

# policy

May 2013

## ESTIMATING THE UNIT COSTS OF HIV PREVENTION OF MOTHER-TO-CHILD TRANSMISSION SERVICES IN GHANA

*A Data  
Use Guide*

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



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## ABBREVIATIONS

AIDS	acquired immune deficiency syndrome
ANC	antenatal care
ART	antiretroviral therapy
ARV	antiretroviral
CHPS	Community-based Health Planning Services
COP	Country Operational Plan
DBS	dried blood spot (method)
EID	Early Infant Diagnosis
EPP	Epidemic Projection Package
GAC	Ghana AIDS Commission
GFATM	Global Fund to Fight AIDS, Tuberculosis and Malaria
GHS	Ghana Health Services
HAART	highly active antiretroviral therapy
HIV	human immunodeficiency virus
HPP	Health Policy Project
HTC	HIV testing and counselling
M&E	monitoring and evaluation
NACP	National AIDS/STI Control Programme, Ghana
NSP	National Strategic Plan on HIV and AIDS 2011–2015
OI	opportunistic infection
PEPFAR	U.S. President’s Emergency Plan for AIDS Relief
PMTCT	prevention of mother-to-child transmission
STI	sexually transmitted infection
UNAIDS	Joint United Nations Programme on HIV and AIDS
UNICEF	United Nations Children’s Fund
USAID	United States Agency for International Development
WHO	World Health Organization
WTO	World Trade Organization





# INTRODUCTION

## A Data Use Guide

In response to the HIV epidemic, the Government of Ghana has gradually scaled up effective HIV interventions based on locally generated data. Good estimates, projections, and planning are dependent on having accurate knowledge about costs. To support the evidence base for the national HIV Prevention of Mother-to-Child Transmission (PMTCT) program, Ghanaian government agencies, the U.S. Agency for International Development (USAID), and the USAID Health Policy Project conducted a joint study in 2011 to estimate the unit costs of providing PMTCT services in Ghana. The costing study focused on services that are included in the current National PMTCT Guidelines and are delivered by health facilities, such as HIV testing and counseling, antiretroviral (ARV) prophylaxis and/or therapy for HIV-positive pregnant women, and postpartum care for HIV-positive mothers and their HIV-exposed infants. The study analyzed unit cost, defined as the cost of delivering PMTCT services to a woman and her infant from pregnancy through the recommended period of postpartum care, as well as the average costs and drivers of costs within the national PMTCT program.

## Purpose of This Guide

The final report of this study provides useful information for national program planners, donors, and other stakeholders. However, it does not include specific operational details on *how* these different stakeholders can use the study results for their individual planning, budgeting, and resource mobilization and/or allocation purposes. During the February 2012 national meeting on validating the study results, stakeholders requested further guidance on how they can practically use study results for these individual processes. This guide summarizes the key findings from the study and provides specific details on how study results can best be used to inform the evidence base for the Ghana PMTCT program.

## COSTS FOR SIX TYPES OF CLIENTS

The most representative indicator of national costs is an average cost for each type of client served within the PMTCT program. The study identified six types of clients:

1. HIV-negative women
2. HIV-positive women on ARV Prophylaxis (Option B)
3. HIV-positive women on ARV treatment
4. HIV-exposed infants who are HIV positive at six weeks
5. HIV-exposed infants who are HIV positive at six months
6. HIV-exposed infants who are HIV negative or HIV positive at 12 months

Based on the study findings, **Table 1** provides a summary of overall costs for each type of PMTCT client, disaggregated by type of cost.

