

From Trial Intervention to Scale-Up: Costs of An Adolescent Sexual Health Program in Mwanza, Tanzania

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Objective: To estimate annual costs of a multifaceted adolescent sexual health intervention in Mwanza, Tanzania, by input (capital and recurrent), component (in-school, community activities, youth-friendly health services, condom distribution), and phase (development, startup, trial implementation, scale-up).

Study Design: Financial and economic providers' costs and intervention outputs were collected to estimate annual total and unit costs (1999–2001). The incremental financial budget projects funding requirements for scale-up within an integrated model.

Results: The 3-year economic costs of trial implementation were \$879,032, of which ~70% were for the school-based component. Costs of initial development and startup were relatively substantial (~21% of total costs); however, annual costs per school child dropped from \$16 in 1999 to \$10 in 2001. The incremental scale-up cost is ~1/5 of ward trial implementation running costs.

Conclusions: Annual costs can reduce by almost 40% as project implementation matures. When scaled up, only an additional \$1.54 is needed per pupil per year to continue the intervention.

THERE IS AN URGENT need to implement large-scale adolescent sexual and reproductive health (ASRH) interventions in sub-Saharan Africa. Over half of new human immunodeficiency virus (HIV) infections occur in youth below the age of 25, and sub-Saharan African youth (age 15–24) account for almost 16% of the world's HIV infections.¹ Interventions before sexual debut may be more effective than attempting to change established risky sexual behaviors.^{1–8} Yet, currently less than half of African school youth have access to such programs.⁹ School-based programs are effective in improving knowledge and attitudes but alone are not enough to change behavior.^{1,3–6,10–12} Youth need multiple strategies to address their sexual health needs.^{5,6,10,11,13} Though the impact of youth interventions tends to be slow and small in magnitude,³ in the long term even very small effects could save millions of lives.³

Little is known about the cost of such interventions or the resource implications of the scale-up necessary for them to have a meaningful impact on adolescent outcomes.¹⁴ The few studies that

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have presented empirical cost data were for well-resourced short-term pilot interventions based in schools and do not show how costs change over time or the costs of important supplementary interventions such as youth-friendly services and community activities.^{15–17} This paper presents the annual costs of implementing the Mema kwa Vijana trial intervention by project phase (development, startup, implementation), by component, by nature of inputs (capital and recurrent costs), and by year (1997–2001); unit costs are presented over 3 years. Estimates of the additional budget required to fund the 4-district scale-up of Mema kwa Vijana within an integrated public sector model are presented.

Methods

Study Setting and Intervention

Mwanza Region in northwest Tanzania has a generalized HIV epidemic, with an HIV prevalence of approximately 8%,¹⁸ and high prevalence of sexually transmitted infections (STIs) and unwanted pregnancy among the youth. The Mema kwa Vijana trial was designed to estimate the incremental impact of an intensively developed youth intervention, over and above strengthened STI treatment for the general population, which, because it has previously been shown to be effective in this population, was provided to both intervention and control communities.¹⁹ Within the trial, 20 communities were randomized to either intervention or control groups. A community comprised an average of 5 to 6 villages and was roughly equivalent to a ward.

The Mema kwa Vijana trial intervention was implemented by an international nongovernmental organization African Medical and Research Foundation (AMREF) and is described in greater detail elsewhere.²⁰ It aimed to address both individual- and environmental-level factors influencing risk behavior, through its 4 main components: ASRH education in the last 3 years of primary school (in-school), community mobilization activities, youth-friendly services to improve access of sexual health services for youth, and community-based peer condom promotion and distribution. Intervention development began in 1996. Two of the 4 intervention components were phased in into the 10 intervention communities

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TABLE 1. Intervention Overview by Phase and Component

