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UNIT COST OF PROVIDING KEY HIV SERVICES TO FEMALE SEX WORKERS AND MALES WHO HAVE SEX WITH MALES

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Unit Cost of Providing Key HIV Services to Female Sex Workers and Males Who Have Sex with Males: Ghana

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This publication was prepared by Andrew Koleros¹ of the Health Policy Project.

¹ Futures Group.

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CONTENTS

Foreword	iv
Acknowledgements	v
Executive Summary	vi
Abbreviations	viii
Introduction and Background	1
HIV and AIDS in Ghana.....	1
Programme and Policy Response to HIV and AIDS	1
Study Rationale	2
Literature Review.....	3
Methodology.....	4
Background on Intervention.....	4
Study Management	5
Sampling	5
Data Collection	6
Data Analysis	6
Results	8
Unit Costs of HIV Services Targeting FSWs	8
Weighted Average Unit Cost	12
Scenario Analysis: Unit Cost of Programme Reach	12
Unit Costs of HIV Services Targeting MSM.....	15
Weighted Average Unit Cost	18
Scenario Analysis: Unit Cost of Programme Reach	19
Discussion and Conclusion	22
Recommendations	24
Annex 1. FSW and MSM Comprehensive Package of Services	25
Annex 2. Details on Costing Methods and Analysis	26
References.....	31

FOREWORD

The Government of Ghana has responded progressively to the HIV epidemic, using locally generated evidence and gradually scaling up effective HIV interventions. Good estimates, projections, and planning depend on having knowledge about accurate costs. This study examines the unit cost of providing key HIV services to female sex workers (FSWs) and males who have sex with males (MSM) in Ghana. Understanding the costs and components of these services will allow for their sustainable scale-up and provide evidence to ensure that sufficient resources are available. This is one of the first studies to examine the costs of delivering HIV services to key populations in Ghana and provides valuable information for the planning and monitoring of the national programme.

The Ghana AIDS Commission is grateful to all the researchers and particularly the participating institutions for contributing to the success of this study. The study results will help to shape resource mobilisation and allocation during implementation of the National Strategic Plan for HIV&AIDS (2011–2015), National MARP Strategic Framework 2011–2015, and MARP Operational Plan 2011–2013, as well as inform other health sector programmes in their efforts towards achieving the Millennium Development Goals and stopping and reversing HIV incidence in Ghana.

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EXECUTIVE SUMMARY

The fight against HIV and AIDS is an integral component of Ghana's efforts to improve the country's social and economic conditions. Available data suggest that HIV prevalence rates among most-at-risk populations (MARPs), particularly female sex workers (FSWs) and males who have sex with males (MSM), are several times higher than the national average. As in many countries in the region, these groups also face additional barriers to social acceptance and access to services, compared with the general population. As a result, Ghana completed a MARP Strategic Framework 2011–2015 to guide interventions and service delivery for these groups. The framework proposes a package of services that includes HIV prevention; HIV treatment, care, and support; and psychosocial support and legal services.

Given the importance of key population programmes in Ghana's national HIV response, several HIV stakeholders had expressed the need for country-specific costing data on key populations to provide an evidence base for policymaking processes underway in 2011. A study team was formed, comprising representatives from the government, U.S. Agency for International Development (USAID), and USAID-funded Health Policy Project. The Ghana AIDS Commission (GAC) was the principal government agency involved in the study. The National Technical Working Group on Most-at-risk Populations (MARP TWG) also played a key role. With the above data in mind, the study team identified the following questions:

- What is the cost of providing one key HIV service one time (service contact) to an FSW or MSM?
- What is the current average cost of delivering one key HIV service one time to an FSW or MSM based on the proportion of services currently being used (average contact)?
- What is the cost of reaching one FSW and one MSM for one year with a comprehensive package of services?
- What are the variations or cost components driving these costs?
- What would be the cost implications of changes in service utilisation, both in terms of the types of services used and the frequency that they are accessed?

The study team designed a mixed methods study, consisting of primary and secondary data collection and analysis to estimate the average national financial cost to the provider for delivering the comprehensive package of services to one FSW and one MSM for one year in varying scenarios of service use and intensity. The team examined the costs of service delivery staff time (programme managers, paid personnel, and administrative staff); supplies [prevention commodities, IEC (information, education, and communication) materials, and other supplies]; and capital costs such as equipment. The approach considered a representative service delivery model for the intervention.

The study team selected a purposive sample of eight intervention sites operated by nongovernmental organisations (NGOs), reflecting regional and operational variation within the country. A standard questionnaire was developed to collect data from the sample of intervention sites. The questionnaire was pre-tested at one site and then used to train data collection teams. Data collectors interviewed local programme officials, administered the questionnaire, and reviewed programme and NGO documents at each intervention site. At each site, data were collected on the time they spent with each client, the various stages of the intervention, and what resources they used. Respondents also provided information on management functions, including time allocation and resources used. Throughout the data collection period, the local consultant gathered information from both central sources on resource use and prices, as well as a variety of local sources.

Inputs were first analysed according to type of cost. Inputs were categorised as follows: labour (NGO personnel and administrative staff); supplies (prevention commodities and other consumables); and capital costs, such as equipment. To adjust for inflation, all costs reflect constant 2010 prices. Based on

unit cost estimates for each service, the study team conducted scenario analyses to estimate programme reach under varying programme conditions.

The study yielded findings on the national average unit cost to deliver each of the services included in the comprehensive service package one time to one FSW and one MSM (unit cost per service contact). The most direct indicator of national costs was an average cost for reaching one client with one service one time across the intervention sites included in this study, weighted by the number of clients served at each site. Application of the weighted average yielded costs ranging from (1) GHC 2.56 for a support service to GHC 38.95 for HIV testing and counselling services in a drop-in centre setting for FSW service contacts and (2) GHC 2.56 for a support service to GHC 47.85 for mobile VCT services for MSM service contacts. Indirect costs were the most important cost category, accounting for between 40 and 63 percent of costs.

The study team conducted a sensitivity analysis on unit cost estimates to determine how changes in service delivery over time could affect costs. The unit cost per service contact is estimated to decline by between 31 and 45 percent for FSW interventions and by between 26 and 37 percent for MSM interventions, in scenarios where service delivery doubles in the next year. Unit costs per service contact were weighted based on current utilisation of services, estimated at GHc 24.04 (\$16.31) for FSW services and GHc 30.99 (\$21.16) for MSM services. To project weighted unit costs for reaching an MSM or FSW for one year with a package of services, the study team developed scenarios based on varying service delivery mechanisms and service utilisation projections. Comparing these projections, unit costs are projected to decline by up to 40 percent in scenarios where service delivery is increased.

This study produced the first cost estimates for delivering key HIV services to FSWs and MSM in Ghana. The most important results were the identification of (1) major cost drivers for HIV services included the Ghana national MARP HIV programme, namely the high indirect costs (e.g., programme management) compared to direct costs (e.g., condoms and lubricants); and (2) substantial differences in unit cost projections as the programme is brought to scale. The biggest driver of cost was the scale of the programme. Projections of unit costs in varying service delivery scale-up scenarios indicated that unit costs per service in some cases could drop by nearly 50 percent if intervention sites doubled the number of services they provided in one year.

Other important findings included the importance of adequately budgeting health and prevention commodities when estimating unit costs and the identification of measures to strengthen M&E systems necessary for the national MARP programme to effectively monitor and evaluate the cost and cost-effectiveness of programme elements.

In general, the government should use these results when updating the costing of the National Strategic Plan on HIV and AIDS NSP 2011–2015, the MARP Strategic Framework 2011–2015, and the MARP Operational Plan 2011–2013; and when budgeting future project proposals to GFATM and other potential donors. Specifically, the Government of Ghana should also develop a national operational definition of programme reach. For the most meaningful use of these results, programme planners must decide on the target mix of service utilisation and contacts per year and carefully monitor service delivery to have accurate unit costs by programme reach over time. Once this operational definition has been established, national data collection and reporting tools, as well as national databases and other data storage architecture, should be updated to reflect these changes and accurately collect the right data on the service package. Intervention sites will require significant capacity-building support to accurately collect high-quality data on these service packages. The Government of Ghana, technical partners, and donors should prioritise monitoring and evaluation (M&E) capacity-building interventions to support implementation of the national M&E system for MARP interventions. Capacity-building support could include direct training on new tools, support to use data for local decision making, and strategies to improve data quality.

ABBREVIATIONS

AED	Academy for Educational Development
AIDS	acquired immune deficiency syndrome
CT	counselling and testing
DIC	drop-in centre
FHI	Family Health International
FSW	female sex worker
GAC	Ghana AIDS Commission
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
HIV	human immunodeficiency virus
HTC	HIV testing and counselling
IEC	information, education, and communication
M&E	monitoring and evaluation
MARP	most-at-risk population
MSM	males who have sex with males
NGO	nongovernmental organisation
NSP	National Strategic Plan on HIV and AIDS 2011–2015
STI	sexually transmitted infection
TWG	Technical Working Group
UNAIDS	Joint United Nations Programme on HIV and AIDS
USAID	United States Agency for International Development
VCT	voluntary counselling and testing
WAPCAS	West Africa Program to Combat AIDS and STI

INTRODUCTION AND BACKGROUND

HIV and AIDS in Ghana

The fight against HIV and AIDS is an integral component of Ghana's efforts to improve the country's social and economic conditions. Although not as hard hit as many of the countries of Eastern and Southern Africa, Ghana continues to face impediments to its national development efforts because of the HIV epidemic, considered a mature, mixed epidemic (i.e., low-level generalised epidemic with pockets of high infection levels among certain populations). HIV infection in the general population largely depends on continuous bridging from core high-prevalence sub-populations, including female sex workers (FSWs), their clients and non-paying partners, and males who have sex with males (MSM).

Though many epidemiological and behavioral studies are ongoing to understand the full magnitude of commercial sex in Ghana, available data suggest that HIV prevalence rates among FSWs are several times higher than the national average. In 2006, a study conducted by the Academy of Educational Development (AED), found infection rates among FSWs in Kumasi and Accra to range from 39.3 percent to 52.2 percent in "seaters" and 24 percent to 36.8 percent in "roamers."¹ This same study indicated similar trends in risk behaviors, with condom use with clients reported at 93 percent and condom use with non-paying partners reported at only 27 percent. A 2009 biological behavioral surveillance survey among FSWs in Accra and Kumasi showed an aggregate reduction in HIV prevalence from 37.8 percent in 2006 to 25 percent (AED, 2009). Similarly, though comprehensive research among MSM is ongoing, research conducted by AED in 2006 found HIV prevalence rates of over 25 percent among a sample of 360 MSM in Accra—though there were issues noted around the representativity of this sample (AED, 2006).

