



CMH Working Paper Series

Paper No. WG5 : 24

Title

Preliminary Estimates of the Cost of
Expanding TB, Malaria and HIV/AIDS
Activities for Sub-Saharan Africa

Authors

L. Kumaranayake, L. Conteh,
C. Kurowski, C. Watts

Date: May 2001

Preliminary Estimates of the Cost of Expanding TB, Malaria and HIV/AIDS Activities for Sub-Saharan Africa

Prepared for Working Group 5: Commission on Macroeconomics and Health Improving Health Outcomes of the Poor

May 2001

By

Lilani Kumaranayake, Lesong Conteh, Christoph Kurowski, and Charlotte Watts



Address of authors: Health Policy Unit, Department of Public Health and Policy, London School of Hygiene and Tropical Medicine. Keppel St., London WC1E 7HT. UK. By email: l.kumaranayake@lshtm.ac.uk; christoph.kurowski@lshtm.ac.uk, lesong.conteh@lshtm.ac.uk; c.watts@lshtm.ac.uk.

1. Purpose

The purpose of this note is to provide preliminary costs estimates of expanding tuberculosis (TB), malaria and HIV/AIDS activities for Sub-Saharan Africa (SSA). These cost figures reflect the estimated costs of improving the coverage of programme activities on a national scale, aggregated for SSA. Annex 1 provides a list of the activities that are included in the analysis. This analysis draws on research currently being undertaken by the London School of Hygiene and Tropical Medicine for the WHO Commission on Macroeconomics and Health on the costs of scaling-up priority interventions for low and middle-income countries. The results that are presented are preliminary and will be subject to revision.

1. Methodology

The cost analysis was designed to estimate the volume of additional resources that would be required for a large-scale expansion of activities. Estimates of current levels of coverage were made, and target levels of coverage for the years 2007 and 2015 were established. The costs of expanding activities are presented as the cost additional to current levels of health expenditure which are required. Thus these costs estimates reflect the *incremental* expenditure in 2007 and 2015, which is required over and above current patterns of expenditure.

Three dimensions of incremental costs were estimated: the implementation costs, the management and administration cost, and the cost of investment in the health systems infrastructure required to support the expansion of these activities. The **implementation** costs were estimated using available demographic, behavioural and epidemiological and facility or project-level cost data. The **investment** and **management and administration** costs were based on the estimation of health system inputs that were required to support the expansion of activities to this higher level of coverage and available district-system based data.

2. Coverage

Table 1 presents the baseline and target levels of coverage for each intervention. These values are regional averages for SSA. The cost exercise, however, is based on country specific data, which is then average to produce a regional estimate. Actual coverage data vary widely among countries. In some countries, high levels of coverage have already been achieved, other countries lag far behind. For example, the spectrum of coverage levels of TB treatment recently achieved in SSA countries varies between 10 and 95%. These variations do not allow for a homogenous process of scaling up. Instead, the model underlying the cost analysis is about achieving minimum coverage levels. For example, the 2007 scenario reflects a minimum coverage for DOTS of 50% in all countries. As many countries already perform better than this and since the model does not consider scaling down as an option, the resulting regional average is 60%. This approach has implications for the cost estimates. In comparison with middle income countries, low income countries are often characterised by lower coverage levels. Thus, achieving a minimum coverage affects low income countries rather than middle income countries, in particular when the minimum coverage level is low

(2007 scenario). Lower income countries, however, differ not only with respect to coverage levels, but also with respect to unit costs. The costs of treating a patient with TB are cheaper in low-income countries than in middle-income countries. As scaling up is, in its first step, primarily about increasing coverage in low income countries, the costs of achieving a higher average level are relatively low, compared to the second step of scaling up (2015) which implies coverage increases also in low as well as in middle income countries.

Table 1. Baseline and Target Coverage levels for Sub-Saharan Africa by type of disease and intervention

		Definition of population	2002 Baseline Coverage	Estimated implementation costs for 2002 in millions (2002 US\$)	2007 Target Coverage	2015 Target Coverage
Tuberculosis	Treatment	People suffering from active TB	45%	170-230	60%	70%
Malaria	Prevention	People at risk of malaria transmission	4%	70-150	40%	70%
	Treatment	People suffering from malaria	27%	450-820	50%	70%
HIV/AIDS	Prevention	Various: people vulnerable to HIV, general population	16%	406-608	40%	70%
	Care for HIV positive people	People who are HIV/AIDS positive and symptomatic	6%	1,222-2.337	25%	50%
	HAART*	People who are HIV/AIDS positive and symptomatic	< 1%	N/a	48%	62%

Note: It is not yet well established the actual number of individuals using HAART in SSA. Much of this is currently being undertaken in the private sector.

3. Costs

Table 2 shows the estimated costs. Figures are presented in US \$2002. These estimates give an idea of the magnitude of resources which need to be spent on an annual basis, in order to reach the target coverage levels. The costs for 2007 and 2015 include the costs of the implementation of costs for higher coverage levels as well as the required investment and management and administration costs. The data reflect the implementation of activities in a district-based health system.

Table 2. Incremental costs of expanding coverage

		2007	2015
		Incremental costs in billions (US\$ 2002)	Incremental costs in millions (US\$ 2002)
Tuberculosis	Treatment	0.05-0.10	0.38 – 0.5
Malaria	Prevention	0.65-1.4	1.45 - 3.2
	Treatment	0.6-1.1	1.4 - 2.5
HIV/AIDS	Prevention	3.3 –5	6.9 – 10.5
	Care	6.9 -12	19.3 – 33.6
	HAART	3.0 - 4.9	4.4 – 7.0
Total		14 .5-24	34.4 – 57.3

The costs are dominated by the HIV costs – this is largely due to the heavy epidemiological burden of the disease combined with the assumptions of scaling up. The increases in coverage for HIV/AIDS related activities are much larger than for the other areas, principally due to the existing low coverage of these interventions.

Costs in relation to GNP

In Table 3, we present the preliminary costs for additional resources required with respect to predicted GNP. It was assumed that GNP per capita would increase by an average of 2% annually.

Table 3. Costs relative to GNP of Expanding TB, Malaria and HIV/AIDS activities for Sub-Saharan Africa

Year	Total Current Health Expenditure as % of GNP ^a	Current Public Health Expenditure as % of GNP ^b	Incremental costs of scaling up as % of GNP
2007	4.1%	1.5%	4.1 – 6.7%
2015	4.1%	1.5%	8.2 - 13.7%

^a 4.1% is the population weighted regional average for total health expenditure as a % of GDP for SSA (WHR 2000O).

^b 1.5% is the regional estimate for public expenditure on health as a % of GDP for SSA (World Development Indicators, World Bank, 2000)

Annex 1

Tuberculosis Treatment	DOTS for smear positive patients DOTS for smear negative patients
Malaria Prevention	Insecticide Treated Nets Residual Household Spraying
Malaria Treatment	Treatment for all clinical episodes of malaria
HIV/AIDS Prevention	Youth focused interventions Interventions working with sex workers and clients Condom social marketing and distribution Workplace interventions Strengthening of blood transfusion systems Voluntary counselling and testing Prevention of mother-to-child transmission Mass media campaigns Treatment for sexually transmitted diseases
HIV/AIDS Care	Palliative care Clinical management of opportunistic illnesses (inpatient and outpatient care) Prevention of opportunistic illnesses with prophylaxis Home-based care
HIV/AIDS HAART	Provision of HAART