Component	In School	Community Mobilization	Condom Promotion and Distribution	Youth-Friendly Services
Phase Development; life: 20 years	Jan 1997–July 1998 Intervention design and development; staff recruitment; piloting	Jan 1997–July 1998 Intervention design and development; staff recruitment; piloting	Jan–Dec 1999 Intervention design and development; staff recruitment; pilot	Oct 1997–July 1998 Intervention design and development; staff recruitment
Startup; life: 5 years	Aug–Dec 1998 Initial training of teachers: 1 week; trainer of peers 3 week class peer educators 1 week	Aug–Dec 1998 Community mobilization week: meetings with ward development committees, parents, teachers, young people, and other key stakeholders Election of community advisory board	Jan–Apr 2000 Training in condom social marketing: 2 days	Aug 1998–Apr 1999 Initial training of health workers in empathic communication, confidentiality, and access to STI treatment and family planning services for all adolescents, 6 days, 8 days
Implementation (annual unless otherwise stated); life: 5 years (3 2/3 years for condom promotion and distribution)	Jan 1999–2003 Classroom teaching of 10 sessions in 62 schools. Refresher training: Teachers: 1 week, trainer of peers: 3 week, class peer educators: 2 days	Jan 1999–2003 Meetings with religious leaders and parents; Mema kwa Vijana week: interschool competition in performing drama, songs, rap, etc. with a sexual and reproductive health theme	May 2000–2003 Youth condom provision: project monitoring and distribution of condoms to distributors or health clinic for the distributor to purchase for resale	May 1999–2003 Quarterly visits of health workers to schools. School visit to health centers. Youth health days: open day at clinic for youth, with drama, dance performances, condom demonstrations, individual counseling. Health worker refresher course (once per 3 years)
Scale-up to 4 districts, 103 wards	Phase in Oct 2004–June 2007 Formation and training of core, regional, district, ward, and combined training and supervision teams Teacher training Supervision: annual by core team; quarterly by regional and district teams	Phase in Oct 2004–June 2007 Formation and training of core, regional, district, ward, and combined training and supervision teams Meetings with ward development committees	Discontinued in scale-up due to logistical difficulties	Phase in Oct 2004–June 2007 Formation and training of core, regional, district, ward, and combined training and supervision teams Health worker training Supervision: annual by core team; quarterly by regional and district teams

during a startup period running from August–December 1998. Phase-in of the youth-friendly services and condom promotion and distribution were completed in February and December 1999, respectively. The overall intervention is summarized in Table 1, with more detail presented in online Appendix 1. The impact evaluation of the intervention showed substantial and sustained increases in knowledge, changes in attitudes, and some important improvements in reported sexual behavior but did not find any consistent impact on STI and HIV incidence in the short time frame of measurement.

A modified version of the Mema kwa Vijana trial intervention is currently being rolled out from the 10 trial wards to 103 wards in Mema kwa Vijana Phase 2 over a 4-year period (Fig. 1). Phase 2 is being implemented through a more integrated decentralized approach, with only a small core team. Most inputs come from the public sector, including supervision. The incremental budget for this scale-up is presented.

Cost Analysis

The cost analysis estimated the full financial and economic costs of implementing the intervention in the 10 intervention communities within the context of this trial. Cost collection and analysis was based on the Costing Guidelines for HIV Prevention Strategies.²¹

Data collection was coordinated by an economist at London School of Hygiene and Tropical Medicine (LSHTM) (FTP), who conducted field visits to Mwanza in 2000 and 2001. This included collation of financial accounts of the 3 institutions providing the intervention: AMREF, National Institute for Medical Research, and LSHTM. These accounts provided detailed information on all project expenditures by date. Each line item was allocated to a project phase for each of the 4 components, according to the date of the resource use, the component in which it was used, and the input type. Table 1 presents the timeline by which costs would be

