Scaling bundled health services in rural Sierra Leone

Niccolò F. Meriggi, Maarten Voors, Ahmed Mushfiq Mobarak, Uday Wadehra, Sara Gomez-Mesa, Desmond Maada Kangbai and Sarah Cundy

- Bundled outreach substantially increased uptake of several preventive health services in remote rural Sierra Leone.
- The largest gains were found for HPV vaccination, vitamin A supplementation and deworming, and the intervention also reduced the share of zero-dose children, especially among younger children.
- Routine childhood immunisation also improved, but gains were more modest for some early multi-dose vaccines, pointing to operational frictions at the point of delivery.

Remote rural households often face severe barriers in accessing basic preventive healthcare. In Sierra Leone, reaching a health facility can take roughly two hours on foot in many rural areas, even where vaccines are available and confidence in vaccines is high. This creates a practical access problem: many preventive services require repeated contact with the health system, but each visit is difficult for households living far from clinics.

POLICY BRIEF SLE-24143

MARCH 2026

This project was funded by the IGC

theigc.org

DIRECTED BY

FUNDED BY

This brief summarises evidence from a cluster-randomised controlled trial in 455 villages across seven districts in Sierra Leone. In partnership with the Ministry of Health and Concern Worldwide, Health Outreach Teams delivered a bundle of preventive health services door-to-door in treatment villages. The bundle included routine childhood immunisations for children under five, HPV vaccination for girls aged 10–17, vitamin A, deworming and chlorine tablets for water treatment. The evidence suggests that bundled outreach can be a practical way to expand preventive healthcare in hard-to-reach settings, while also showing where complementary investments in frontline delivery systems are needed.

Why bundled outreach matters

In many low-income settings, the challenge is not only whether health products are available, but whether households can physically reach them. In Sierra Leone, weak road infrastructure, long travel times and limited transport options make repeated clinic visits difficult, especially for remote rural households. Bundled outreach addresses this challenge by bringing several services directly to households in a single visit, helping to overcome the access barrier while increasing the value of each outreach trip.

What the study finds

The study finds large gains for several components of the bundled package. HPV vaccination shows the strongest effect. Baseline HPV coverage among girls aged 10–17 was below 2% in the control group. Among girls documented in the first round, the intervention increased HPV vaccination by 68.9 percentage points after one round and by roughly 75 percentage points after two rounds. Across all girls documented in either round, the pooled increase was about 70 percentage points.

- Among children under five, baseline coverage was 28.8% for vitamin A and 20.5% for deworming. In the first round, vitamin A uptake increased by 35.8 percentage points and deworming by 42.4 percentage points. After two rounds, the cumulative gains reached 45.3 percentage points for vitamin A and 53.9 percentage points for deworming.
- The intervention also reduced zero-dose children. Under the stricter “truly zero-dose” definition, 39% of children aged 0–11 months in the control group had received none of the main routine antigens at baseline. The intervention reduced that rate by 22.3 percentage points after one round and by 33.4 percentage points after two rounds for the Round 1 verified sample.

Routine childhood immunisation also improved, but less strongly than some of the other services in the bundle. This contrast is one of the study's most important findings: services with relatively clear eligibility rules, such as HPV, vitamin A and deworming, responded especially strongly to outreach, while early multi-dose routine vaccines showed more modest gains.

Why some services respond more strongly than others

The results suggest that low uptake in these communities is not mainly driven by vaccine hesitancy. The working paper documents high stated confidence in vaccines at baseline. Instead, the evidence points to two barriers operating together. The first is physical access: long travel times make it difficult for remote households to complete repeated clinic visits, especially for routine immunisation schedules. The second lies in implementation at the point of delivery.

> **Bringing services closer is necessary, but it is not always sufficient.**

Routine childhood immunisation is harder to deliver than services such as vitamin A, deworming or HPV. Health workers need to determine whether a child is eligible for catch-up vaccination and which dose is due, often without complete or reliable vaccination records. The study also documents uncertainty among health workers about age thresholds for catch-up vaccination. These operational frictions appear to limit gains for some routine vaccines even when outreach successfully reaches the household.

The policy implication is clear: expanding outreach matters, but its full benefits for routine immunisation are most likely to be realised when outreach is paired with better frontline training, clearer guidance on catch-up eligibility and stronger record-keeping systems.

BOX 1

Bundled outreach can be a powerful way to expand preventive healthcare in hard-to-reach settings. Once outreach teams are deployed, delivering several services in one visit can increase the value of each trip. Reaching zero-dose children should remain a central objective, since the strongest effects are found among younger children. High-impact services with simple eligibility rules, such as HPV vaccination, vitamin A supplementation and deworming, are especially well suited to this model.

Outreach alone is not enough for routine childhood immunisation. To maximise gains, outreach should be paired with better frontline training, clearer guidance on catch-up eligibility and stronger record-keeping systems. Bundled last-mile delivery is therefore most promising when improvements in access are combined with improvements in implementation quality at the point of care.

Bundled last-mile delivery is a promising and scalable model for improving preventive healthcare in remote rural settings. Its strongest impacts arise where the main barrier is physical access and where frontline workers can easily determine eligibility. For routine childhood immunisation, however, the results also highlight the need to strengthen implementation quality at the point of care.

References

Falchetta, G., Hammad, A.T. and Shayegh, S. (2020). Planning universal accessibility to public health care in sub-Saharan Africa. Proceedings of the National Academy of Sciences.

Meriggi, N.F., Voors, M., Mobarak, A.M., Wadehra, U., Gomez-Mesa, S., Kangbai, D.M. and Cundy, S. (2026). Scaling bundled health services in rural Sierra Leone. IGC working paper.

Weiss, D.J. et al. (2020). Global maps of travel time to healthcare facilities. Nature Medicine.