USAID FROM THE AMERICAN PEOPLE | HEALTH POLICY INITIATIVE

COSTING BELIZE'S NATIONAL STRATEGIC PLAN FOR HIV/AIDS

Methodology, results and data source

BELIZE

SEPTEMBER — 2008

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CONTENIDO

ORGANIZATIONS SUPPORTING COSTING EXERCISE

Ministry of Education -MOE-
Ministry of Health -MOH-
Ministry of Human Development - MOHD-
Ministry of Labor -MOL-
National AIDS Commission -NAC-
National AIDS Programme
Belize Defense Forces
Hand in Hand Ministries
Belize Family Life Association -BFLA-
Belize Enterprise for Sustainable Technology -B.E.S.T.
Kolbe
MSD
University of Belize
Alliance Against AIDS -AAA-
Pan American Health Organization -PAHO-
Pan American Social Marketing Organization -PASMO-
The Joint United Nations Programme on HIV/AIDS -UNAIDS-
WIN-Belize
Youth for the Future Initiative -YFI
UNIBAM
USAID| Health Policy Initiative

INTRODUCTION

Belize's National Strategic Plan for HIV/AIDS (NSP) was costed using the Resource Needs Model (RNM).[1] This model calculates the total resources required to implement HIV/AIDS interventions on a national level and is primarily used for national strategic planning efforts.

For the application of the RNM in Belize a national working group was formed to implement the model. A multi-sectoral group[2] participated in the process, including the National AIDS Commission (NAC), National AIDS Program, service delivery organizations, ONUSIDA and other cooperating agencies, and NGOs.

Local data on socio-demographic variables, health systems, HIV prevalence and condom use, and the costs of prevention and care programs was collected for this costing. These exercises were completed by the largest groups providing the different types of services or interventions.

Demographic information was obtained using the official Belize population projections, developed in Spectrum. For subgroup and priority populations average medium or high national estimates was used. Initial coverage levels were established by either representative surveys (where available) or by calculating coverage levels based on the number of persons reached and the size of the target population. Goal coverage was estimated in accordance with the Strategic Plan targets, UNGASS goals, and the universal access objectives.

[1] For more information on this model, please see www.futuresinstitute.org.
[2] Organizations supporting costing exercise: NAC, National AIDS Programme, MOH, USAID| Health Policy Initiative, PASMO, WIN-Belize, Hand in Hand, MOL, MOE, Kolbe, Belize Defense Forces, Youth for the Future, BFLA, MSD, University of Belize, Alliance Against AIDS, and UNIBAM.

Unit costs were calculated by the largest organizations providing services or outreach. In cases with multiple groups, weighted averages were calculated. Where no local information was available (in cases of planned but not yet executed programs, ones where no costs were obtainable, or were not available with sufficient precision for the model) regional defaults or costs from similar programs in other countries were used.

Inputs and results were confirmed by the working group. Meetings were held with prevention and care and treatment groups and representatives to discuss coverage goals, unit costs, and the results. Adjustments to the inputs were made based on these meetings.

Entering data in the model took place over a two week period after completion of the data collection, goal identification, and input and result confirmation. USAID|HPI staff managed the data entry process.

METHODOLOGY DESCRIPTION

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2.1 Resource Needs Model

Belize's National Strategic Plan for HIV/AIDS (NSP) was costed using the Resource Needs Model (RNM).[3] This model calculates the total resources required to implement HIV/AIDS interventions on a national level and is primarily used for national strategic planning efforts. It is very flexible, and can be adapted for use in countries with either concentrated or generalized epidemics, and for a range of responses. This model is used to calculate the resource needs of a country based on local decision making. It does not tell decision makers the best path, but rather can be used to for weighing options and examining the fiscal impact of decisions on program costs.

The Resource Needs Model contains three sub-models, which calculate the resource requirements for prevention associated activities, care and treatment, and mitigation of the impact of HIV/AIDS. The three sub-models are:

The prevention model

The prevention model, which calculates the cost of specific prevention interventions, including

- General population
  - Mass media
- Priority populations
  - Youth focused interventions
  - Interventions focused on sex workers and their clients
  - Workplace programs
  - Interventions focused on men who have sex with men
  - Other priority groups, including mobile populations, prisoners, and indigenous populations
- Service delivery
  - Condom provision
  - Improving STI management
  - Voluntary Counseling and Testing
  - Prevention of mother-to-child transmission
- Health care
  - Blood safety
  - Post exposure prophylaxis
  - Universal precautions

[3] For more information on this model, please see www.futuresinstitute.org.

