Vaccinating children aged under 5 years against covid-19

Whether other countries should follow the US’s lead is unclear

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The United States has joined a handful of countries recommending that children aged 6 months to 5 years should receive covid-19 vaccines, but it is uncertain if other countries will follow. What is the evidence behind the US’s recommendation, and how does the case for vaccinating children under 5 years differ from offering covid-19 vaccines to older children?

Two vaccines have been authorised for under 5s in the US, based on data supplied by manufacturers Pfizer and Moderna. Trials showed that vaccination induced antibodies against SARS-CoV-2 among children aged 6 months to 5 years, but it is not yet clear whether these antibodies will protect against covid-19 symptoms such as sore throat, fever, or cough, as there were very few cases of covid-19 in these trials. In the Pfizer trial for example, there were only three laboratory confirmed symptomatic cases among vaccinated children and seven in the non-vaccinated children. Most children had minor side effects after vaccination such as fatigue or pain at the injection site lasting only a few days. However, one child in the Moderna trial had a seizure due to a high temperature. Overall, the safety profile of both vaccines is reassuring for parents.

Children are more likely than adults to experience asymptomatic covid-19 or very mild illness, and are much less likely to have severe disease requiring hospital admission. But those with underlying health conditions, such as long term neurological disease, are more likely to be admitted to hospital with covid-19 than healthy children.

During the first year of the pandemic, an estimated 25 children died from covid-19 in the UK (equivalent to two deaths per million), 19 of whom had underlying serious or life limiting health conditions. More recent data from the UK confirm that risk of death from covid-19 remains very low for young people, particularly children aged under 12. Rates of the multisystem inflammatory syndrome in children (a very rare but serious complication of covid-19) have also decreased in subsequent waves.

Worryingly high numbers of infant deaths from covid-19 have been reported recently in low and middle income countries such as Brazil. Several contributing factors could explain these reports, including high infection transmission rates, poor underlying infant health, and lack of access to healthcare.

Should children under 5 years be vaccinated against covid-19? In high income settings such as the UK the benefit of vaccination for healthy children under 5 years is likely to be even more marginal than it is for older children. Most under 5s will have been exposed to SARS-CoV-2 already. For example, 75% of children aged 0-11 years in the US had antibodies to SARS-CoV-2 in February 2022, and this figure has probably increased. Uncertainty remains about how much additional protection the vaccine offers against covid-19 or how long antibodies last compared with antibodies developed through natural immunity.

Covid-19 vaccination could reduce incidence of severe disease among under 5s considered at highest risk and may protect them against the rarer multisystem inflammatory syndrome, as observed in children aged over 12 years. This complication has also been reported after covid-19 vaccination in older children, but at lower rates than occur following natural infection. Vaccination helps protect adults against prolonged symptoms such as fatigue and loss of smell, but rates of these longer term symptoms are low in children. It will be some time before the long term effects of covid-19 (both direct and indirect) on under 5s are fully understood.

The US vaccination policy for under 5s may be driven by a desire to protect wider society from further pandemic impacts. Vaccinating children under 5 could reduce circulation of SARS-CoV-2 in the community and limit the risk of further outbreaks in both healthy people and those vulnerable to severe covid-19 such as pregnant women and older adults. However, the role that very young children play in transmission within households remains difficult to estimate because of their high prevalence of asymptomatic infection and the changing transmissibility of new variants.

Opportunity costs

National vaccination programmes are a major undertaking for health systems. Policy makers may consider that scarce resources are better directed at catch-up campaigns to reverse falls in routine childhood vaccinations caused by pandemic disruption and ensuring global targets for covid-19 vaccination of adults are met. The UK’s Joint Committee on Vaccination and Immunisation commented in their non-urgent offer to 5-11 year olds that investing resources towards covid-19 vaccination programmes for children could potentially affect other routine childhood vaccination programmes. Promoting catch-up and reducing inequalities in vaccine uptake exacerbated by the pandemic may be more beneficial to children than covid-19 vaccination. Reports from Australia of the first cases of diphtheria this century highlight that maintaining routine vaccine uptake has never been more important.

Covid-19 vaccination may protect children under 5 at high risk of severe disease. But the case for mass
vaccination of healthy under 5s seems less compelling, particularly in developed countries where risk of mortality from covid-19 in this age group is so low. However, the balance of benefits and risks may change as new variants emerge. Global surveillance of covid-19 and long term effects of vaccination in different child populations is therefore essential. Importantly, the views of parents must be considered in any new policy relating to young children, along with clear, accurate information for parents considering whether to vaccinate their child.

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15 Diphtheria cases have been reported in Australia for the first time this century. What is it and who is at risk? Guardian 2022 Jul 4. https://www.theguardian.com/australia-news/2022/ju/a/04/what-is-diphtheria-now-case-australia-vaccine-two-cases-children-disease-who-is-at-risk.

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