ICU and life support care. None of the seven children who died were fully vaccinated.

Overall, these findings reflect the situation at UMMC.

“The children we see at Children’s of Mississippi are largely unvaccinated (https://www.umc.edu/news/News_Articles/2022/01/Pediatric-COVID.html), although eligible, or they are unvaccinated because they are too young,” Hobbs said.

The U.S. Food and Drug Administration and CDC authorized and recommended the Pfizer-BioNtech vaccine for people age 16 and older in December 2020. Mississippi opened vaccine appointments for all people in this age range in March 2021, among the first states in the country to do so. The FDA and CDC later cleared the shots for younger children: 12- to 15-year olds in May 2021

(https://www.umc.edu/news/News_Articles/2021/05/COVID-19-vaccinations-ages-12-to-15.html), and 5- to 11-year olds on November 2, 2021

(https://www.umc.edu/news/News_Articles/2021/11/COVID-Vaccinations-Batson-Kids-Clinic.html).

Only 6 percent of Mississippi kids aged 5-11 and 35 percent aged 12-17 have received two doses of the Pfizer vaccine. That's among the lowest vaccination rates (<https://www.mayoclinic.org/coronavirus-covid-19/vaccine-tracker>) in the United States, which has overall rates of 19 and 55 percent in these age groups.

And with flu season (<https://www.cdc.gov/flu/weekly/index.htm>) underway, vaccination against infectious diseases becomes all the more critical.

“Coinfection with other viruses” – such as influenza, human metapneumovirus, and respiratory syncytial virus (RSV) -- “can also occur and anecdotally the children we see with two viruses can be quite sick,” Hobbs said.

It's not just the short-term effects of COVID-19 that have pediatricians concerned, says Dr. Anita Henderson, president of the Mississippi Chapter of the American Academy of Pediatrics.



“We are seeing children who are suffering from long-term symptoms, or long COVID. These symptoms, even in kids, include shortness of

breath, fatigue and high heart rate. And so acute infection is not the only thing that worries us as pediatricians,” Henderson said.

(</News/Miscellaneous/2020/November/November-CONSULT/Nov-CONSULT-images/Anita>

[Henderson.jpg](#)).

Henderson

The third [article \(https://www.cdc.gov/mmwr/volumes/71/wr/mm7102e1.htm?s_cid=mm7102e1_w\)](https://www.cdc.gov/mmwr/volumes/71/wr/mm7102e1.htm?s_cid=mm7102e1_w), published January 7 in Morbidity and Mortality Weekly Report, showed that vaccination is also effective at preventing [multisystem inflammatory syndrome in children \(https://www.umc.edu/news/News_Articles/2021/10/MIS-C-Clinic.html\)](https://www.umc.edu/news/News_Articles/2021/10/MIS-C-Clinic.html) (MIS-C).

Using data from 283 participants in July-December 2021, the researchers found that two doses of the Pfizer vaccine were 91 percent effective in preventing MIS-C and 100 percent effective in preventing cases that required life support.

MIS-C is a rare but serious complication of COVID-19 infection that effects the child's health after recovery from the initial infection. The immune system attacks healthy cells in blood vessels, the heart and other organs. MIS-C can occur even in kids who had [asymptomatic COVID-19 \(https://www.umc.edu/news/News_Articles/2021/03/MIS-C.html\)](https://www.umc.edu/news/News_Articles/2021/03/MIS-C.html).

"This recent data shows vaccine efficacy against infection and also MIS-C in 12- to 17-year-olds," Hobbs said.



([/News/News_Articles/2022/01/Images/mis-c-clinic-20210927-05.jpg](https://www.umc.edu/news/News_Articles/2022/01/Images/mis-c-clinic-20210927-05.jpg))

From left, Hobbs, Dr. Anita Dhanrajani and Dr. Catherine Gordon discuss patient care at the collaborative MIS-C clinic in the Kathy and Joe Sanderson Tower at Children's of Mississippi.

She also notes that MIS-C is more common in children aged 5-11, who only recently became eligible for the vaccine.

"This is another really good reason to make sure all children who are eligible for vaccine, are vaccinated," Hobbs said.

Because of the timing of these studies, they do not include infections with the highly contagious [Omicron variant \(https://www.umc.edu/news/News_Articles/2022/01/Pediatric-COVID.html\)](https://www.umc.edu/news/News_Articles/2022/01/Pediatric-COVID.html).

“We are seeing huge surges in sick children at the hospital. Omicron being so incredibly transmissible means that even if most people who get it are not severely ill, a proportion of a large number is a large number,” Hobbs said. “While most children still do okay with COVID, a percentage do not, and so we still see a large number of children sick.

“In addition, Omicron seems to favor upper respiratory tracts, which in smaller children can be more dangerous since their airways are proportionately small,” she said.

Another Omicron-related challenge are the limited treatment options compared to Delta and other variants. Vaccination and boosting for all eligible are critical to minimize disease burden.

“It’s important to protect children from becoming infected by the SARS-CoV-2 virus since we have fewer monoclonal antibodies options since some of them are not effective against the Omicron variant, and what we have is in very limited supply and only children 12 and up are eligible under the Emergency Use Authorization. The same goes for the new COVID antivirals at this time.” Hobbs said.

“We know that vaccinations work to help prevent severe disease and hospitalization. Vaccinations reduce the risk of MIS-C. The majority of children hospitalized throughout the country now are unvaccinated,” Henderson said. “Pediatricians want to keep kids in school, we want to keep kids out of the hospital, and we want to protect families. Vaccinations are our best tool to help keep kids safe, healthy, and learning.”