

FINDINGS FROM IMMUNIZATION CAMPAIGN COSTING STUDIES: POLICY AND PROGRAM IMPLICATIONS

KEY MESSAGES

- The financial delivery cost per targeted person—including costs for all administrative levels, net of capital costs, vaccines, syringes, and safety boxes—for sampled vaccination campaign sites in India, Sierra Leone, and Nigeria ranged from US\$0.15 to US\$0.42.
- However, there was variation in operational costs across sampled sites, and low-volume sites appeared to have higher operational costs per targeted person, suggesting a need for more sophisticated subnational planning and financing of campaigns.
- Evidence from the sampled sites suggests that co-delivery can lead to financial efficiencies, but may also require greater use of existing resources, particularly labor. More evidence is needed to assess the cost and cost drivers of co-delivery, as well as its impact on the quality of a campaign.
- Potential financial efficiencies could be leveraged to increase systemic investments in the routine immunization program and the broader primary healthcare system.
- Overall average operational costs from these studies appear to be lower than current Gavi operational cost grant levels. Further investigation and data from additional settings is required to clearly understand these cost differences.
- These studies provide important new evidence on the operational costs of delivering campaigns, but further research is needed, particularly on the cost of integrated campaigns.

This policy brief presents new costing evidence on the operational cost of immunization campaigns, including two integrated campaigns. Over the coming years, campaigns which co-deliver multiple vaccines and interventions are likely to be used more often, with the need for efficiencies elevated by the COVID-19 pandemic. Therefore, it is crucial that delivery costs are accurately estimated to inform planning, budgeting, and ensure adequate funding.

CLOSING THE CAMPAIGN COSTING EVIDENCE GAP

To address the dearth of quality evidence on what it costs to deliver campaigns, ThinkWell conducted **ingredients-based costing studies** of three Gavi-supported campaigns (see Table 1):

Table 1. Overview of campaigns costed

Campaign	Doses delivered	Reported coverage
India		
Assam	MR: 9,191,912	98%
Gujarat	MR: 14,823,914	96%
Himachal Pradesh	MR: 1,807,566	102%
Uttar Pradesh	MR: 77,091,654	99%
Nigeria		
Anambra	YF: 6,130,080	76%*
	MenA: 1,163,588	96%*
Katsina	YF: 6,695,692	83%*
Rivers	YF: 6,279,531	83%*
Sierra Leone		
Nationwide	MR: 2,991,405	93%*
	OPV: 1,254,135	120%
	VitA: 440,229	97%
	Alb: 375,130	97%

* Based on post-campaign coverage survey. All other figures are administrative data.