As in many countries in the region, these groups also face additional barriers to social acceptance and access to services, compared with the general population. FSWs and MSM are stigmatised and discriminated against in daily life due to cultural and legal prohibitions against prostitution and homosexuality. FSWs are often forced to operate clandestinely to avoid police raids and arrest. In the past, MSM whose sexual preference has been disclosed have been subject to harassment and in some instances violence. Their relative hiddenness and isolation increase the likelihood of engaging in high-risk behaviour.

Programme and Policy Response to HIV and AIDS

The Ghana AIDS Commission (GAC) was established by an act of Parliament in 2002 as a supra-ministerial body with multisectoral representation. As the highest policymaking body on HIV and AIDS in the country, it leads the coordination of Ghana's National Strategic Plan (NSP) for HIV & AIDS 2011–2015, with key ministries, the private sector, traditional and religious leaders and civil society participating in the design, planning, implementation, and monitoring and evaluation of programmes. Under the GAC's coordination, the government has begun implementing its five-year NSP, which emphasises that to maintain or lower the relatively low prevalence in the general population, the national HIV response must be sustained and scaled up.

Following a *Know Your Epidemic/Know Your Response* approach to programme planning (UNAIDS, 2010), Ghana's NSP identifies key populations, including MSM and FSWs, as a national priority for the HIV response and outlines Ghana's strategy to reach these populations with targeted HIV services. Based on these initiatives, in 2010, GAC and its partners began to put a stronger focus on MARP interventions as a priority for HIV prevention programming. The commission and its partners established a MARP

¹ "Seaters" refer to home-based female sex workers. "Roamers" refer to street-based and mobile female sex workers.

Technical Working Group (TWG) in 2010, comprising the major governmental and nongovernmental stakeholders in the country and including representatives of the MSM and FSW communities.

Through this new coordination mechanism, Ghana completed a MARP Strategic Framework 2011–2015 to guide MARP interventions and service delivery. The goal is to reach, by 2015, 80 percent of key populations (identified as FSWs, MSM, injecting drug users, and prisoners) with a package of services that includes HIV prevention; HIV treatment, care, and support; and psychosocial support and legal services.

HIV services targeting key populations are implemented mostly by nongovernmental organisations (NGOs) that have links to reach these groups. With the introduction of the USAID-funded SHARPER project in 2010 and using the most up-to-date evidence, the comprehensive service package included in the MARP Strategic Framework highlights the use of MARP-friendly drop-in centres (DICs), run by local NGO partners, as a focal point for providing services to FSWs and MSM. Clients are often directed to the centres by peer educators within their communities. NGOs operate separate centres for FSWs and MSM, providing safe places to get information, interact with supportive peers, learn about health services, obtain appropriate referrals, and organise social activities. Though some NGOs were previously providing DIC-based services in the past, through the MARP TWG and efforts of the SHARPER project, DICs are now standardising the package of services provided to include new services, such as counselling and testing services (CT), services to prevent and diagnose sexually transmitted infections (STIs), and MARP-friendly support groups. DICs have also begun to strengthen their systems for referrals to other services, such as antiretroviral therapy, family planning, and services not available on site. Lay counsellors provide CT services and healthcare workers provide STI services.

STUDY RATIONALE

Given the importance of key population programmes in Ghana’s national HIV response, several HIV stakeholders had expressed the need for country-specific costing data on key populations to provide an evidence base for policymaking processes underway in 2011 (including the NSP and the MARP Strategic Framework). In addition, the lack of accurate unit cost estimates for key population services was cited as a weakness of a 2010 Ghana proposal to the Global Fund to Fight AIDS, Tuberculosis and Malaria (GFATM) for Round 10 funding. In response to this need, a study team was formed, comprising representatives from the government, U.S. Agency for International Development (USAID), and USAID-funded Health Policy Project.

Though the MARP Strategic Framework 2011–15 provides an ambitious target for reaching key populations with comprehensive services, little Ghana-specific information is available regarding the costs of delivering services to key groups. This information is vital for decision making around scale-up, resource mobilisation, and budgeting and planning.

With these data needs in mind, the team identified the following study questions:

- What is the cost of providing one key HIV service one time (service contact) to an FSW or MSM?
- What is the current average cost of delivering one key HIV service one time to an FSW or MSM based on the proportion of services currently being used (average contact)?
- What is the cost of reaching one FSW and one MSM for one year with a comprehensive package of services?
- What are the variations or cost components driving these costs?

- What would be the cost implications of changes in service utilisation, both in terms of the types of services used and the frequency that they are accessed?

Literature Review

Any costing study requires clear specification of the interventions to be examined in order to accurately estimate costs. Compared to interventions in a more defined clinical programme—such as services to prevent mother-to-child transmission of HIV, which have a clear beginning and end—the costing of a comprehensive prevention package is more difficult for a number of reasons. First, at the global level, there continues to be widespread acknowledgment that, to prevent HIV infection, efforts must be targeted to fit the epidemic and to implement effective combination prevention interventions. These include behavioural (e.g., condom use) and biomedical (e.g., prophylaxis) interventions that proximally influence HIV incidence, as well as structural interventions (e.g., gender equity) that seek to address the underlying drivers of risk and vulnerability to HIV. There is no one-size-fits-all solution; the ideal combination is different for different clients based on the individual risk assessment.

Even if the ideal combination of services is available at the service delivery level, clients do not always access or use services as desired for many different reasons. Some clients may not access services for fear of stigma and discrimination or because services are not available at a convenient time and/or location. Even if services are available and accessible, clients may not access them frequently enough for a lasting impact. For example, behaviour change is a long and involved process; it is unreasonable to assume that FSWs or MSM will change their behaviour after one contact with an outreach worker. These services need to be accessed more frequently than HIV testing and counselling (HTC) services. All of these factors contribute to understanding what it means to “reach a client” with the programme services for one year and how much it costs to reach them.

In this context, the study team first reviewed the existing literature to determine whether these questions could be answered based on current data. After this review, it was determined that no studies to date had examined the cost of delivering these services in Ghana. At the international level, there is substantial literature looking at the costs of delivering comprehensive service packages to MARPs in developing countries, which include behavioural and biomedical components as well as structural interventions. Some studies have focused on the cost-effectiveness of the delivery of specific interventions in varying service delivery models, such as mobile versus facility-based services or differences in prevention commodities delivered (Vickerman et al., 2006; Thomsen et al., 2006). Many studies analysed the costs of varying interventions across different settings and in different service delivery mechanisms (Kumaranayake and Watts, 2000; Marseille et al., 2005; Marseille et al., 2007; Söderlund and Lavis, 1993; Walker, 2003). However, most of these studies included high variation in the types of intervention packages costed; and interventions targeted different target populations, making it difficult to adapt results to the Ghana MARP context.

Very few studies examined unit costs for delivering comprehensive HIV prevention service packages to key populations that include drop-in centre services, a critical component of Ghana’s service package and an expressed interest to stakeholders. In fact, the only studies that analysed costs of comprehensive service packages that include drop-in centres were derived from the Avahan project, a Gates-funded initiative to reduce the spread of HIV in India (Chandrashekar et al., 2010; Chandrashekar et al., 2012), which was implemented in a context and with funding levels drastically different than those in Ghana. This was not surprising, since despite growing international experience, the costing of HIV programmes is a relatively recent undertaking. In fact, the Joint United Nations Programme on HIV/AIDS (UNAIDS) published its first “Guidelines for Costing HIV/AIDS Prevention Strategies” in 2000.

In addition, HIV programme costs are changing rapidly; thus, results from studies undertaken even a few years ago may already be outdated and not appropriate for planning future endeavors. Furthermore, differences in relative prices, programme protocols, what programs consider “MARP interventions,” and costing methodologies make it difficult to compare study results between countries. For these and other reasons, experts recommend reliance on local unit cost data whenever feasible in the development of national cost estimates (Bollinger and Stover, 2007). It was thus determined that Ghana-specific data on costs related to different interventions for key populations will best meet stakeholder data needs.

METHODOLOGY

The study team designed a mixed methods study, consisting of primary and secondary data collection and analysis in order to estimate the average national financial cost to the provider for delivering the comprehensive package of services to one FSW and one MSM for one year in varying scenarios of service usage and intensity. The team examined the costs of service delivery staff time (programme managers, paid personnel, and administrative staff); supplies (prevention commodities, information, education, and communication or IEC materials, and other supplies); and capital costs such as equipment. The range of inputs was determined by expert interviews with key central-level staff and expert interviews with service providers at a limited number of NGOs and intervention sites. The approach considered a representative service delivery model for the intervention based on the following inclusion criteria:

- Services currently being delivered at the community level to FSWs and/or MSM through direct outreach activities, DIC services, or support services
- Services currently being implemented (no planned services or programmes were included)
- HIV services included in the MARP Strategic Framework 2011–2015 and MARP Operational Plan 2011–2013, as part of the comprehensive package of services

Background on Intervention

Detailed data were obtained from the written records of intervention sites regarding the services provided in 2010 to FSWs and MSM. The study team categorised the main services being delivered and interventions being implemented into three main components according to the services outlined in the MARP strategic framework and MARP operational plan: outreach services, DIC services, and support services to key populations.

Outreach services comprise several types of service contacts by outreach workers and peer educators aimed at encouraging safe sexual practices through behaviour change and access to prevention commodities. A general outreach contact is a one-to-one or small group meeting with a peer educator or outreach worker in a community setting, including the provision of IEC materials and prevention commodities such as condoms and lubricants. An edutainment event contact is an event in a community setting led by outreach workers that includes both safe sexual education components, with the provision of IEC materials and prevention commodities such as condoms and lubricants, as well as an entertainment component such as a dance, a film, or other social gathering. A mobile voluntary counselling and testing (VCT) contact is an outreach service provided in a community setting, including an educational component with the provision of IEC materials and prevention commodities such as condoms and lubricants, as well as a voluntary HIV testing and counselling (HTC) component.

DIC services comprise three main types of service contacts provided by NGO personnel, healthcare workers, or peer educators in a drop-in centre setting. A DIC counselling service contact is a regular visit to a DIC, including the provision of IEC materials, prevention commodities such as condoms and

lubricants, peer education sessions, counselling, and/or case management and referrals. A DIC STI service contact is a contact within a centre offering general DIC counselling services as well as STI screening and referral services. A DIC HTC service contact is a contact within a centre offering general DIC counselling services as well as HTC services.

Some support services are organised and managed primarily at the central level, including the national hotline providing HIV education and information to clients via mobile phones (referred to as “Text Me/Flash Me,” and protection networks for key populations in partnership with local leaders such as lawyers, police, and district assembly members (referred to as the “M-Friends/M-Watchers” programme). The Comprehensive Package of Services is provided in **Annex 1**.

In line with the study questions, this team did not include the following costs in the analysis: STI diagnosis and treatment costs at a healthcare facility; HIV treatment, care, and support costs for HIV-positive clients; technical assistance or administrative costs incurred by external donor agencies; programme costs incurred by clients, such as client time, transportation, meals, out-of-pocket payments, or user fees for services or drugs; and costs incurred by local communities.