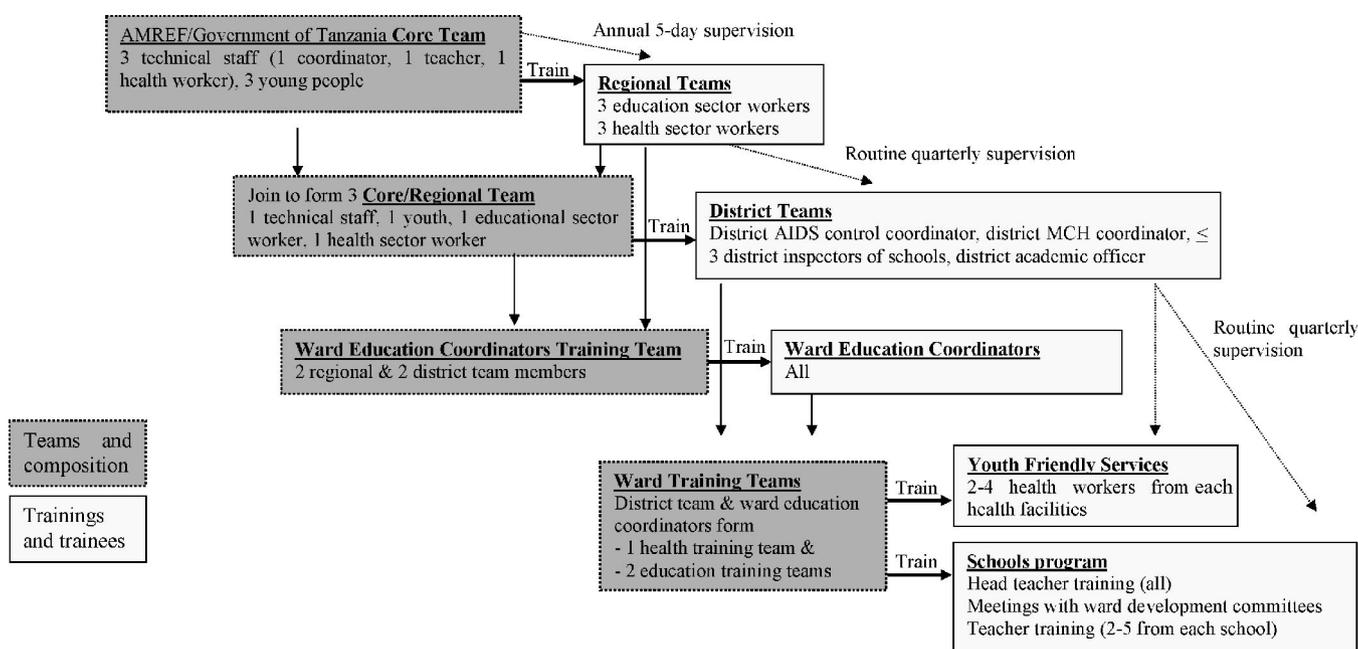


Fig. 1. African Medical and Research Foundation.

allocated to project phase by component. Total cost equations for the different cost presentations can be found online in Box A1.

A pro forma for intervention activities was produced in collaboration with the AMREF team and staff provided retrospective time allocations by year and component. Individual interviews were held with each staff member to clarify their roles, activities, and allocations. A field visits was made to a health unit and a school, where a class session was observed.

Financial and economic costs were collected from the provider's perspective. Financial costs represent actual expenditure on goods and services purchased. Economic costs included the estimated value of goods or services for all resources used in the intervention, including donated goods and services. Inputs from the government were considered donated. These were training, supervision, and teaching time inputs from teachers, district education inspectors, ward education coordinators, and health workers and constitute the difference between recurrent economic and financial costs. These time inputs were estimated by their time spent in training (~50% of their time inputs), which was recorded by the intervention team and an estimation of their additional time inputs. Teachers' inputs were the hours they spent teaching the classroom sessions, adjusted for untaught session (80%–90% of session were taught). For the others, additional time inputs were taken from self-reported time inputs. Health workers visited schools and hosted pupils during youth health days. Supervision was provided by the district education inspectors and the ward education coordinators. Time was valued including full cost to government plus any supplemental allowances.

Annual financial capital costs were calculated using straight-line depreciation, where the item cost is divided by its expected life; annual economic capital costs were annualized using a 3% discount rate to take into account the opportunity cost of capital.²² The annual development and startup costs for each component were added to component costs. The input-based costing treated them as capital investments and can be found under the capital inputs "development" and "startup." The difference between capital financial and economic costs is due to the different method of

calculating annual costs. Table A1 in the online appendix presents the capital goods used in this intervention and their estimated life.

