

## FROM COSTING TO PLANNING

A TOOL TO SUPPORT THE REGIONAL INITIATIVE FOR  
THE ELIMINATION OF MOTHER-TO-CHILD  
TRANSMISSION OF HIV AND CONGENITAL SYPHILIS  
IN LATIN AMERICA AND THE CARIBBEAN (CTEI)





Developed by the National Center for Global Health and Medicine  
(Naoko Ishikawa, Takuro Shimbo, et al.)

in collaboration with Pan American Health Organization/World Health Organization

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# USER GUIDE

Developed by the Pan American Health Organization





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## ■ COST ANALYSIS



# COSTING TOOL (CTEI)

- This tool provides only **estimates** of costs
- The estimated initial cost responds to the **investment of resources needed for PMTCT** in one year (or in the defined time period)
- The resulting costs savings come from the **averted spending** on care and treatment of children who become infected due to lack of intervention during its first 15 years of life
- The CTEI is **NOT a modeling tool**



# THE TOOL CONSISTS OF:

1. **About this tool**
2. **Instructions** to explain how to use this tool
3. **Costing tool** to calculate and estimate the costs
4. **Summary table** of estimated costs
5. **Summary graphs** of main results
6. **Drug costs for PMTCT**, detailed information on estimation of drug costs for PMTCT
7. **Cost for replacement feeding**, detailed information on estimation of replacement feeding
8. **Drug costs for paediatric HIV**, detailed information on estimation of drug costs for paediatric HIV
9. **References** for development of the model for this tool
10. **Acronyms**



Excel Tabs located at the bottom of each sheet provide access to the different sections at any time

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FROM COSTING TO PLANNING:  
A TOOL TO SUPPORT THE REGIONAL INITIATIVE FOR THE ELIMINATION OF MOTHER-TO-CHILD TRANSMISSION OF HIV AND CONGENITAL SYPHILIS IN LATIN AMERICA AND THE CARIBBEAN (CTEI)

Developed by National Center for Global Health and Medicine (Naoko Ishikawa, Takuro Shimbo, et al.)  
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The original tool was developed by the National Center for Global Health and Medicine, Japan (NCGM), to be initially used in the context of Asia-Pacific Region as result of a collaborative work with the Asia-Pacific United Nations Task Force for the Prevention of Parents-to-Child Transmission of HIV. The tool has been adapted to the context of Latin America and the Caribbean (LAC), through a collaboration between the NCGM and the Area of Family and Community Health (FCH) in the Pan American Health Organization / World Health Organization (PAHO/WHO).

This tool is expected to assist in estimating the economic resources needed at national or sub-national level to achieve the goals of the Regional Initiative for the Elimination of Mother-to-child transmission of HIV and congenital syphilis in Latin America and the Caribbean (EI). This information will enable stakeholders to budget the required standard package of services that has been already identified. The CTEI may be used as an aid to prepare proposals for donors for resource mobilization, by governments or agencies, among others.

This tool will only provide estimates. Actual final costs may vary due to several circumstances such as changes in conditions of market prices in countries, in the price sources used for the calculations, or in the conditions of agreements, among others.

The estimated initial cost responds to the investment of resources needed to cover most of the components of the prevention of mother to child transmission of HIV and congenital syphilis in a year (or the defined time period). The resulting cost savings come from the averted cost of care and treatment of children who would become infected due to lack of intervention during their first 15 years.

This tool is NOT a modeling tool for calculating the transmission rate, so it should not be used for this purpose. Certain differences may be observed if compared with tools specifically designed to model transmission rates.

This tool consists of:

1. About this tool / 2. Instructions / 3. Costing Tool / 4. Summary tables / 5. Summary graphs / 6. Drug Costs fc



## SEVERAL ASSUPTIONS REFLECT THE CONDITIONS NEEDED TO ACHIEVE THE GOALS OF THE ELIMINATION INITIATIVE (EI)

95%

- of coverage or more of antenatal care and skilled attendance at birth

95%

- of coverage or more of routine HIV and syphilis screening of pregnant women

95%

- of coverage or more of adequate HIV prophylactic management and treatment of syphilis in pregnant women and HIV prophylactic management of HIV in children

The package of required interventions and scientific and technical specifications come from the recommendations published in the *Clinical Guidelines on the Elimination of Mother to Child Transmission of HIV and congenital syphilis in Latin America and the Caribbean*.





