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# SUSTAINING THE HIV AND AIDS RESPONSE IN COUNTRIES OF THE OECs: REGIONAL INVESTMENT CASE ANALYSIS

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This publication was produced for review by the United States Agency for International Development. It was prepared by Matt Hamilton and Stephen Musau for the Health Finance and Governance Project.

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# I. INTRODUCTION

In 2014, the six countries of the Organization of Eastern Caribbean States (OECS) of Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, St. Lucia and St. Vincent and the Grenadines developed HIV and AIDS Investment Case Briefs, with the support of USAID's Health Finance and Governance (HFG) and Strengthening Health Outcomes through the Private Sector (SHOPS) projects. This document provides a summary of the findings of these briefs, which includes an analysis of the costs of HIV and AIDS programs that respond to the disease in the six countries, the resources that are available, the funding gaps, and the potential impact of different levels of investment in programming on the progression of the disease in the region.<sup>1</sup>

## I.1 HIV and AIDS epidemic in the Caribbean

The Caribbean region has the second highest HIV prevalence in the world after sub-Saharan Africa. The AIDS epidemic continues to be the leading cause of death among Caribbean adults 25 to 44 years of age. The region's estimated adult prevalence is 1.1 percent, ranging from nearly zero to 3 percent (0.1 percent in Cuba to 3 percent in the Bahamas) in the general population<sup>2</sup>. In 2013, there were an estimated 12,000 new infections and 250,000 people living with HIV in the Caribbean. The male-to-female ratio of those living with HIV/AIDS is approximately 2:1. Despite lower infection rates, women represent about 45 percent of reported AIDS cases. The HIV epidemic is shifting to younger populations, but with different gender patterns across countries<sup>3</sup>. In the Organization of Eastern Caribbean States (OECS) of Antigua and Barbuda, Dominica, Grenada, St. Kitts and Nevis, St. Lucia, and St. Vincent and the Grenadines prevalence ranges from 0.5% in St. Kitts and Nevis to 1.4% in Antigua and Barbuda.<sup>4</sup>

National averages do not reflect higher prevalence among persons engaging in high risk behaviors, such as men who have sex with men (MSM), sex workers and prisoners. For example, in St. Vincent and the Grenadines, the prevalence among MSM is estimated at 29.5%.<sup>5</sup> Evidence points to the fact that the primary mode of HIV transmission in the Caribbean is through unprotected sexual intercourse.<sup>6</sup>

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<sup>1</sup> For more information on the OECS Investment Case Briefs and to download the individual country reports, see [www.hfgproject.org](http://www.hfgproject.org).

<sup>2</sup> PEPFAR (2010). *Caribbean Regional HIV and AIDS Partnership Framework, 2010-2014*.

<sup>3</sup> UNAIDS Fact Sheet (2014).

<sup>4</sup> Hamilton, Matthew and Laurel Hatt. November 2014. *Sustaining the HIV and AIDS Response in St. Kitts and Nevis: Investment Case Brief*. Bethesda, MD: Health Finance & Governance Project, Abt Associates Inc. and Sanders, Rachel and Lisa Tarantino. December 2014. *Sustaining the HIV/AIDS Response in Antigua and Barbuda: Investment Case Brief*. Bethesda, MD: Health Finance & Governance Project, Abt Associates Inc.

<sup>5</sup> Hamilton, Matthew, Matt Kukla and Elizabeth Conklin. December 2014. *Sustaining the HIV/AIDS Response in St. Vincent and the Grenadines: Investment Case Brief*. Bethesda, MD: Health Finance & Governance and SHOPS Projects, Abt Associates Inc.

<sup>6</sup> PEPFAR (2010). *Caribbean Regional HIV and AIDS Partnership Framework, 2010-2014*.

In response to the need to accelerate the response to HIV and AIDS, the Caribbean region has committed to new targets for expanding HIV testing and treatment by 2020 in order to reduce new HIV infections, late diagnosis and AIDS-related deaths, and improve the quality of life of people living with HIV. This challenge, led by UNAIDS, calls for countries to meet “90-90-90” treatment targets, to include increasing to 90% the proportion of people living with HIV who know their diagnosis, increasing to 90% the proportion of people living with HIV receiving antiretroviral treatment and increasing to 90% the proportion of people on HIV treatment who have an undetectable viral load<sup>7</sup>. In addition, the OECS countries would ideally like to have the increased resources available to change eligibility for ART for both adults and children to the new World Health Organization (WHO) guideline recommendations. Antigua and Barbuda is already abiding by these guidelines, but for the other OECS countries, this shift would require more funding.<sup>8</sup>

With varying levels of resources available for HIV and AIDS programming and health system capacity across the different countries in the Caribbean, the region faces an array of challenges to not only sustain but to scale up their national HIV and AIDS responses. The challenge implied by a 90-90-90 scale up scenario, as well as decreasing funding levels and/or shifts in funding priorities among international donors, requires countries, and the region as a whole to carefully examine programmatic priorities to determine the most efficient way to achieve impact.

