

Children may transmit coronavirus at the same rate as adults: What we know about school and COVID-19

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The role children, and consequently schools, play in the COVID-19 pandemic has been hard to work out, but that puzzle is now finally starting to be solved.

The latest research shows infections in children [frequently go undetected](#), and that children are [just as susceptible](#) as adults to infection. Children likely transmit the [virus](#) at a [similar rate to adults](#) as well.

While children are thankfully much less likely than adults to get seriously ill, the same isn't true for the adults that care for them. Evidence suggests schools have been a [driver of the second wave](#) in Europe and elsewhere. This means the safety of schools needs an urgent rethink.

It's hard to detect COVID-19 in children

Infections with SARS-CoV-2, the virus that causes COVID-19, in children are generally [much more mild](#) than in adults and easy to overlook. A study from South Korea found the majority of children had symptoms mild enough to go unrecognized, and [only 9% were diagnosed at the time of symptom onset](#).

Researchers used an antibody test (which can detect if a person had the virus previously and recovered) to screen a representative sample of nearly 12,000 children from the general population in Germany. They found the [majority of cases in children had been missed](#). In itself, that's not surprising, because many cases in adults are missed, too.

But what made this study important, was that it showed young and older children were similarly likely to have been infected.

Official testing in Germany had suggested young children were much less likely to be infected than teenagers, but this wasn't true. Younger children with infections just weren't getting tested. The study also found nearly half of infected children were asymptomatic. This is about [twice what's typically seen in adults](#).

But children do transmit the virus

We've known for a while that around the [same amount](#) of viral genetic material can be found in the nose and throat of both children and adults.

But that doesn't necessarily mean children will transmit the same way adults do. Because children have a smaller lung capacity and are less likely to have symptoms, they might release less virus into the environment.

However, a new study conducted by the US Centers for Disease Control and Prevention (CDC) found [children and adults were similarly likely to transmit the virus](#) to their household contacts.

Another study, of more than 84,000 cases and their close contacts, in India found [children and young adults were especially likely to transmit the virus](#).

Most of the children in these studies likely had symptoms. So, it's unclear if asymptomatic children transmit the virus in the same way.

But [outbreaks in childcare centers](#) have shown transmission by children who don't show symptoms still occurs. During an outbreak at two childcare centers in Utah, [asymptomatic children transmitted the virus](#) to their family members, which resulted in the hospitalization of one parent.

What we know about outbreaks in Australian schools

Schools didn't appear to be a major driver of the epidemic in Victoria, although [most students switched to remote learning](#) around the peak of the second wave.

However, schools did contribute to community transmission to some extent. This was made clear by the [Al-Taqwa College cluster](#), which was linked to outbreaks in Melbourne's public housing towers.

When researchers analyzed cases in Victorian schools that occurred between the start of the epidemic and the end of August 2020, they found infections in schools [mirrored what was happening in the community overall](#). They also found 66% of all infections in schools were limited to a single person.

This might seem encouraging, but we have to remember this virus is characterized by superspreading events. We [now know that about 10% of infected people](#) are responsible for about 80% of secondary COVID-19 cases.

Two major studies from [Hong Kong](#) and [India](#) revealed about 70% of people didn't transmit the virus to anyone. The problem, is the remainder can potentially infect a lot of people.

What happened in Victorian schools was entirely consistent with this.

The risk associated with schools rises with the level of community transmission. The picture internationally has made this clear.

What we know about outbreaks in schools, internationally

After schools reopened in Montreal, Canada, school clusters quickly outnumbered those in workplaces and health-care settings combined. President of the Quebec Association of Infectious Disease Microbiologists, [Karl Weiss, said](#), "Schools were the driver to start the second wave in Quebec, although the government did not recognize it."

A report by Israel's Ministry of Health concluded [school reopening played at least some role in accelerating the epidemic](#) there, and that schools may contribute to the spread of the virus unless community transmission is low. In the Czech Republic, a rapid surge in cases following the reopening of schools prompted the mayor of Prague to describe schools as "[COVID trading exchanges](#)".

The opposite pattern has been seen when schools have closed. England just witnessed a drop in new cases, followed by a return to growth, coinciding with the [half-term school holidays](#). This was before any lockdown measures were introduced in the country.

These observations are consistent with a study examining the effect of imposing and lifting different restrictions in 131 countries. Researchers found school closures were associated with a reduction in R—the measure of how fast the virus is spreading—while [reopening schools was associated with an increase](#).

The risk has been spelled out most clearly by the president of the Robert Koch Institute, Germany's equivalent of the US Centers for Disease Control and Prevention. Last week, he [reported the virus](#) is being carried into schools, and also back out into the community.

What we need to do

It won't be possible to control the pandemic if we don't fully address transmission by [children](#). This means we need to take a proactive approach to schools.

At a minimum, [precautionary measures](#) should include the use of [face masks](#) by staff and students (including [primary school students](#)). Schools should also improve ventilation and [indoor air quality](#), reduce class sizes, and ensure kids and staff practice hand hygiene.

School closures have a role to play as well. But they must be carefully considered because of the [harms associated with them](#). But these harms are likely outweighed by the harms of an unmitigated epidemic.

In regions with high levels of community transmission, temporary school closures should be considered. While a lockdown without [school](#) closures can probably still reduce transmission, it is unlikely to be maximally effective.

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