# TAKE INTO CONSIDERATION

▶ 1. About this tool / 2. Instructions / 3. Costing Tool / 4. Summary tables / 5. Summary graphs / 6. Drug Costs for

## ASSUMPTIONS

### Prevention of new paediatric HIV infections and congenital syphilis (references 4,5, and 11)

- 1) Pregnant women had the first antenatal visit at 14 weeks of pregnancy.
- 2) Pregnant women were tested once for HIV during the antenatal visit. If tested positive, a confirmatory test was provided.
- 3) HIV-infected pregnant women were assessed for CD4 counts and viral load (VL) twice during pregnancy.
- 4) Partners of HIV-infected pregnant women were also tested for HIV.
- 5) Antiretroviral (ARV) prophylaxis was provided based on the PAHO guidelines 'Clinical Guideline for the Elimination of Mother-to-Child Transmission of HIV and Congenital Syphilis in Latin America and the Caribbean'.
- 6) HIV-infected pregnant women who do not need treatment for their own health started triple ARV prophylaxis (AZT+3TC+LPV/r) from the week 14 and continued until delivery.
- 7) HIV-infected pregnant women who were eligible for antiretroviral therapy (ART) initiated treatment from the week 14 and continued thereafter. However, costs of ART were included only for antenatal period.
- 8) Pregnant women gave birth to a baby (birth weight >2500g) at the week 38 by caesarean section or vaginal birth.
- 9) There was no still birth and/or neonatal death.
- 10) Replacement feeding with 14% concentrated formula was recommended for all HIV exposed infants.
- 11) HIV-exposed infants whose mother has received ARV prophylaxis or ART received AZT for 6 weeks.
- 12) Exposed infants started co-trimoxazole prophylaxis at 4 weeks and continued until 18 months (i.e. for 17 months).
- 13) Exposed infants were tested twice by virological testing and once by serological testing.
- 14) Both mother and exposed infants received follow up until the child reaches 18 months of age.
- 15) Pregnant women were tested twice for syphilis during antenatal period.
- 16) Partners of syphilis seropositive women were also tested for syphilis.
- 17) Cases of maternal syphilis were treated with benzylpenicillin 2.4million unit x 3doses.
- 18) Infants born to seropositive mothers received benzylpenicillin G 150,000 unit x 1dose.
- 19) Infants born to seropositive mothers received serological testing for 3 times to exclude syphilis infection.
- 20) Partners of seropositive women were treated with benzylpenicillin 2.4million unit x 1dose.

### Treatment for paediatric HIV infection (references 6, 7, 8, 9, and 10)

- 1) Risk of mother-to-child transmission of HIV was estimated as follows.  
ARV prophylaxis + replacement feeding - 0.5 - 2% transmission  
no-ARV prophylaxis - 15-32% transmission + breastfeeding
- 2) HIV exposed infants whose mother did not access PMTCT services were tested for HIV at 6 weeks by virological testing. If found positive, a confirmatory test was provided and ART was initiated.
- 3) HIV infected children were assessed for CD4 counts and viral load (VL)
- 4) HIV infected children received co-trimoxazole prophylaxis until the age of 5.
- 5) HIV infected children received ART up to the age of 15 based on WHO guidelines 'Antiretroviral therapy for HIV infection in infants and children: towards universal access, recommendations for a public health approach 2010 version'.
- 6) HIV infected children received follow up together with periodical laboratory monitoring.
- 7) There was no default or loss to follow up among children on ART.
- 8) No children were admitted to in-patient care.



# INSTRUCTIONS

1. About this tool / **2. Instructions** / 3. Costing Tool / 4. Summary tables / 5. Summary graphs / 6. Drug Costs for

BEFORE ENTERING THE DATA, PLEASE READ CAREFULLY THE  
GENERAL INSTRUCTIONS FOR THE COSTING TOOL

ENTER DATA IN BLUE CELLS ONLY

Costing Tool	Target Scenario	Intermediate Scenario 2	Intermediate Scenario 1	Current Scenario <u>with</u> ANC data	Current Scenario <u>without</u> ANC data
Estimated number of births	100.000	100.000	100.000	100.000	100.000
HIV prevalence among pregnant women (%)	0,50	0,50	0,50	0,50	0,50
ANC attendance (%)	95,0	90,0	90,0	90,0	
Percentage of pregnant women who had the HIV test (%)	95,0	85,0	75,0	65,0	40,0
Percentage of pregnant women tested HIV positive who received ARVs (%)	95,0	85,0	75,0	65,0	40,0
Pregnant women with HIV diagnosis previous to current pregnancy who receive ART (%)	16,0	16,0	16,0	16,0	16,0
Breastfeeding in general population (average in MONTHS)	14	14	14	14	14



# COSTING TOOL



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# COSTING TOOL

1. About this tool / 2. Instructions / **3. Costing Tool** / 4. Summary tables / 5. Summary graphs / 6. Drug Costs for

There are 5 possible scenarios:



Costing Tool	Target Scenario	Intermediate Scenario 2	Intermediate Scenario 1	Current Scenario <u>with</u> ANC data	Current Scenario <u>without</u> ANC data
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# TARGET SCENARIO

Costing Tool	Target Scenario	Intermediate Scenario 2	Intermediate Scenario 1	Current Scenario <u>with</u> ANC data	Current Scenario <u>without</u> ANC data
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All the elements of the EI are implemented to their full extent

	A	B	C
		Costing Tool	Target Scenario
2			
3		Estimated number of births	100.000
4		HIV prevalence among pregnant women (%)	8,50
5		ANC attendance (%)	95,0
6		Percentage of pregnant women who had the HIV test (%)	95,0
7		Percentage of pregnant women tested HIV positive during ANC who received ARVs (%)	95,0





