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## Should we vaccinate children against SARS-CoV-2?

Following sharing with regulatory bodies of phase 3 trial data showing that Pfizer-BioNTech's mRNA BNT162b2 vaccine was efficacious, immunogenic, and safe in children aged 12–15 years, several countries have authorised the use of the vaccine in this age group. Reactions to this news have been mixed. Although it is considered likely that children will have to be vaccinated against SARS-CoV-2 eventually, there is the question of whether now is the right time. Many public health figures think not, considering that children typically experience only mild illness and many of the world's low-income and middle-income countries (LMICs) are reporting vaccine shortages. Countries with enough doses to cover their children might consider donating excess doses to countries that do not have enough vaccine to immunise the extremely vulnerable, older people, and front-line health workers.

A report published by the European Centre for Disease Prevention and Control (ECDC) on June 1 lists important considerations for public health authorities in EU and European Economic Area countries considering vaccinating their children and adolescents. The report proposes that decisions should be made bearing in mind vaccine uptake in older age groups, the incidence of COVID-19 in the general population, and notably, issues concerning availability and access to vaccines on a global scale. The report emphasises that children and adolescents will experience few direct benefits from being vaccinated; rather, the goal would be to increase overall population immunity and reduce transmission. In some countries, vaccinating children might be a way to overcome low levels of vaccine-induced population immunity due to high rates of vaccine hesitancy among adults; however, parental consent is required to vaccinate a child, and it is unlikely that parents who do not want the vaccine for themselves will want it for their children.

If the goal of childhood vaccination is to reduce transmission, it is important to consider and quantify the contribution of children and adolescents to transmission of SARS-CoV-2. So far in the pandemic, evidence on this role has been scarce and conflicting. Whereas some studies have reported higher secondary attack rates from child and adolescent index cases than from adult index cases, others have reported the reverse. Moreover,

there is evidence that SARS-CoV-2 transmission in educational settings is a reflection, and not a driver, of community transmission. Therefore, it is unclear what impact vaccinating children and adolescents will have on transmission. Even within children there appears to be an age gradient, with younger children seemingly less susceptible to SARS-CoV-2 and less likely to pass it on. Therefore vaccination of older children might be more beneficial than a vaccine strategy that targets all children aged 12–15 years or younger.

Overall, the ECDC report stresses that the decision to vaccinate younger age groups should consider the individual benefit–risk ratio. The BNT162b2 vaccine appeared well tolerated in children aged 12–15 years, although the study was too small to identify any rare side-effects. As for adults, the children who will benefit most from vaccination will be those with underlying conditions, such as cancer, cardiac disorder, diabetes, hypertension, or kidney disease, which have been shown to confer a risk of hospitalisation that is similar to the risk in some adult age groups without underlying conditions. Vaccinating children and adolescents will also prevent long-term sequelae associated with SARS-CoV-2 infection, for which the burden in children is uncertain, and multisystem inflammatory syndrome, which has been shown to affect some children who have experienced only mild acute infections. Vaccination of children might also improve their mental health and wellbeing and facilitate a return to normalcy, including resumption of education and social interactions important for child development.

In many parts of the world, children and adolescents are contributing to an increasing proportion of the total cases. This change in age distribution is thought to be driven by the emergence of highly transmissible variants, increased testing among school-age children, low adherence to non-pharmaceutical interventions, increased social interactions as restrictions are lifted, and increasing immunity among older age groups following vaccine rollout. Thus, there might be a case for vaccinating children in the not-too-distant future. However, whether at present the children of high-income countries should be prioritised for vaccination over vulnerable adults in LMICs is a matter for serious ethical and practical debate.

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For more on the **phase 3 trial** see <https://www.pfizer.com/news/press-release/press-release-detail/pfizer-biontech-announce-positive-topline-results-pivotal>

For the **ECDC report** see <https://www.ecdc.europa.eu/en/publications-data/interim-public-health-considerations-covid-19-vaccination-adolescents-eueea>