**Table 1. Average Unit Costs of PMTCT Services, by type of client and by type of cost (US\$)**

	HIV-negative women			HIV-positive women on ARV Prophylaxis (Option B)			HIV-positive women on ARV treatment			HIV-exposed infants who are HIV+ at six weeks			HIV-exposed infants who are HIV+ at six months			HIV-exposed infants who are HIV- or HIV+ at 12 months		
	Cost	% of Cost Component	% of Total Cost	Cost	% of Cost Component	% of Total Cost	Cost	% of Cost Component	% of Total Cost	Cost	% of Cost Component	% of Total Cost	Cost	% of Cost Component	% of Total Cost	Cost	% of Cost Component	% of Total Cost
<b>DIRECT COSTS</b>	<b>84.04</b>	<b>100%</b>	<b>100%</b>	<b>816.94</b>	<b>100%</b>	<b>75%</b>	<b>1,281.94</b>	<b>100%</b>	<b>83%</b>	<b>43.46</b>	<b>100%</b>	<b>100%</b>	<b>74.12</b>	<b>100%</b>	<b>100%</b>	<b>101.40</b>	<b>100%</b>	<b>100%</b>
Staff	39.50	47%	47%	155.22	19%	14%	153.83	12%	10%	11.30	21%	21%	19.27	26%	26%	27.38	27%	27%
Drugs	9.24	11%	11%	482.00	59%	44%	589.69	46%	38%	6.52	27%	27%	11.12	15%	15%	11.15	11%	11%
Laboratory testing	34.46	41%	41%	171.56	21%	16%	461.50	36%	30%	25.21	51%	51%	42.99	58%	58%	61.86	61%	61%
Medical consumables and supplies	0.84	1%	1%	8.17	1%	1%	76.92	6%	5%	0.43	1%	1%	0.74	1%	1%	1.01	1%	1%
<b>INDIRECT COSTS</b>		<b>0%</b>	<b>0%</b>	<b>271.52</b>		<b>25%</b>	<b>271.52</b>		<b>17%</b>	<b>-</b>	<b>0%</b>	<b>0%</b>	<b>-</b>	<b>0%</b>	<b>0%</b>	<b>-</b>	<b>0%</b>	<b>0%</b>
<i>Facility Level</i>	<b>-</b>	<b>0%</b>	<b>0%</b>	<b>154.02</b>	<b>100%</b>	<b>14%</b>	<b>154.02</b>	<b>100%</b>	<b>10%</b>	<b>-</b>	<b>0%</b>	<b>0%</b>	<b>-</b>	<b>0%</b>	<b>0%</b>	<b>-</b>	<b>0%</b>	<b>0%</b>
Non-client staff time	-	0%	0%	6.97	5%	1%	6.97	5%	0%	-	0%	0%	-	0%	0%	-	0%	0%
Office equipment	-	0%	0%	5.92	4%	1%	5.92	4%	0%	-	0%	0%	-	0%	0%	-	0%	0%
Physical infrastructure	-	0%	0%	4.13	3%	0%	4.13	3%	0%	-	0%	0%	-	0%	0%	-	0%	0%
Transportation costs	-	0%	0%	10.93	7%	1%	10.93	7%	1%	-	0%	0%	-	0%	0%	-	0%	0%
Public utilities and running costs	-	0%	0%	10.93	7%	1%	10.93	7%	1%	-	0%	0%	-	0%	0%	-	0%	0%
Maintenance and repair	-	0%	0%	53.27	35%	5%	53.27	35%	3%	-	0%	0%	-	0%	0%	-	0%	0%
Staff training and volunteers	-	0%	0%	0.70	0%	0%	0.70	0%	0%	-	0%	0%	-	0%	0%	-	0%	0%
Local medical and other	-	0%	0%	58.74	38%	5%	58.74	38%	4%	-	0%	0%	-	0%	0%	-	0%	0%

supply costs																		
Vehicle costs	-	0%	0%	2.44	2%	0%	2.44	2%	0%	-	0%	0%	-	0%	0%	-	0%	0%
<b>General Program Support</b>	-	<b>0%</b>	<b>0%</b>	<b>117.49</b>	<b>100%</b>	<b>11%</b>	<b>117.49</b>	<b>100%</b>	<b>8%</b>	-	<b>0%</b>	<b>0%</b>	-	<b>0%</b>	<b>0%</b>	-	<b>0%</b>	<b>0%</b>
Planning and program management	-	0%	0%	2.35	2%	0%	2.35	2%	0%	-	0%	0%	-	0%	0%	-	0%	0%
Centrally managed trainings and supervision	-	0%	0%	89.30	76%	8%	89.30	76%	6%	-	0%	0%	-	0%	0%	-	0%	0%
Monitoring and evaluation	-	0%	0%	19.97	17%	2%	19.97	17%	1%	-	0%	0%	-	0%	0%	-	0%	0%
Communication materials	-	0%	0%	5.87	5%	1%	5.87	5%	0%	-	0%	0%	-	0%	0%	-	0%	0%
<b>TOTAL</b>	<b>84.04</b>	<b>100%</b>	<b>100%</b>	<b>1,088.46</b>	<b>100%</b>	<b>100%</b>	<b>1,553.45</b>	<b>100%</b>	<b>100%</b>	<b>43.46</b>	<b>100%</b>	<b>100%</b>	<b>74.12</b>	<b>100%</b>	<b>100%</b>	<b>101.40</b>	<b>100%</b>	<b>100%</b>

