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# Value for money of structural interventions: going beyond HIV-only cost-effectiveness analysis (TUPDE0103)



**STRIVE**  
Tackling the structural drivers of HIV

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## Background

The UNAIDS Investment Framework highlights the importance of critical enablers and synergies with other development sectors to the success of HIV programmes<sup>1</sup>. Although the importance of such structural interventions for reducing HIV vulnerability is well recognised, there is a risk that these interventions are not prioritised in HIV budgets, given:

- the limited body of evidence on their HIV-specific cost-effectiveness;
- their tendency to accrue more benefits to other (sub-) sectors; and
- the nature of most siloed (sector-specific) budgeting that precludes cross-sectoral allocations.

A key challenge to economists is how to assess the costs and value of these multi-sectoral interventions.

We propose that HIV could consider co-financing structural interventions with other benefiting (sub-) sectors, where such interventions are not being fully financed at scale. In addition, the assessment of the value for HIV money of structural interventions could then be based on the HIV sector's contribution, rather than the full cost of the intervention.

We use the findings from the Zomba cash transfer scheme for keeping girls in school<sup>2</sup> as an example to:

- Explore to what extent the HIV sector could consider co-financing structural interventions
- Analyse the consequences of various decision rules for the financing of these interventions.

## Methods

We use two economic evaluation approaches:

**1) Cost-benefit analysis approach:** that apportions the total costs of the intervention according to the HIV-related share of total economic benefit, based on a cost-benefit analysis<sup>3</sup>. For this, we model national costs for full coverage of girls of secondary school age (15-19 years) living on less than US\$1.25 a day (assuming trial costs); and a 64% reduction in HIV incidence among the target group<sup>2</sup> to estimate economic benefits.

**2) Cost-effectiveness analysis approach:** that adopts WHO's cost-effectiveness threshold, based on the results from the Zomba trial<sup>2</sup>. We estimate the total intervention impact per outcome (HIV, education, sexual & reproductive health, mental health) and estimate each (sub-) sector's willingness to pay based on WHO's GDP per capita threshold per DALY averted and the education sector's maximum reported cost-effectiveness ratios in the literature. Two scenarios are considered for the programme's costs, i.e. the actual trial costs and the estimated costs given lower administrative overhead (as would be the case at scale) and a lower cash transfer amount (as the impact was similar).

## Results

### Cost-benefit analysis (CBA) apportionment approach (national scale):

We find that about 44% of the estimated economic benefits in Malawi would be related to HIV. Allocating total costs according to the proportion of HIV-related economic benefit reduces the cost per HIV DALY from US\$2,464 to US\$996. Although this makes the intervention relatively more cost-effective, it is still above Malawi's GDP per capita (US\$ 327 in 2009) and thus not cost-effective. However, this CBA only considered increases in future earnings and reductions in future child mortality rates, thereby possibly underestimating overall economic benefits.

### Cost-effectiveness approach (intervention trial):

- If the HIV programme wishes to achieve cost-effectiveness at the WHO threshold of GDP per capita, then it would achieve value for money by funding 25% of the estimated total programme costs at scale or 10% at the actual trial cost.
- However, given the benefits to other (sub-)sectors, the HIV budget might not have to be tapped at all. Given programme costs at scale, we find that the education sector would be willing to fully fund the programme, based on the education benefits. However, with the actual trial costs, education would only pick up 75% of the costs, while sexual & reproductive health and mental health would contribute 16%. This would leave 9% unfunded, which the HIV sector could be willing to pay, given that it would result in a cost per HIV DALY averted of only \$303, below the GDP/capita threshold.

### Zomba Cash Transfer: Intervention impact and willingness to pay (WTP) per (sub-) sector

(Sub-) Sector	Outcome	Total Zomba impact	Total DALYs averted	Threshold per unit of outcome (US\$)	Funding (US\$)	Share of programme costs	
						At Scale (\$110,250)	Trial phase (\$275,625)
HIV	HIV infections averted	5.5	83	Min: 303	25,050	0%	9%
				Max: 327	27,055	25%	10%
Education	Drop-outs averted	24	n.a.	535	128,730	117%	47%
	Drop-outs re-enrolled	193		79	15,208	14%	6%
	School attendance (additional years)	144		303	58,537	53%	21%
	English test scores (0.1 SD gains)	708		5.4	3,807	3%	1%
Sexual & Reproductive Health	HSV-2 infections averted	15.6	78	327	25,483	23%	9%
	Teen pregnancies averted	9.8	38	327	12,399	11%	5%
Mental Health	Cases of depression averted	45.8	19.6	327	6,410	6%	2%
<b>All sectors</b>		Silo budgeting (highest sector WTP)			206,283	Funded	Not funded
		Co-financing (total WTP)			277,631	Funded	Funded

## Conclusions

- With a silo approach to budgeting whereby each sector weighs programme costs and benefits in isolation, the evidence from the Zomba trial suggests that certain structural interventions with potential could be underfinanced or go unfunded.
- Co-financing provides an opportunity to realise development synergies, but will require multi-sectoral coordination mechanisms for planning, implementation and financing<sup>4</sup>.
- HIV programmes could consider allocating funds to structural interventions based on proven effectiveness and according to the threshold at which the intervention becomes cost-effective from an HIV perspective, rather than estimating conventional cost-effectiveness ratios.
- Although cost-effectiveness is but one criterion in priority-setting and resource allocation, only considering HIV outcomes in the economic evaluation of structural interventions would provide incomplete evidence for policy-makers and could lead to undesirable decisions from an HIV and societal perspective.

**Acknowledgements:** The authors would like to sincerely thank Dr. Berk Özler for sharing the Zomba trial data on programme costs and impact. This work was conducted as part of the DfID-funded STRIVE consortium. The views are the authors' alone.

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