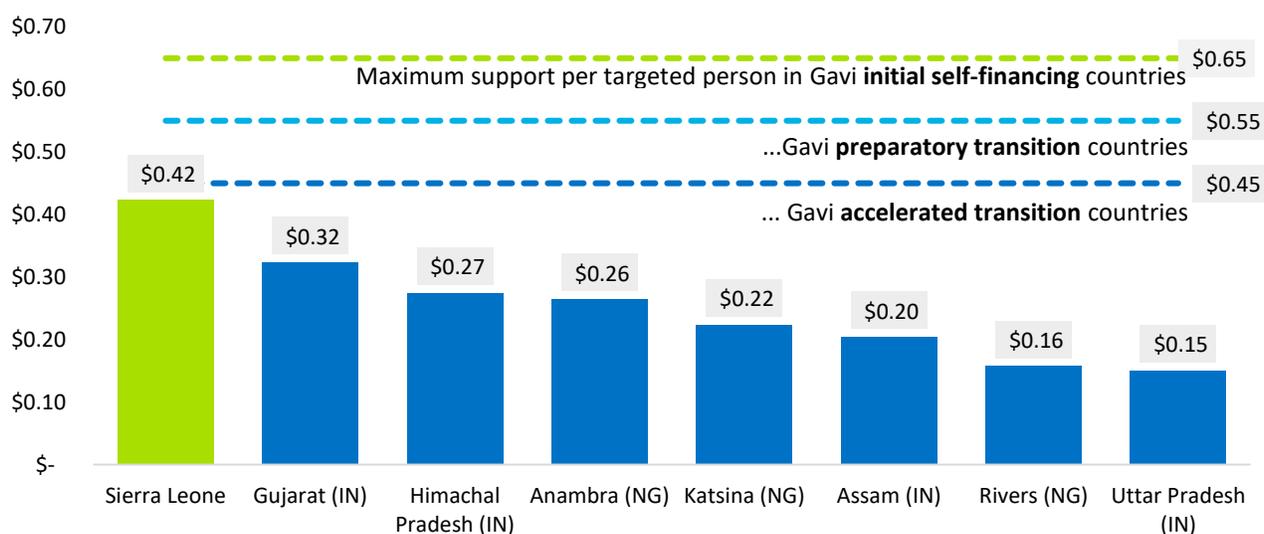
- **India:** measles-rubella (MR) catch-up campaign targeting 9m-14yo in four states delivered at schools, at outreach sites and with mobile teams in high-risk areas (2017-2019)ⁱ. The full report for this study is available [here](#).
- **Sierra Leone:** MR catch-up campaign targeting 9m-14yo, integrated with oral polio vaccine (OPV) for 0-5yo nationwide, and nutrition interventions (vitamin A and albendazole) for 6m/1-5yo in half of the country, delivered at temporary fixed sites, schools, with mobile teams, and at health facilities (2019)ⁱⁱ. The full report for this study is available [here](#).
- **Nigeria:** preventive yellow fever (YF) campaigns in three states targeting 9m-44yo, with one state co-delivering a meningitis A (MenA) mini catch-up to 1-5yo, using temporary fixed sites and health facilities (2019-2020)ⁱⁱⁱ. The full report for this study is available [here](#).

Currently Gavi supports campaign operational costs contributing US\$0.45-0.65 per targeted person, depending on a country’s transition phase, with countries covering the remainder.^{iv} When it originally established its subsidy levels for campaigns, Gavi assumed the full operational cost to be US\$0.80 per targeted person.^v However, this estimate relied on older Comprehensive Multi-Year Plan (cMYP) data reflecting a wide range of cost estimates with numerous limitations.^{vi} These costing studies provide initial evidence on the operational costs of delivering campaigns at selected sample sites.

WHAT DOES IT COST TO DELIVER CAMPAIGNS?

For sampled sites, the estimated financial delivery cost per target person across the campaigns ranged from US\$0.15 to US\$0.42 (Figure 1) across the three studies. The financial delivery cost estimates include financial expenditures at all administrative levels, and exclude the cost of vaccines, syringes, safety boxes, as well as any opportunity costs, such as volunteer time, regular staff salaries, depreciation of capital and other routine expenditures shared across the health system. Purchases of capital items—such as cold chain equipment—and expenses incurred outside of the country—like payments for international consultants—are also excluded, implying that costs shown in Figure 1 may be underestimated compared with Gavi’s support, possibly also influenced by India and Nigeria having very large populations and thus likely lower unit costs than most other Gavi-supported countries. On the other hand, these estimates