# INTERMEDIATE SCENARIOS

A	B	C	D	E	F	G
	Costing Tool	Target Scenario	Intermediate Scenario 2	Intermediate Scenario 1	Current Scenario with ANC data	Current Scenario without ANC data

- These are **mid-term goal** scenarios
- Countries may **modify** the **percentage of coverage**

A	B	C	D	E
	Costing Tool	Target Scenario	Intermediate Scenario 2	Intermediate Scenario 1
2	Estimated number of births	100.000	100.000	100.000
3	HIV prevalence among pregnant women (%)	0,50	0,50	0,50
4	ANC attendance (%)	95,0	90,0	90,0
5	Percentage of pregnant women who had the HIV test (%)	95,0	85,0	75,0
6	Percentage of pregnant women tested HIV positive during ANC who received ARVs (%)	95,0	85,0	75,0
7	Pregnant women with HIV diagnosis previous to current pregnancy who receive ART (%)	16,0	16,0	16,0
8	Breastfeeding in general population (average in MONTHS)	14	14	14



## CURRENT SCENARIO WITH ANC DATA

- To complete this scenario, the **availability of adequate Antenatal Care information** must be taken into account.
- If available, the **Current Scenario with ANC Data** must be used (column **F** in CTEI)

A	B	C	D	E	F	G
	Costing Tool	Target Scenario	Intermediate Scenario 2	Intermediate Scenario 1	Current Scenario <u>with</u> ANC data	Current Scenario <u>without</u> ANC data



# CURRENT SCENARIO WITHOUT ANC DATA

A	B	C	D	E	F	G
	Costing Tool	Target Scenario	Intermediate Scenario 2	Intermediate Scenario 1	Current Scenario <u>with</u> ANC data	Current Scenario <u>without</u> ANC data

- If **ANC data** are **not available**, or not reliable, it is highly recommended to enter data under **Current Scenario without ANC data** (column **G** in CTEI)
- This will **minimize the impact** of attending antenatal care services, allowing to make costs estimates anyway





# DATA INPUT



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# BIRTHS

	A	B
		Costing Tool
2		
3		Estimated number of births
4		HIV prevalence among pregnant women (%)
5		ANC attendance (%)
6		Percentage of pregnant women who had the HIV test (%)
7		Percentage of pregnant women tested HIV positive during ANC who received ARVs (%)
8		Pregnant women with HIV diagnosis previous to current pregnancy who receive ART (%)
9		Breastfeeding in general population (average in MONTHS)

Estimated number of births per year (or per defined period) per target population



# HIV IN PREGNANT WOMEN

A	B
	Costing Tool
2	
3	Estimated number of births
4	HIV prevalence among pregnant women (%)
5	ANC attendance (%)
6	Percentage of pregnant women who had the HIV test (%)
7	Percentage of pregnant women tested HIV positive during ANC who received ARVs (%)
8	Pregnant women with HIV diagnosis previous to current pregnancy who receive ART (%)
9	Breastfeeding in general population (average in MONTHS)

Includes pregnant women with HIV diagnosis prior to pregnancy

**If not available: enter adult (15-49) prevalence**



# ANTENATAL CARE (I)

**For the first 4 scenarios:**

	A	B	C	D	E	F
		Costing Tool	Target Scenario	Intermediate Scenario 2	Intermediate Scenario 1	Current Scenario with ANC data
2						
3		Estimated number of births	100,000	100,000	100,000	100,000
4			0,50	0,50	0,50	0,50
5		ANC attendance (%)	95,0	90,0	90,0	90,0
6		Percentage of pregnant women who had the HIV test (%)	95,0	85,0	75,0	65,0
7		Percentage of pregnant women tested HIV positive during ANC who received ARVs (%)	95,0	85,0	75,0	65,0
8		Pregnant women with HIV diagnosis previous to current pregnancy who receive ART (%)	16,0	16,0	16,0	16,0
9		Breastfeeding in general population (average in MONTHS)	14	14	14	14

Percentage of women who accessed antenatal care

- at least 4 visits
- first visit before week 14



# ANTENATAL CARE (II)

For current scenario without ANC data

	A	B	C	D	E	F	G
		Costing Tool	Target Scenario	Intermediate Scenario 2	Intermediate Scenario 1	Current Scenario <u>with</u> ANC data	Current Scenario <u>without</u> ANC data
2							
3		Estimated number of births	100.000	100.000	100.000	100.000	100.000
4		HIV prevalence among pregnant women (%)	0,50	0,50	0,50	0,50	0,50
5		ANC attendance (%)	95,0	90,0	90,0	90,0	
6		Percentage of pregnant women who had the HIV test (%)	95,0	85,0	75,0	65,0	40,0
7		Percentage of pregnant women tested HIV positive during ANC who received ARVs (%)	95,0	85,0	75,0	65,0	40,0
8		Pregnant women with HIV diagnosis previous to current pregnancy who receive ART (%)	16,0	16,0	16,0	16,0	16,0
9		Breastfeeding in general population (average in MONTHS)	14	14	14	14	14