All costs associated with research-related activities, including the impact evaluation, were excluded from the analysis, as were the costs of strengthened STI treatment, provided in both intervention and control arms. Costs in Tanzanian shillings were converted to US dollars (\$) using the average exchange rate at the time of data collection (\$1 = 887 Tanzanian shillings). All costs, including those quoted from other studies, have been adjusted to 2001 dollars using an average US inflation rate of 3.2%.²³

A sensitivity analysis was performed around discount rate (0% and 10%), the project coordinators' time input and cost (100%, and replaced with local salary), allocation of staff time between research and project implementation (+20%, –20%) for those staff involved in both, and school attendance rate (+20%, –20%). All most favorable and least favorable assumptions were also applied together.

Estimates of the incremental budget necessary to scale up the intervention to 4 districts using a more decentralized implementation model, as is currently being implemented, are presented. These values differ from the retrospective full economic costing of the trial phases as they are budget projections for the scaled-up effort and only account for the additional costs of adding Mema kwa Vijana on to routine public sector activities. The total costs are built up from detailed estimates of the quantities and unit costs of inputs needed by expenditure levels (Appendix Box A1).

Results

Cost by Component, Input and Stage of the Intervention

Economic costs are presented by intervention year, project phase, and component in Table 2. The total cost of developing the intervention was \$309,799, while total startup costs amounted to \$195,442. As expected, the in-school component was the most resource-intensive component, averaging at \$201,833 per year, 69% of total costs. The remaining components were each around

TABLE 2. Economic Costs by Project Phase and Component*

	1997	1998	1999	2000	2001	Total
Development						
In-school	64,203	89,846	22,857	43,040	11,963	231,908
Community	20,164	29,746	0	0	0	49,910
CPD	0	0	21,707	0	0	21,707
YFS	1893	4381	0	0	0	6274
Total	86,261	123,972	44,564	43,040	11,963	309,799
Startup						
In-school		118,603	0	0		118,603
Community		37,854	0	0		37,854
CPD		0	0	19,020		19,020
YFS		0	19,965	0		19,966
Total		156,457	19,965	19,020		195,442
Trial implementation (including annualized startup and development)						
In-school			234,961	216,974	153,564	605,499
Community			30,416	39,263	38,138	107,818
Condom promotion and distribution			1459	31,466	55,727	88,652
Youth-friendly services			24,058	28,296	24,709	77,063
Total			290,894	315,999	272,139	879,032

*All costs are presented in 2001 US dollars; 1 \$US = 887 Tanzanian shillings. Development consisted primarily of intervention design; startup consisted primarily of training; implementation consisted primarily of the recurrent project activities, including supervision and refresher training (see Table 1).

9%–12% of total intervention costs. When analyzed by input, personnel costs were the largest (41% of total), followed by startup (14%) (Table 3). Personnel costs have the largest difference between financial and economic costs because the teachers and health workers carried out Mema kwa Vijana activities within their normal working hours, paid by the government, rather than the project. The cost analysis is incremental to the costs of strength-

ened STI services for the general population, which underpins the youth-friendly services component. Costs of this invention were previously estimated by Gilson et al.²⁴

The intervention reached approximately 15,000 school children each year in 62 schools (Table 4). In total 1124 class peer educators were given training in each of the 3 years, 228 condom peer distributors were trained and supervised for 2 years, and 57,610 condoms were sold in the 10 intervention communities. Unit costs were calculated by taking the component costs and dividing them by the corresponding process measures presented in Table 4. It can be seen that the average annual cost per pupil was \$13.46. The cost per condom distributed by the condom promotion and distribution component was \$1.54. The average cost of all interventions was \$29,301 per community (ward).

A univariate sensitivity analysis was performed to estimate the impact of a number of assumptions made in the analysis (Appendix Table A2). The sensitivity analysis highlights the impact of the presence of the internationally recruited project coordinator. When replacing this salary with a local equivalent, total 3-year costs drop by 17%. Given the retrospective nature of the time allocations, the impact of 20% more or 20% less time allocated to the intervention versus research activities would have led to 3% higher or 4% lower total costs. School attendance is known to vary from enrollment. We estimated the number of children exposed to the in-school intervention based on school attendance during the baseline survey. If school attendance was actually 20% higher or lower, the cost per pupil exposed to the interventions would be 17% lower or 25% higher, respectively. Applying all most favorable assumptions would lead to a 20% drop in total costs and a 36% drop in the costs per pupil reached, while the least favorable assumptions would increase costs by 22% and cost per pupil reached by 58%.