## USING STUDY RESULTS FOR NATIONAL PLANNING AND BUDGETING: ESTIMATING THE TOTAL ANNUAL COST OF THE PMTCT PROGRAM

When using study results to estimate the total cost per year of the PMTCT program, national program planners should choose one of two approaches based on either (1) the six types of PMTCT client; or (2) the costs of an “average” PMTCT client, taking into account the proportion of HIV-positive clients. This choice will depend on the availability of accurate and reliable program monitoring data.

### *Projecting total annual costs per client type*

The most accurate measures for projecting annual costs are obtained by projecting the expected number of each type of client per year, based on reliable historical data and assisted by modeling techniques using software packages such as Epidemic Projection Package (EPP)/Spectrum (UNAIDS, 2011). Program planners should project the estimated number of each type of client and apply the unit cost to obtain an annual total. Then they should add the total costs to estimate the total annual cost for the national PMTCT program. **Table 2** provides a simplified example of how to estimate these costs.

**Table 2. Illustrative example of projecting annual costs per client type\***

PMTCT client type	Example of projections from EPP/Spectrum			Unit cost from study (US\$)	Projected annual cost (US\$)		
	2012	2013	2014		2012	2013	2014
HIV-negative women	500,000	550,000	600,000	57.02	28,510,000	31,361,000	34,212,000
HIV-positive women on ARV prophylaxis	5,000	5,500	6,000	738.54	3,692,700	4,061,970	4,431,240
HIV-positive women on ARV treatment	2,500	2,750	3,000	1,054.05	2,635,125	2,898,638	3,162,150
HIV-exposed infants who are HIV+ at six weeks	500	550	600	29.49	14,745	16,220	17,694
HIV-exposed infants who are HIV+ at six months	1,000	1,100	1,200	50.29	50,290	55,319	60,348
HIV-exposed infants who are HIV- or HIV+ at 12 months	8,000	8,500	9,000	68.80	550,400	584,800	619,200
<b>TOTAL</b>					<b>35,453,260</b>	<b>38,977,946</b>	<b>42,502,632</b>

\*Numbers are not actual program data but are shown here for illustrative purposes only.

### *Projecting cost-specific annual costs per client type*

To obtain specific costs according to different cost categories, the total projected annual costs can be multiplied by the percentage of each cost category as a function of total cost. For example, **Table 1** shows that drug costs account for 44 percent of the total cost of providing PMTCT services to an HIV-positive

woman on ARV prophylaxis. Thus, if the total projected cost of providing PMTCT services to HIV-positive women on ARV prophylaxis is estimated at US\$3,692,700 in 2012 as shown in **Table 2**, the total projected cost of ARV drugs in 2012 is estimated to be:

- Total Estimated Cost of ARV Drugs in 2012 = US\$3,692,700 \* 44% = US\$1,624,788

***Projecting total annual costs per average client***

Another way to project costs is to calculate an average weighted cost per client, which represents the cost for a typical PMTCT client, based on the client load for each type of client in relation to the total number of clients served.

Based on 2010 historical data, the joint study estimated that approximately 98 percent of all pregnant women attending PMTCT services were HIV-negative women; HIV-positive women on ARV prophylaxis accounted for 1 percent of all pregnant women and those on ARV treatment represented an additional 1 percent of all pregnant women. So for every 100 pregnant women attending PMTCT services, based on 2010 data, it is expected that 98 of these women will be HIV negative, one woman will be HIV positive and eligible for ARV prophylaxis, and one woman will be HIV positive and eligible for ARV. **Table 3** provides the average weighted cost for a typical or “average” pregnant woman attending PMTCT services.