**Cell G5 must remain blank in order to minimize ANC impact on cost estimates**



# HIV TEST (I)

**For the first 4 scenarios:**

	A	B	C	D	E	F
		Costing Tool	Target Scenario	Intermediate Scenario 2	Intermediate Scenario 1	Current Scenario <u>with</u> ANC data
2						
3		Estimated number of births	100.000	100.000	100.000	100.000
4		HIV prevalence among pregnant women (%)	0,50	0,50	0,50	0,50
5						
6		Percentage of pregnant women who had the HIV test (%)	95,0	85,0	75,0	65,0
7		Percentage of pregnant women tested HIV positive during ANC who received ARVs (%)	95,0	85,0	75,0	65,0
8		Pregnant women with HIV diagnosis previous to current pregnancy who receive ART (%)	16,0	16,0	16,0	16,0
9		Breastfeeding in general population (average in MONTHS)	14	14	14	14

**Enter HIV testing coverage among pregnant women who accessed ANC services**



## HIV TEST (II)

### EXAMPLE

- **100,000** total pregnant women
- **75 %** accessed ANC → **75,000** pregnant women in ANC
- **60,000** of the pregnant women who accessed ANC received HIV test

75,000 pregnant women ..... 100 %  
60,000 pregnant women .... x = **80 %**

Please enter the figure **80%** coverage of HIV test  
among pregnant women with ANC



# HIV TEST (III)

For current scenario without ANC data

	A	B	C	D	E	F	G
		Costing Tool	Target Scenario	Intermediate Scenario 2	Intermediate Scenario 1	Current Scenario <u>with</u> ANC data	Current Scenario <u>without</u> ANC data
2		Estimated number of births	100.000	100.000	100.000	100.000	100.000
3		HIV prevalence among pregnant women (%)	0,50	0,50	0,50	0,50	0,50
4		Percentage of pregnant women who had the HIV test (%)	95,0	90,0	90,0	90,0	40,0
5		Percentage of pregnant women tested HIV positive during ANC who received ARVs (%)	95,0	85,0	75,0	65,0	40,0
6		Pregnant women with HIV diagnosis previous to current pregnancy who receive ART (%)	16,0	16,0	16,0	16,0	16,0
7		Breastfeeding in general population (average in MONTHS)	14	14	14	14	14
8							
9							

Enter coverage of HIV testing regardless ANC attendance





# ART COVERAGE (I)

**For the first 4 scenarios:**

	A	B	C	D	E	F
		Costing Tool	Target Scenario	Intermediate Scenario 2	Intermediate Scenario 1	Current Scenario <u>with</u> ANC data
2						
3		Estimated number of births	100.000	100.000	100.000	100.000
4		HIV prevalence among pregnant women (%)	0,50	0,50	0,50	0,50
5		ANC attendance (%)	95,0	90,0	90,0	90,0
6		Percentage of pregnant women who had the HIV test (%)				
7		Percentage of pregnant women tested HIV positive during ANC who received ARVs (%)	95,0	85,0	75,0	65,0
8		Pregnant women with HIV diagnosis previous to current pregnancy who receive ART (%)	16,0	16,0	16,0	16,0
9		Breastfeeding in general population (average in MONTHS)	14	14	14	14

Pregnant women who receive 3 ARV drugs

- If the country still uses monotherapy or bitherapy, those cases must be considered as **"not treated"**



# ART COVERAGE (II)

	A	B	C	D	E	F
		Costing Tool	Target Scenario	Intermediate Scenario 2	Intermediate Scenario 1	Current Scenario <u>with</u> ANC data
2						
3		Estimated number of births	100.000	100.000	100.000	100.000
4		HIV prevalence among pregnant women (%)	0,50	0,50	0,50	0,50
5		ANC attendance (%)	95,0	90,0	90,0	90,0
6		Percentage of pregnant women who had the HIV test (%)	95,0	85,0	75,0	65,0
7		Percentage of pregnant women tested HIV positive during ANC who received ARVs (%)	95,0	85,0	75,0	65,0
8		Pregnant women with HIV diagnosis previous to current pregnancy who receive ART (%)	16,0	16,0	16,0	16,0
9		Breastfeeding in general population (average in MONTHS)	14	14	14	14

ENTER ART COVERAGE AMONG PREGNANT WOMEN WHO ACCESSED ANC SERVICES AND RECEIVED THE HIV TEST



# ART COVERAGE (III)

## EXAMPLE

- 500 HIV positive cases among pregnant women who accessed ANC and received the HIV test
- 450 of those positive cases received ART

500 pregnant women with HIV ..... 100 %  
450 pregnant women with HIV receive ART. .. x = 90 %

Enter 90 % of ART coverage among pregnant women  
who accessed ANC and received HIV test



