



## Value of immunogenicity studies of influenza vaccine in resource-limited settings

The studies<sup>1,2</sup> of Russian-backbone live attenuated influenza vaccine (LAIV) in children from Senegal and Bangladesh in *The Lancet Global Health* are welcome, in view of the high burden of influenza-associated morbidity and mortality in resource-limited settings. Although the lack of immunogenicity data is highlighted as a limitation by the authors, we feel that the importance of generating such data in future studies is underplayed. With the exception of one study<sup>3</sup> including children from South Africa, to our knowledge, no paediatric immunogenicity data exist from sub-Saharan Africa for the Ann Arbor-based LAIV. This amounts to a significant gap in knowledge of how an intranasal LAIV performs immunologically in these settings. Parallels can be drawn with the well-described poorer performance of live oral vaccines in resource-limited settings.

The lack of a single identified correlate of protection for LAIV should not deter future immunogenicity studies in resource-limited settings, especially using systems vaccinology approaches designed to dissect the complex interplay of innate and adaptive pathways following vaccination.<sup>4</sup> John C Victor<sup>1</sup> and colleagues propose that differences in nasopharyngeal ecology could explain differential LAIV performance. As methods to interrogate and integrate complex datasets evolve, testing such hypotheses becomes increasingly possible.

Although further efficacy studies of this vaccine in resource-limited settings are vital, in our view, studies probing more mechanistic aspects of LAIV performance are also crucial. Not only might such studies offer some explanation for the lack of efficacy seen in Senegal, but they

might also underpin the design of future generations of LAIV for use in resource-limited settings.

We declare no competing interests.

Copyright © The Author(s). Published by Elsevier Ltd. This is an Open Access article under the CC BY-NC-ND license.

\**Thushan I de Silva, Beate Kampmann*  
**t.de-silva@imperial.ac.uk**

Department of Medicine, Imperial College London, St Mary's Campus, London W2 1PG, UK and Medical Research Council Unit The Gambia, Atlantic Boulevard, PO Box 273, Banjul, The Gambia

- 1 Victor JC, Lewis KDC, Diallo A, et al. Efficacy of Russian-backbone live attenuated influenza vaccine among children in Senegal: a randomised, double-blind, placebo-controlled trial. *Lancet Glob Health* 2016; **4**: e955–65.
- 2 Brooks WA, Zaman K, Lewis KDC, et al. Efficacy of Russian-backbone live attenuated influenza vaccine among young children in Bangladesh: a randomised, double-blind, placebo-controlled trial. *Lancet Glob Health* 2016; **4**: e946–54.
- 3 Bracco Neto H, Farhat CK, Tregnaghi MW, et al. Efficacy and safety of 1 and 2 doses of live attenuated influenza vaccine in vaccine-naïve children. *Pediatr Infect Dis J* 2009; **28**: 365–71.
- 4 Nakaya HI, Wrammert J, Lee EK, et al. Systems biology of vaccination for seasonal influenza in humans. *Nat Immunol* 2011; **12**: 786–95.