The care and treatment model

The care and treatment model, which estimates the cost of care and treatment programs, including:

- Anti-retroviral therapy (ART), including laboratory tests for monitoring ART and treatment of OIs while on ART
- Care and prophylaxis in the absence of ART
- Diagnostic HIV testing
- Home-based care
- Palliative care
- Tuberculosis treatment
- Nutritional support
- ART provider training

The mitigation model

The mitigation model, which calculates the cost of interventions to support PLWHIVs, mitigate the social impact of the epidemic, and support children orphaned by AIDS.

The three main elements in the methodology of each sub-model are 1) Population target groups, 2) Unit costs, and 3) Coverage or access targets.

2.2 Resource Needs Model Application in Belize

The application of the Resource Needs Model in Belize was a five step process:

1. Formation of a national working group to implement the model. A multi-sectoral group participated in the process, including the National AIDS Commission, the National AIDS Program, service delivery organization, cooperating agencies, and other NGOs.
2. Collection of data on socio-demographic variables, health systems, HIV prevalence and condom use, and the costs of prevention and care programs. These exercises were completed by the largest groups providing the different types of services or interventions.
3. Entering data in the model. USAID|HPI staff managed the data entry process.
4. Confirmation of inputs and results. Meetings were held with prevention and care and treatment groups to discuss coverage goals, unit costs, and the results. Adjustments to the inputs were made based on these meetings.

5. Follow-up. This application of the RNM can be used for a number of strategic planning and proposal applications. Ideally, it will be a living document which is updated on a regular basis.

Demographic information was obtained using the official Belizean population projections, developed in Spectrum. For subgroup and priority populations an average of the high and low national estimates was used. Initial coverage levels were established by either representative surveys (where available) or by calculating coverage levels based on the number of persons reached and the size of the target population. Goal coverage was estimated in accordance with the Strategic Plan targets, UNGASS goals, and the universal access objectives, and adjusted where these targets were deemed too ambitious or not ambitious enough.

Unit costs were calculated by the largest organizations providing services or outreach. In cases with multiple groups, weighted averages were calculated. Where no local information was available (in cases of planned but not yet executed programs, ones where no costs were obtainable, or were not available with sufficient precision for the model) regional defaults or costs from similar programs in other countries were used.

Coverage was estimated using program reach, surveys showing program coverage, or regional data, where no local information was available. Coverage goals were established either at levels set by UNGASS as targets, or at the Belizean universal access levels, where feasible. In cases where UNGASS or universal access was not seen as possible, coverage goals were established by the national HIV/AIDS program that were both ambitious, but still feasible.

Results of the overall model, as well as the sub-models are found in the following sections.