**Table 3. Average cost per pregnant woman attending PMTCT services (US\$)**

Study cost category	Average cost	% of total cost
<b>DIRECT COSTS</b>	<b>70.37</b>	<b>95%</b>
Staff	28.45	38%
Drugs	13.70	18%
Laboratory testing	27.12	37%
Medical consumables and supplies	1.10	1%
<b>INDIRECT COSTS</b>	<b>3.88</b>	<b>5%</b>
<b>Facility Level</b>	<b>2.20</b>	<b>3%</b>
Non-client staff time	0.10	0%
Office equipment	0.08	0%
Physical infrastructure	0.06	0%
Transportation costs	0.16	0%
Public utilities and running costs	0.16	0%
Maintenance and repair	0.76	1%
Staff training and volunteers	0.01	0%
Local medical and other supply costs	0.84	1%
Vehicle costs	0.03	0%
<b>General Program Support</b>	<b>1.68</b>	<b>2%</b>
Planning and program management	0.03	0%
Centrally managed trainings and supervision	1.28	2%
Monitoring and evaluation	0.29	0%
Communication materials	0.08	0%
<b>TOTAL</b>	<b>74.25</b>	<b>100%</b>

The same weighting could be applied to the three types of HIV-exposed infants, based on when (or if) the infant sero-converts at six weeks, six months, or 12 months. However, national monitoring systems are not currently able to capture this level of precision. In this case, it is preferable to take a more conservative approach to ensure that adequate resources are available. In this approach, the cost of providing PMTCT services to HIV-exposed infants who are HIV- or HIV+ at 12 months would be estimated. **Table 4** provides a simplified example of how to estimate these costs using this approach.

**Table 4. Illustrative example of projecting annual costs per client type\***

PMTCT client type	Number of clients--example of projections from EPP/Spectrum			Unit cost from study (US\$)	Projected annual cost (US\$)		
	2012	2013	2014		2012	2013	2014
Average pregnant women	500,000	550,000	600,000	74.25	37,125,000	40,837,500	44,550,000
HIV-exposed infants who are HIV- or HIV+ at 12 months	8,000	8,500	9,000	68.80	550,400	584,800	619,200
<b>TOTAL</b>					<b>37,675,400</b>	<b>41,422,300</b>	<b>45,169,200</b>

*\*Numbers are not actual program data but are shown here for illustrative purposes only.*

#### **Projecting annual costs by cost category per average client**

To obtain specific costs according to different cost categories, the total projected annual costs can be multiplied by the percentage of each cost category as a function of total cost. For example, **Table 3** shows that drug costs account for 18 percent of the US\$74.25 total cost of providing PMTCT services to an “average” pregnant woman attending PMTCT services.

Thus, if the total projected cost of providing PMTCT services to all “average” pregnant women attending PMTCT services is estimated at US\$37,125,000 for 2012 (as shown in **Table 4**) and the cost of drugs is 18 percent (as shown in Table 3), the total projected cost for drugs in 2012 is estimated to be:

- Total Estimated Cost of Drugs in 2012 = US\$37,125,000 \* 18% = US\$6,682,500

*For the remainder of this document we will apply the second approach, using the average weighted costs for an “average” pregnant woman attending PMTCT services and an HIV-exposed infant who is HIV negative or HIV positive at 12 months.*

## ESTIMATING PMTCT COSTS FOR THE NATIONAL HIV & AIDS STRATEGIC PLAN 2011–15

### *Projecting total annual costs per average client*

When using study results for costing PMTCT for the National HIV & AIDS Strategic Plan (NSP), it is necessary to avoid double costing specific interventions by separating the costs that are specific to the PMTCT program from those that are generally subsumed in the overall cost of running the health sector and are centrally budgeted by the Ghana Health Services (GHS). For example, as shown in **Table 1**, the cost of direct staff time that medical professionals provide to the PMTCT program is estimated to be 14 percent of the total cost of providing PMTCT services to an HIV-positive pregnant woman on ARV prophylaxis. However, these medical professionals are not all full-time PMTCT staff members; they spread their time across many different clinical services and are budgeted centrally by GHS. To project the cost of the PMTCT program specifically for this component of the NSP, it is necessary to isolate the costs directly attributed to the PMTCT program to avoid double costing. **Table 5** presents the distribution of these costs, by cost category used in the study.