## 1.2 Objective and rationale for investment cases

In an effort to aid in this strategic exercise, HFG and SHOPS provided support in the development of investment cases in each of the six OECS countries and this regional analysis to reflect the potential impact, costs and resources required to maintain and scale up HIV and AIDS programming. This exercise involves using existing data to model how the course of HIV infections, AIDS deaths and the costs differ when opting for a “maintenance” of the status quo level and types of programming versus a scale up of select interventions to meet 90-90-90 targets and in most cases to meet the new WHO guideline recommendations for ART eligibility. This “investment case brief” is designed to provide strategic information to reflect the impact and costs involved with these commitments to then facilitate discussion about priorities, funding needs and other strategic decisions essential for the region to move closer to its goal for an “AIDS free Caribbean”. Data generated through the investment case analysis supports the formulation of the OECS Regional Concept Note to be submitted to the Global Fund in April of 2015.

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<sup>7</sup> UNAIDS (2014, June). *New targets set for 2020 for reducing the HIV epidemic in Latin America and the Caribbean*.

<sup>8</sup> For adults this means eligibility begins once the CD4 count falls below 500 cells/μl; plus all HIV+ pregnant women, discordant couples, those co-infected with tuberculosis, and those co-infected with hepatitis B are automatically eligible. For children that means eligibility for all HIV+ children below the age of 5 and all others with CD4 counts < 500.



## II. METHODS

The investment case analysis uses the Goals model, a module implemented in the Spectrum modeling system, that estimates the impact of future prevention and treatment interventions. The model partitions the adult population aged 15-49 by sex and into six risk groups: not sexually active, low-risk heterosexual (stable monogamous couples), medium-risk heterosexual (people engaging in casual sex with multiple partners per year), high-risk heterosexual (female sex workers and their male clients), men who have sex with men, and injecting drug users. It implements a dynamical compartment model to project transmission forward in time, and to model the costs and impact of interventions that reduce transmission. It then allows for the calculation of new HIV infections by sex and risk group as a function of behaviors and epidemiological factors such as prevalence among partners and stage of infection. The risk of transmission is determined by behaviors and biomedical factors. Interventions can change any of these factors and, thus, affect the future course of the epidemic. It also uses an impact matrix that summarizes the international literature on the average impact of each intervention type on these behaviors and biomedical factors to influence overall transmission in the modeled population<sup>9</sup>.

Estimates of unit costs estimates and resources available to fund the response were derived using recently conducted studies in the country or region as well as through data collection from government, donor and private sources regarding resource availability. The model parameters and sources used are derived from validated country-specific data when available, Regional and international studies, and expert opinions from interviews with clinicians and program staff familiar with the epidemic. These data are subsequently used to calculate per-act probability of transmission and variation in risk of transmission by stage of infection, type of sex act, prevalence of other STIs, use of condoms, and other factors.

Using these methods, preliminary data for country investment cases was generated and modelled using the Goals model and the Resource Needs Model, followed by discussion and validation with National HIV/AIDS Programs in each of the six countries. Findings and modelling projections were discussed in stakeholder meetings that included government, regional and international development partners, civil society, and the private sector, and included representatives of the key populations. PAHO, UNAIDS and the OECS supported these meetings with technical contributions as well. Each meeting provided a forum for discussion and priority setting for investment in the HIV response.

The findings were also provided to the OECS Regional Coordinating Mechanism to inform and as an input into the regional multi-country Global Fund application.

For this regional analysis, final data from the six OECS countries was aggregated to calculate the overall impact, cost and resource gap as a “combined analysis” for these six countries. The two scenarios that

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<sup>9</sup> Bollinger LA. 2008. How can we calculate the “E” in “CEA” *AIDS*, 22(suppl 1): S51-S57.

were modeled included the Maintenance scenario, reflecting keeping programming levels at the status quo in terms of program scope and costs, and the regional 90-90-90 scale up which illustrates impact and cost to scale up the national HIV/AIDS responses.

