

**Summary: Zero Dose Costing Meeting (INTERNAL)**  
**Geneva, Switzerland**  
**April 29-30, 2024**  
**Gavi Headquarters**

A meeting of partners and experts engaged in Zero Dose Costing was held at Gavi headquarters in Geneva, Switzerland between April 29-30, 2024. The meeting included a total of 47 participants (in-person and remote) from Gavi, WHO, UNICEF, BMGF, CDC, JSI, CHAI, VillageReach, PATH, Harvard School of Public Health, Boston University, Swiss Tropical Institute of Public Health, London School of Economics, and the University of Montreal. Representatives from partner agencies in Ethiopia, Pakistan, Nigeria and India were also represented virtually.

The objectives of the meeting were to:

1. Bring together experts working on ZD Costing to identify challenges and align on methods.
2. Improve our knowledge of agency work on ZD Costing (who is doing what and where).
3. Stimulate discussion on what we will learn and how the information can be used.
4. Foster a small community of practice on ZD Costing.

Day 1 focused on level-setting around current evidence and basic principles for ZD costing. The analysis of the Gavi's Equity Accelerator Fund (EAF) found that >50% of proposed activities focus on health systems support. Cost per additional ZD child (DTP1) ranged from \$7.50 - \$482; HSS disbursements amount to around \$200/additional child. A literature review found limited specific evidence on the cost of reaching zero-dose children (data desert), and it is important to shine more of a light on this for policy and programming. The incremental cost of reaching ZD children will be higher than that for routine services; and settings with higher initial coverage will have much greater incremental costs.

Principles related to ZD children were introduced and discussed by ThinkWell, including:

- We need to estimate the resources actually used to reach ZD children and not just donor contributions. Important to evaluate the complete cost of a ZD intervention as existing capacity makes a difference.
- ZD interventions are being implemented in addition to ongoing strategies- how do we evaluate the incremental portion?
  - Gold standard: RCT
  - Before/after comparisons, with possible matching- think about a counterfactual.
  - ZD interventions may have catalytic or displacement effects, consider evaluating the cost of all immunization services to understand incremental effect of ZD interventions.
- Need to capture qualitative information to be able to contextualize results.
- Evaluating the number of ZD children will be challenging given quality of record-keeping, varying definitions, and ability of interventions to capture information.
- The cost and the number of ZD children reached will change as an intervention is implemented— when is the right time to evaluate costs? Consider measuring costs at more than one point in time; and evaluate start-up and ongoing costs separately.
- Improve our reporting to include detail on the setting, implementation timing, and data quality.
- Consider evaluating the cost or cost savings to the household.

A panel of representatives from WHO, Gavi, and BMGF discussed measurement issues related to estimating the number of ZD children reached. Some highlights from that discussion include:

- We may know how many ZD have been identified, but not whether, when and through which strategy they were vaccinated.
- We might know how many children were reached, but not whether they were ZD.

- We need to utilize what is readily available at country level, triangulate among various sources and consider age flexibilities.
- Consider estimating DTP1, DTP2, DTP3 for the analysis: DTP3 a measure of whether the household has been pulled into the system and not just reached once.

In the afternoon, two modeling exercises were presented that estimated the cost of reaching a Zero Dose child based on information on the cost of scaling up coverage and leveraging previous assessments of delivery costs. Preliminary estimates of the average cost per ZD child reached range from \$115 to \$220. We also had a presentation from CDC on the methods used to estimate the incremental cost of catch-up vaccination strategies in one county in Kenya, which also included a time-motion study and benchmarking against county immunization budgets.

The day closed with an update from the Gavi-supported Zero Dose Learning Hubs. There are four hubs in Nigeria, Bangladesh, Mali and Uganda supported by a central team (JSI, International Institute for Health Management Research IIHMR, and the Geneva Learning Foundation (TGLF). The objective of the hubs is to share relevant evidence and learning related to reducing ZD children and communities. The ZDLH will provide technical support to the hubs on costing, including a guidance document and evidence reviews. Nigeria is working on a mixed methods approach to evaluating cost and cost-effectiveness of reaching ZD children.

Day 2 focused on learning about who was doing what types of ZD cost assessments and where. Most partners were in the early stages of costing studies. The following table summarizes the proposed work.