# ART COVERAGE (IV)

For current scenario without ANC data

	A	B	C	D	E	F	G
		Costing Tool	Target Scenario	Intermediate Scenario 2	Intermediate Scenario 1	Current Scenario <u>with</u> ANC data	Current Scenario <u>without</u> ANC data
2		Estimated number of births	100.000	100.000	100.000	100.000	100.000
3		HIV prevalence among pregnant women (%)	0,50	0,50	0,50	0,50	0,50
4		ANC attendance (%)	95,0	90,0	90,0	90,0	
5		Percentage of pregnant women who had the HIV test (%)	95,0	85,0	75,0	65,0	
6		Percentage of pregnant women tested HIV positive during ANC who received ARVs (%)	95,0	85,0	75,0	65,0	40,0
7		Pregnant women with HIV diagnosis previous to current pregnancy who receive ART (%)	16,0	16,0	16,0	16,0	16,0
8		Breastfeeding in general population (average in MONTHS)	14	14	14	14	14
9							

Enter ART coverage regardless of attendance to ANC services and HIV test



# HIV DIAGNOSIS PREVIOUS TO PREGNANCY

	A	B	C	D	E	F	G
		Costing Tool	Target Scenario	Intermediate Scenario 2	Intermediate Scenario 1	Current Scenario with ANC data	Current Scenario without ANC data
2							
3		Estimated number of births	100.000	100.000	100.000	100.000	100.000
4		HIV prevalence among pregnant women (%)	0,50	0,50	0,50	0,50	0,50
5		ANC attendance (%)	95,0	90,0	90,0	90,0	
6		Percentage of pregnant women who had the HIV test (%)	95,0	85,0	75,0	65,0	40,0
7		Percentage of pregnant women with HIV diagnosis previous to current pregnancy who receive ART (%)	16,0	16,0	16,0	16,0	16,0
8							
9							

Percentage of pregnant women with HIV diagnosis previous to pregnancy who are receiving ART

\* It is assumed that these women accessed ANC and PMTCT services



# BREASTFEEDING

	A	B	C	D	E	F	G
		Costing Tool	Target Scenario	Intermediate Scenario 2	Intermediate Scenario 1	Current Scenario with ANC data	Current Scenario without ANC data
2							
3		Estimated number of births	100.000	100.000	100.000	100.000	100.000
4		HIV prevalence among pregnant women (%)	0,50	0,50	0,50	0,50	0,50
5		ANC attendance (%)	95,0	90,0	90,0	90,0	
6		Percentage of pregnant women who had the HIV test (%)	95,0	85,0	75,0	65,0	40,0
7		Percentage of pregnant women tested HIV positive during ANC who received ARVs (%)	95,0	85,0	75,0	65,0	40,0
8		Pregnant women with HIV diagnosis previous to current pregnancy who receive ART (%)					
9		Breastfeeding in general population (average in MONTHS)	14	14	14	14	14

Average duration (in months) of breastfeeding among general population



# COSTS

- All costs used and entered in the CTEI are in US Dollars (USD)
- Unit costs information can be obtained from
  - ARVs and laboratory tests  
<http://www.who.int/hiv/amds/gprm/en/index.html>
  - Health Services  
<http://www.who.int/choice/costs/en/index.html>
- *Test costs DO NOT include costs for laboratory services*

If country data are not available, default costs may be used



# UNIT COST OF ARVs (I)

**ARV prophylaxis for pregnant women and exposed infants**

**Enter Costs here**

*Unit cost of ARVs (in USD)*

ABC 300mg	
AZT 10mg/mL	
AZT 300mg	
AZT 300mg/3TC 150mg	
AZT 300mg/3TC 150mg/NVP 200mg	
EFV 600mg	
LPV/r 200mg/50mg	
NVP 10mg/mL	
TDF 300mg/3TC 300mg/EFV 600mg	
TDF 300mg/FTC 200mg/EFV 600mg	

**! Note: DO NOT modify pre-established ARVs combinations**





# UNIT COST OF ARVs (II)

## EXAMPLE 1

ABACAVIR (ABC)

300 mg tablets

60 tablets per bottle

15.89 USD per bottle

ARV prophylaxis for pregnant women and exposed infants

*Unit cost of ARVs (in USD)*

ABC 300mg	0.26
AZT 10mg/mL	
AZT 300mg	
AZT 300mg/3TC 150mg	
AZT 300mg/3TC 150mg/NVP 200mg	
EFV 600mg	
LPV/r 200mg/50mg	
NVP 10mg/mL	
TDF 300mg/3TC 300mg/EFV 600mg	
TDF 300mg/FTC 200mg/EFV 600mg	

60 tablets ..... 15.89 USD

1 tablet ..... x = 0.26 USD

Unit cost of ABC: 0.26 USD



# UNIT COST OF ARVs (III)

## EXAMPLE 2

ZIDOVUDINE (AZT)

Syrup 50 mg/ 5 mL

→ 10 mg / 1 mL

Bottle of 240 mL

2.40 USD per bottle

ARV prophylaxis for pregnant women and exposed infants

Unit cost of ARVs (in USD)

ABC 300mg	
AZT 10mg/mL	0.01
AZT 300mg	
AZT 300mg/3TC 150mg	
AZT 300mg/3TC 150mg/NVP 200mg	
EFV 600mg	
LPV/r 200mg/50mg	
NVP 10mg/mL	
TDF 300mg/3TC 300mg/EFV 600mg	
TDF 300mg/FTC 200mg/EFV 600mg	