### III. RESULTS: REGIONAL ANALYSIS

Results are presented to illustrate the impact of program efforts in terms of projected HIV infections and AIDS deaths, costs of these interventions, followed by calculation of the resource gap based on an estimation of resources available to fund the HIV and AIDS response. The results detailed below reflect the two target scenarios: Maintenance and 90-90-90 scale up to illustrate the investment needed and potential gains that will be produced by these two levels of investment. In order to be consistent in the use of projected data, all results reflect the period of 2015-2020 or 2015-2030.

#### 3.1 Projected impact

In terms of impact, Table I reflects the progression of HIV infections produced in the OECS region from 2015-2020 in each of the two scenarios. Maintenance of the status quo would result in 2,225 new HIV infections from 2015 to 2020. The 90-90-90 scale up programming scenario would result in averting nearly 600 new infections in the OECS countries between 2015 and 2020. In addition to infections averted, Table I shows how maintaining current programming levels, while likely stemming new infections, would not be able to reverse an upward trends of more new infections in these countries year to year. The 90/90/90 scenario, by contrast, results in a downward trend of new infections each year, with 342 new infections expected in 2015 and 208 new infections expected in 2020, representing a nearly 40% reduction in new infections between 2015 and 2020. This would have a direct impact on costs. While costs for 90/90/90 programming are much higher than the Maintenance scenario, as numbers of people on treatment eventually decline there should be some cost savings in care and treatment in the longer term.

Table I: Summary of new HIV infections for the OECS Region (2015-2020)

Estimated numbers of new infections per annum according to programming scenario							
HIV Programming Scenario	2015	2016	2017	2018	2019	2020	Totals
Maintenance	358	365	371	374	377	380	2,225
90/90/90	342	313	283	255	231	208	1,632
Infections averted per annum with 90/90/90 Scenario							
Number of new infections averted with 90/90/90 programming scenario compared to Maintenance	16	52	88	119	146	172	593

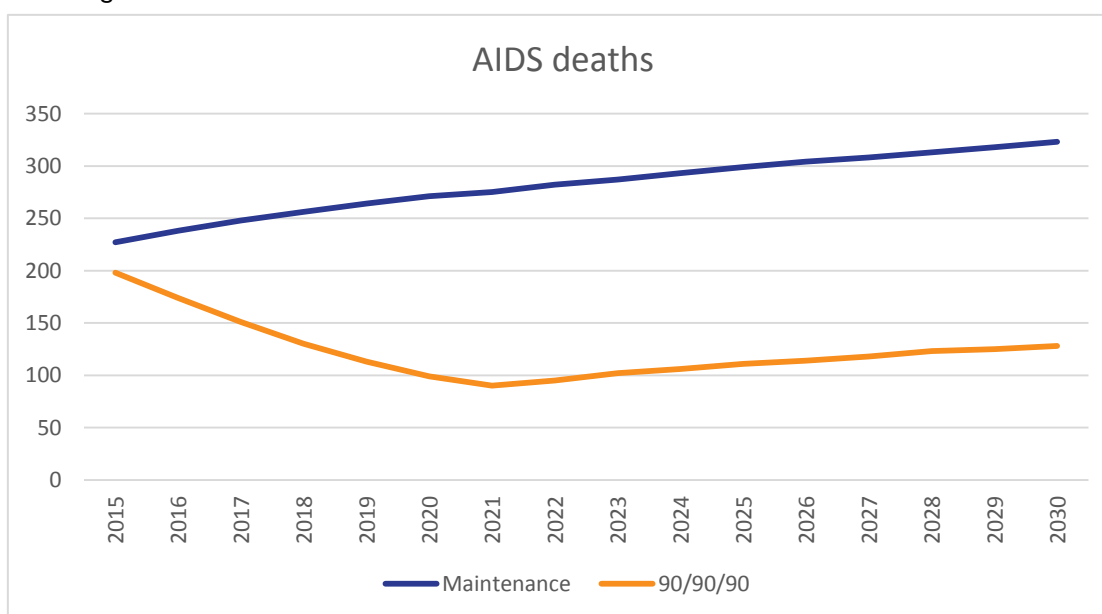
Table 2 reflects country-specific data, illustrating that scaling the HIV and AIDS response in St. Lucia, St. Vincent and the Grenadines, and Grenada has the largest impact on the reduction in new HIV infections in the region with 65% of total infections averted in those countries. This is directly related to the population sizes of these countries and also consistent with the larger financial investment required to meet 90/90/90 programming targets.