Figure 1. Financial delivery cost per targeted person

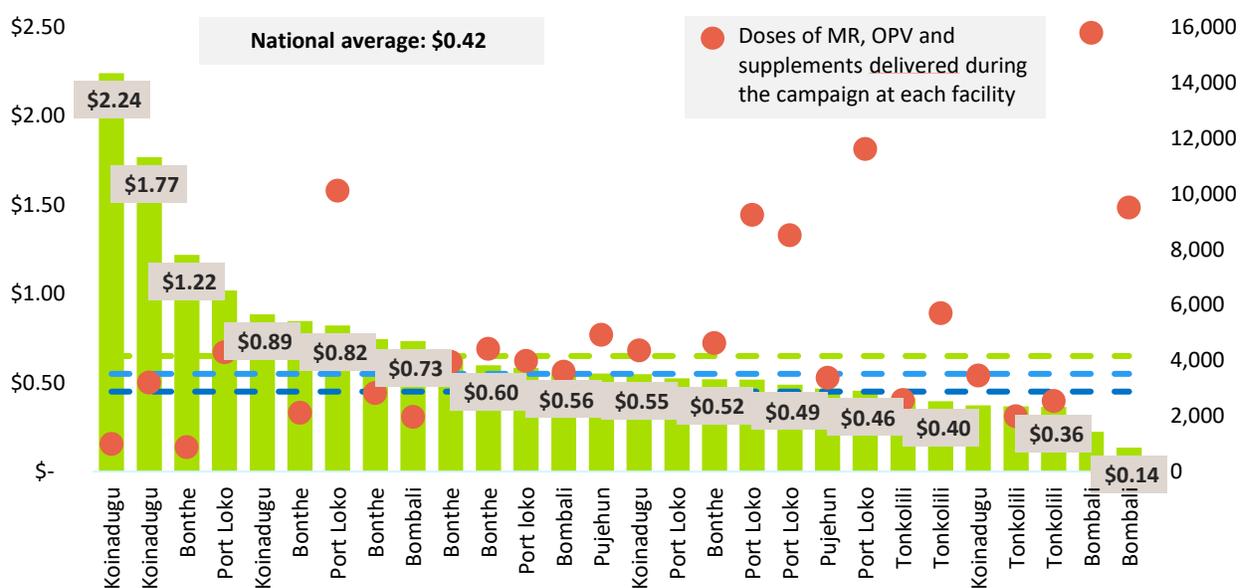


Note: Costs for India and Sierra Leone in 2019 US\$, Nigeria in 2020 US\$. Excludes vaccines, syringes, safety boxes and capital costs. The colours of the bars reflect the eligibility status of the country at the time that the campaign was conducted.

contain more than just costs covered by Gavi, also including costs incurred by the government and other donors and partners. While these studies did not include a full financial flow mapping, the approximate government share of the financial delivery cost was 25-50% in Nigeria, 30% in Sierra Leone and 85-90% in India.

Even when the national average for sampled sites was below Gavi maximum support levels, some individual facilities had significantly higher costs. Although the national average delivery cost per targeted person across sampled sites in Sierra Leone (\$0.42) was well below Gavi’s threshold for initial self-financing countries (\$0.65), over a third of the facilities had financial delivery costs above Gavi’s support per target (Figure 2). In Nigeria, estimates for sampled wards also showed great variation, ranging from \$0.07 to \$0.59, with 2 out of 28 wards having incurred delivery costs above Gavi’s threshold for accelerated transition countries (\$0.45). This variation emphasizes the need for more sophisticated planning and budgeting at subnational level. No relationship was found between subnational delivery cost levels and greater use of more costly delivery strategies, greater distance travelled for service delivery, nor whether facilities were located in rural or urban areas. However, costs were found to be lower at facilities that delivered more doses, confirming an inverse relationship between volume and unit costs commonly found in routine immunization costing studies.

Figure 2. Financial delivery cost per targeted person and doses delivered at facility level in Sierra Leone



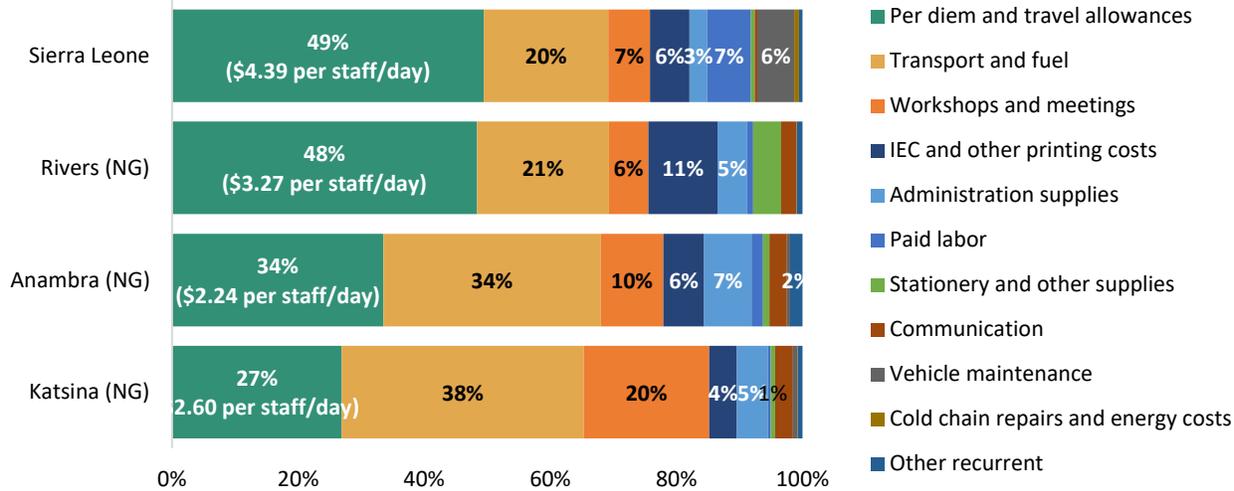
Note: Each bar corresponds to a health facility in the indicated district. Estimates exclude vaccines, syringes, safety boxes, and capital costs