**Table 5. Estimate of PMTCT-specific costs for NSP 2011–15 for average clients attending PMTCT services**

Study cost category	NSP allocation	Example of NSP PMTCT-specific cost for an average pregnant woman attending PMTCT services (US\$)		Example of NSP PMTCT-specific cost for an HIV-exposed infant at 12 months (US\$)	
		Cost	%	Cost	%
<b>DIRECT COSTS</b>		<b>41.92</b>	<b>94%</b>	<b>50.23</b>	<b>100%</b>
Staff	General Costs	-	-	-	-
Drugs	PMTCT	13.70	31%	7.57	15%
Laboratory testing	PMTCT	27.12	61%	41.97	84%
Medical consumables and supplies	PMTCT	1.10	2%	0.69	1%
<b>INDIRECT COSTS</b>		<b>2.59</b>	<b>6%</b>	<b>-</b>	<b>-</b>
<i>Facility Level</i>		<b>0.91</b>	<b>2%</b>	<b>-</b>	<b>-</b>
Non-client staff time	General Costs	-	-	-	-
Office equipment	General Costs	-	-	-	-
Physical infrastructure	PMTCT	0.06	0%	-	-
Transportation costs	General Costs	-	-	-	-
Public utilities and running costs	General Costs	-	-	-	-
Maintenance and repair	General Costs	-	-	-	-
Staff training and volunteers	PMTCT	0.01	0%	-	-
Local medical and other supply costs	PMTCT	0.84	2%	-	-
Vehicle costs	General Costs	-	-	-	-
<b>General Program Support</b>		<b>1.68</b>	<b>4%</b>	<b>-</b>	<b>-</b>

## Estimating the Unit Costs of HIV Prevention of Mother- To-Child Transmission Services in Ghana

Planning and program management	PMTCT	0.03	0%	-	-
Centrally managed trainings and supervision	PMTCT	1.28	3%	-	-
Monitoring and evaluation	PMTCT	0.29	1%	-	-
Communication materials	PMTCT	0.08	0%	-	-
<b>TOTAL ESTIMATED COST</b>		<b>44.51</b>	<b>100%</b>	<b>50.23</b>	<b>100%</b>

Based on the total estimated costs shown in Table 5, program planners can use the estimate of US\$44.51 per “average” pregnant woman attending PMTCT services and US\$50.23 for each HIV-exposed infant who is HIV negative or HIV positive at 12 months to represent the average cost of providing PMTCT services.

**Table 6** provides an illustrative example of how these costs can be applied to the projected number of clients to obtain national cost projections for the NSP to avoid double-costing some services.

**Table 6. Illustrative example of projecting annual costs per client type**

PMTCT client type	Example of projections from EPP/Spectrum			Unit cost from study (US\$)	Projected annual cost (US\$)		
	2012	2013	2014		2012	2013	2014
Average pregnant women	500,000	550,000	600,000	44.51	22,255,000	24,480,500	26,706,000
HIV-exposed infants who are HIV- or HIV+ at 12 months	8,000	8,500	9,000	50.23	401,840	426,955	452,070
<b>TOTAL</b>					<b>22,656,840</b>	<b>24,907,455</b>	<b>27,158,070</b>

### *Projecting annual costs by cost category per average client*

To obtain specific costs per cost category for NSP costing, the total projected annual costs can be multiplied by the percentage of each cost category as a function of total cost. For example, in **Table 5** we see that drug costs account for 31 percent of the total cost of providing PMTCT services to an “average” pregnant woman. Thus, if the total projected cost of providing PMTCT services to all “average” pregnant women attending PMTCT services is estimated at US\$22,255,000 for 2012, as shown in **Table 6**, the total projected cost for drugs in 2012 is estimated to be:

- Total Estimated Cost of Drugs in 2012 = US\$22,255,000 \* 31% = US\$6,899,050



## PMTCT SCALE-UP PLAN

### *Projecting total annual costs per average client*

Because the costing done for the Ghana PMTCT Scale-Up Plan 2011–15 used a slightly different methodology from the joint study, the approach is slightly different. The Scale-Up Plan estimated indirect costs separately at the central level, not as estimates per client as the joint study did. Thus, when using study results for updating the PMTCT Scale-Up Plan 2011–15, it is necessary to use only the direct costs associated with **Strategy 6 of the PMTCT Scale-Up Plan: Improve the procurement and supply-chain management system for PMTCT services.**