Table 2: 90-90-90 Scenario: Projected New HIV Infections Averted by Country

Country	2015	2016	2017	2018	2019	2020	Total infections averted (2015-2020)
Antigua and Barbuda	3	7	11	14	17	21	73
Dominica	5	8	11	13	16	17	70
Grenada	2	10	18	25	30	35	120
St. Kitts and Nevis	2	5	7	9	10	12	45
St. Lucia	1	13	25	35	44	52	170
St. Vincent & the Grenadines	3	9	16	23	29	35	115
<b>Total</b>	<b>16</b>	<b>52</b>	<b>88</b>	<b>119</b>	<b>146</b>	<b>172</b>	<b>593</b>

Similarly, AIDS deaths are also sharply reduced with implementation of the 90-90-90 scale up scenario compared to the maintenance scenario, as shown in Figure 1, which is most closely associated to the scale up in access to ARV treatment. AIDS deaths begin to increase eventually, as would be expected with the passage of time and likely increases in numbers of PLHIV over time. The numbers remain much lower however throughout the period with the 90-90-90 scale up scenario.

Figure 1: Estimated AIDS deaths in the OECS: 2015-2030



## 3.2 Costs of Each HIV Response Scenario

As observed in Figure 2, as implied by its definition, the cost of implementing the Maintenance scenario remains between 16-17 million ECD, showing little variation from year to year. The 90-90-90 scenario, on the other hand, requires additional investment of 3-4 million ECD each year, for a total investment of 38.2 million ECD per annum by 2020.

Figure 2: Costs of HIV Programming Scenarios 2015-2020 (ECD millions)