WHAT DRIVES THE COST OF CAMPAIGNS?

Per diems and transport costs were the main cost drivers of the delivery of the campaigns across sampled sites, accounting for 64-69% of financial costs across the campaigns (Figure 3). Per diems alone amounted to almost half of the financial cost per target person for sampled sites in both Sierra Leone and Rivers state in Nigeria, which also had the highest per diem amount received by vaccination team members. Staff incentives were also the key cost driver across the states in India. Transport costs (e.g. for fuel, rental cars, etc.) amounted to 21-38% of the delivery costs. Workshop and meeting costs (6-20%) and information, education, communication and other printing costs (4-11%) were tertiary cost drivers. A higher proportion of supplies costs at sampled sites in Anambra state in Nigeria is due to higher expenses for

personal protective equipment and infection prevention and control supplies such as face masks and hand sanitizer, as this campaign was conducted several months into the COVID-19 pandemic.

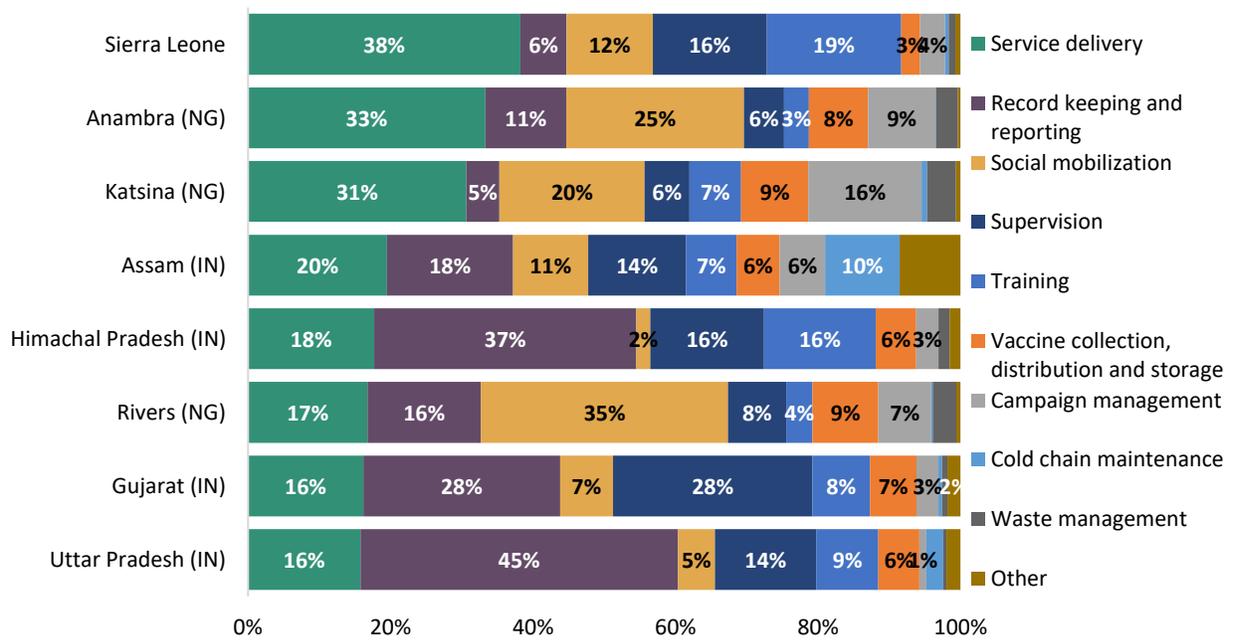
Figure 3. Breakdown of the financial delivery unit cost by line item (%) and average per diem received by a vaccination team member per day



Note: Excludes India as the study disaggregated costs by activity only, and not by line item.

