

Do masks really harm kids? Here's what the science says.

As more states drop mask mandates, experts explain why keeping them on in schools is still a smart move for families and teachers.

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• 11 MIN READ

School mask mandates have become something of a political lightning rod in the United States during the COVID-19 pandemic—and, in recent weeks, the dominos have started to fall as one state after another has announced plans to lift their mandates.

Some parents and teachers have cited concerns that masks harm kids by impairing their ability to breathe, slowing their social and emotional development, and causing them anxiety. But experts say that the science doesn't back up those worries.

It's understandable why there might be confusion, says [Thomas Murray](#), a pediatrician at the Yale University School of Medicine. There's no question that masking reduces the spread of disease, but the evidence is less cut and dry about how masking affects kids emotionally and developmentally over the age of two. To answer that definitively would require that researchers asking people to shed their masks for a randomized trial, the gold standard in science, which would be unethical. So, most masking research is based on retrospective real-life observations that can be more easily cherry-picked to argue one side or the other of the debate over mask mandates.

“But we do have this human experiment that's been going on with kids wearing masks at school, and we know that we haven't seen those fears of health risks realized,” says Theresa Guilbert, a pediatric pulmonologist who is a member of the American Academy of Pediatrics Section on Pulmonary and Sleep Medicine.

She and other experts say most evidence suggests that masking doesn't harm children—and that it benefits them in more ways than one. Not only do masks protect kids from COVID-19 and other respiratory diseases, but studies show that schools with mask policies

in place are more likely to stay open, which [decades of research show](#) is particularly critical for kids' mental health and development.

Here's what the science says about kids and masks.

How masks affect breathing

One of the earliest concerns that parents had about kids wearing masks all day was how it might affect their breathing—whether masks would allow them to get enough oxygen or trap in too much carbon dioxide. Guilbert says this was raised as a concern for kids since they breathe more rapidly than adults.

But there's no evidence that masking significantly impairs breathing. In fact, one study showing [unacceptable levels of carbon dioxide](#) in kids ages six to 17 who wore masks was widely discredited last summer—and ultimately [retracted by the journal *JAMA Pediatrics*](#)—because of concerns over the accuracy of its measurements and validity of its conclusions.

Instead, Guilbert points to [a meta-analysis of 10 studies](#), showing that the fluctuation of carbon dioxide and oxygen levels among adults and children wearing masks was “well within normal range.” While children with severe asthma might need to take mask breaks in the hallway outside of the classroom, these studies show that most kids can tolerate them.

She points out that this makes sense based on what we know about the size of carbon dioxide and oxygen molecules—which are [far smaller than the holes in the weave of cloth and surgical masks](#) and should have no trouble flowing in and around the masks. Moreover, she says, two years into the pandemic, hospitals just aren't seeing an influx of children with dangerously low oxygen or high carbon dioxide levels due to masking.

“There's a lot of hypotheses thrown around, but we have this real-life experiment going on,” she says.

How masks affect language development

Another concern has been whether masks might impede children's language development. Samantha Mitsven, a psychology doctoral candidate at the University of Miami, says she and other researchers

worried that the inability to see a speaker's mouth move—and the muffling effects of wearing a mask—could keep children from understanding and learning new words.

Studies *have* shown that [masks muffle sound](#)—and how significantly varies depending on the type of mask. One study [showed](#) that children can more easily recognize words spoken through opaque masks rather than transparent masks, likely due to the confusion caused by light bouncing off a transparent mask. Another study suggests that [surgical masks offer the best acoustical performance](#), followed by KN95 and N95 masks, then cloth masks—with transparent masks again coming in last.

But experts say there's no clear evidence that this significantly impairs a child's ability to communicate—perhaps because people can compensate by talking more slowly and loudly and by using hand gestures to convey meaning.

Mitsven [led a recent study](#) analyzing audio recordings of preschoolers—one classroom that was observed over multiple visits before the pandemic and another classroom that was observed when the children and teachers were required to mask. The study found no difference in how much the children spoke or the diversity of the language they used. This was true even for children with hearing aids and cochlear implants, a population that made up half of each class.

“The vocalizations are on par with children their age,” Mitsven says.

How masks affect social development

Similarly, studies do show that children have a harder time reading the emotions of people who are wearing masks—but that doesn't necessarily prevent them from learning how to interact with others.

From the earliest months of life, children watch the faces of the people around them. This helps them first distinguish between positive and negative emotions and ultimately learn how to adjust their behavior accordingly.