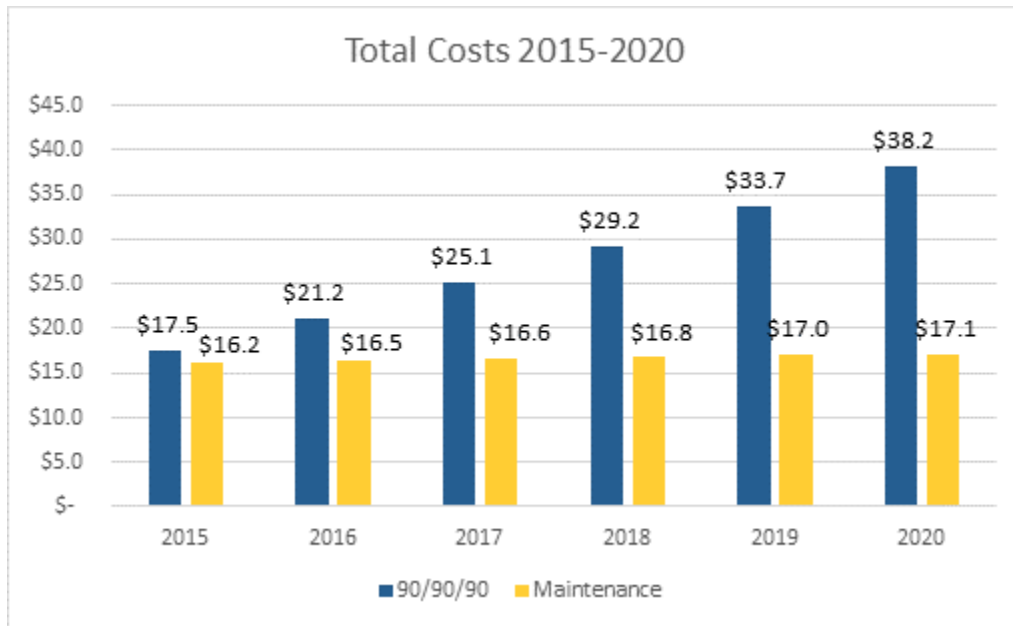
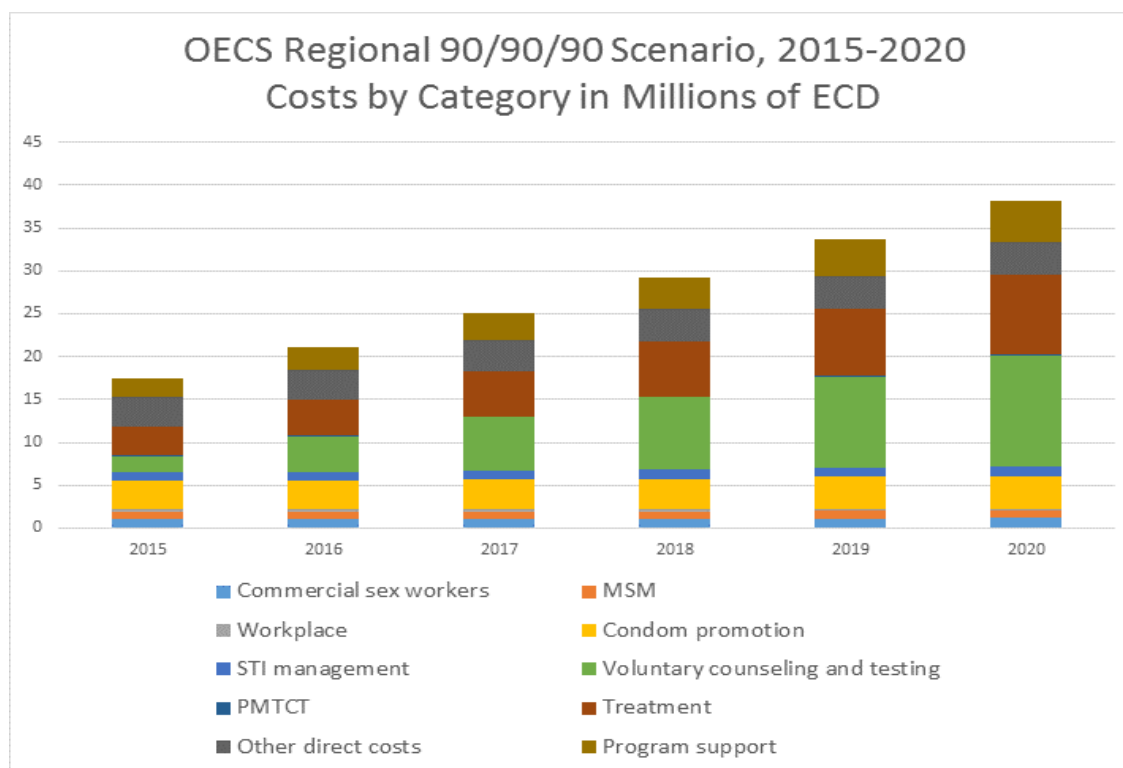


Figure 3 shows the costs involved in the implementation of each scenario by category and the increasing resources needed for HIV testing and counseling and ARV treatment directly associated with the 90-90-90 scale up targets. Resources required for prevention in 2020 are 53% of total resources needed, which include outreach with at-risk populations, condom promotion, Prevention of Mother to Child Transmission (PMTCT), HIV counseling and testing and workplace programs.

It is important to note that given that the Goals model accounts only for cost that directly impact programming, some technical assistance efforts and other programmatic “frontloading” that may be required in the initial years to produce this scale up are not reflected.



Figure 3: Costs of HIV Programming Scenarios by Category 2015-2020 (ECD millions)