When analyzing results by campaign activity, across sampled sites most of the costs recorded went towards service delivery, social mobilization, and record keeping and supervision (Figure 4). The activities driving costs varied across the countries, with service delivery accounting for the largest proportion of costs for sampled sites in Sierra Leone, and Anambra and Katsina states in Nigeria, mainly driven by per diems and transport costs. In India, though service delivery was the largest activity at immunization sites, record keeping costs were prominent at state level, because all printing was done at this level.

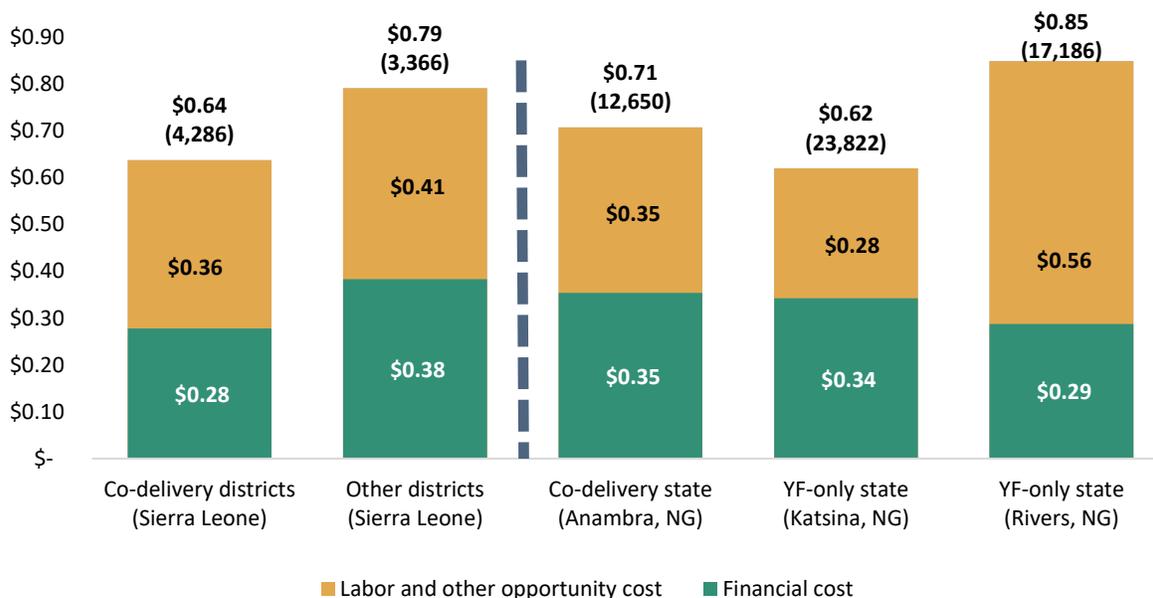
Figure 4. Breakdown of the financial delivery unit cost by cost activity (%)



HOW DOES INTEGRATION AFFECT THE COST OF CAMPAIGNS?

Integrated campaigns can result in financial cost efficiencies though further research is needed. In Sierra Leone, the financial cost per dose was lower in districts that co-delivered vaccines and nutrition interventions, compared with districts that only delivered vaccines. This result indicates potential financial cost efficiencies for co-delivery. However, the Nigeria study presents a more complicated picture. Vaccination sites included in our sample for Anambra, the state that integrated YF and MenA delivery, delivered fewer doses per site and had the highest financial cost per dose. This suggests that cost differences were driven by volume delivered and other differences in state characteristics rather than the number of vaccines that were co-delivered (Figure 5). In addition, other factors may have played a role in driving the extent to which financial cost efficiencies were observed. First, Sierra Leone co-delivered nutrition interventions specifically in areas that had low routine coverage, while Anambra state in Nigeria has relatively strong capacity compared to the other two states in the study. Second, the way the campaigns were funded differed. In Anambra state in Nigeria, the MenA campaign was also Gavi-supported, while the nutrition programs in Sierra Leone had only limited additional funding available for the campaign.