240 mL ..... 2.40 USD  
 1 mL ..... x = 0.01 USD

Unit cost of AZT 10 mg/mL: 0.01 USD



## UNIT COST OF ARVs (IV)

- All cells must have a value
- If country data are not available, please keep the default prices (PAHO Strategic Fund prices)

### ARV prophylaxis for pregnant women and exposed infants

#### Unit cost of ARVs (in USD)

ABC 300mg	0.26
AZT 10mg/mL	0.01
AZT 300mg	0.11
AZT 300mg/3TC 150mg	0.14
AZT 300mg/3TC 150mg/NVP 200mg	0.18
EFV 600mg	0.14
LPV/r 200mg/50mg	0.29
NVP 10mg/mL	0.01
TDF 300mg/3TC 300mg/EFV 600mg	0.58
TDF 300mg/FTC 200mg/EFV 600mg	0.66



# DRUG WASTAGE

- If no data are available, please enter “0” or keep the default drug wastage rates

## ARV prophylaxis for pregnant women and exposed infants

### Unit cost of ARVs (in USD)

ABC 300mg	0.26
AZT 10mg/mL	0.01
AZT 300mg	0.11
AZT 300mg/3TC 150mg	0.14
AZT 300mg/3TC 150mg/NVP 200mg	0.18
EFV 600mg	0.14
LPV/r 200mg/50mg	0.29
NVP 10mg/mL	0.01
TDF 300mg/3TC 300mg/EFV 600mg	0.58
TDF 300mg/FTC 200mg/EFV 600mg	0.66

### Drug wastage (%)

Tablets	5
Syrups	20



# ART FOR MOTHER'S OWN HEALTH (I)

52	<b>1) Pregnant women who are eligible for ART for their own health</b>	
53	Percentage of HIV positive pregnant women who are eligible for ART or already on ART (%)	40.00
54	Percentage of ART eligible women who are on AZT+3TC+NVP (%)	100.00

- Pregnant women with clinical or immunological criteria to start treatment (for example:  $CD4 < 250/mm^3$ )
- Pregnant women with previous HIV diagnosis who are already on ART are included



# ART FOR MOTHER'S OWN HEALTH (II)

## EXAMPLE 1

- 500 HIV + pregnant women
- 170 HIV + pregnant women eligible for ART for their own health
- 40 HIV + pregnant women already on ART (before pregnancy)

On ART for their own health:  $170 + 40 = 210$

500 HIV + pregnant women ..... 100 %

210 HIV + pregnant women eligible for ART..... x = 42 %

Enter 42 % of HIV + pregnant women are eligible for ART or  
are already on ART



## ART FOR MOTHER'S OWN HEALTH (III)

52	<b>1) Pregnant women who are eligible for ART for their own health</b>		
53	Percentage of HIV positive pregnant women who are eligible for ART or already on ART (%)	40.00	
54	Percentage of ART eligible women who are on AZT+3TC+NVP (%)	100.00	

Of these eligible pregnant women, what percentage are on AZT+3TC+NVP



# ART FOR MOTHER'S OWN HEALTH (IV)

## EXAMPLE 2

- 210 HIV + pregnant women eligible for ART or already on ART
- 190 HIV + pregnant women eligible for ART or already on ART who are on AZT+3TC+NVP

210 HIV + pregnant women eligible for ART ..... 100 %  
190 HIV + pregnant women eligible for ART who are  
on AZT+3TC+NVP..... x = 90 %

Enter 90 % of pregnant women eligible for ART or already on ART  
are on **AZT+3TC+NVP**





# REPLACEMENT FEEDING (I)

74  
75  
76  
77  
78

## Replacement feeding

Weight of formula per tin	900
Unit cost per tin (in USD)	15
Volume of formula per 50ml of water (g)	7.9

- Modify according to local market
- The formula has a concentration calculated to 14 %



## REPLACEMENT FEEDING (II)

Length of replacement feeding (0, 6, 12, 18 months)	6
Cost of formula per child	414.88
Total cost of formula for children who accessed services	177,854.58

**It is possible to choose the duration of replacement feeding for children of HIV+ mothers among**

**0, 6, 12 or 18 months**



## BIRTH DELIVERY MODE

83	<b>Other costs for PMTCT</b>	
84	Percentage of HIV positive pregnant women who deliver by cesarean section	100.00
85	Percentage of HIV positive pregnant women who have vaginal delivery	0.00
86	Cost of cesarean section (including AZT iv) (in USD)	240.00
87	Cost of vaginal delivery (including AZT iv) (in USD)	120.00

**Enter the percentage of HIV positive women who deliver by cesarean section**

Please enter estimated costs for cesarean section and vaginal deliveries, including the use of AZT iv



