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## COVID-19 vaccines for children in LMICs: another equity issue



Given the success of COVID-19 vaccines in preventing death and severe disease in adults<sup>1</sup> and their impact on community transmission,<sup>2</sup> use in children and young people (CYP) inevitably requires consideration. Although severe COVID-19 is rare in CYP,<sup>3</sup> they are affected by SARS-CoV-2 infection and the impacts of the COVID-19 pandemic, including education, mental health, and general wellbeing.<sup>4</sup>

As of late July, 2021, no COVID-19 vaccine is recommended for children younger than 12 years and safety and efficacy data from phase 3 clinical trials are so far limited: 1131 CYP aged 12–15 years received the Pfizer–BioNTech mRNA vaccine<sup>5</sup> and safety data are available from phase 1 and 2 trials of Sinovac's inactivated CoronaVac vaccine in 438 children aged 3–17 years.<sup>6</sup> Safety data have been reassuring, with published data confirming excellent immunogenicity.<sup>5</sup> There is no reason to believe the vaccines should not be equally protective against COVID-19 in CYP as they are in adults. More than 30 international trials are now recruiting CYP as young as 6 months to assess safety, immunogenicity, dosing, and scheduling questions.<sup>7</sup> Safety data from the Pfizer–BioNTech mRNA vaccine trial proved sufficient for regulatory authorities in the EU, Israel, and North America to issue approval for use of this vaccine in CYP aged 12–15 years. Safety data from the real-life roll-out of COVID-19 vaccines are continuously collected through surveillance systems in high-income countries (HICs)<sup>8,9</sup> and are generally reassuring, although a rare vaccine-associated signal of transient inflammation of the heart muscle in some young adults has raised concerns.<sup>10</sup> On balance, the US Centers for Disease Control and Prevention concluded that benefits outweigh the risks.<sup>11</sup>

Countries are also still calculating what indirect benefits for reduced SARS-CoV-2 transmission in schools and the wider community could be achieved by vaccinating CYP. With children now recognised as part of the chains of community transmission,<sup>4</sup> the discussion about a CYP vaccine programme was perhaps inescapable. Yet the impacts of COVID-19 vaccination in CYP on transmission dynamics will vary nationally, since epidemiological circumstances, novel SARS-CoV-2 variants, and contact mitigation strategies will have different roles in different places.

Most countries have yet to decide whether to include CYP in COVID-19 vaccination programmes. Canada, Israel, some European countries, and the USA have introduced the vaccine for all young people older than 12 years. By contrast, countries such as Germany and the UK are focusing on groups most at risk of severe COVID-19, but are not universally rolling out COVID-19 vaccination to CYP older than 12 years.<sup>12</sup>

Unsurprisingly, low-income and middle-income countries (LMICs) have not yet introduced COVID-19 vaccines for CYP. WHO guidance from July 14, 2021, states: "Children and adolescents tend to have milder disease compared to adults, so unless they are part of a group at higher risk of severe COVID-19, it is less urgent to vaccinate them than older people, those with chronic health conditions and health workers...WHO's Strategic Advisory Group of Experts (SAGE) has concluded that the Pfizer–BioNTech vaccine is suitable for use by people aged 12 years and above. Children aged between 12 and 15 who are at high risk may be offered this vaccine alongside other priority groups for vaccination. Vaccine trials for children are ongoing and WHO will update its recommendations when the evidence or epidemiological situation warrants a change in policy."<sup>13</sup>

Further data from LMICs will aid risk assessments of SARS-CoV-2 in CYP, both for personal health and transmission roles. A recent meta-analysis indicated that the outcome of children admitted to hospital with acute COVID-19 is worse in LMICs than in HICs (case fatality rates 0.29% [95% CI 0.28–0.31%] vs 0.03% [0.03–0.03%]).<sup>14</sup> Vaccinating CYP in LMICs may ultimately have more benefit to their health status compared with CYP in HICs.

All vaccines should be given to those who need them most, particularly in the context of a pandemic with limited vaccine supply. Of the more than 4 billion doses of COVID-19 vaccines administered globally in the past 8 months, less than 2% have been given in Africa;<sup>15</sup> on a continent that cannot vaccinate its most vulnerable populations (eg, older people and those with chronic conditions) and highly exposed health-care workers, introducing vaccines for CYP remains a luxury. This gross inequity prevents LMICs from not only preventing death and serious illness,



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but also from deploying vaccines as tools to interrupt SARS-CoV-2 transmission. The inclusion of CYP will not be a priority in LMICs for a long time because of the serious shortfalls of vaccines.

What of the WHO motto that “No one is safe till everyone is safe”? HICs have unlimited stocks of COVID-19 vaccines.<sup>16</sup> If a key reason for the use of the COVID-19 vaccines in CYP in HICs is reducing SARS-CoV-2 transmission, surely CYP in LMICs should also be vaccinated? We are far from the vision of the African Union (AU) to vaccinate two-thirds of its members’ population. In addition to COVAX, the AU has now partnered with additional vaccine suppliers through the AU’s African Vaccine Acquisition Trust, including UNICEF.<sup>17</sup> However, even vaccinating 66% of individuals is unlikely to be sufficient to interrupt transmission chains.

In addition to supply issues and logistics that prevent the use of COVID-19 vaccines in CYP in LMICs, the success of any plans to roll out the vaccines must also ride on the back of acceptance and confidence. Parents in LMICs need reassurance they are doing the right thing for their children, just as has been found in HICs.<sup>18</sup>

During deliberations on the potential benefits of COVID-19 vaccines for CYP, it is important to recognise that this pandemic has already deprived more than 8 million children, primarily in LMICs, from life-saving, routine childhood vaccines.<sup>19</sup> Immunisation services are preoccupied with the implementation of COVID-19 vaccine programmes for adults. At present, greater benefit for children’s health globally will be derived by delivering the health interventions we already know will save their lives, such as vaccines against measles and other vaccine-preventable diseases, than by focusing on delivering COVID-19 vaccines to part of a population that does not currently represent a strategic priority in the response to this pandemic. Although maybe not equitable, we believe this approach is more important for the health of CYP at this point in time.

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\*Beate Kampmann, Uduak Okomo  
beate.kampmann@lshtm.ac.uk

The Vaccine Centre, London School of Hygiene & Tropical Medicine, London WC1E 7HT, UK (BK); Vaccines and Immunity Theme, MRC Unit The Gambia at the London School of Hygiene & Tropical Medicine, Banjul, Fajara, The Gambia (BK, UO)

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