



Last-Mile Delivery for Increasing Vaccine Uptake in Sierra Leone

Digital Development Dialogue
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Is vaccine hesitancy a key constraint to vaccination uptake in low and middle-income countries? In this dialogue, **Tania Cernuschi**, Head of Immunization Vaccines at the WHO, and **Mushfiq Mobarak**, Professor at Yale University, discuss the challenges to vaccination in rural contexts in low and middle-income countries (LMIC). In line with the challenges identified by Cernuschi from her practical experience, Mobarak presents evidence of a novel randomized controlled trial, which evaluates the effectiveness of mobile vaccination teams in rural Sierra Leone. The dialogue was moderated by **Kasper Vrolijk**, Managing Director at the Asser Institute.

In the first presentation, Mushfiq Mobarak argued that academic research on vaccination maintains a large focus on individual behavioral issues such as hesitancy. Yet, he showed that prioritized access can generate increased returns in the uptake of health services. **A study** conducted in 10 low- and middle-income countries revealed vaccine acceptance to be higher (around 80%) in these countries than in the United States and Russia. Indeed, last-mile delivery figured as a key constraint to Covid-19 vaccination. This finding motivated the design of a cluster **randomized controlled trial** (RCT) in rural Sierra Leone, which showed that an intervention with mobile vaccination teams increased the immunization rates by about 26 percentage points within 48 to 72 hours. Additionally, people from nearby communities also searched the offered services, increasing the number of vaccine doses administered, and decreasing the implementation cost per person vaccinated.

The positive effects found opened new avenues of research. As transportation to remote villages accounted for a large share of the intervention costs in the RCT, an immediate implication was that bundled health interventions could potentially increase cost-effectiveness. From the identification of the main health challenges in rural remote households, a coalition was formed to conduct a trial with a bundle of maternal and childcare services. The trial is underway and the effects to be evaluated.

Drawing from her experience at the World Health Organization and The Vaccine Alliance (GAVI), **Tania Cernuschi corroborated Mobarak's presentation**, highlighting the relevance of logistical and infrastructural constraints to achieve universal vaccination. According to Cernuschi, the world has seen a wide increase in vaccination coverage in the last decades, but these advances reached a plateau before achieving the desired levels. While COVID-19 increased the awareness on the importance of vaccines, the coverage for other diseases decreased during pandemic years. Moreover, the high inequality in vaccine uptake among regions would be due to the access challenges faced by the poorest countries.

Despite access to vaccination arising as a key challenge in many developing countries, Cernuschi pointed out the importance of considering contextual factors. While in some region's vaccine costs are the most relevant constraints, the availability of healthcare workers, or transport infrastructure are the most critical in other settings. According to her, effective interventions and R&D teams must consider and address these specific issues. In this sense, the strengthening of health community-based organizations or the development of more heat-stable vaccines can be some examples.

In the Q&A, one of the participants asked whether interventions similar to the one applied in Sierra Leone would be only a short-term solution and what could be the long-term strategies for increasing vaccine uptake. Mobarak answered that this kind of intervention would have to be in place for as long as needed, although more institutional solutions are desirable. Other questions touched upon the challenges on this institutionalization of vaccination strategies and funding. Cernuschi pointed out that, although a lot of the recent advances in vaccine coverage are attributable to international organizations, it would be important that local and national governments take the lead in institutionalizing vaccination policies to increase self-dependence.

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