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COVID-19's lost generation of unvaccinated children

Authors' reply

We thank Damian Walker and Subhash Chandir for their letter in response to our benefit-risk analysis on sustaining routine childhood immunisation in African countries during the COVID-19 pandemic.¹

Walker and Chandir highlight the uncertainty in our understanding of the indirect health effects due to the impact of the COVID-19 pandemic on immunisation services, and the importance of electronic immunisation registries to track under-immunised children, as evident from the case study in Pakistan's Sindh province.² The absence of electronic immunisation registries in many African countries is a limiting factor in translating this solution to Africa.

WHO issued guidance in March, 2020, on immunisation activities during the COVID-19 pandemic, which recommended a temporary suspension of mass vaccination campaigns, but continuation of routine immunisation services while maintaining physical distancing and infection control measures.³ The evidence on the benefits and risks of these recommendations was not extensive, but timely policy decisions were warranted despite this uncertainty. We conducted our benefit-risk analysis on sustaining routine childhood immunisation during the COVID-19 pandemic to address, in part, this evidence gap. Despite the uncertainties and conservative assumptions, we inferred that the deaths prevented by sustaining routine childhood immunisation in Africa outweigh the excess risk of COVID-19 deaths associated with vaccination clinic visits, especially for the vaccinated children. Thereby, routine immunisation services should be sustained as much as is logistically possible in a COVID-secure manner.

Empirical data are being generated by countries to assess the indirect effects of the COVID-19 pandemic on regular health services, including immunisation. Masresha and colleagues⁴ reviewed administrative routine immunisation data to analyse the performance of routine immunisation in 15 African countries during the first 6 months of the COVID-19 pandemic. The strict COVID-19 control measures, redeployment of health workers and repurposing of health facilities to assist COVID-19 control efforts, and public concerns about being infected by severe acute respiratory syndrome coronavirus 2 led to a decline in use of regular health services, including immunisation. 13 of 15 countries had a decrease in immunisation service delivery, with six countries showing more than a 10% decrease in the average monthly number of vaccine doses provided.

Epidemiological risk assessment using empirical data on the disruptions to immunisation services in combination with serological surveillance and social behaviour dynamics should be conducted to assess the immunity gaps and assist in planning and implementation of catch-up vaccination of under-immunised and zero-dose children to prevent vaccine-preventable disease outbreaks.⁵

We declare no competing interests.

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- 1 Abbas K, Procter SR, van Zandvoort K, et al. Routine childhood immunisation during the COVID-19 pandemic in Africa: a benefit-risk analysis of health benefits versus excess risk of SARS-CoV-2 infection. *Lancet Glob Health* 2020; **8**: e1264–72.
- 2 Chandir S, Siddiqi DA, Setayesh H, Khan AJ. Impact of COVID-19 lockdown on routine immunisation in Karachi, Pakistan. *Lancet Glob Health* 2020; **8**: e1118–20.

- 3 WHO. Guiding principles for immunization activities during the COVID-19 pandemic: interim guidance, 26 March 2020. <https://apps.who.int/iris/handle/10665/331590> (accessed Oct 5, 2020).
- 4 Masresha BG, Luce Jr R, Shibeshi ME, et al. The performance of routine immunization in selected African countries during the first six months of the COVID-19 pandemic. *Pan Afr Med J* 2020; **37** (suppl 1): 12.
- 5 Mburu CN, Ojal J, Chebet R, et al. The importance of supplementary immunisation activities to prevent measles outbreaks during the COVID-19 pandemic in Kenya. *medRxiv* 2020; published online Aug 31. <https://doi.org/10.1101/2020.08.25.20181198> (preprint).



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