# OTHER COSTS FOR PMTCT

A	B	C
<b>Other costs for PMTCT</b>		
Percentage of HIV positive pregnant women who deliver by cesarean section		100,00
Percentage of HIV positive pregnant women who have vaginal delivery		0,00
Cost of cesarean section (including AZT iv) (in USD)		240,00
Cost of vaginal delivery (including AZT iv) (in USD)		120,00
Cost difference between caesarean section and vaginal delivery		120,00
Additional cost of providing caesarean section for HIV positive pregnant women		51.442,50
Cost of co-trimoxazole prophylaxis up to 18 months (per exposed infant)		14,20
Total cost of co-trimoxazole prophylaxis for exposed children		5.962,77
Unit cost of HIV virological test (PCR) for exposed children		40,00
Unit cost of HIV serological test for exposed children		1,00
Total cost of laboratory diagnosis for exposed children		34.711,20
Unit cost of counselling for caregivers of HIV positive children		16,00
Total cost of counselling for caregivers of HIV positive children		117,98
Cost of health service (PMTCT follow up) per visit		7,00
Total number of visits (14 weeks of pregnancy till 18 months after birth)		20
Total cost of health service for PMTCT		57.237,45

THE TOOL WILL USE  
DEFAULT COSTS IF  
DATA ARE NOT  
AVAILABLE

- 4 prenatal visits
- 1 visit at 15 days
- 1 visit per month until 12 months of age
- 1 visit every two months from 12 to 18 months of age



# SYPHILIS AMONG PREGNANT WOMEN

	A	B	C
105		<b>Prevention of congenital syphilis</b>	
106			
107		Syphilis prevalence among pregnant women (%)	1.0
108		Percentage of pregnant women who had syphilis test (%)	95.0
109		Percentage of pregnant women with maternal syphilis who received treatment by 24 weeks of pregnancy (%)	95.0
110		Unit cost of syphilis test (screening)	0.70

**If not available: enter adult (15-49) prevalence**



# SYPHILIS TEST (I)

For the first 4 scenarios:

	A	B	C	D	E	F
105		<b>Prevention of congenital syphilis</b>				
106						
107		Cost of syphilis test (screening) (US\$)	1.0	1.0	1.0	1.0
108		Percentage of pregnant women who had syphilis test (%)	95.0	85.0	75.0	65.0
109		Percentage of pregnant women with maternal syphilis who received treatment by 24 weeks of pregnancy (%)	95.0	85.0	75.0	65.0
110		Unit cost of syphilis test (screening)	0.70	0.70	0.70	0.70

Coverage of syphilis testing among pregnant women who accessed ANC



# SYPHILIS TEST (II)

## EXAMPLE

- 100,000 total pregnant women
- 75 % accessed ANC → 75,000 pregnant women in ANC
- 40,000 of the pregnant women who accessed ANC received syphilis test

75,000 pregnant women ..... 100 %  
40,000 pregnant women ..... x = 53 %

Enter 53 % coverage of syphilis test among pregnant women  
with ANC



# SYPHILIS TEST (III)

For current scenario without ANC data

	A	B	C	D	E	F	G
105		Prevention of congenital syphilis					
106							
107			1.0	1.0	1.0	1.0	
108		Percentage of pregnant women who had syphilis test (%)	95.0	85.0	75.0	65.0	50.0
109		Percentage of pregnant women with maternal syphilis who received treatment by 24 weeks of pregnancy (%)	95.0	85.0	75.0	65.0	95.0
110		Unit cost of syphilis test (screening)	0.70	0.70	0.70	0.70	0.70

- Enter coverage of syphilis testing regardless ANC attendance

Enter the percentage of pregnant women who received syphilis testing





# TREATMENT OF MATERNAL SYPHILIS

	A	B	C	D	E	F	G
105		<b>Prevention of congenital syphilis</b>					
106							
107		Syphilis prevalence among pregnant women (%)	1.0	1.0	1.0	1.0	1.0
108							
109		Percentage of pregnant women with maternal syphilis who received treatment by 24 weeks of pregnancy (%)	95.0	85.0	75.0	65.0	95.0
110		Unit cost of syphilis test (screening)	0.70	0.70	0.70	0.70	0.70

Pregnant women who received 3 doses of benzylpenicilin (2.4 millions units each) before 24 weeks of pregnancy



# TREATMENT OF MATERNAL SYPHILIS: COVERAGE (I)

**For the first 4 scenarios:**

	A	B	C	D	E	F
105		<b>Prevention of congenital syphilis</b>				
106						
107		Syphilis prevalence among pregnant women (%)	1.0	1.0	1.0	1.0
108		Percentage of pregnant women with maternal syphilis who received treatment by 24 weeks of pregnancy (%)	95.0	85.0	75.0	65.0
109		Unit cost of syphilis test (screening)	0.70	0.70	0.70	0.70
110						

**ENTER TREATMENT COVERAGE AMONG  
PREGNANT WOMEN WHO ACCESSED ANC  
SERVICES AND RECEIVED THE SYPHILIS TEST**



# TREATMENT OF MATERNAL SYPHILIS: COVERAGE (II)

## EXAMPLE

- 40,000 pregnant women who accessed ANC and received the syphilis test
- 400 positive cases among those women who accessed ANC and received the syphilis test
- 350 of those positive cases received treatment

400 pregnant women with maternal syphilis..... .. 100 %  
350 pregnant women with maternal syphilis on treatment ..... x = **87 %**

