

Report on the Cost-Effectiveness of GAIA Mobile Health Clinics

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Objective

The objective of this analysis is to evaluate the cost-effectiveness of the clinical services provided by GAIA Mobile Health Clinics in southern Malawi. We calculated the program's Average Cost-Effectiveness Ratio (ACER), expressed as the financial cost per Disability-Adjusted Life Year (DALY) averted.

Background

GAIA, an NGO working primarily in Malawi, runs mobile clinics that provide primary healthcare in remote communities of Malawi that are between 5 to 27 km from the nearest government health facility. The seven mobile clinics are four-wheel drive ambulances that carry clinical staff and medicine to 35 different sites in three southern districts, each serving about 150 clients daily, for a total of 210,000 visits in 2025. Services include preventive care such as antenatal care and family planning, acute care for conditions such as malaria and pneumonia, and care for chronic conditions such as hypertension, HIV, and epilepsy. Mobile clinics operate in partnership with District Health Offices which co-fund them through in-kind contributions of medicine and staff.

Methods

We conducted a retrospective analysis using GAIA's administrative electronic health records to identify the volume and specific types of clinical care provided to clients in Malawi between January 1, 2025, and December 31, 2025. Program costs were evaluated from a provider perspective. The total operational cost of GAIA's clinical work includes service delivery, commodities, and administrative overhead (but not home office costs). Cost estimates include government's in-kind contribution of staff, but not commodities provided free by the government through the Global Fund to Fight AIDS, Tuberculosis and Malaria.

The effectiveness of each type of care GAIA provides was quantified in terms of DALYs averted using established global health economic models and peer-reviewed literature. Most baseline estimates were derived from a comprehensive, Malawi-specific evaluation of the Essential Health Package (Ochalek et al., 2018). We calculated the DALYs averted per case for specific diagnoses by dividing the total illness-specific DALYs averted by the annual caseloads reported in the study. Because family planning averts DALYs primarily through the prevention of maternal and neonatal mortality over time, we utilized the Impact 2 model (v6), a validated demographic tool developed by Marie Stopes International (MSI Reproductive Choices, 2023), parameterized with 2025 demographic data for Malawi. We used additional cost-effectiveness data from Cirera et al. (2023), Fernandes et al. (2015) and Ezzati et al. (2004).

For broad categories of care not included in Ochalek et al. (2018) where exact diagnostic confirmation is challenging in primary care settings—primarily undifferentiated intestinal ailments (gastroenteritis) and acute respiratory tract infections—we extrapolated values from similar interventions in Ochalek et al. (2018). We used the lowest and highest likely values from the literature to generate a range of DALYs averted per case for these specific conditions.

Overall cost-effectiveness was calculated using the standard Average Cost-Effectiveness Ratio (ACER) formula. We divided the total 2025 annual program cost by the total number of DALYs averted by GAIA's interventions to yield the cost per DALY averted in 2025 US dollars (USD).

Results

GAIA's clinical program is exceptionally cost-effective. In 2025, GAIA's clinical operations averted an estimated 15,451 DALYs at a total operating cost of \$878,430, which yields an average cost-effectiveness ratio of \$57 per DALY averted.

To put this in context, GAIA's cost-effectiveness surpasses some of the most rigorous philanthropic benchmarks in global health. The charity evaluator GiveWell generally considers interventions that save one life per \$3500-5500 spent to be highly cost-effective, which translates to a range of \$77 to \$183 per DALY averted (GiveWell, 2023). Furthermore, under World Health Organization (WHO-CHOICE) thresholds, an intervention is considered highly cost-effective if it costs less than the country's GDP per capita per DALY averted (Robinson et al. 2017). For Malawi, with a GDP per capita of \$633 in 2025, GAIA outperforms this benchmark by approximately a factor of ten (IMF DataMapper). GAIA's estimated cost-effectiveness ratio also comes close to reaching Coefficient Giving's aim to avert one DALY for every \$50 spent (Coefficient Giving).

Note that this analysis captures the average cost of a DALY averted for all GAIA's current care. Potential expansions to care can be even more cost-effective because of the efficiency gains of building on existing care and current close partnership with the national government.

Potential limitations

Factors that may understate effectiveness:

Vulnerability of the Target Population: The cost-effectiveness literature relies on national averages for mortality and morbidity. Because GAIA specifically targets highly vulnerable, rural, and underserved populations, the baseline risk of death and disease for a GAIA client is likely higher than the national average. Consequently, the true number of DALYs averted by treating these specific populations is likely higher than our model captures.

Omission of Low-Severity Morbidity: Several types of symptomatic and preventive care provided by GAIA (e.g., treating mild pain or uncomplicated upper respiratory infections) carry disability weights so low that the calculated DALYs averted round to zero.

Factors that may overstate effectiveness:

The Counterfactual and Additionality: The model assumes that without GAIA, the DALYs would have been lost. However, it is possible that some patients would have ultimately sought and obtained care through the national public health system. If so, a portion of these DALYs would have been averted regardless of GAIA's presence. However, there are considerable geographic and economic barriers to healthcare access in rural Malawi. Because GAIA's mobile clinics provide care directly within communities, overcoming the substantial travel burdens associated with public facilities, it is highly probable that a vast majority of these clinical encounters—and their associated benefits—would not have occurred in the absence of the program.