Partner	Funding	Countries	Strategy	Locus	Time Frame
<b>Zero Dose Learning Hubs (ZDLH)</b>	Gavi	Bangladesh, Mali, Nigeria, and Uganda	Various strategies to be costed TBD	TBD	2026
<b>UNICEF</b>	Foundations and Gavi matching grants	Ethiopia (Amhara, Somali and Sidama)	Evaluation of a multi-sectoral intervention package (nutrition, immunization, social protection); nutrition focused intervention with immunization integrated into monthly camps	Facility-based	Co-creation workshop in May
		Kenya & Uganda (urban slums and informal settlements)	Private providers or community health worker support	Facility and community-based	End of 2025
<b>ThinkWell<sup>1</sup></b>	BMGF	Pakistan (Lahore, Karachi)	Enhanced/integrated outreach and leveraging polio house-to-house campaigns to identify ZD children	Strategy-based, facility-based, community-based	July 2025
		Ethiopia (Oromia and Somali, priority 1 woredas)	Headcount and micro-planning, catch-up campaign targeting <5s, PIRI in woredas where the MOH is implementing EAF-funded initiatives	Facility-based, community-based, strategy-based	July 2025
<b>VillageReach</b>	BMGF	DRC (EAF interventions in Tshopo and Haut Katanga)	Demand generation, supply chain, and service delivery (door-to-door)	Facility and community-based	TBD
<b>BMGF</b>	BMGF	Subnational areas in Nigeria, India, Ethiopia, DR Congo, and Pakistan	Range of facility-based and community-level strategies. A Guide for ZDLA ZD Costing is developed.	Facility and community-based; costing continuous learning.	End of 2025

<sup>1</sup>Third country: likely Nigeria

PATH presented several studies that are zero-dose related, including an evaluation of HPV given to girls out of school (under-vaccinated for HPV) in five regions in Ethiopia (over 70 facilities in the sample); an integrated campaign in Malawi (typhoid, Vitamin A, MR and OPV); costing of systems to track vaccination status in Zambia, Tanzania and Vietnam; and an evaluation of micro-array patches. There is a planned study in Chad and/or DRC to evaluate a range of interventions that strengthen routine immunization programs. CDC presented an evaluation of screening and delivering catch-up vaccinations in schools in Ghana. This was a retrospective cross-sectional study, that incorporated a time-motion observation to evaluate screening time. Care-giver costs will also be assessed.

Day 2 ended with a discussion of methodological issues.

- We all agreed there is a need for more evidence on ZD interventions by context (e.g., fragile, urban, etc.).
- Costing methods: we need to agree on principles and minimum standards, but there is no need for another elaborate guidance document. We can adapt existing guidance.
- Measurement of ZD: we need some guidance for coherence and an indicator that everyone should try to report on to improve comparability (for example incremental cost per incremental ZD child measured as incremental DTP1).
- Bundling of interventions vs separating them out: Challenges remain on how to apportion effectiveness of a set of interventions to reach ZD. Concluded we should report the bundled costs and effects to the extent possible.
- Sequencing and timing of cost analysis: Conclusion reached we should describe how interventions were sequenced and the timing of the analysis during implementation. There is also a need to understand start-up costs vs. ongoing costs of implementation.
- Missed opportunities: we can add costing components to studies with quasi-experimental designs (no need to wait for RCTs).
- A question arose as to who else is evaluating Gavi EAF supported interventions? We may need to encourage more studies.

The next steps and Action Points were:

- » Draft a Meeting Summary note (Logan)
- » Develop a research principles note from this meeting (Ann, Laura)
- » Small working group to define the working definition for our denominator(s): Ulla, Sarah, Logan, Laura, Emma and Aaron
- » Pros and cons of using different data sources for the denominator (Sarah T)
- » Keep each other posted on progress, share guidance, protocols, etc. (not only final outcomes)
- » Consider establishing Teams channel for partner review and comments on document drafts (ThinkWell)
- » Explore another check-in in a few months possibly at the Health Systems Research (HSR) meeting 2024.
- » Country-level meetings for countries where more of us will be implementing studies would be useful.
- » Launch the Zero-dose costing corner: <https://immunizationeconomics.org/zero-dose/> (ThinkWell)