Study Management

The study team included representatives from the Ghanaian government, U.S. Agency for International Development (USAID), and USAID-funded Health Policy Project. The principal government agency involved in the study was the Ghana AIDS Commission (GAC). The National Technical Working Group on Most-at-risk populations (MARP TWG) was also involved in all aspects of study design and implementation. The GAC and MARP TWG provided technical guidance, reviewed and commented on the study methodology, facilitated access to primary data and secondary information, facilitated entry to health facilities, ensured the collaboration of facility staff, and reviewed and commented on reports. USAID funded the study, provided technical guidance, reviewed and commented on the study methodology, facilitated travel by international consultants, and reviewed and commented on reports. The Health Policy Project was accountable for all aspects of the study: developing the methodology, protocols, and data collection and analysis plans; pre-testing the study data collection templates; training data collectors; collecting, cleaning, entering, and analyzing data; and disseminating the results.

Sampling

The study team selected a purposive sample of eight NGO-operated intervention sites, taking into account the following criteria to ensure that the selected sites reflected regional and operational variation within the country:

- **Density of partners working in the community:** High vs. low number of partners working in community with key populations
- **Types of services provided:** Outreach, drop-in centres, support services
- **Populations being served:** FSWs, MSM, both
- **Funders:** GFATM, USAID-funded SHARPER project

Based on these criteria, the team first selected the regions and then the intervention sites within each region (see **Table 1**). The sites included over 50 percent of NGOs in the country providing DIC services with integrated CT and STI services. The team interviewed 25 programme and finance staff at the eight sites and nine central-level programme managers and financial officers during data collection. Written informed consent was obtained from all interviewed staff.

Table 1. Selected intervention sites, by region and key population served

Region	FSW Intervention Sites	MSM Intervention Sites
Greater Accra	Prolink Organisation—Agbogbloshie WAPCAS ² —Tema	CEPEHRG ³ —Osu
Ashanti		MICDAK Charity Foundation—Kumasi MICDAK Charity Foundation—Mampong
Western	WAPCAS ³ —Takoradi	MLPF ⁴ —Takoradi
Central	WAPCAS ³ —Cape Coast	

Data Collection

The study team developed a standard questionnaire to collect data from the eight intervention sites. The questionnaire was pre-tested at one site and then used to train the data collectors. Under supervision of the local consultant, the data collection team traveled to the intervention sites between September and November 2011. The data collectors interviewed local programme staff, reviewed programme documents, and administered the questionnaire, spending an average of 2–3 days at each site, depending on the size and complexity of services offered. At each site, data were collected on the time they spent with each client, the various stages of the intervention and services being provided, and the resources they used. Respondents also provided information on management functions, including time allocation and resources used.

The data collectors asked participating staff to show them any facilities and equipment used at each site for the delivery of MARP services, such as offices or stand-alone buildings used for DIC services. Dimensions of areas used and descriptions of equipment provided were recorded. The data collectors also gathered any relevant secondary data at each site, including service utilisation data on client loads and financial records on prices for specific supplies and commodities.

Throughout the data collection period, the local consultant gathered information from central sources on resource use and prices, drawing from a variety of local sources (see **Annex 2**). The consultants began cleaning and entering data immediately upon the completion of field work, using a Ghana-specific Excel data entry and analysis template adapted from other costing tools, including the USAID-funded CORE+ model (MSH, 2010). The template included one workbook for each intervention site, a workbook containing standard national price information, and a workbook that consolidated the data for analysis.

Data Analysis

Inputs were first analysed according to type of cost. Inputs were categorised as follows: labour (healthcare workers and administrative staff); supplies (drugs and medical consumables); and capital costs, such as equipment. The range of inputs was determined by expert interviews with key central-level staff and providers at a limited number of facilities. Capital costs were annualised between 3 and 10 years, depending on the type of expenses. The study valued inputs in local currency—Ghana cedi (GHc) or U.S. Dollars (\$), as appropriate. In this document, the results are presented in both currencies, using average exchange rates for the relevant time period.⁵ To adjust for inflation, all costs reflect constant 2010 prices.

² West Africa Programme to Combat AIDS and STI, Ghana.

³ Centre for Popular Education and Human Rights, Ghana.

⁴ Maritime Life Precious Foundation, Ghana.

⁵ Exchange rate of GHc 1.4738 per US\$1.

Due to the retrospective nature of the study, several constraints were faced during data collection. Many sites lacked accurate information on the number of clients reached by the programme, and few kept accurate data on the number of visits made by clients in the reporting period or had accurate data on individuals reached across different types of services. For instance, sites did not have accurate data on the number of sero-positive and sero-negative beneficiaries served. This lack of accurate data also made it impossible to conduct a true weighting based on individuals reached, thus analysis was limited to the number of service contacts.

Scenario analysis

Based on unit cost estimates for each service, the study team conducted scenario analyses to estimate programme reach under varying programme conditions. The team developed 64 different scenarios of possible service utilisation by one FSW and one MSM in 12 months. First, a baseline scenario was calculated based on the service utilisation data collected, by sites. Second, different scenarios were developed from this baseline data by varying inputs according to three dimensions: (1) changes in service delivery scale-up over time, (2) changes in the proportions of services being used, and (3) changes in the number of contacts per year for each service.

The scenarios for changes in numbers of contacts per year considered 4, 6, 10, and 12 contacts per year.

The scenarios used for changes in service delivery were as follows:

- **25% increase** in service delivery contacts in the next 12 months
- **50% increase** in service delivery contacts in the next 12 months
- **100% increase** in service delivery contacts in the next 12 months

The three scenarios used for changes in proportions of services being used were as follows:

- **Scenario 1:** Equal Distribution of Outreach Contacts and *general* DIC Visits
 - Outreach and DIC services distributed at current service utilisation rates:
 - Outreach: 85 percent general outreach contacts, 15 percent mobile VCT contacts
 - DIC: 39 percent general counselling visits, 31 percent STI screening visits, and 29 percent HTC visits
- **Scenario 2:** Equal Distribution of Outreach Contacts and *specialised* DIC Visits
 - Outreach services distributed at current service utilisation rates
 - 85 percent general outreach contacts, 15 percent mobile VCT contacts
 - 50 percent of DIC counselling contacts also use STI or HTC services
- **Scenario 3:** Clients are reached with a minimum service package, linked to a national definition of programme reach. For the purposes of this exercise, the programme reach was defined as follows:
 - Outreach services account for 58 percent of all service contacts
 - 50 percent general outreach contacts, 8 percent mobile VCT contacts
 - DIC services account for 42 percent of all service contacts
 - 17 percent DIC counselling contacts, 17 percent DIC STI screening visits, 8 percent DIC HTC service visits

At a stakeholders' meeting in late October 2011, team members presented preliminary results from a selected number of sites in Greater Accra for initial feedback and guidance as to further analysis. The

team disseminated final unit costs in November 2011 to obtain feedback from main stakeholders. Validation of the data took place in January and February 2012, with subsequent incorporation of comments and suggestions from stakeholders, followed by finalization of this report. A full description of costing analysis can be found in **Annex 2**.

RESULTS

The study yielded findings on the national average unit cost to deliver each of the services included in the comprehensive service package one time to one FSW and one MSM (unit cost per service contact), as well as the unit cost of a typical or average service contact provided one time to one client based on the proportion of the different services being used among all services currently being provided (unit cost per average contact).

Unit Costs of HIV Services Targeting FSW

Unit cost per service contact

The most direct indicator of national costs was an average cost for reaching one FSW with one service one time across the intervention sites included in this study, weighted by the number of clients served at each site. **Application of the weighted average yielded costs per service ranging from GHc 2.56 for a support service to GHc 38.95 for HTC services in a DIC setting.** Unit costs per service contact for each service are provided in **Table 2**.

Table 2. FSW unit cost per service contact, GHc (USD)

Outreach		Drop-In Center	
Service	Unit Cost	Service	Unit Cost
Outreach contact	21.97 (\$14.91)	Drop-in centre: Counseling visit	25.93 (\$17.59)
Edutainment event	21.97 (\$14.91)	Drop-in centre: STI screening	25.72 (\$17.45)
Community mobile VCT ⁶	34.92 (\$23.69)	Drop-in centre: HTC services ²	32.43 (\$22.00)
<i>Sero-positive</i>	41.17 (\$27.93)	<i>Sero-positive</i>	38.95 (\$26.43)
<i>Sero-negative</i>	34.22 (\$23.22)	<i>Sero-negative</i>	31.70 (\$21.51)
Support Services			
Hotline + M-Friends/ M-Watchers Programme		2.56 (\$1.74)	

The cost of providing one outreach service ranged from GHc 21.97 (\$14.91) to GHc 41.17 (\$27.93). The cost for providing one DIC service ranged from GHc 25.72 (\$17.45) to GHc 38.95 (\$26.43). A weighted average of the overall unit cost for sero-negative and sero-positive clients using counselling and testing services was calculated under the assumption that 10 percent of clients are sero-positive, as different

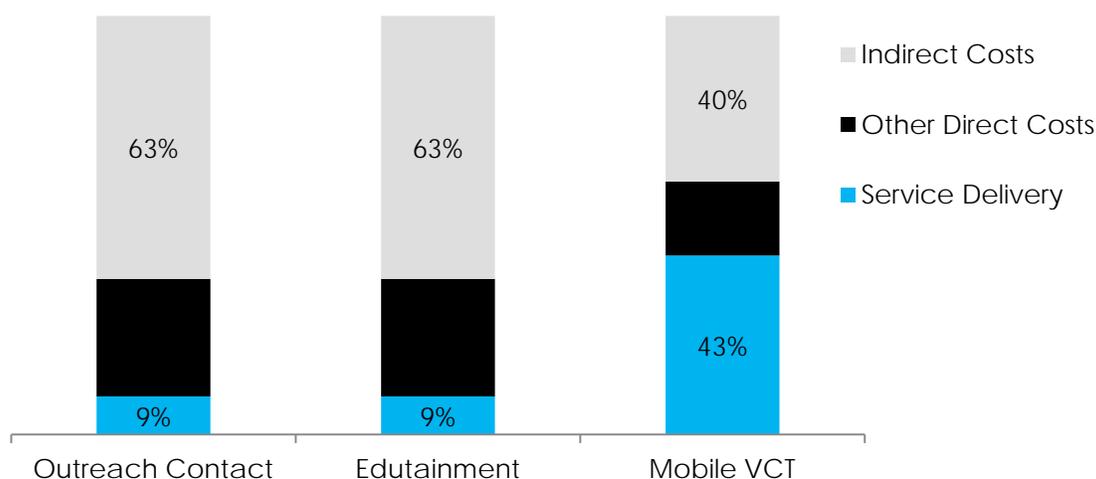
⁶ Assumption: 10 percent of all VCT clients are HIV-positive

client types incur different costs. The unit cost for one support service was the lowest service cost, estimated at GHc 2.56 (\$1.74) per FSW offered support services, under the assumption that 35 percent of contacts access this service.