The incremental financial budget needed to scale up Mema kwa Vijana to 4 districts over a 4-year period is estimated to be \$1,866,879, of which 62% is for one-off start-up costs (Table 5). This covers 103 wards. Average annual recurrent implementation costs are estimated at \$59,617 per district, or \$2315 per ward. This

TABLE 3. Total Costs by Input (Including Annualized Startup and Development)*

	Total		% of Total Economic Costs
	Financial	Economic	
Capital			
Building	5815	6507	1
Equipment	11,977	12,716	1
Vehicles, capital	40,364	43,761	5
Development	43,507	58,350	7
Startup	116,228	126,678	14
Recurrent			
Personnel	317,537	356,097	41
Supplies	64,273	64,273	7
Vehicles, OM	57,567	57,567	7
Building, OM	6068	6068	1
Training	73,382	73,382	8
Other	73,633	73,633	8
Total	810,350	879,032	100

OM = operation and maintenance.

*All costs are presented in 2001 US dollars; 1 \$US = 887 Tanzanian shillings. Financial costs represent actual expenditure on goods and services purchased. Economic costs included the estimated value of goods or services for all resources used in the intervention, including donated goods and services. Annual financial capital costs were calculated using straight-line depreciation; annual economic capital costs were annualized using a 3% discount rate.

TABLE 4. Process Measures and Unit Costs*

Outcome Indicators	1999	2000	2001	Total	
Children exposed to the in-school intervention	15,000	15,000	15,000	45,000 (Person years)	
Participating schools	62	62	62	186 (School years)	
Teachers trained	122	124	186	432 (Teachers receiving a training workshop) [†]	
Head teachers trained	63	62	62	187 (Head teachers receiving training) [†]	
Total teachers trained	185	186	248	619 (Teachers/head teachers receiving training) [†]	
CPE	1124	1124	1124	3372 (CPE years)	
Condoms sold	0	24,690	32,920	57,610	
Condom peer distributors trained	0	228	228	456 (Condom peer distributors receiving training) [†]	
Health workers involved in provision of YFS	44	46	46	136 (Health worker years)	
Participating health facilities	18	18	18	54 (Health facility participation years)	
Communities [‡]	10	10	10	30 (Community years)	
				Average all years	
Annual unit costs	1999 Econ	2000 Econ	2001 Econ	Financial	Economic
In-school component costs (\$)/child exposed	15.66	14.46	10.24	12.19	13.46
In-school component costs (\$)/schools	3790	3500	2477	2934	3238
In-school component costs (\$)/community	23,496	21,697	15,356	18,289	20,183
CPE component costs (\$)/CPE	95	64	44	64	68
Community component costs (\$)/community	3042	3926	3814	3412	3594
CPD component costs (\$)/condom sold		1.27	1.69	1.49	1.54
CPD component costs (\$)/condom peer distributor		138	244	288	194
CPD component costs (\$)/community		3147	5573	2861	2955
YFS component costs (\$)/health facility	1337	1572	1373	1361	1427
Total costs (all components) (\$)/community	29,089	31,600	27,214	27,012	29,301

Econ = economic.

CPE = class peer educator; CPD = condom promotion and distribution; YFS = youth-friendly services.

*All costs are presented in 2001 US dollars; 1 \$US = 887 Tanzanian shillings.

[†]The same teacher/head teacher/condom peer distributor may have received up to 3 training workshops; each training workshop that they received will have contributed 1 to these numbers.

[‡]A community is roughly equivalent to an administrative ward.

would mean a budget increase equivalent of \$292 per facility (school or health clinic), or \$1.54 per pupil per year once the intervention is up and running.

Discussion

We have analyzed the costs of the type of multifaceted intervention that is widely being recommended to meet the ASRH needs in the developing world. We show the high costs of intervention development and how costs change over a project's lifespan.