Figure 5. The economic cost per dose delivered in areas where interventions were co-delivered vs not (median doses delivered)



Note: Integrated districts in Sierra Leone delivered nutrition interventions in addition to MR and OPV. The integrated state in Nigeria delivered MenA in addition to YF. The median doses delivered shown are per facility in Sierra Leone and per ward in Nigeria.

Although co-delivery can lower unit costs due to economies of scale, delivering additional interventions may require greater use of labor resources. For the study sample in Sierra Leone, the economic delivery cost per dose was lower in co-delivery districts, but the cost per child targeted for MR and OPV was greater. As the opportunity costs were mainly driven by labor (about 93%-94%), this suggests that co-delivery created an additional burden for health workers during the campaign. However, this effect was not observed in the study sample in Nigeria, and additional research is needed to better assess to what extent the additional burden could have an impact on health worker motivation and the quality of the campaign.

POLICY IMPLICATIONS

Wide subnational variation in delivery costs suggests the need for more a sophisticated and targeted financing strategy for providing operational support to campaigns. Study samples in Sierra Leone, India, and Nigeria had a higher overall average operational cost compared to Gavi’s operational support levels for all transition phases. However, there was significant variation in campaign operational costs in all countries, with lower-volume sites having costs per targeted person well above the national average. This suggests the need for more sophisticated subnational planning and financing to achieve equitable outcomes during campaigns. While in certain settings there may opportunities for savings, achieving high coverage in hard-to-reach areas may require resources well above Gavi’s current support per targeted person.

Initial evidence suggests that integrated campaigns can result in financial cost efficiencies, though capacity must be built up and assessed ahead of implementation to avoid overburdening the immunization program. Although financial cost efficiencies were observed in our sample in Sierra Leone, findings for Nigeria showed a more complex picture, likely due to differences in volume delivered across sites, existing capacity, and the way the campaigns were funded. Results from Sierra Leone also show increased use of existing resources in co-delivery districts, particularly labor. Therefore, findings from these study sites suggest that when planning an integrated campaign, existing capacity must be built up and carefully evaluated to avoid a diversion of resources away from the delivery of other essential health services. Potential financial efficiencies arising from integration could be leveraged towards systemic investment in the routine program and the broader primary health care system. However, if changes are made to the current financing mechanism, existing incentive structures would need to be thoroughly assessed to prevent potential gaps from emerging.

These three studies provide a foundation for further research on the operational costs of immunization campaigns. While these studies provide important new evidence on the operational cost of campaigns, the results may not be representative for all low- and middle-income countries. Building more evidence on the cost of delivering campaigns would provide useful inputs for identifying additional funding needs above and beyond what governments can support. Future studies should estimate the cost of delivering campaigns in a wider range of country settings, assess costs associated with different co-delivery modalities (e.g. partial vs full integration), analyze cost alongside quality (e.g. coverage, reaching zero dose children, quality of the planning process), and provide further insights into the incentives to co-deliver campaigns.

ABOUT THE STUDIES

How were the studies conducted?

- Ingredients-based studies that collected primary data at national level, implementation level and all administrative levels in between, complemented with review of financial expenditure reports and other relevant documentation.

What costs are included?

- All preparation, implementation, and wrap up activities for the campaign, including the post-coverage survey.
- The studies estimated the full financial and economic costs of the campaigns.

More information about the studies as well as additional results can be found [here](#).

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- ⁱⁱⁱ Immunization Costing Action Network (ICAN). 2021. “The cost of delivering yellow fever and meningitis A vaccines through campaigns in Nigeria.” Washington, DC: ThinkWell & Nsukka: University of Nigeria. (*Forthcoming*)
- ^{iv} Gavi Vaccine Funding Guidelines, August 2021
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- ^v Gavi. GAVI Alliance Vaccine introduction grants and operational support for campaigns policy. Geneva; 2012.
- ^{vi} Bill & Melinda Gates Foundation, World Health Organization, Historical Analysis of the Comprehensive Multi-Year Plans in GAVI-Eligible countries (2004-2015), March 2012.

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More information about the project can be found [here](#).