Distribution of unit costs per outreach service contact

The distribution of unit costs for one service contact for the different types of outreach services is presented in **Figure 1**. **Indirect costs were the most important cost category, accounting for between 40–63 percent of costs.** For a general outreach contact or an edutainment contact, consumables such as monitoring and evaluation (M&E) tools used by programme staff was the most important cost category of direct service delivery costs (39%). For mobile VCT services, the largest cost component of direct service delivery costs was laboratory tests, accounting for between 46–59 percent of direct service delivery costs. The average number of condoms and lubricants sold during an outreach contact reported in this study was 11 condoms per outreach service contact and one lubricant sachet per seven outreach service contacts. The largest cost component (46%) of other direct costs was the direct costs of non-client professional staff time working directly on outreach services. The largest cost component of indirect costs (35%) was central-level costs associated with managing the national programme.

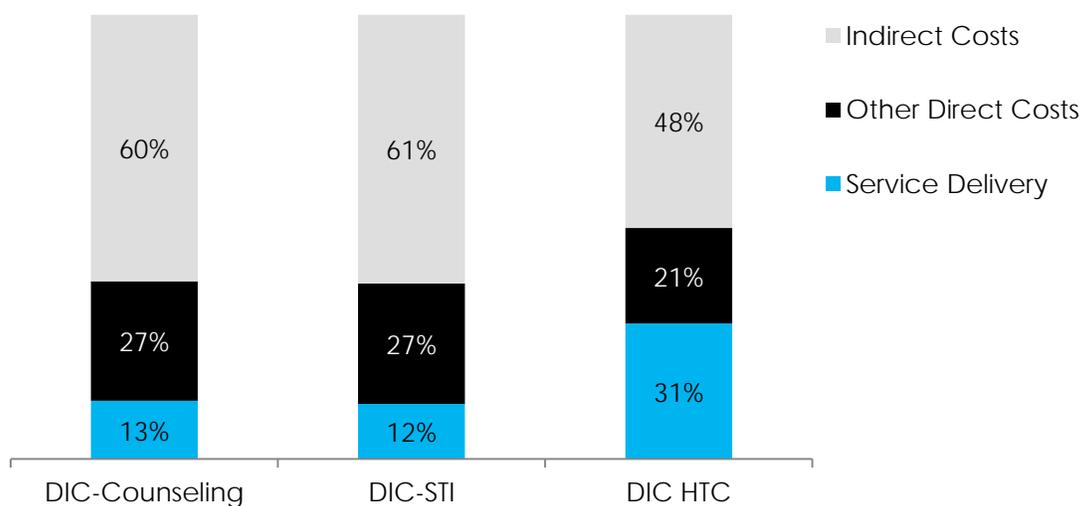
Figure 1. Distribution of total unit cost per outreach service contact



Distribution of unit costs per DIC service contact

The distribution of unit costs by different types of DIC services is presented in **Figure 2**. **Indirect costs were the most important costs, accounting for between 48 and 61 percent of total costs.** In terms of the distribution of direct service delivery costs, for a general DIC counselling visit, prevention commodities, including condoms and lubricants distributed to clients during DIC visits, represented the largest cost component (44%). For an STI screening at a DIC, staff time associated with direct service delivery accounted for the largest cost component (64%). For HTC services within a DIC, the largest cost component was laboratory tests, accounting for between 71 and 75 percent of direct service delivery costs per service contact. The average number of condoms and lubricants distributed per DIC visit reported in this study was two condoms per DIC visit and one lubricant sachet per DIC visit.

Figure 2. Distribution of total costs, per DIC service contact



The largest cost component of other direct costs was the direct costs of non-client professional staff time working directly on the DIC programme, accounting for 51 percent of cost. The largest cost component of indirect costs was central-level costs associated with managing the national programme, accounting for 35 percent of indirect costs per service contact.

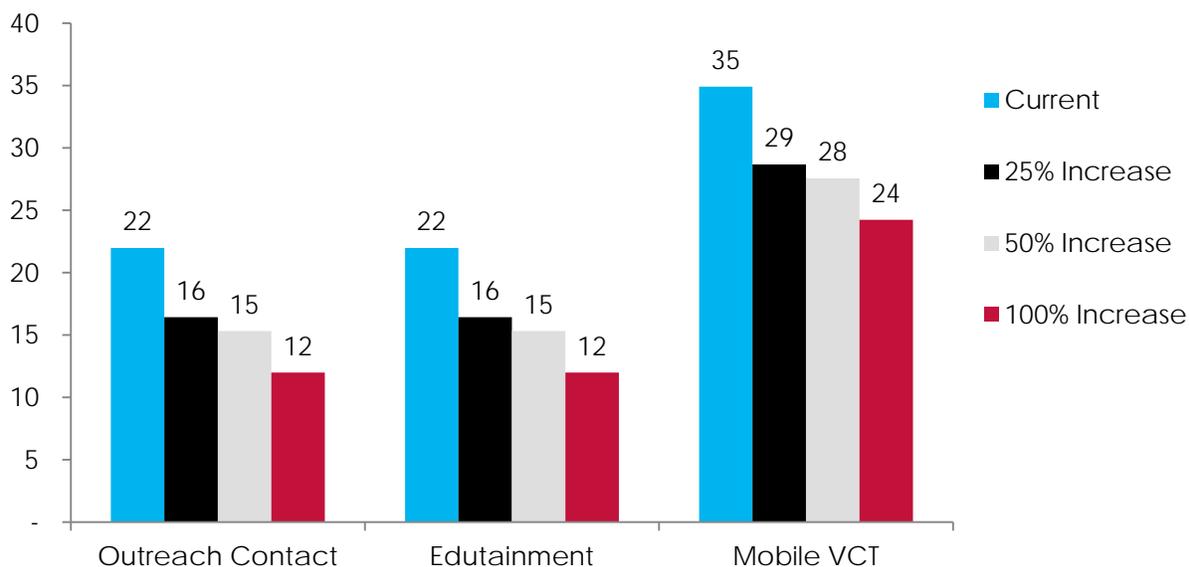
Sensitivity analysis on unit costs

The study team conducted a sensitivity analysis on unit costs estimates to determine how changes in service delivery over time could affect costs in three scenarios of programme scale-up:

- **25% increase** in service delivery contacts in the next 12 months
- **50% increase** in service delivery contacts in the next 12 months
- **100% increase** in service delivery contacts in the next 12 months

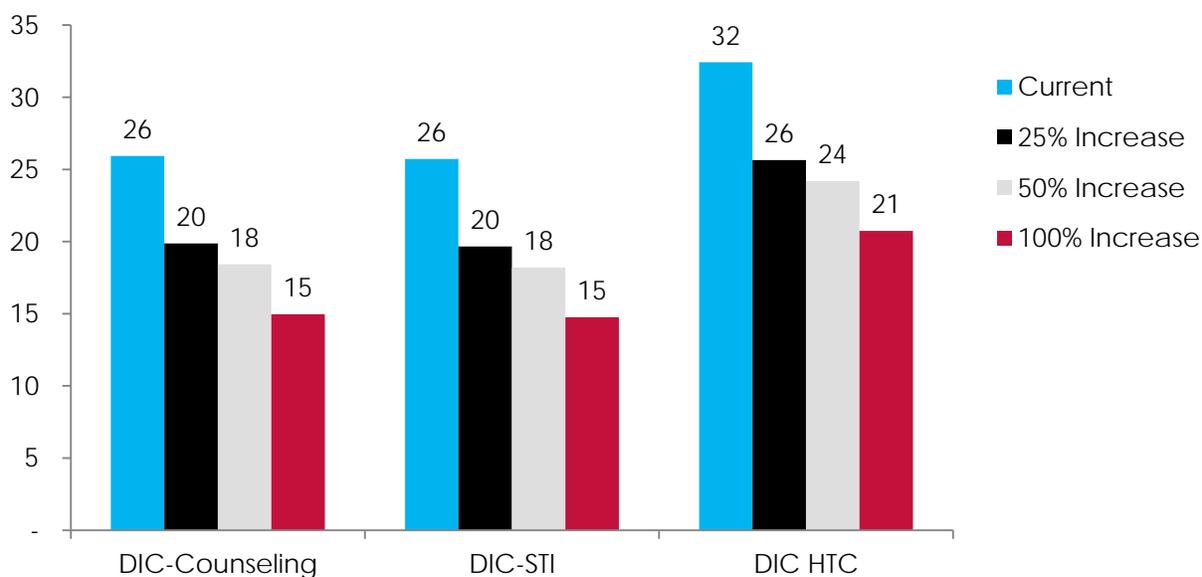
Figures 3 and 4 provide projections of how unit costs per outreach and DIC service contacts, respectively, are estimated to change in the three scale-up scenarios presented above. **The unit cost per outreach service contact is estimated to decline by between 31 and 45 percent in scenarios where service delivery doubles in the next year.** The decline in unit cost per service contact of outreach events is more pronounced than that of mobile VCT services because of the higher ratio of indirect versus direct costs for outreach contacts when compared to mobile VCT contacts.

Figure 3. Unit costs for FSW outreach per service contact (GHc), by service delivery scale-up scenario



The unit cost per service contact of providing DIC services is estimated to decline by between 34 and 42 percent in a scenario where service delivery doubles in the next year. The decline in unit cost per service contact of STI screening visits and DIC counselling visits are more pronounced than that of HTC services because of the higher ratio of indirect versus direct costs for DIC counselling visits and STI screening visits when compared to HTC visits.

Figure 4. Unit costs for FSW DIC per service contact (GHc), by service delivery scale-up scenario



Weighted Average Unit Cost

Unit costs per service contact were weighted based on current utilisation of services. **Table 3** below presents the number of service contacts and their relative proportion out of all provided services based on the data collected from the intervention sites. It is important to make a distinction between individuals reached and service contacts. Though the data collected included 14,471 service contacts, this does not mean that 14,471 FSWs were reached with services, as one FSW may have received many services. Based on these proportions, the weighted unit cost for an average service is estimated at GHc 24.04 (\$16.31).

Table 3. FSW current service utilisation rates

Service	Total Number Using Service	% Using Service by Service Type	% Using Service by All Services
Outreach contact	11,218	95%	78%
Edutainment event	278	2%	2%
Community mobile VCT	337	3%	2%
Outreach Total Services	11,832	100%	(82%)
Drop-in centre counselling visit	1,718	65%	12%
Drop-in centre STI services	577	22%	4%
Drop-in centre HTC services	345	13%	2%
DIC Total Services	2,639	100%	(18%)
All Services	14,471		100%

Scenario Analysis: Unit Cost of Programme Reach

To project weighted unit costs for reaching an FSW for one year with a package of services, the study team developed scenarios according to three dimensions: (1) changes in service delivery scale-up over time, (b) changes in the proportions of services being used, and (c) changes in the number of contacts per year. **Table 4** below provides a summary of unit cost per year for each scenario.