This study presented a number of challenges. The detailed financial accounts enabled a very comprehensive costing; however, the scale and the complexity of the intervention made the allocation of each line item to phase, activity (and component), and

input complicated. Personnel costs were the largest input and the most difficult to allocate precisely. Key assumptions were explored in the sensitivity analysis. Some resources were used in multiple components, influencing the relative costs of the components; however, a sensitivity analysis of the allocation of inputs between the 4 components was deemed unwieldy.

In mid-2003, UNAIDS/WHO estimated that by 2005 donors should be providing an additional \$200 million per year for HIV-prevention in sub-Saharan Africa, with a particular emphasis on funding of youth programs.⁹ At almost \$30,000 per ward and \$10.24 per school child for the in-school component, the costs of this model would be out of reach for many government budgets in sub-Saharan Africa. For example, it has been estimated that the Tanzanian government spends about \$4 per pupil per year and \$5

TABLE 5. Total Additional Budget Needed to Scale-Up Mema Kwa Vijana to 4 Districts*

Cost Unit (Number of Units)	Startup Plus Implementation Year 1	Implementation, Years 2–4		Total, Years 1–4	
		Total Over 3 Years	Average per Year	Total Over 4 Years	Average per Year
Total cost	1,157,753	715,406	238,469	1,866,879	466,720
Cost per district (4)	289,438	178,851	59,617	466,720	116,680
Cost per ward (103)	11,240	6946	2315	18,125	4531
Cost per facility [†] (817)	1417	876	292	2285	571
Cost per pupil [‡] (154,500)	7.49	4.63	1.54	12.08	3.02

*All costs are presented in 2001 US dollars, 1 \$US = 887 Tanzanian shillings.

[†]Combining primary schools (649) and health facilities (168).

[‡]Assuming approximately 1500 pupils per ward, extrapolating from the trial communities.

per person per year for health care.^{25,26} The in-school component costs are at the lower end of existing estimates of the costs of school-based ASRH interventions. These range from \$3.74 per school child exposed in modeled estimates for Africa to \$47 estimated empirically in Uganda^{15–17,27}; this would still require additional funding either from the government or donors. However, the integrated model for scaling up is in the more feasible range (an additional \$1.54 per pupil per year) and gives a good indication of how donors can support government efforts to realize the scaling up of youth programs.

This is the first detailed cost analysis of a large-scale multicomponent, multiyear ASRH intervention, which can provide the basis for program managers to think through their costs and the costs of a scaled-up effort. It highlights the fact that the costs of the initial developmental and startup phases of any comprehensive package of interventions for improving ASRH are likely to be substantial, and even the recurrent costs of a more integrated model would likely require donor support.

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Appendix

Online Appendix I: Study Setting and Detailed Intervention

Mwanza Region in northwest Tanzania has a generalized HIV epidemic, with and HIV prevalence at approximately 8%, ranging

from 4% in rural villages to 13% in Mwanza City,²⁰ and high prevalence of STIs and unwanted pregnancy among the youth. Mwanza City has a well-established research infrastructure, hosting numerous community HIV and STI prevention trials since the 1990s, most notably showing that in an early epidemic-strengthened STI treatment within the existing health care infrastructure could lead to a 40% decrease in HIV incidence.²¹ The Mema kwa Vijana trial was designed to estimate the incremental impact of an intensively developed youth intervention, over and above strengthened STI treatment for the general population. Within the trial, the Mema kwa Vijana intervention was implemented by an international NGO (AMREF) in 10 communities, each comprising 5 to 6 villages and roughly equivalent to a ward, which is a local government administrative unit with its own health, education, and local governance structures. It had 4 main components: community mobilization activities, reproductive health education in the last 3 years of primary school (in-school), youth-friendly health services, and youth condom promotion and distribution. The intervention is described in greater detail elsewhere²² but can be summarized as follows:

Community Mobilization. To increase awareness, acceptance, and ownership of Mema kwa Vijana, a community mobilization week was held in each intervention community at the start of the project. During this week, meetings were held with the ward development committees and key stakeholders, including parents, teachers, and young people. During this initial mobilization, each community elected a 15- to 22-member advisory committee to oversee the community component. Separate meetings were also held with religious leaders and parents throughout implementation. Finally, an annual interschool competition (Mema kwa Vijana week) was held in each community, during which pupils from intervention schools competed in performing drama, songs and rap, etc. with a sexual and reproductive health theme. The community mobilization served to increase awareness of the intervention in the community and to spread information about youth sexual and reproductive health issues.

