



RESEARCH BRIEF



Turkana

Treatment of moderate acute malnutrition by community health volunteers is cost-effective: Insights from Turkana County, Kenya



SUMMARY

Integrating the treatment of acute malnutrition by community health volunteers (CHVs) into integrated community case management (iCCM) can improve acute malnutrition treatment outcomes. However, little is known about the cost-effectiveness of such an intervention in Kenya. This study assessed the cost-effectiveness of integrating the treatment of moderate acute malnutrition (MAM) by CHVs into the iCCM program in Turkana County, Kenya.

We conducted an economic evaluation by including costs from the provider and beneficiaries. The cost per disability-adjusted life year (DALY) averted was the primary measure for comparison.

Treatment of MAM by CHVs and in health facilities was more effective and at a lower cost compared to the health facility-based approach alone. The respective costs per death and DALY averted were US\$ 8,651 and US\$ 393 in the intervention group compared to US\$ 16,401 and US\$ 754 in the control group. The intervention group spent less per child treated and recovered than the control group: US\$ 211 vs. US\$ 320 and US\$ 303 vs. US\$ 574, respectively. Treating MAM by CHVs and health facilities was cost-effective compared to facility-based treatment alone.

The respective costs per death and DALY averted were:

Intervention group	Control group
PER DEATH US\$ 8,651	PER DEATH US\$ 16,401
DALY US\$ 393	DALY US\$ 754

The intervention group spent less per child treated and recovered than the control group:

Intervention group	Control group
PER CHILD TREATED US\$ 211	PER CHILD TREATED US\$ 574
PER CHILD RECOVERED US\$ 303	PER CHILD RECOVERED US\$ 574



METHODS

This economic evaluation was part of an intervention study on integrating the treatment of acute malnutrition by CHVs into iCCM in Turkana, an arid county with a 26% prevalence of acute malnutrition in 2019.⁵

In the intervention group, CHVs were trained to use simplified tools and protocols to identify and treat eligible malnourished children at home and refer complicated cases to health facilities in addition to providing the usual iCCM package. In the control group, CHVs provided the standard iCCM package, which included referring children with acute malnutrition to health facilities for treatment.

Data on treatment outcomes were collected to assess the effectiveness of the intervention. The ingredient-based costing approach was used to estimate costs.⁶ Costs data collected included MAM treatment (commodities, CHVs' per diem, capital costs, and health facility staff costs), local adaptation of tools, infrastructure, training and supervision of CHVs and costs incurred by households in seeking care. All costs were converted into US\$ for the year 2019. Cost-effectiveness combined costs from the provider and beneficiaries.

We also computed the cost per child treated (admitted into the treatment program), recovered, death, and disability-adjusted life year (DALY) averted.

BACKGROUND

Acute malnutrition (wasting and nutritional oedema) remains a significant public health problem in low- and middle-income countries. In Kenya, 5% of under-5 children are wasted (too thin for their height), with the prevalence above 15% in six arid counties.¹ The consequences of undernutrition are severe and include an increased risk of infections and death during childhood and limited educational and economic achievement later in life.^{2,3}

Despite the availability of effective treatments for acute malnutrition in the form of ready-to-use foods and routine medications, services for treating acute malnutrition are only available at health facilities, making them inaccessible to many children due to factors such as long distances to health facilities and transportation costs.

To increase treatment coverage, the World Health Organisation has recommended treatment of acute malnutrition at home by trained and equipped community health volunteers (CHVs).⁴ In Kenya, policymakers are currently considering the option of allowing CHVs to treat acute malnutrition by integrating the treatment of acute malnutrition into the integrated community case management (iCCM) program. However, there is a need for information on the cost-effectiveness of this approach in Kenya. This study assessed the cost-effectiveness of integrating MAM treatment by CHVs, currently called community health promoters, into the iCCM program in Turkana County, Kenya.

RESULTS

INTERVENTION GROUP **CONTROL GROUP**
56% **42%**

The total program cost was US\$ 116,707 in the control group and US\$ 103,977 in the intervention group (Figure 1).

MAM treatment was the main cost driver, accounting for 56% and 42% of the total program costs in the intervention and control groups, respectively.

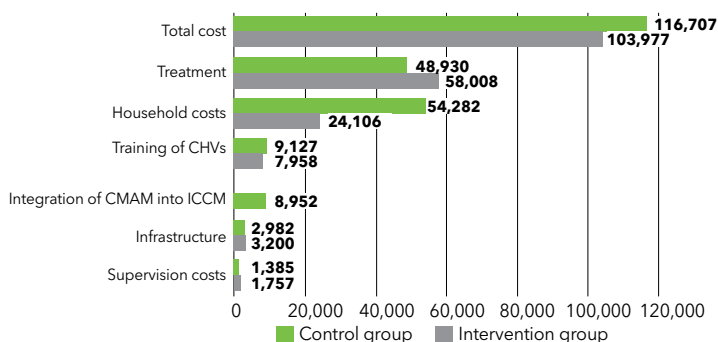
Treatment costs were higher in the intervention group (US\$ 58,004) than in the control group (US\$ 48,930).

Intervention group	Control group
TREATMENT COST	TREATMENT COST
US\$ 58,004	US\$ 48,930

whereas household costs were much higher in the control group (US\$ 54,282) than in the intervention group (US\$ 24,106).

Intervention group	Control group
HOUSEHOLD COST	HOUSEHOLD COST
US\$ 24,106	US\$ 54,282

Figure 1: Total program costs of the treatment of moderate acute malnutrition by intervention group (2019 US\$)



The number of children admitted for treatment was higher in the intervention group (492) than in the control group (365) (Table 1). Treatment of MAM by CHVs and health facilities was more effective and at a lower cost compared to the health facility-based approach alone. The respective costs per death and DALY averted were US\$ 8,651 and US\$ 393 in the intervention group compared to US\$ 16,401 and US\$ 754 in the control group. The intervention group spent less per child treated and recovered than the control group: US\$ 211 vs. US\$ 320 and US\$ 303 vs. US\$ 574, respectively.

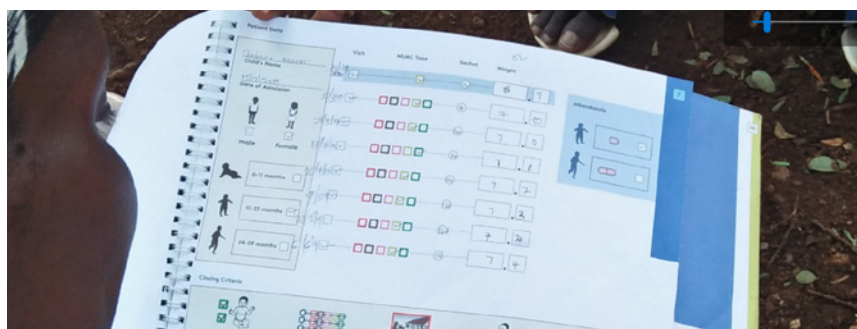


Table 1: Program cost-effectiveness outcomes (2019 US\$)

	Intervention	Control
Number of children treated (admitted)	492	365
Number of children recovered	343	203
Deaths averted	12	7
Total DALYs averted	265	155
Cost per child treated	211	320
Cost per child recovered	303	574
Cost per death averted	8,651	16,401
Cost per DALY averted	393	754

CONCLUSION

Compared to facility-based treatment, treating MAM at home by CHVs and health facilities (for referrals) was cost-effective. Additional gains could be achieved if more children with MAM are enrolled and treated.



CONTRIBUTORS

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