Table 4. Unit costs per year, disaggregated by service delivery scale-up scenarios, number of contacts per year per client, and different distributions of types of services used (GHc)

Service Delivery Rates	Number of Contacts per Year per Client	Distribution of Services			
		Current Distribution	Scenario 1*	Scenario 2**	Scenario 3***
Cost at current service delivery	4 contacts	96.15	101.73	103.27	104.41
	6 contacts	144.23	152.59	154.90	156.61
	10 contacts	240.38	254.32	258.17	261.02
	12 contacts	288.45	305.19	309.80	313.22
Cost at 25% increase	4 contacts	73.44	78.28	80.88	79.64
	6 contacts	110.16	117.41	121.32	119.46
	10 contacts	183.60	195.69	202.20	199.10
	12 contacts	220.32	234.83	242.64	238.92
Cost at 50% increase	4 contacts	68.76	73.16	75.88	74.53
	6 contacts	103.14	109.74	113.82	111.79
	10 contacts	171.90	182.91	189.70	186.32
	12 contacts	206.28	219.49	227.64	223.58
Cost at 100% increase	4 contacts	55.35	59.60	62.35	60.96
	6 contacts	83.03	89.39	93.53	91.44
	10 contacts	138.38	148.99	155.89	152.40
	12 contacts	166.05	178.79	187.06	182.88

*Scenario 1: Outreach and DIC contacts are equally distributed.

**Scenario 2: Outreach and DIC contacts are equally distributed. Half of all DIC contacts use STI or HTC services.

***Scenario 3: Clients are reached with a minimum service package, linked to the definition of programme reach.

As Figure 5 displays, the unit cost by programme reach is sensitive to changes in all three dimensions described above. Naturally, projections are most sensitive to changes in the number of contacts, as this is simply a linear increase in function of the total number of contacts (e.g. tripling the number of contacts per year in the definition of programme reach will triple the cost of reaching one client in one year). Looking at how changes in service utilisation affect unit costs by programme reach, based on a definition of a total of six contacts per year per clients, changes in the proportions of services used could change from an estimated GHc 144 (\$98) in the current proportion of services used to GHc 157 (\$107) based on a minimum package of services with higher utilisation rates of DIC services and STI and HTC services during DIC visits.

Figure 5. Unit cost by programme reach with unit costs per service contact at current rates

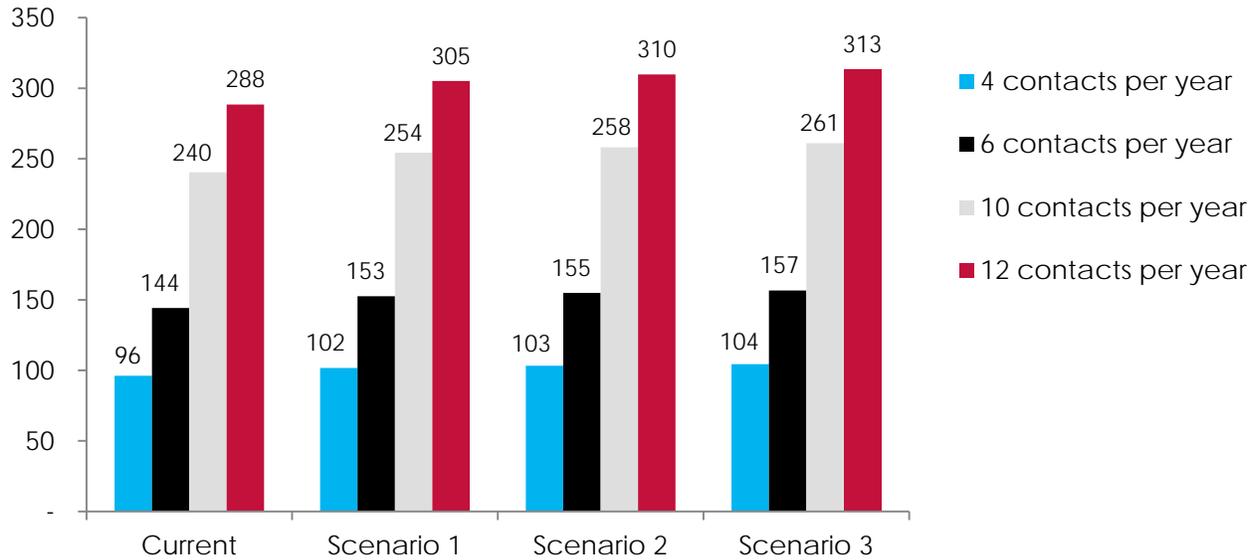
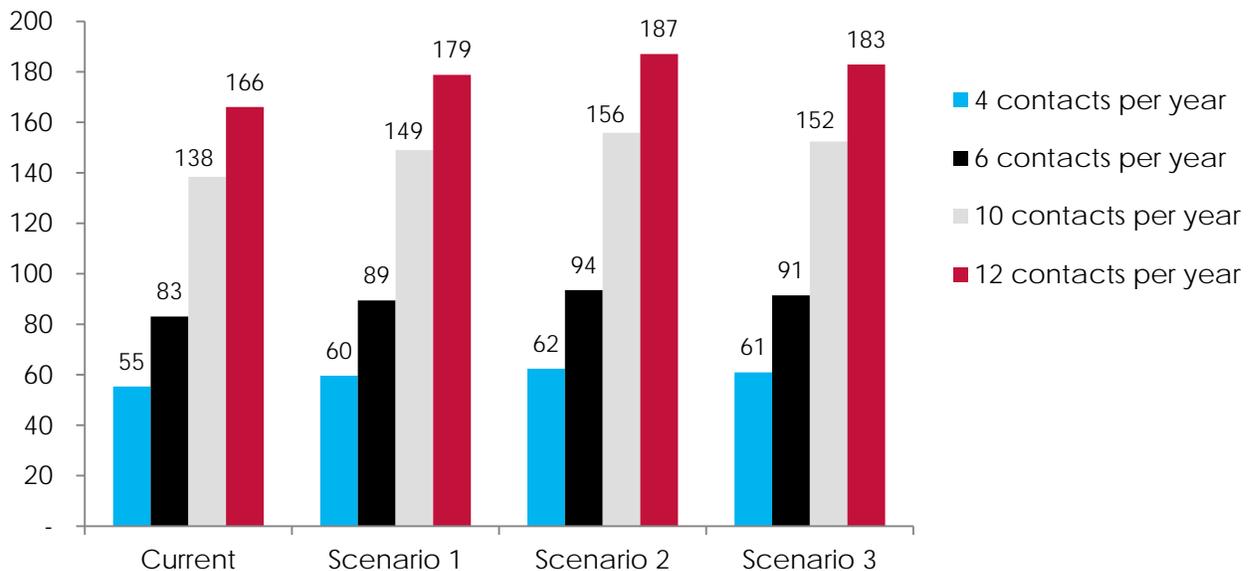


Figure 6 presents the same projections, using the unit costs per service contact in a scenario where service delivery is doubled in the next 12 months, thus driving down the unit cost per service contact. Looking at how changes in service utilisation affect unit costs by programme reach, based on a definition of a total of six contacts per year per clients, changes in the distribution of the use of services could change from an estimated GHc 83 (\$56) in the current distribution of service usage to GHc 91 (\$62) based on a minimum package of services with higher utilisation rates of DIC services and STI and HTC services during DIC visits.

Figure 6. Unit cost by programme reach with unit costs per service contact at unit costs per service contacts based on 100% increase in service delivery in 12 months



Comparing these projections, substantial changes to unit costs are projected in a scenario where unit costs per service contact are estimated based on costs at double the current level of service delivery. **Using the example described above, the unit cost by programme reach is estimated to decline by 42 percent in a scenario based on six contacts per year at current service use proportions.** Similarly, in a scenario based on a definition of a total of six contacts per year per client and a minimum package of services with higher utilisation rates of DIC services and STI and HTC services during DIC visits, the unit cost by programme reach is estimated to decline by 42 percent.

Unit Costs of HIV Services Targeting MSM

Unit cost per service contact

The most direct indicator of national costs was an average cost for reaching one MSM with one service one time across the intervention sites included in this study, weighted by the number of clients served at each site. Application of the weighted average yielded costs per service ranging from GHC 2.56 for a support service to GHC 47.85 for mobile VCT services. Unit costs per service contact for each service are provided below in **Table 5**.

Table 5. MSM unit cost per service contact, GHc (USD)

Outreach		Drop-In Centre	
Service	Unit Cost	Service	Unit Cost
Outreach contact	29.97 (\$20.34)	Drop-in centre: Counselling visit	25.93 (\$17.59)
Community mobile VCT*	42.19 (\$28.63)	Drop-in centre: STI screening	25.34 (\$17.19)
HIV positive	47.85 (\$32.47)	Drop-in centre: HTC services*	30.96 (\$21.01)
HIV negative	41.56 (\$28.20)	HIV positive	37.92 (\$25.73)
		HIV negative	30.19 (\$20.48)
Support Services			
Hotline + M-Friends/ M-Watchers Program		2.56 (\$1.74)	

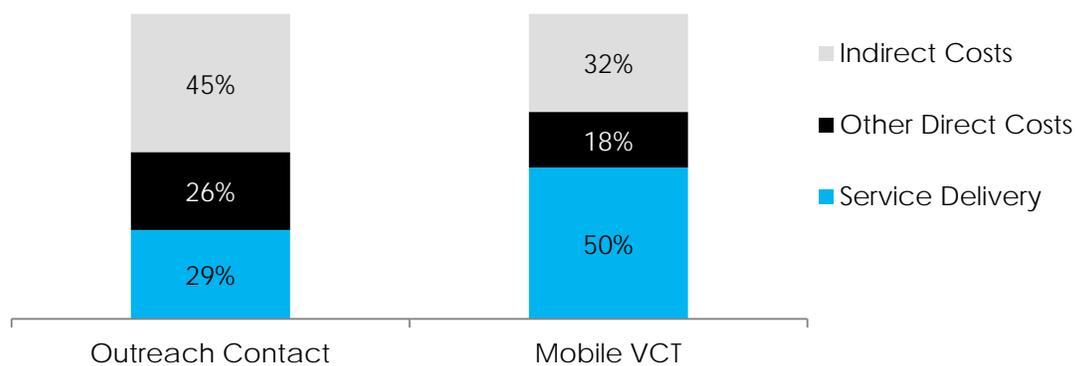
The cost of providing one outreach service ranged from GHc 29.97 (\$20.34) to 47.85 (\$32.47). The cost for providing one DIC service ranged from 25.93 (\$17.59) to 37.92 (\$25.73). A weighted average of the overall unit cost for sero-negative and sero-positive clients using counselling and testing services was calculated under the assumption that 10 percent of clients are sero-positive, as different client types incur different costs. The unit cost for one support service was the lowest service cost, estimated at GHc 2.56 (\$1.74) per MSM offered support services, under the assumption that 35 percent of contacts access this service.