In-School. A teacher-led, peer-assisted reproductive health curriculum was developed and implemented in standard 5 to 7 in all primary schools in the intervention communities. The curriculum comprised 10 to 15 classroom sessions per year. Annually, teachers from each school received a 1-week training workshop in the delivery of a participatory curriculum that included drama, games, and stories. In each school, 6 pupils per school year were elected to act as class peer educators. Their main role was to perform short drama discussion starters during the classroom sessions, for which they received 2 days' training each year. Two or 3 older youth from each community were elected by the advisory committee and trained for 3 weeks to act as Trainer of Peers (TOP). They were responsible for training the class peer educators in the first 2 years of the program and for supporting the class peer educator during after-school Mema kwa Vijana clubs. These clubs provided a more informal forum for addressing ASRH issues.

Youth-Friendly Health Services. At least 2 health workers from each of the 18 health facilities in the intervention communities received a 6-day participatory training, which focused on empathic communication, confidentiality, and access to STI treatment and family planning services for all adolescents. Health workers also visited all the intervention primary schools in their area once every quarter, and teachers were encouraged to bring their pupils to visit the health centers at least once per year.

In addition, health workers organized annual youth health days, when youth were invited to visit the health units. Often, schools or other groups organized drama and dance performances, and the event provided an opportunity for condom demonstrations and individual counseling for young people on request.

Finally, because previous research in Mwanza had demonstrated that syndromic management of STI could decrease HIV transmission, training, drugs, and supervisory support for the provision of syndromic case management was implemented in all (both intervention and comparison) trial communities.

Youth Condom Promotion and Distribution. Needs assessments established that condoms were expensive and availability was poor in the trial areas. A condom promotion initiative was therefore set up to increase condom availability, accessibility, and to promote their use. Youth condom promoters and distributors received 2 days' training in condom social marketing, and the project supplied subsidized condoms via an elected condom promotion and distribution distributor or the health clinic. This component proved very supervision intensive and was discontinued in the scale-up.

Timetable of Activities. This study looks at the cost of each phase of Mema kwa Vijana intervention activities from 1997 to 2001. The project development phase ran from October 1997 to July 1998 and included staff recruitment and the design, development, and pilot testing of the in-school curriculum and the community mobilization components. The startup period ran from August through December 1998 and included the initial community mobilization and the first round of training workshops for the implementers of the in-school component. The implementation phase commenced when the first classes were taught in January 1999. The exceptions to this timetable were the condom promotion and distribution and youth-friendly services components. The condom promotion and distribution component was developed during 1999, pilot tested during the first 5 months of 2000, and implemented thereafter. The youth-friendly services component started in April 1999.

The intervention continued to develop in the light of continued process evaluation, and teacher training workshops were repeated annually as the curriculum evolved. Additional teachers were trained in 2000 and 2001 such that there were 3 teachers trained in each school by implementation year 3, at which time the teachers took over the roles that had been performed by the TOP. The health workers also received refresher training in 2000. Finally, in order to maximize sustainability, government officials at ward level (ward education coordinators) and at district level (district education inspectors, district AIDS control coordinators, and district STD control coordinators) were trained to support and supervise the intervention and act as cofacilitators during training workshops of the school and health-facility-based implementers.

Overall, a total of 11 ward education coordinators, 186 teachers, 63 head teachers, 1124 class peer educators, 63 TOPs, 228 condom peer distributors, 46 health workers, and 4 teams of government district-level health and education inspectors were trained. All teachers, health workers, and other government officials received allowances during out-of-station training and supervision activities to cover the cost of meals and accommodation, but no additional salaries or allowances were paid for implementation activities such as teaching classroom sessions, seeing patients, visiting schools or participation in youth health week, and other activities. TOPs were the only non-AMREF staff in receipt of regular allowances; their activities were devolved to teachers in the final year.