CHAI/GiveWell
mSupply: Discussion note
June 2, 2025

Maximum Impact Incubator

I. Context

Improving drug availability at primary health facilities, where most patients first seek care, can be a critical lever for reducing mortality from treatable conditions like pneumonia and diarrhea. eLMIS platforms like Open mSupply[1] offer a practical, scalable solution to address persistent stockouts. While the downstream health impact is difficult to quantify precisely, we believe it could be substantial.[2] CHAI is supporting the Lao Ministry of Health to implement Open mSupply. The system has already been deployed at national and district hospitals and warehouses. The next phase involves a cluster-based expansion to primary health facilities, which offers a valuable opportunity to rigorously evaluate the system's effect on drug shortages and treatment availability.

As GiveWell expands its focus to include health systems interventions, this evaluation could offer transferable insights for improving access to essential medicines in other LMICs facing similar challenges. CHAI thus recommends that GW consider funding the proposed RCT of the mSupply rollout in Laos.

We welcome GiveWell's input on how best to model the impact of systems-level reforms like Open mSupply. This discussion note outlines two possible BOTEC approaches: (1) a system-level model (CE estimate at 21x), and (2) an individual-level aggregation of downstream outcomes (CE estimate between 6–24x). We have also produced a draft VOI model based on the materials shared during the London meeting, and would appreciate GW's guidance on which approach is most relevant for the investigation.

II. Proposed program and geographies

The project will be based across four provinces in Laos and will evaluate the implementation and outcomes of the Open mSupply system in 176 district health centers. Program implementation will be led by the Ministry of Health in Laos. The Food and Drug Department of the MOH will provide technical and political leadership, and the Medical Products Supply Center will lead the technical implementation with support from CHAI.

Proposed geographies: This program model is highly adaptable and could be relevant in several other CHAI-supported countries facing similar supply chain challenges. Potential geographies include Nigeria, Zambia, Uganda, Cambodia, Malawi, Eswatini and Sierra Leone.

III. USG Funding Gap

This program was initially designed with USAID's Development Innovation Ventures (DIV) to build evidence on the impact of electronic logistics management systems, a key investment area for USAID and other partners that currently lack a strong evidence base. Although the team had secured a commitment from USAID and completed all preparatory steps, the DIV team managing the process was

[1] Open mSupply is an open-source electronic logistics management information system (eLMIS) that provides real-time visibility into medicine availability by tracking stock movements across the health supply chain. It builds on the mSupply system, which has a long history of deployment across LMICs.

[2] One modeling study estimated that improved access to non-vaccine essential medicines could avert over 10,000 deaths over five years in countries like Mozambique and Ethiopia.

unexpectedly disbanded before final approval, and there are currently no funders to take this RCT forward. This has reopened a critical funding gap and put the project at risk. The team is now urgently seeking alternative support to maintain momentum and deliver on the program's potential impact.

IV. CHAI Expertise

CHAI has supported the Lao Ministry of Health in fundamentally reforming the national public health supply chain. Starting with a small pilot in 2014, the initiative to develop a unified, integrated supply chain — enabled by mSupply — scaled nationally within four years, covering all central, provincial, and district health facilities. CHAI mobilized funding from multiple donors and the Government of Laos, including the Global Fund, World Bank, UNFPA, Gavi, and the Bill & Melinda Gates Foundation. Building on this progress, our current focus is to extend these efforts to last-mile health facilities delivering primary care services to the population.

V. Model Summary

A. BOTEC Summary

	Option 1: System-level BOTEC	**Option 2: Individual-commodities-level BOTEC**
Intervention	Deployment of mSupply to replace manual systems at primary healthcare facilities, including training of health facility staff	
Modeled Scenario	Program rollout across 1,000+ health facilities in Laos	Implementation across 176 of the 1,000+ health facilities across districts in Laos; calculated as per the minimum sample size required for the RCT
GW role	Fund deployment, training activities and the RCT of the program	Fund deployment and training activities (RCT cost excluded)
Primary benefit	● Reduced cost to the government/donors of managing/maintaining commodities' supply chain ● Improved efficiency in use of existing government resources ● Increased resources available for other health programs	● Reduced mortality through improved access to key health commodities. For example, increase in access to ORS and antibiotics for children with diarrhea or lower respiratory infections by minimizing stockouts.
Cost and program duration	$1.4M for 1 year of program implementation; proposed RCT to cost ~$600K	

Key levers	● Annual cost to the government including donor investments with the program and in the counterfactual ● Number of years of benefit from the program ● Units of value per dollar generated from siloed supply systems in the context	● Probability of drug stockouts at the end of the month after the intervention ● Number of commodities that will be effectively stocked due to intervention[3] ● Number of years of benefit from the program
Key uncertainties	● Annual cost to the government including donor investments with the program and in the counterfactual ● Units of value per dollar generated from siloed supply systems in the context ● % improvement in efficient use of government resources	● Probability of drug stockouts at the end of the month after the intervention ● Number of commodities that will be effectively stocked due to intervention ● Average GW units of value generated for the different components of the program ● Relationship between a unit reduction in drug stockouts and treatment coverage; assume rates to be 0.5, 1 or 2 times for simplification
Results relative to GD (preliminary, pending GW discussion/input)	21x	6x if 0.5:1 increase in coverage relative to stockouts 12x if 1:1 increase in coverage relative to stockouts 24x if 2:1 increase in coverage relative to stockouts

B. VOI Summary

This is CHAI's first experience building a VOI model. We have drawn on the materials shared during the London meeting but remain uncertain about several assumptions. We would welcome the GiveWell team's feedback, particularly on whether these assumptions align with your priors. The full Excel model is attached for reference.

	8x bar for future opportunities	**10x bar for future opportunities**	**12x bar for future opportunities**
Total grant cost (millions)	$2	$2	$2
Weight on different scenario	15%	50%	35%

[3] As more essential commodities are tracked through the intervention, the overall cost-effectiveness improves since program costs are largely fixed.

Probability that we fund this program in the absence of study	20%	20%	20%
Assuming we fund this program in future, how much would we fund per year? (millions)	$36	$36	$36
Weighted cost-effectiveness (after adjustments)	27x		

VI. Additional considerations/discussion questions:

- **Modelling the impact of health systems on outcomes**: We have explored two approaches, each with its trade-offs:
  - **Approach 1:** A systems-level BOTEC offers insight into how government resources might be allocated more efficiently, but it has the following limitation:
    1. We assume a fixed level of government or donor spending across scenarios, with the intervention requiring only a fraction (e.g., 1/10th) of the counterfactual spend. This might not be true, and we may overstate the savings or efficiency gains from digitization.
  - **Approach 2:** In contrast, an aggregated BOTEC allows us to better trace the theory of change to outcomes, but it has the following limitations:
    1. We are likely underestimating the full benefits of the program. While it aims to improve the availability of nearly 4,000 commodities, our model currently includes only 18.
    2. We might overestimate benefits if the effects of individual commodities are not fully additive. Some benefits could be overlapping or interdependent.
    3. We also assume that commodity availability is the main constraint on treatment coverage. In practice, other bottlenecks (e.g., staffing, infrastructure) could limit the translation of inputs into care.

  We would greatly value GW's perspective. Does either approach resonate more with GW? Are there any key factors in the BOTECs we may have overlooked? Are there any elements of the VOI model that we may have misinterpreted?