Distribution of unit costs per outreach service contact

The distribution of unit costs per service contact for the different types of outreach services is presented in **Figure 7**. For a general outreach contact, direct costs accounted for 55 percent of the total unit cost. For mobile VCT services, direct costs accounted for 68 percent of the total unit cost. For a general outreach contact, prevention commodities including condoms and lubricants sold during outreach events represented the largest cost component (68%) of direct service delivery costs. For mobile VCT

services, the largest cost component was laboratory tests (32–47%). The average number of condoms and lubricants sold during an outreach contact reported was 42 condoms per outreach service contact and four lubricant sachets per outreach service contact.

Figure 7. Distribution of total unit cost per outreach service contact

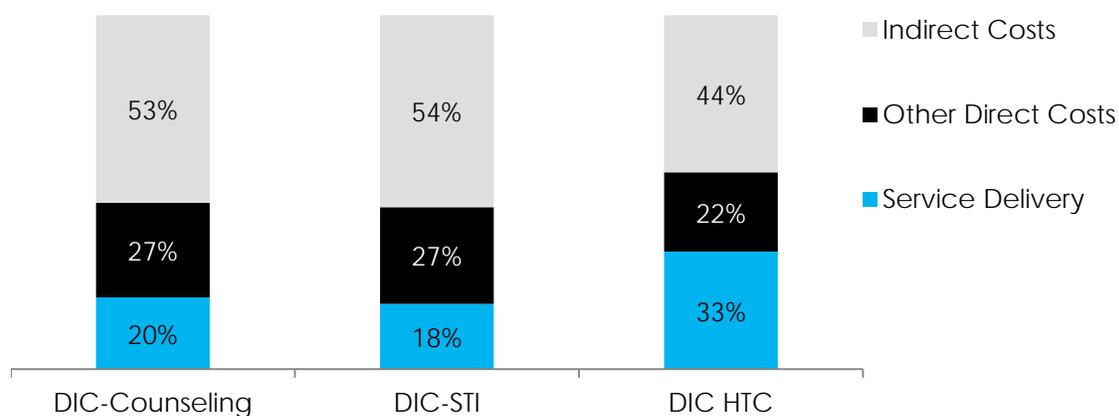


The largest cost component of other direct costs was the direct costs of non-client professional staff time working directly on outreach services (53%). The largest cost component of indirect costs was central-level costs associated with managing the national programme (37%).

Distribution of unit costs per DIC contact

The distribution of unit costs by different types of DIC services is presented in Figure 8. Indirect costs were the most important costs, accounting for between 44 and 54 percent of the total cost. For a general DIC counselling visit and a DIC STI screening visit, staff time associated with direct service delivery represented the largest cost component (70–72%). For HTC services within a DIC, the largest cost component was laboratory tests (68–72%). The average number of condoms and lubricants distributed per DIC visit was 18 condoms per DIC visit and no lubricant sachets per DIC visit.

Figure 8. Distribution of total costs, per DIC service contact



The largest cost component of other direct costs was the operational costs necessary to implement DIC programmes, including DIC programme supply costs, maintenance and repair costs, and programme-related travel expenses, accounting for 48 percent of all other direct costs per service contact. The largest cost component of indirect costs was central-level costs associated with managing the national programme, accounting for 37 percent of indirect costs per service contact.

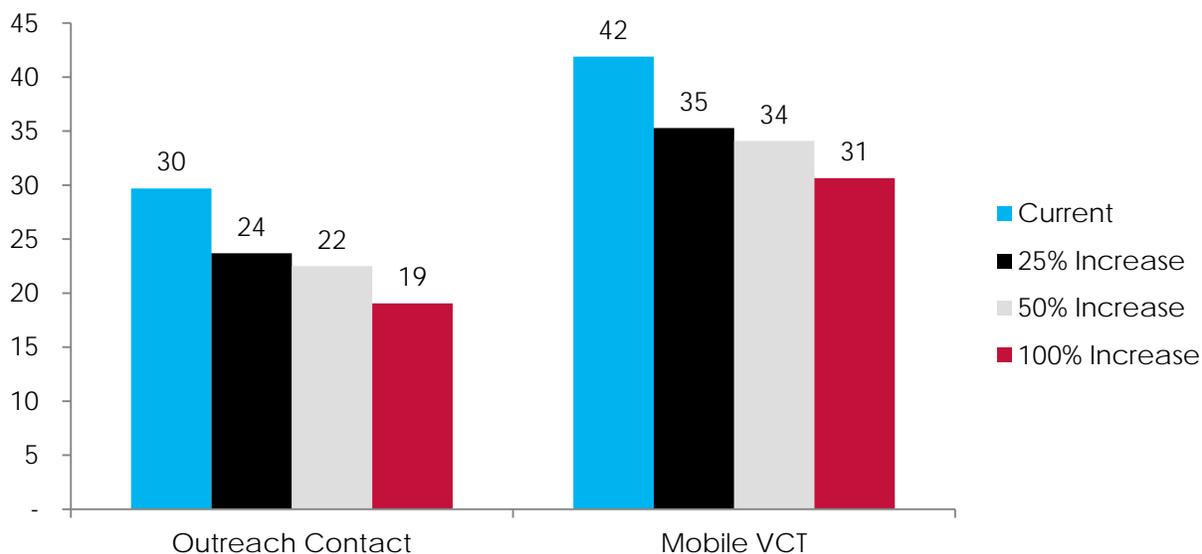
Sensitivity analysis of unit costs

We used the three same scenarios as used in the FSW sensitivity analysis:

- 25% increase in service delivery contacts in the next 12 months
- 50% increase in service delivery contacts in the next 12 months
- 100% increase in service delivery contacts in the next 12 months

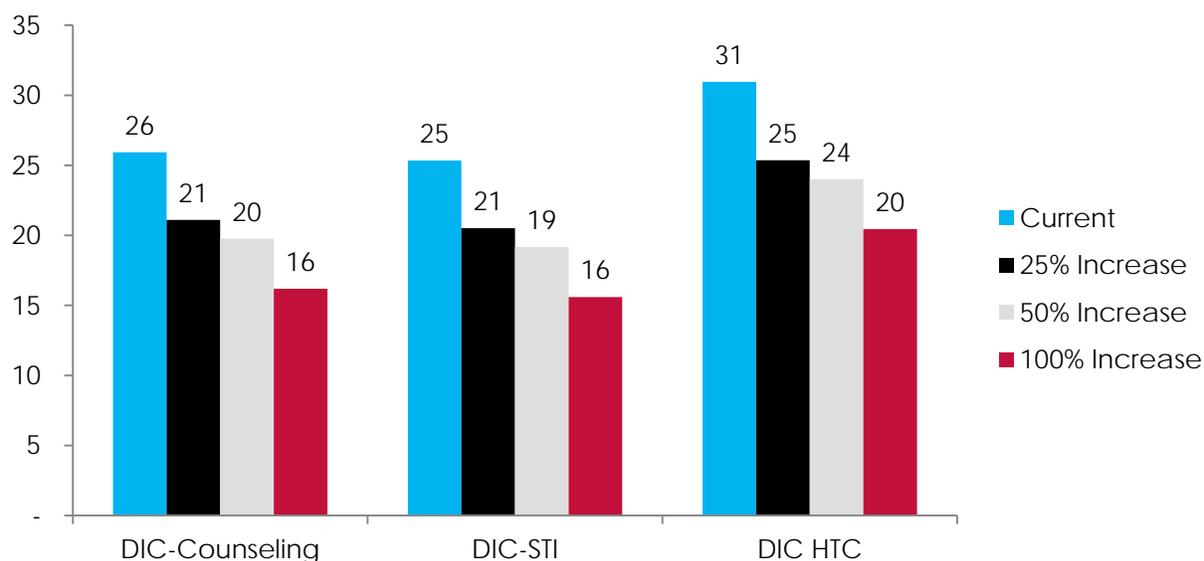
Figures 9 and 10 provide projections of how unit costs per outreach and DIC service contacts, respectively, are estimated to change in the three scale-up scenarios presented above. The unit cost per outreach service contact is estimated to decline by between 26 and 37 percent in a scenario where service delivery doubles in the next year. The decline in unit cost per service contact of outreach events is more pronounced than that of mobile VCT services because of the higher ratio of indirect versus direct costs for outreach contacts when compared to mobile VCT contacts.

Figure 9. Unit costs for MSM outreach per service contact, by service delivery scale-up scenario, GHc



The unit cost per service contact of providing DIC services is estimated to decline by between 35 and 38 percent in a scenario where service delivery doubles in the next year.

Figure 10. Unit costs for MSM DIC per service contact, by service delivery scale-up scenario, GHc



Weighted Average Unit Cost

Unit costs per service contact were weighted based on current utilisation of services. **Table 6** below presents the number of service contacts and their relative proportion out of all provided services based on the data collected from the intervention sites visited. It is important to make a distinction here between individuals reached and service contacts. Though the data collected included 14,310 service contacts, this does not mean that 14,310 MSM were reached with services, as one MSM can have many service contacts. In general, more MSM were reached by community outreach than by DIC services (68% and 32%, respectively). Based on these proportions, the weighted unit cost for an average service is estimated at GHc 30.99 (\$21.16).

Table 6. MSM current service utilisation rates

Service	Total Number Using Service	% Using Service by Service Type	% Using Service by All Services
Outreach contact	8,283	85%	58%
Community mobile VCT	1,418	15%	10%
Outreach Total Services	9,701	100%	(68%)
Drop-in centre counselling visit	1,809	39%	13%
Drop-in centre STI services	1,451	32%	10%
Drop-in centre HTC services	1,349	29%	9%
DIC Total Services	4,609	100%	(32%)
All Services	14,310		100%

Scenario Analysis: Unit Cost of Programme Reach

To project weighted unit costs for reaching an MSM for one year with a package of services, the study team developed scenarios according to three dimensions: (1) changes in service delivery scale-up over time, (2) changes in the proportions of services being used, and (3) changes in the number of contacts per year. Table 7 below provides a summary of unit cost per year for each scenario.