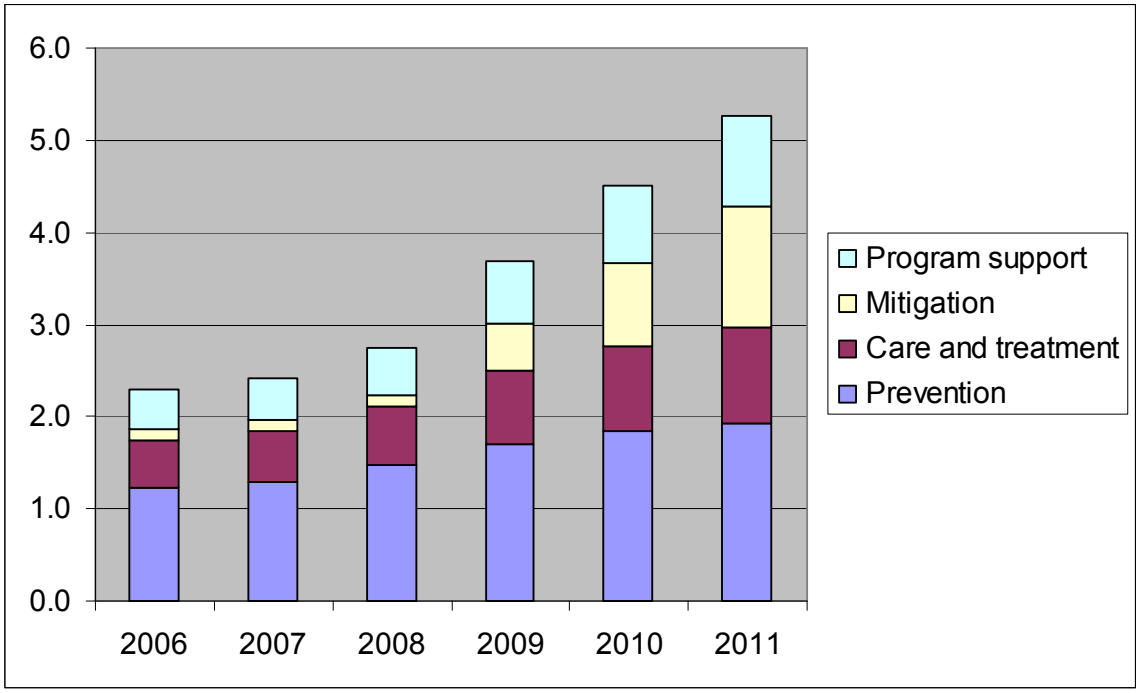
RESULTS

RESULTS

3.1 Total Resource Needs

Based on the Resource Needs Model calculations, it is estimated that implementation of the NSP would cost US$21 million over the years 2006-2011.. As Figure 1 shows, this is an increase from an estimated $US 2.3 million in 2006 to $US 5.3 million in 2011. In the first year the prevention program is the bulk of the costs, at $US 1.2 million, while care and treatment absorbs $US 500,000. By 2011, it is estimated that prevention will have increased to $US1.9 million, due to the coverage increases and the larger number of programs, while care and treatment will rise to $1.1 million. Please see Appendix A for a complete compilation of the results.

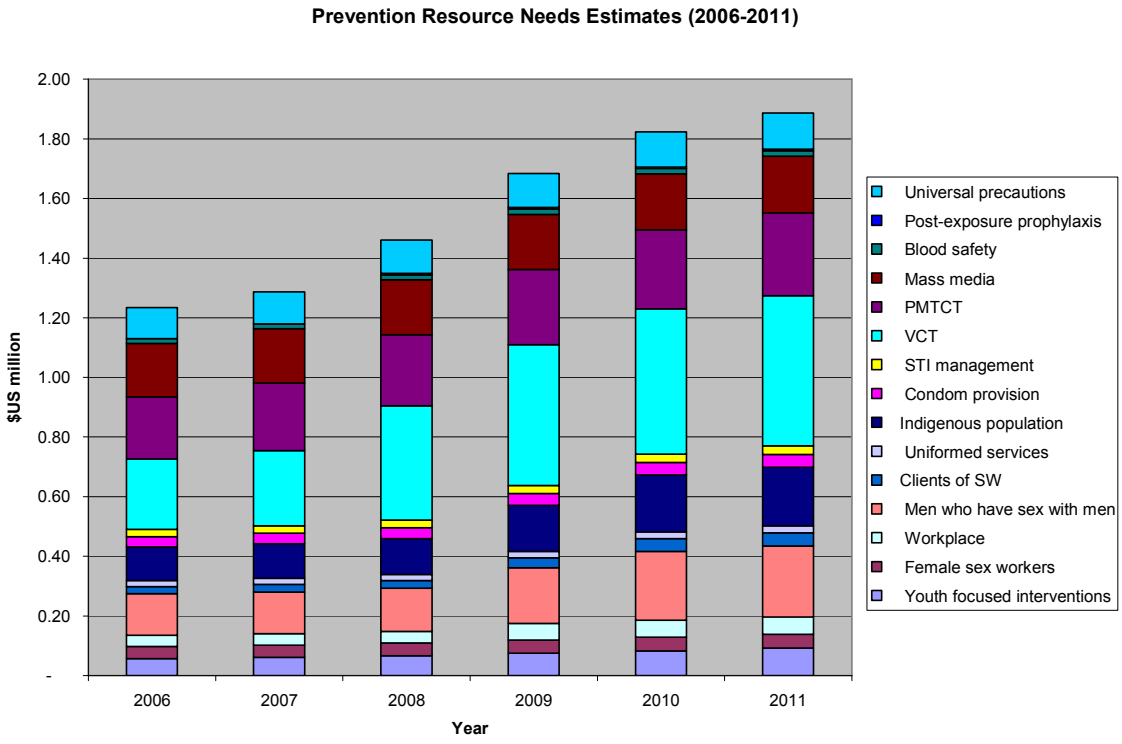
Figure 1: Total resources estimated for implementation of the Belize National Strategic Plan for HIV/AIDS (NSP)



3.2 Prevention

As shown in Figure 2, the biggest programs in prevention are VCT, PMTCT, and mass media, at $US 2.33 million, $US 1.47 million, and $US1.11 million for 2006 through 2011. All other prevention interventions are under $US 1.1 million for the 5 year period. Overall, the prevention sector of HIV/AIDS plan is expected to increase from $US 1.2 million to $US 1.9 million in the years from 2006 through 2011.