The human resource costs that are generally subsumed in the overall cost of running the health sector, which are centrally budgeted by the GHS, are not included in the PMTCT Scale-Up Plan 2011–15. To avoid double costing, it is necessary to consider only the direct commodity costs: drugs, laboratory testing, and medical consumables and supplies. **Table 7** presents the distribution of these costs by cost category used in the study.

**Table 7. Estimate of PMTCT-specific costs for PMTCT Scale-Up Plan 2011–15 for average clients attending PMTCT services**

Study cost category	PMTCT Scale-Up Plan allocation	Example of PMTCT Scale-Up Plan cost for an average pregnant woman attending PMTCT services (US\$)		Example of PMTCT Scale-Up Plan cost for an HIV-exposed infant at 12 months (US\$)	
		Cost	%	Cost	%
<b>DIRECT COSTS</b>		<b>41.92</b>	<b>100%</b>	<b>50.23</b>	<b>100%</b>
Staff	General costs	-	-	-	-
Drugs	Strategy 6	13.70	31%	7.57	15%
Laboratory testing	Strategy 6	27.12	61%	41.97	84%
Medical consumables and supplies	Strategy 6	1.10	2%	0.69	1%

For direct costs, program planners can use the estimate of US\$41.92 per “average” pregnant woman attending PMTCT and US\$50.23 for each HIV-exposed infant who is HIV negative or HIV positive at 12 months.

**Table 8** provides an illustrative example of how these costs and projections can be applied to update the costing in the PMTCT Scale-Up Plan 2011–15 to avoid double-costing some services.

**Table 8. Illustrative example of projecting annual costs per client type**

PMTCT client type	Example of projections from EPP/Spectrum			Unit cost from study (US\$)	Projected annual cost (US\$)		
	2012	2013	2014		2012	2013	2014
Average pregnant women	500,000	550,000	600,000	41.92	20,960,000	23,056,000	25,152,000
HIV-exposed infants who are HIV- or HIV+ at 12 months	8,000	8,500	9,000	50.23	401,840	426,955	452,070

TOTAL		21,361,840	23,482,955	25,604,070
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### *Projecting annual costs by cost category per average client*

To obtain specific costs per cost category for updating the PMTCT Scale-Up Plan, the total projected annual costs can be multiplied by the percentage of each cost category as a function of total cost. For example, **Table 7** shows that drug costs account for 31 percent of the total cost of providing PMTCT services to an average pregnant woman attending PMTCT services.

Thus, if the total projected cost of providing PMTCT services to an “average” pregnant woman attending PMTCT services is estimated at US\$20,960,000 for 2012, as shown in **Table 8**, the total projected cost for drugs in 2012 is estimated to be:

- Total Estimated Cost of Drugs in 2012 = US\$20,960,000 \* 31% = US\$6,497,600

## USING STUDY RESULTS FOR RESOURCE MOBILIZATION AND ALLOCATION: GLOBAL FUND APPLICATIONS AND PEPFAR COUNTRY OPERATIONAL PLANS

### *Projecting total annual costs per average client*

When using study results for costing PMTCT contributions to Global Fund applications or for PEPFAR Country Operational Plans (COPs), it is necessary to avoid double costing by separating the costs that are specific to the PMTCT program from the costs that are subsumed in the overall cost of running the health sector, which are centrally budgeted by the GHS. **Table 9** presents the distribution of these costs by cost category used in the study.