Table 7. Unit costs per year, disaggregated by service delivery scale-up scenarios, number of contacts per year per client, and different distributions of types of services used (Ghc)

Service Delivery Rates	Number of Contacts per Year per Client	Distribution of Services			
		Current Distribution	Scenario 1*	Scenario 2**	Scenario 3***
Cost at current service delivery	4 contacts	120.95	120.60	121.41	123.98
	6 contacts	181.42	180.89	182.12	185.96
	10 contacts	302.37	301.49	303.53	309.94
	12 contacts	362.85	361.79	364.23	371.93
Cost at 25% increase	4 contacts	98.67	98.38	98.91	100.96
	6 contacts	148.00	147.57	148.37	151.44
	10 contacts	246.67	245.96	247.28	252.41
	12 contacts	296.01	295.15	296.74	302.89
Cost at 50% increase	4 contacts	93.59	93.30	93.88	95.99
	6 contacts	140.39	139.96	140.83	143.98
	10 contacts	233.98	233.26	234.71	239.97
	12 contacts	280.78	279.91	281.65	287.97
Cost at 100% increase	4 contacts	79.58	79.29	79.91	82.07
	6 contacts	119.36	118.93	119.87	123.10
	10 contacts	198.94	198.22	199.78	205.16
	12 contacts	238.73	237.86	239.73	246.20

*Scenario 1: Outreach and DIC contacts are equally distributed.

**Scenario 2: Outreach and DIC contacts are equally distributed. Half of all DIC contacts use STI or HTC services.

***Scenario 3: Clients are reached with a minimum service package, linked to the definition of programme reach.

As **Figure 11** displays, the unit cost by programme reach is sensitive to changes in all three dimensions described above. Looking at how changes in service utilisation affect unit costs by programme reach, based on a definition of a total of six contacts per year per clients, changes in the proportions of services used could change from an estimated GHc 186 (\$126) in the current proportion of services used to GHc 182 (\$124) based on a minimum package of services with higher utilisation rates of DIC services and STI and HTC services during DIC visits.

Figure 11. Unit cost by programme reach with unit costs per service contact at current rates, GHc

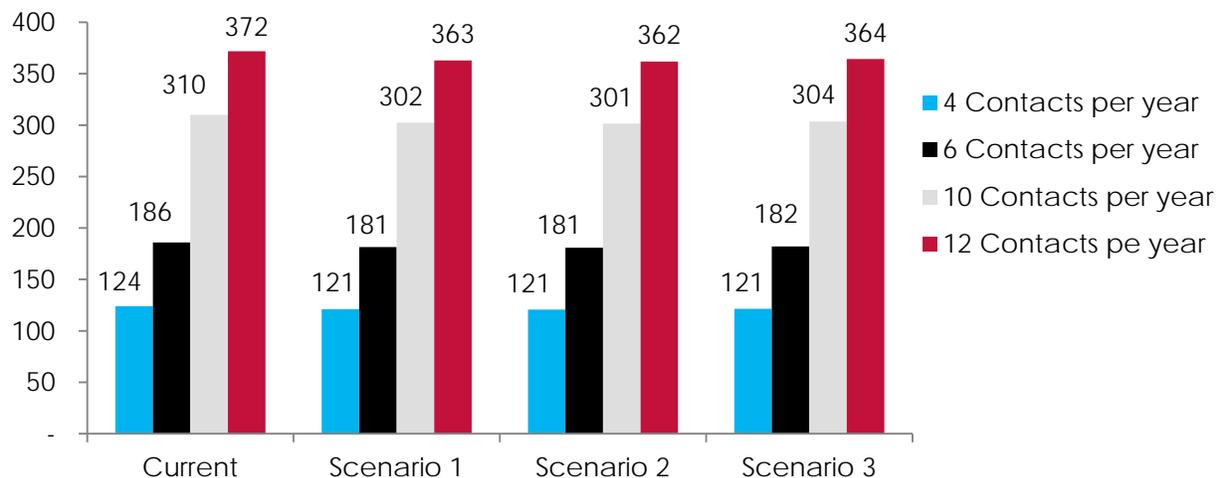
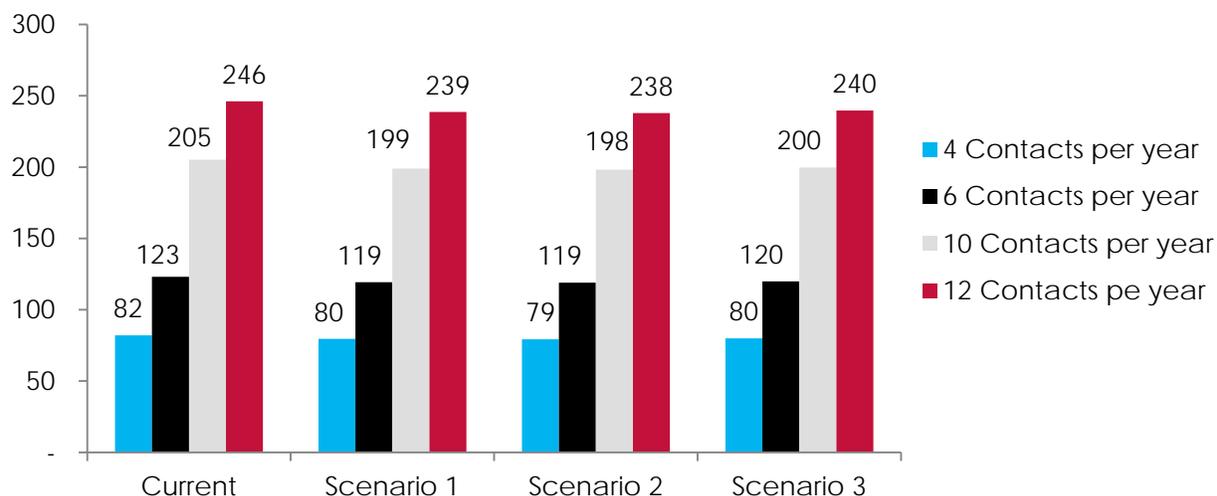


Figure 12 presents the same projections, using the unit costs per service contact in a scenario where service delivery is doubled in the next 12 months. Looking at how changes in service utilisation affect unit costs by programme reach, based on a definition of a total of six contacts per year per clients, changes in the distribution of the use of services could change from an estimated GHc 123 (\$83) in the current distribution of service usage to GHc 120 based on a minimum package of services with higher utilisation rates of DIC services and STI and HTC services during DIC visits.

Figure 12. Unit cost by programme reach with unit costs per service contact at unit costs per service contacts based on 100% increase in service delivery in 12 months, GHc



Ghana: Unit Cost of Providing Key HIV Services to Female Sex Workers and Males Who Have Sex With Males

Comparing projections presented in both Figures 11 and 12, substantial changes to unit costs are projected in a scenario where unit costs per service contact are estimated based on costs at double the current level of service delivery. **Using the example described above, the unit cost by programme reach is estimated to decline by as much as 34 percent in some scenarios.**

DISCUSSION AND CONCLUSION

This study produced the first cost estimates for delivering key HIV services to FSW and MSM in Ghana. The most important results were the identification of (1) major cost drivers for HIV services included the Ghana national MARP HIV programme, namely the high indirect costs (e.g., programme management) compared to direct costs (e.g., condoms and lubricants) and (2) substantial differences in unit cost projections as the programme is brought to scale. Other important findings included the importance of adequately budgeting health and prevention commodities when estimating unit costs and the identification of measures to strengthen M&E systems necessary for the national MARP programme to effectively monitor and evaluate the cost and cost-effectiveness of programme elements.

First, the study team found that unit costs were driven more by indirect costs than direct costs. One possible explanation for this finding could be that the majority of direct services were provided by volunteers at the intervention sites in our sample. Peer educators, outreach workers, and professional nurses typically received a stipend or allowance considered a “motivation,” not a full salary including benefits. Though “motivation costs” for these volunteers are included here as a direct cost, the “per service contact” cost is relatively low compared with the cost of those same services delivered by a salaried staff. Another explanation is that this study was conducted in the start-up phase of the USAID-funded SHARPER project, the principle technical partner supporting the scale up of integrated DIC services. Many intervention sites were just becoming operational during the time of this study, and most sites were not yet operating at capacity, thus the indirect costs captured were distributed over a smaller client pool.

When projecting changes in unit costs as programmes are brought to scale, however, the team found that the biggest driver of cost was indeed the scale of the programme. Projections of unit costs in varying service delivery scale-up scenarios indicated that unit costs per service in some cases could drop by nearly 50 percent if intervention sites doubled the number of services they provided in one year. These results are consistent with findings from other unit cost analyses of HIV prevention programmes targeting MARPs, where the unit cost per client substantially declines as intervention sites reach more clients with more services (Chandrashekar et al., 2010; Chandrashekar et al., 2012; Dandona et al., 2005; Guinness et al., 2005).

Another important finding concerned the cost component of prevention commodities within direct service delivery costs. The average number of condoms and lubricants sold during an FSW outreach contact reported was 11 condoms per outreach service contact and one lubricant sachet per seven outreach service contacts. The average number of condoms and lubricants sold during an MSM outreach contact reported was 42 condoms per outreach service contact and four lubricant sachets per outreach service contact. DICs reported distributing relatively lower numbers of both commodities. Similarly, the relative cost of providing IEC materials to both client types was low relative to other costs. Considering the wide variation, specifically in condom and lubricant distribution in sales according to the type of service being offered and according to the type of client, it does not appear that a consistent practice exists for the delivery of these important commodities. Programme planners and service providers should work together to strengthen standardised practices around commodity distribution and sales to ensure an adequate stock of commodities exists and that resources are properly mobilised to meet changing client needs.

Many of the study findings, however, related more to challenges with monitoring and evaluating the use and effectiveness of HIV prevention programmes among MARPs in Ghana, which are essential to rendering these cost estimates useful. At the programme level, strong M&E systems that capture and track changes over time in individuals reached and services used by those individuals are imperative to calculating an accurate unit cost for reaching a client in one year. Because the national M&E system in

Ghana is currently being strengthened and scaled up in response to new services identified in the National MARP Strategic Framework 2011–2015, M&E systems are still nascent and not yet collecting the robust data necessary to calculate a reliable and accurate unit cost per client reached for one year. Results from upcoming operational research by the SHARPER project and other partners will contribute to this body of knowledge and provide further insight into the differences between services used and individuals reached.

Though the study team was able to collect adequate data to answer the study questions, there were several limitations. The biggest limitation was the non-randomised selection of intervention sites, which introduced an element of uncertainty in extrapolating results to the national level, as well as the relatively small sample size of only eight intervention sites. The small sample size did not allow analysis of variations according to the different criteria used to select intervention sites and only allowed the development of one national average unit cost for service delivery.

Further, this study noted high variability in how services were delivered. The diversity of the intervention sites complicated the application of a single, standard questionnaire, as well as the interpretation of results. Although data collection teams administered a standard questionnaire at each intervention site, the quality and completeness of the data was not uniform across sites. To mitigate this, the analysis includes projections of how both costs might change over time based on changes to service delivery mechanisms and programme scale-up scenarios. A greater standardisation of services delivered over time through improved programme monitoring systems will contribute to more standardised costs and more accurate budgeting and programme planning. This will require significant capacity building with HIV implementers and service providers from the service delivery level.