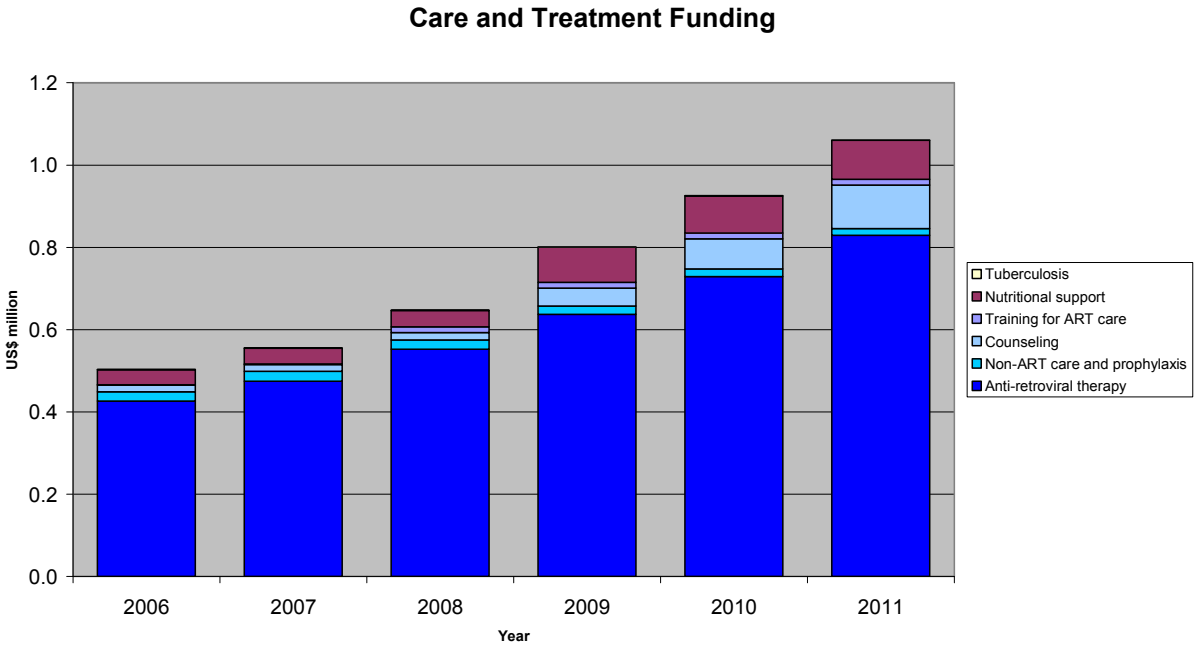
Figure 2: Resources estimated for implementation of the prevention component of the Belize NSP



3.3 Care and Treatment

As shown in Figure 3, care and treatment costs are expected to rise from $US 500,000 to $US 1.1 million by 2011. The bulk of these costs are found in antiretroviral therapy, and its associated services and drugs. Costs for antiretroviral therapy and the associated services and drugs will rise from approximately $US 430,000 in 2006 to $US 830,000 in 2011.

Figure 3: Care and treatment resources estimated for implementation of the Belize National Strategic Plan for HIV/AIDS