Enter **87 %** coverage of maternal syphilis treatment  
Among pregnant women who accessed ANC  
and received the syphilis test



# TREATMENT OF MATERNAL SYPHILIS: COVERAGE (III)

For current scenario without ANC data

105	Prevention of congenital syphilis					
106						
107	Syphilis prevalence among pregnant women (%)	1.0	1.0	1.0	1.0	1.0
108	Percentage of pregnant women who had syphilis test (%)	95.0	85.0	75.0	65.0	50.0
109	Percentage of pregnant women with maternal syphilis who received treatment by 24 weeks of pregnancy (%)	95.0	85.0	75.0	65.0	95.0
110	Unit cost of syphilis test (screening)	0.70	0.70	0.70	0.70	0.70

Please enter coverage of maternal syphilis coverage, regardless of attendance to ANC services or syphilis test



# SYPHILIS TREATMENT COSTS

113	Unit cost of benzylpenicillin/2.4million unit	0.50
114	Total cost of treatment for seropositive pregnant women (3 doses)	1,286.06
115	Total cost of treatment for partners of seropositive pregnant women (1 dose)	485.00
116	Unit cost of benzylpenicillin/150,000 unit (exposed infants)	0.30

Body weight of baby is assumed as 3kg



# SYPHILIS TREATMENT COSTS

## EXAMPLE

BENZYL PENICILIN

1,000,000 units

2 USD

Dose: 50,000 units per kg

1,000,000 units ..... 2 USD  
150,000 units ..... x = 0.30 USD

Unit cost: 0.30 USD



# TREATMENT FOR CHILDREN WITHOUT PRIOR EXPOSURE TO NVP

144  
145  
146  
147  
148  
149  
150  
151  
152  
153  
154  
155

**Children whose mothers accessed PMTCT services**

## 1) Treatment for children with prior exposure to NVP (AZT/3TC/LPV/r)

Number of children with NVP exposure - mother on ART	3	
Cost of treatment per child	5,648.58	
Total cost of treatment	15,564.69	

## 2) Treatment for children without prior exposure to NVP

Selected regimen		
1. AZT+3TC+NVP		1
2. AZT+3TC+LPV/r		
Number of children without prior exposure to NVP	1	
Cost of treatment per child	2,945.88	
Total cost of treatment	12,681.06	

- It is possible to choose between these 2 treatments:
- AZT+3TC+NVP
  - AZT+3TC+LPV/r

**ENTERING DIFFERENT COMBINATIONS IS NOT ALLOWED**



## TREATMENT FOR CHILDREN WHOSE MOTHERS DID NOT ACCESS PMTCT SERVICES

156	<b>Children whose mothers did NOT access PMTCT services</b>	
157	Selected regimen	1
	1. AZT+3TC+NVP	
	2. AZT+3TC+EFV	
	3. AZT+3TC+LPV/r	
158	Number of children whose mothers did not access PMTCT services	1
159	Cost of treatment per child	2,945.88
160	Total cost of treatment	39,816.06
161		

It is possible to choose among these 3 treatments:

- AZT+3TC+NVP
- AZT+3TC+EFV
- AZT+3TC+LPV/r

**ENTERING DIFFERENT COMBINATIONS IS NOT ALLOWED**





## 2<sup>nd</sup> LINE REGIMEN

	A	B	C
172	<b>Children on 2nd line regimen</b>		
173	Rate of treatment failure (switch to 2nd line regimen) per year (%)		2.00
174	Cost difference between 1st and 2nd line regimen (per person per year)		400.00

- Enter data available in the country
- (annual cost of selected 1st line regimen) MINUS (annual cost of mostly used 2nd line regimen)

2<sup>nd</sup> LINE REGIMEN:  $ABC + 3TC + LPV/r$



# COST ANALYSIS



**Pan American  
Health  
Organization**

*Regional Office of the  
World Health Organization*



# ESTIMATES

Once the information requested has been entered, estimates will be detailed in the white cells and total costs in the orange cells of the Costing Tool



	A	B	C	D	E	F	G
184		<b>Grand total (cost of PMTCT + cost of prevention of congenital syphilis + cost of paediatric HIV treatment)</b>	<b>885,613.21</b>	<b>946,730.25</b>	<b>1,038,874.91</b>	<b>1,116,124.25</b>	<b>1,196,654.22</b>
185							
186		<b>Summary</b>					
187							
188		Total number of HIV infection averted (children protected from MTCT)	151	126	102	81	67
189		Cost per infection averted (cost of PMTCT/# of infection averted)	3,669.14	3,446.53	3,431.18	3,388.29	3,806.68
190		Average cost of paediatric treatment per child (cost of paediatric treatment/# of infected children)	8,558.85	8,261.46	8,165.38	8,121.33	8,092.39
191		Total savings (average cost of paediatric treatment x # of infection averted - total cost of PMTCT)	737,633.02	604,399.28	482,203.64	384,055.34	286,937.02



# TABLES AND GRAPHICS

Tables, graphics and other resources are available in the tabs located at the bottom of any page, and can be accessed by clicking on them at any time:





# CONTACT INFORMATION

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