Another limitation was that much of the data on resource use was based on estimates or best guesses through expert interviews and not through direct observation. For example, among the most important data elements were the amount of prevention commodities distributed to clients during service contacts. In addition, after only a few months of operations for many of the intervention sites, some of the cost data was not yet available, so a majority of costs needed to be obtained from the central level. This reduces the reliability of these indirect costs estimates, as they were derived from programme and project budgets as opposed to actual expenditures. The data collection teams attempted to contact and interview persons most knowledgeable about programme operations. Given the limited time available at each site, the teams were not always able to locate and interview key informants and thus were unable to collect data on some of the indirect costs shared by the interventions for key populations, such as the cost of public utilities, maintenance and repair, and transportation.

Further, it is important to note that this study presumes that MSM and FSW services are provided without fear of stigma or discrimination (and arrest) by healthcare workers at health facilities. Further analysis of healthcare-related stigma and its impact on service uptake among MSM and FSWs is necessary to fully assess the impact that stigma may have on uptake.

Lastly, though most cost analyses aim to reduce overall costs for service delivery, the best interventions are not always the cheapest ones. This study did not assess the quality of services provided, which must be taken into account when analysing costs. Without assessing the quality of interventions, it would be difficult to complete an accurate analysis on which to base changes to service delivery. Additional qualitative research should be undertaken to fully understand the range of advantages and disadvantages changes may cause—not only on the cost of services but also on the quality of services delivered to clients in Ghana.

RECOMMENDATIONS

This study aimed to provide the Government of Ghana and other stakeholders with information on the total cost of providing HIV services to FSWs and MSM for one year in Ghana. Its results will help inform national planning exercises, annual budgeting, and current programming of activities. In general, the government should use these results when updating the costing of the HIV/AIDS NSP 2011–2015, the MARP Strategic Framework 2011–2015, and the MARP Operational Plan 2011–2013; and when budgeting future project proposals to GFATM and other potential donors. Specific recommendations are provided below for the government, NGO intervention sites, and donors.

First, the Government of Ghana should develop a national operational definition of programme reach. For the most meaningful use of these results, programme planners must decide on the target mix of service utilisation and contacts per year and carefully monitor service delivery to have accurate unit costs by programme reach over time. This will help ensure that programmes are scaling up in the right direction and that adequate resources are mobilised and allocated based on programme targets for reaching clients each year. This operational definition needs to be accurately communicated to intervention sites and implementing partners to ensure that service delivery is following the same standards across sites.

Once this operational definition has been established, national data collection and reporting tools, as well as national databases and other data storage architecture, should be updated to reflect these changes and accurately collect the right data on the service package. The collection of high-quality monitoring data by service implementers over time should provide a more accurate depiction of changes in both service utilisation and service delivery, which will allow for the estimation of more accurate unit costs over time.

Intervention sites will require significant capacity-building support to accurately collect high-quality data on these service packages. The Government of Ghana, technical partners, and donors should prioritise M&E capacity-building interventions to support implementation of the national M&E system for MARP interventions. Capacity-building support could include direct training on new tools, support to use data for local decision making, and strategies to improve data quality.

ANNEX 1. FSW AND MSM COMPREHENSIVE PACKAGE OF SERVICES

The female sex worker comprehensive package of services

HIV Prevention	HIV Treatment, Care, and Support	Psycho-Social Support
<ul style="list-style-type: none"> • Condoms and lubricants • HIV testing and counselling • STI screening and treatment • Targeted behaviour change communication • Sexual and reproductive health, including prevention of mother-to-child transmission • Post exposure prophylaxis in cases of rape and sexual assault 	<ul style="list-style-type: none"> • Prevention, diagnosis, and treatment of opportunistic infections/tuberculosis • STI treatment • Antiretroviral therapy • Palliative care, including symptom management • Home-based care • Nutrition support 	<ul style="list-style-type: none"> • Mental health diagnosis, counselling, and treatment • Legal advice and support • Income generation and alternative livelihood access • Child care and support • Personal development and empowerment • Establishment of peer support groups and networks • Training and involvement of non-paying partners
<p><i>If required:</i></p> <ul style="list-style-type: none"> • Harm reduction services • Overdose management • Drug detoxification • Drug dependence treatment 		
<p>Cross Cutting Elements</p> <ul style="list-style-type: none"> • MARP friendly drop-in centres and clinics • Case management • Peer education • Life skills training • Referrals to services • Risk assessment and reduction 		

The males who have sex with males comprehensive package of services

Prevention	Treatment, Care, and Support	Psycho-Social Support
<ul style="list-style-type: none"> • Condoms and lubricants • HIV testing and counselling • STI screening and treatment • Targeted behaviour change communication • Male sexual health • Post-exposure prophylaxis in cases of rape and sexual assault 	<ul style="list-style-type: none"> • Prevention, diagnosis, and treatment of opportunistic infections/tuberculosis • Vaccination, diagnosis, and treatment of viral hepatitis • Antiretroviral therapy • STI treatment • Palliative care including symptom management • Home-based care • Nutrition 	<ul style="list-style-type: none"> • Mental health diagnosis, counselling, and treatment • Legal advice and support • Income generation and employment • Personal development and empowerment • Establishment of peer support groups and networks
<p><i>If required:</i></p> <ul style="list-style-type: none"> • Harm reduction services • Overdose management • Drug detoxification • Drug dependence treatment 		
<p>Cross-cutting elements</p> <ul style="list-style-type: none"> • MARP friendly drop-in centres and clinics • Case management • Peer education • Life skills training • Service referrals • Risk assessment and reduction 		

ANNEX 2. DETAILS ON COSTING METHODS AND ANALYSIS

For each main type of input, the table below describes the methods and sources for estimating quantities of inputs, prices, and unit costs. The inputs are grouped into categories of (1) direct costs per visit; (2) indirect costs directly associated with the MARP programme; and (3) general support costs.

Direct costs per visit

Quantities	Sources	Comments	Prices	Sources	Comments
Staff Time					
Average number of minutes each programme staff directly provides services to the typical client, by type of service contact	Interviews with programme staff	Reported average times may not reflect real resource use Reported average times does not incorporate down time and may underestimate true resource cost	Calculated per minute of compensation for categories of salaried staff Calculated per contact per staff receiving motivation	Salary scales provided from the central level and motivation costs provided by intervention sites	Compensation includes salary and benefits
IEC Materials					
Average quantity used per service contact Price per item multiplied by average quantity of items used in a service contact	Programme staff interviews		Price of item used	Central-level data, inclusive of design and production costs	

Ghana: Unit Cost of Providing Key HIV Services to Female Sex Workers and Males Who Have Sex With Males

Quantities	Sources	Comments	Prices	Sources	Comments
Prevention Commodities					
<p>Average quantity distributed/sold per service contact</p> <p>Price per item multiplied by average quantity of items distributed/sold in a service contact</p>	Programme staff interviews		Price of item used	Estimates by authors based on international and local prices	
Other Consumables and Other Supplies					
<p>Average quantity used per Service Contact</p> <p>Price per item multiplied by average quantity of items used in a Service Contact</p>	Programme staff interviews		Price of item used	Estimates by authors based on international and local prices	
Laboratories					
<p>For each test, quantity for one client</p> <p>For each test, price per test *average number of tests per client * percent of clients getting test. Calculated separately for HIV-positive and HIV-negative individuals</p>	National HTC Guidelines		Cost per laboratory test	National Cost Quantifications, NACP 2011	

Other direct costs associated with service delivery

Quantities	Sources	Comments	Prices	Sources	Comments
Staff Time (professional non-client time)					
Number of professional staff and percentage of non-client time spent on MARP programme in a year	Programme staff interviews		Calculated per minute of compensation for categories of staff	Salary scales provided from central level	Compensation includes salary and benefits
Vehicle costs					
Number and type of vehicles used for service delivery Yearly depreciated replacement cost * use in MARP programme as percentage of total use by NGO ÷ MARP service contacts	Programme staff interviews		Replacement cost of item, straight-line depreciation by useful life	Price estimates by authors based on local prices. Useful life set by authors using international standards	
Programme Equipment					
Number and type of equipment used in each visit type Yearly depreciated replacement cost * ÷ MARP service contacts.	Programme staff interviews		Replacement cost of item, straight-line depreciation by useful life	Price estimates by authors based on local prices Useful life set by authors using international standards	
Physical Site Costs (Drop-in Centers)					
Number of square meters of physical space used in MARP programme	Measured at each DIC		Cost per square meter based on rental cost of equivalent commercial space Yearly cost per square meter * number of square meters	Authors' estimates based on information from local property valuation experts	

Ghana: Unit Cost of Providing Key HIV Services to Female Sex Workers and Males Who Have Sex With Males

Quantities	Sources	Comments	Prices	Sources	Comments
Staff training					
Fixed quantity of training costs per intervention site	Programme staff interviews		Total yearly amount spent on trainings ÷ MARP service contacts		
Programme running costs					
Total yearly cost ÷ MARP service contacts			Annual costs for DIC as a whole	Programme staff interviews	

Indirect costs associated with service delivery at the intervention site

Quantities	Sources	Comments	Prices	Sources	Comments
Staff Time (administrative non-client time)					
Number of administrative staff and percentage of non-client time spent on MARP programme in a year	Programme staff interviews		Calculated per minute of compensation for categories of staff	Salary scales provided from central level	Compensation includes salary and benefits
Office Equipment					
Number and type of equipment used in each visit type Yearly depreciated replacement cost * use in MARP programme as percentage of total use by NGO ÷ MARP service contacts	Programme staff interviews		Replacement cost of item, straight-line depreciation by useful life	Price estimates by authors based on local prices Useful life set by authors using international standards	
Physical infrastructure of administrative site					
Number of square meters of physical space used in MARP programme	Measured at each intervention site		Cost per square meter based on rental cost of equivalent commercial space Yearly cost per square meter * number of square meters	Authors' estimates based on information from local property valuation experts	

Quantities	Sources	Comments	Prices	Sources	Comments
Transport Costs					
Total yearly cost * MARP usage as proportion of total NGO usage ÷ MARP service contacts			Annual transportation costs for NGO	Programme staff interviews	
Public Utilities					
Total yearly cost * MARP usage as proportion of total NGO usage ÷ MARP service contacts			Annual costs entire NGO	Programme staff interviews	
Maintenance and Repair (office equipment)					
Total yearly cost * MARP usage as proportion of total NGO usage ÷ MARP service contacts			Annual costs entire NGO	Programme staff interviews	
Indirect Costs per Service Contact for General Programme Support					
Total support costs allocated to MARP programme ÷ total number of service contacts	FHI360, WAPCAS, GAC, 2011 Authors calculations		Total annual MARP support costs	FHI360, WAPCAS, GAC, 2011	

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