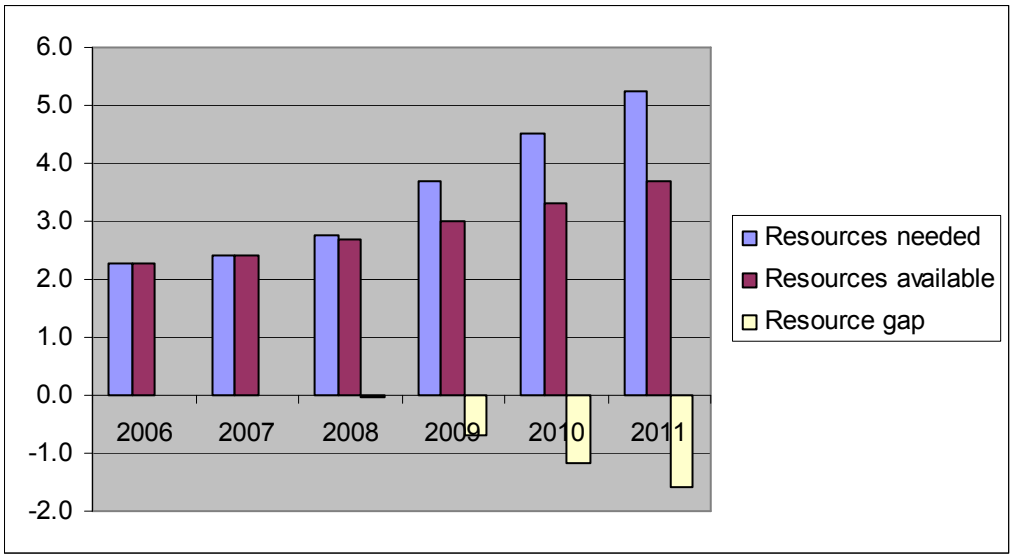


3.4 Resource Gap

Total resources available for HIV/AIDS activities in Belize were estimated based on the 2003 NASA. This number was then updated by increasing it in the same proportion that the total expenditures on health increased in Belize from the years 2004 to 2006 (the most recent year when these figures were available), an average of an 11% increase per year. The resource gap for was calculated by subtracting the estimated funds required from the funds available. When there is a negative result, this is what is known as the resource gap.

The estimated funds available rose from $US 2.3 million in 2006 to $US 3.7 million in 2011, for a total of $US 17.4 million over the period. The resource gap rose from 0 in 2006 (based on actual coverage) to $US 1.6 million (based on goal coverage) in 2011 and totaled $US 3.5 million over those years. Using the same methodology, estimates of the resource gap from the years 2009 to 2014 total US$ 9.5 million.

Figure 4: Resource gap (2006-2011)



4. Conclusions

This costing of the of Belize's NSP shows that implementing the program outlined in the document and envisioned by the country will be a challenge, but one that should be met in order to contain the epidemic. It also shows that there are significant resource gaps and that in order to implement the NSP, additional resources will need to be identified.

APPENDIX A
RESOURCE NEED FOR NSP 2006-2011

APPENDIX A: RESOURCE NEED FOR NSP 2006-2011
(millions of US$)

	2006	2007	2008	2009	2010	2011	2006-2011
Prevention	**1.2**	**1.3**	**1.5**	**1.7**	**1.8**	**1.9**	**9.5**
Priority populations							
Youth focused interventions	0.06	0.06	0.07	0.08	0.08	0.09	0.44
Female sex workers	0.04	0.04	0.04	0.04	0.05	0.05	0.26
Workplace	0.04	0.04	0.04	0.06	0.06	0.06	0.29
Men who have sex with men	0.14	0.14	0.14	0.19	0.23	0.24	1.08
Clients of SW	0.02	0.03	0.03	0.03	0.04	0.04	0.20
Uniformed services	0.02	0.02	0.02	0.02	0.02	0.02	0.13
Indigenous population	0.11	0.12	0.12	0.15	0.19	0.20	0.89
Service delivery							
Condom provision	0.03	0.04	0.04	0.04	0.04	0.04	0.23
STI management	0.03	0.03	0.03	0.03	0.03	0.03	0.16
VCT	0.24	0.25	0.38	0.47	0.49	0.50	2.33
PMTCT	0.21	0.23	0.24	0.25	0.26	0.28	1.47
Mass media	0.18	0.18	0.18	0.19	0.19	0.19	1.11
Health care							
Blood safety	0.02	0.02	0.02	0.02	0.02	0.02	0.10
Post-exposure prophylaxis	-	-	0.01	0.01	0.01	0.01	0.02
Universal precautions	0.10	0.11	0.11	0.11	0.12	0.12	0.68
Care and treatment services	**0.5**	**0.6**	**0.6**	**0.8**	**0.9**	**1.1**	**4.5**
ARV therapy	0.43	0.47	0.55	0.64	0.73	0.83	3.65
Care and prophylaxis in the absence of ART	0.02	0.02	0.02	0.02	0.02	0.02	0.12
Counseling	0.02	0.02	0.02	0.04	0.07	0.11	0.27
Training for ART care	0.00	0.00	0.01	0.01	0.01	0.01	0.06
Nutritional support	0.04	0.04	0.04	0.09	0.09	0.09	0.38
Tuberculosis	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Mitigation	**0.1**	**0.1**	**0.1**	**0.5**	**0.9**	**1.3**	**3.1**
Subtotal	*1.86*	*1.97*	*2.24*	*3.01*	*3.67*	*4.29*	*17.04*
Policy, admin., research, M&E	**0.4**	**0.4**	**0.5**	**0.7**	**0.8**	**1.0**	**3.8**
Total Millions of Belize dollars	**4.6**	**4.8**	**5.5**	**7.4**	**9.0**	**10.5**	**41.8**
Total Millions of USD	**2.3**	**2.4**	**2.7**	**3.7**	**4.5**	**5.3**	**20.9**