Covering up the bottom half of one's face with a mask does affect that ability: A study [published in *Frontiers in Psychology*](#) showed that children between the ages of three and five were less adept at

recognizing the emotions on photographs of people wearing masks compared to photographs of unmasked people.

But [Walter Gilliam](#), a child psychiatry and psychology professor at the Yale Child Study Center, says this study and others like it are limited by their reliance on still photographs. “I’m more than just my eyeballs,” he says. Children also pick up on cues like how people walk through spaces, the tone of their voices, and the hand gestures they make. “All of that is stripped away from those studies.” He points to [another study](#) showing that children have no more difficulty reading the emotions of a person wearing a face mask than they do a person wearing sunglasses.

These studies are also only a snapshot in time—they can’t tell us how quickly children would be able to adapt to these challenges if given the chance. “Everything I know about child development would tell me that they’d adjust quickly,” Gilliam says. “I wish that we had more faith in the capacity of children.”

Guilbert agrees that there’s no sign that masking keeps children and adolescents from developing socially—and, she argues, it might be key to ensuring they can go to school. Over the course of two years, evidence has grown that masking policies help schools stay open by [reducing the number of outbreaks](#).

How masks affect mental health

Similarly, while some argue that school masking mandates are harmful to a child’s mental health, experts say the evidence suggests the opposite. Guilbert says the most significant signal of the pandemic’s toll on mental health came early in the pandemic. Back then children who were doing remote learning experienced increased levels of anxiety and depression because they weren’t at school with their peers.

Gilliam and Murray, the Yale researchers, were also concerned about how school shutdowns were affecting the mental health of kids and their stressed-out parents alike. With that in mind, they decided early in the pandemic to investigate the most effective strategies for keeping schools and early childcare programs open.

In May 2020, the researchers surveyed 6,654 childcare professionals in all 50 U.S. states to find out which COVID-19 mitigation tactics they were using, including social distancing, symptom screening, and masking. Then, a year later, they followed up to see if those programs had been forced to close. Their resulting analysis shows that childcare facilities with mask requirements for kids older than two were [13 percent more likely to have remained open](#) than those where kids were not masked.

As with many of the other studies on masking in schools, Gilliam and Murray concede that their study is limited: It's based on real-world observations and could not control for other factors—like, say, whether the adults and children who masked also avoided travel throughout the same period. But it still provides more compelling evidence that masking policies have more potential to help rather than hurt a child's mental health.

“We can't wear masks forever, but you can't have kids missing 10 days of school every so often because of quarantine,” Murray says.

Gilliam says blaming masks for the depression and anxiety in kids stems from a natural desire to protect them. But he suspects it's not the masking that causes stress in classrooms. “It's the trauma of COVID that the masks were intended to prevent,” he says. “When you have an ache and a pain, it's the cut on your arm not the Band-Aid that went over it that's causing the problem. The purpose of the mask is to reduce all the other traumas—traumas that we know for an absolute fact harm children.”

How will we know when to drop mask mandates?

So how can science help guide schools in making these decisions? Well, for one, experts caution that it's important for policymakers to keep in mind that there are always outliers in a study. So even though the evidence suggests that masking doesn't harm most children, mask mandates may need to carve out exemptions for children who are deaf and need to read lips or for children with autism who struggle to interpret facial expressions.

Murray says that risk mitigation is also best done in layers—and that schools have an array of tactics they can use against COVID-19. To prevent the virus from getting into schools in the first place, they can implement robust testing and symptom-checking strategies. But if

the disease is there and spreading among students, masking and ventilation become more important mitigation strategies. So, if schools are going to remove masking policies, he says, they need to think about stepping up ventilation or testing.

Community transmission matters, too. Rochelle Walensky, director of the U.S. Centers for Disease Control and Prevention, [has urged lawmakers not to drop school mask mandates](#) while infections remain high across the country. Although case numbers are falling, they remain higher than they were before the Omicron surge.

While lifting mask mandates might make sense during times when local cases are low, Murray says that schools need to be willing to go back to masking if a harmful new variant emerges or if they start to see a new surge in cases. There's no magic number to determine when to lift mandates, he says—it can differ based on a variety of factors that can mitigate transmission, such as whether schools have enough space for students to spread out or whether it's warm enough to open classroom windows. But Murray argues that it's important to be willing to consider the evidence and be willing to change your mind when more evidence comes available.

“The point is,” he says, “I agree that at some point we have to try it, but boy you’ve got to have a really thoughtful plan because having kids out of early childcare and parents scrambling to find alternative safe care is not good for anybody.”