References

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Interventions delivered by GAIA		2025			
	DALYs averted per case	GAIA annual cases	Total DALYs averted for intervention	Source	Notes
PREVENTIVE CARE					
Antenatal care (four visits)	0.10	673	66	Ochalek	
Antenatal care (1-3 visits)	0.05	1,320	66	Author's estimate	Use half of value for 4+ visits as lower bound on DALYs averted
Voluntary counseling and testing (HIV)	0.02	1,475	30	Ochalek	HIV tests of pregnant women
Voluntary counseling and testing (HIV)	0.02	2,411	48	Ochalek	HIV tests of men and non-pregnant women
Tetanus toxoid (pregnant women)	0.11	202	23	Ochalek	Pregnant women vaccinated
IPTp of malaria (pregnant women) - 3+ doses	0.10	906	91	Cirera, Fernandes	Range likely from 0.098 to 0.1134. Use 0.1 as approximate value.
IPTp of malaria (pregnant women) - 2 doses	0.07	775	54	Author's estimate	Use 70% of value for 3+ doses. Calculations not sensitive to this value.
IPTp of malaria (pregnant women) - 1 dose	0.04	451	18	Author's estimate	Use 40% of value for 3+ doses. Calculations not sensitive to this value.
Screening for syphilis in pregnancy	0.01	1,067	11	Author's estimate	Estimated to be half of DALYs for HIV screening
Screening for Hepatitis-B in pregnancy	0.01	1,182	12	Author's estimate	Estimated to be half of DALYs for HIV screening
Iron/folic acid supplementation in pregnancy	0.02	1,157	23	Author's estimate	DALYs for series of 3 doses. Conservative estimate of DALYs averted.
Long-acting contraception (once every 3 months)	0.044	15,363	676	MSI	Includes Depo-Provera and Sayana
Oral contraceptive pills	0.004	976	4	MSI	Assumes 12 visits per year of protection
Implanon_insertion (long acting: 3-5 years)	7.6	311	2,364	MSI	Range between 7.6 (3 yrs) and 17.1 (5 yrs) Use 7.6 to understate effectiveness
Jadelle insertion (long acting: up to 5 years)	17.6	304	5,350	MSI	
Condoms for FP (one year)	0.001	216	0	MSI	
Condoms for STI prevention (one year)	0.06	1,431	86	Ochalek	
Family planning counseling only	0.0001	432	0	MSI	
ACUTE CARE					
Malaria treatment: uncomplicated (adult, >36 kg)	0.01	4,772	64	Ochalek	For age 15+ years regardless of weight
Malaria treatment: uncomplicated (children, <15 kg)	0.01	2,751	37	Ochalek	used age as proxy: <15kg - <5 years
Malaria treatment: uncomplicated (children, >15 kg)	0.01	5,756	77	Ochalek	used age as proxy: 5-14 years
Gastritis	0.005	10,467	52	Author's estimate	Conservative estimate. Calculations not sensitive to this value.
Zinc (diarrhoea treatment)	0.03	3,940	129	Ochalek	# of zinc treatments dispensed (all ages). Diarrhea is a symptom of both dysentery (differentiated by blood in the stool) + Gastroenteritis
ORS	0.02	8,397	143	Ochalek	# of ORS treatments dispensed (all ages)
Cotrimoxazole for children	0.01	23,297	233	Ochalek	Conservative estimate of DALYs averted. Doses prescribed to children (<15).
Lower respiratory tract infections	0.25	10,033	2,508	Author's estimate	Range likely 0.1 to 0.4. Use midpoint. Calculations SENSITIVE to this value.
Upper respiratory tract infections	0.001	60,332	60	Author's estimate	URTIs usually resolve on their own so care does not avert many DALYs
Pneumonia (not severe)	0.55	1,734	954	Author's estimate	Range likely 0.3 to 0.8. Use midpoint. Calculations not very sensitive to this value (+/- \$2/DALY).
Pneumonia (severe)	3	73	219	Author's estimate	Conservative estimate. Range likely 3 to 5. Calculations not sensitive to this value.
Malnutrition	0.105	15	2	Ezzati	Table 26.1(b) in Ezzati et al. Ch 26. Based on child/maternal underweight.
Severe malnutrition (children)	3.9	2	8	Ochalek	Assuming 2 of 17 (~10%) malnutrition cases are severe
CHRONIC CARE					
Diabetes, type I & II	0.00	76	0	Ochalek	Diagnoses don't distinguish type I & II
Hypertension management	0.05	25,344	1,318	Ochalek	
Epilepsy: support, advice and follow-up, plus antiepileptic medication	0.05	1,192	60	Author's estimate	Conservative estimate of likely DALYs averted. Calculations not sensitive to this value.
ART for adults	3.03	220	666	Ochalek	Quarterly visit for partner-provided ART at mobile outreach sites.
	Total DALYs averted		15,451		
	Program cost		\$878,430		
	Average cost per DALY averted		\$57		