APPENDIX B
UNIT COSTS

APPENDIX B: UNIT COSTS

PREVENTION		
	COST IN BASE YEAR (US$)	SOURCE
Female sex workers		
Cost per SW reached	73.07	PASMO
Men who have sex with men		
Cost per MSM reached	84.46	PASMO
Clients of SW		
Cost per client reached	42.49	PASMO
Prisoners		
Cost per prisoner reached	45.00	Costa Rica cost used as proxy
Uniformed services		
Cost per person reached	19.00	Assumed similar cost structure as youth out of school, at a cost of BZ$ 38 per person
Indigenous population		
Cost per person reached	49.22	PASMO
Youth		
Cost per primary teacher trained	125	MOE
Cost per secondary teacher trained	335	MOE
Cost per out of school youth reached	19	Youth for the Future
Workplace programs		
Cost per institution reached	4,211	Ministry of Labor – average of various programs
STI management		
Cost per STI treated	15.46	Regional default - high
VCT/PICT		
Cost per person counseled and tested	23.28	Regional default - high
Cost per new site	13,500	Guatemala calculations
Cost per upgrade	5,500	PAHO
PMTCT		
Cost for screening a pregnant woman	23.28	Receives same service as in VCT PICT so same cost
Cost for profilaxis for a positive pregnant woman	40.50	MOH
Cost for formula	323.00	MOH
Cost per PCR	160.00	Sent to Honduras - $50 each + $10 for shipping and handling
Mass media		
Cost per campaign (average)	15,000	IEC sub-committee discussion; average of low and high costs for large and small campaigns
Blood safety		
Cost per unit of blood tested	5.68	Central Laboratory
Post-exposure prophylaxis		

PREVENTION		
	COST IN BASE YEAR (US$)	SOURCE
Cost per kit	100	International default
Universal precautions		
Cost per bed (annual)	306	International default
Condoms		
cost per condom distributed by public sector	0.04	UNFPA average: $US 0.03 per condom' .005 for transport to country and .005 for distribution and transport within the country
cost per condom distributed by social marketing	0.5	

CARE AND TREATMENT		
	COST IN BASE YEAR (US$)	SOURCE
Anti-retroviral therapy		
First line, first 6 months	470	Weekly visits for first six weeks; monthly thereafter for first six months on ARVs; 2 CD4 tests
First line	750	Quarterly CD4 tests and doctors visits
Second line, first 6 months	758	Weekly visits for first six weeks; monthly thereafter for first six months on ARVs
Second line	1,334	Quarterly CD4 tests and doctors visits
Failing	1,134	Quarterly CD4 tests and doctors visits
Non-ART care and prophylaxis		
Cost for care pre ART	334	4 CD4s and consults per year
Counseling		
Annual cost for counseling (basic current model)	96.00	8 visits per year at $US 12 (Alliance Against AIDS); primarily supportive or peer counseling
Annual cost for counseling (intensive model)	424.00	2 professional counselor visits ($US 140 each) and monthly supportive or peer counseling visits ($12)
Training for ART care		
cost per training	1,500	National AIDS Programme
Nutritional support		
Annual cost	633	Average yearly cost for nutritional support for an indigent person
Tuberculosis		
Cost per patient treated for coinfection	55	MOH. Includes only drugs, not personnel costs.