**Table 9. Estimate of PMTCT-specific costs for GF and PEPFAR planning for average clients attending PMTCT services**

Study cost category	Global Fund cost categories	Donor allocation to PMTCT	Example of PMTCT-specific cost for an average pregnant woman attending PMTCT services (US\$)		Example of PMTCT-specific cost for an HIV-exposed infant at 12 months (US\$)	
			Cost	%	Cost	%
<b>DIRECT COSTS</b>	-	-	<b>41.92</b>	<b>94%</b>	<b>50.23</b>	<b>100%</b>
Staff	Human resources	General costs	-	0%	-	-
Drugs	Medicine and pharmaceutical products	PMTCT	13.70	31%	7.57	15%
Laboratory testing	Procurement and supply management	PMTCT	27.12	61%	41.97	84%
Medical consumables and supplies	Health products and equipment	PMTCT	1.10	2%	0.69	1%
<b>INDIRECT COSTS</b>	-	-	<b>2.50</b>	<b>6%</b>	<b>-</b>	<b>-</b>
<i>Facility Level</i>	-	-	0.85	2%	-	-
Non-client staff time	Human resources	General costs	-	0%	-	-

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Office equipment	Infrastructure and other equipment	General costs	-	0%	-	-
Physical infrastructure	Infrastructure and other equipment	General costs	-	0%	-	-
Transportation costs	Procurement and supply management	General costs	-	0%	-	-
Public utilities and running costs	Planning and administration	General costs	-	0%	-	-
Maintenance and repair	Planning and administration	General costs	-	0%	-	-
Staff training and volunteers	Training	PMTCT	0.01	0%	-	-
Local medical and other supply costs	Health products and equipment	PMTCT	0.84	2%	-	-
Vehicle costs	Infrastructure and other equipment	General Costs	-	0%	-	-
<b>General Program Support</b>	-	-	1.65	4%	-	-
Planning and program management	Planning and administration	General Costs	-	0%	-	-
Centrally managed trainings and supervision	Training	PMTCT	1.28	3%	-	-
Monitoring and evaluation	M&E	PMTCT	0.29	1%	-	-
Communication materials	Communication	PMTCT	0.08	0%	-	-
<b>TOTAL ESTIMATED COST</b>	-	-	<b>44.42</b>	<b>100%</b>	<b>50.23</b>	<b>100%</b>

Program planners can use the estimate of US\$44.42 per “average” pregnant woman attending PMTCT and US\$50.23 for each HIV-exposed infant who is HIV negative or HIV positive at 12 months. **Table 10** provides an illustrative example of how these costs and projections can be applied to obtain national cost projections to be used for costing the NSP to avoid double-costing some services.

**Table 10. Illustrative example of projecting annual costs per client type**

PMTCT Client Type	Example of projections from EPP/Spectrum			Unit cost from study (US\$)	Projected annual cost (US\$)		
	2012	2013	2014		2012	2013	2014
Average pregnant women	500,000	550,000	600,000	44.42	22,210,000	24,431,000	26,652,000
HIV-exposed infants who are HIV- or HIV+ at 12 months	8,000	8,500	9,000	50.23	401,840	426,955	452,070
<b>TOTAL</b>					<b>22,611,840</b>	<b>24,857,955</b>	<b>27,104,070</b>

**Projecting annual costs per cost category per average client**

To obtain specific costs per cost category for costing PMTCT-specific contributions from Global Fund or PEPFAR to the national PMTCT program, the total projected annual costs can be multiplied by the percentage of each cost category as a function of total cost. For example, **Table 9** shows that drug costs account for 31 percent of the total cost of providing PMTCT services to an “average” pregnant woman attending PMTCT services.

Thus, if the total projected cost of providing PMTCT services to all “average” pregnant women attending PMTCT services is estimated at US\$22,210,000 for 2012, as shown in **Table 10**, the total projected cost for drugs in 2012 is estimated to be:

- Total Estimated Cost of Drugs in 2012 = US\$22,210,000 \* 31% = US\$6,885,100

In summary, the estimates from the joint study are based on the costs per client type. These estimates can be applied to projections of the number of women and infants in future years to estimate an annual cost per client and per cost category. Because the GHS includes some costs for providing PMTCT services as part of its central budget, program planners need to estimate the remaining PMTCT costs and include them in the NSP, the PMTCT Scale-Up Plan, Global Fund applications, and PEPFAR COPs. This guide provides examples of the various calculations needed for these applications.

## REFERENCES

UNAIDS. 2011. "Spectrum/Epidemic Projection Package, v. 4.50." Retrieved on April 12, 2013, from <http://www.unaids.org/en/dataanalysis/datatools/spectrumep2011/>.

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