MITIGATION		
	COST IN BASE YEAR (US$)	SOURCE
Cost per child for care and support (Hand in Hand model)	6,847.22	Hand in Hand. Refers to children actually being seen in the center, not those reached through support services via family members

APPENDIX C
COVERAGE

APPENDIX C: COVERAGE

PREVENTION

	2006	2007	2008	2009	2010	2011	SOURCE
Female sex workers							
% sex workers reached by intervention per year	88	88	88	88	88	88	Baseline: PASMO tracking survey 2011: maintain high level
Men who have sex with men							
% MSMs reached by intervention per year	40	40	40	50	60	60	Baseline: PASMO tracking survey 2011: 50% increase by 2010, then maintain; discussion with sub-committee
Clients of SW							
% reached by intervention per year	10.9	10.9	10.9	13.6	17.0	17.0	Baseline: PASMO tracking survey 2011: 50% increase by 2010, then maintain; discussion with sub-committee
Prisoners							
% reached by intervention per year	0	0	10	20	30	40	Baseline: currently limited coverage 2011: 50% by 2012, 40% by 2010; discussion with sub-committee
Uniformed services							
% reached by intervention per year	0	0	25	50	75	100	Baseline: 0% coverage 2011: 100% coverage by 2011; discussion with sub-committee
Indigenous							
% reached by intervention per year	12.3	12.3	12	15	18	18	Baseline: PASMO tracking survey 2011: 50% by 2012, 40% by 2010; discussion with sub-committee
Youth							
% primary students with teachers trained in AIDS	50	60.0	70	80	90	100	MOE

PREVENTION							
	2006	2007	2008	2009	2010	2011	SOURCE
% secondary students with teachers trained in AIDS	4	4.5	5	5	5	5	MOE
% out-of-school youth reached	5	3.5	3	3	3	3	YFF; goals established in 2006-2008 by Global Fund; future hope is to maintain current level at a minimum
Workplace programs							
# of institutions reached	9	9.0	9	13	13	13	MOL
STI management							
% males with symptomatic STIs receiving treatment	100	100	100	100	100	100	Based on syndromic management – all who arrive with symptoms are treated.
% females with STI receiving treatment	100	100	100	100	100	100	Based on syndromic management – all who arrive with symptoms are treated.
VCT/PICT							
% of adult population receiving testing each year	6.8	7.0	7.0	11.2	12.2	12.2	MOH
Humber of new sites	-		8	-			Care and treatment sub-committee
Number of sites needing upgrades	-	-	2	7	-	-	Care and treatment sub-committee
PMTCT							
% of pregnant women attending ANC tested for HIV	87.1	90	91.25	92.5	93.75	95	Baseline: UNGASS Goal: MOH
% HIV positive pregnant women treated with ARV	76	78	82.25	86.5	90.75	95	Baseline: UNGASS Goal: MOH
% HIV positive pregnant women that receive infant formula	96	96	96	96	96	96	MOH
% using PCR	84	100	100	100	100	100	MOH
Mass media							
Average number of campaigns per year	12	12	12	12	12	12	Baseline is 12. Minimum for future is maintenance of current number.
Blood safety							
% of units of blood for transfusion tested	100	100	100	100	100	100	MOH
Post-exposure prophylaxis							
Percent of need that is met	-	-	100	100	100	100	MOH

PREVENTION

	2006	2007	2008	2009	2010	2011	SOURCE
Universal precautions							
Percent of hospital beds covered	100	100	100	100	100	100	MOH

CARE AND TREATMENT

	2006	2007	2008	2009	2010	2011	SOURCE
	2006	**2007**	**2008**	**2009**	**2010**	**2011**	
Anti-retroviral therapy							
Population in need receiving ART	42%	49%	60%	70%	75%	80%	Baseline: Epidemiological fact sheets for 2006, 2007 Goals: National AIDS Programme
Non-ART care and prophylaxis							
Coverage of those requiring care	42%	49%	60%	70%	75%	80%	Same as ART
Counseling							
% in need receiving counseling	5%	5%	5%	6%	8%	9%	Discussion with care and treatment sub-committee
% in need receiving counseling - more intensive form			0%	1%	3%	4%	Discussion with care and treatment sub-committee
Training for ART care							
Trainings	1	1	9	9	9	9	National AIDS Programme
Nutritional support							
Coverage	5%	5%	5%	10%	10%	10%	Discussion with care and treatment sub-committee
Tuberculosis							
Percent of TB patients receiving TB treatment	100%	100%	100%	100%	100%	100%	MOH/ UNGASS

MITIGATION

	2006	2007	2008	2009	2010	2011	SOURCE
Coverage of care and support for positive children	10%	10%	9%	36%	63%	90%	Hand in Hand