### 3.3 Resources available and gaps

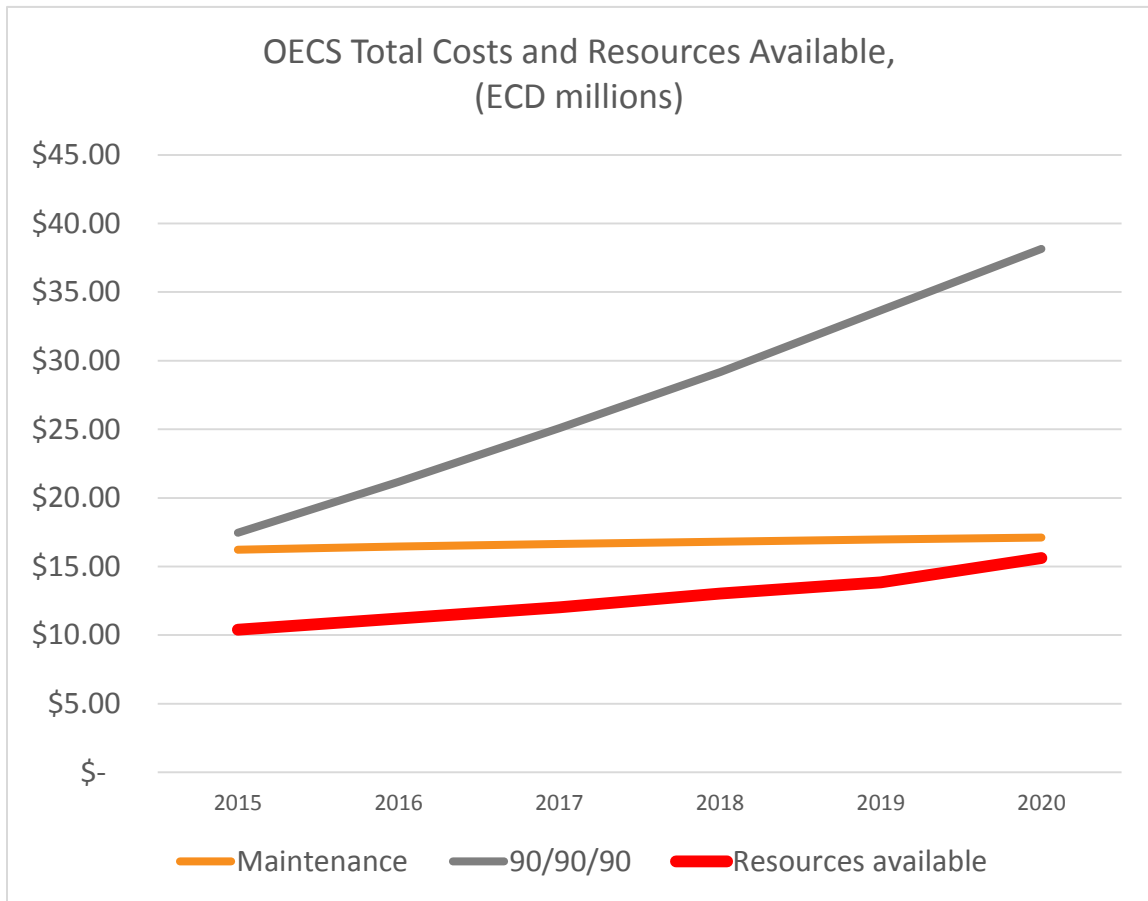
Funding for HIV and AIDS in the OECS countries by key donor organizations, including the US Government’s President’s Emergency Plan for AIDS Relief (PEPFAR) and the German Development Bank (KfW) is on the decline. Given this context, resources available to maintain HIV and AIDS program interventions at their current level are not sufficient, generating a resource gap of 5.6 million ECD beginning in 2015 and gradually reaching a need of 8.5 million ECD per annum in 2020. The 90-90-90 scale-up shows a more pronounced resource gap, beginning with a need for an additional 7.3 million ECD in 2015 and reaching a funding need gap of over 29 million ECD by 2020. As shown in Table 2, in both scenarios, the countries with the largest resource gap are St. Lucia, Grenada and St. Vincent and the Grenadines respectively.

Table 3: Projected Resource gap for Maintenance and 90/90/90 scenarios by country

Resource gap (EC\$ million)						
90/90/90						
Country	2015	2016	2017	2018	2019	2020
Antigua and Barbuda	0.28	0.50	0.74	0.98	1.26	1.48
Dominica	0.76	1.04	1.32	1.62	2.06	2.06
Grenada	1.41	2.47	3.55	4.68	5.99	7.12
St. Kitts and Nevis	0.61	0.94	1.28	1.60	1.97	2.28
St. Lucia	1.74	1.83	1.99	2.07	2.18	2.22
St. Vincent	2.27	3.17	4.18	5.19	6.35	7.39
<b>Total</b>	<b>7.06</b>	<b>9.95</b>	<b>13.06</b>	<b>16.14</b>	<b>19.81</b>	<b>22.55</b>
Maintenance						
Country	2015	2016	2017	2018	2019	2020
Antigua and Barbuda	(0.02)	0.02	0.05	0.07	0.13	0.13
Dominica	0.25	0.29	0.32	0.36	0.34	0.31
Grenada	1.35	1.55	1.73	1.91	2.22	2.27
St. Kitts and Nevis	0.56	0.63	0.69	0.72	0.79	0.78
St. Lucia	1.93	1.99	2.09	2.14	2.18	2.22
St. Vincent	2.14	2.31	2.49	2.61	2.81	2.83
<b>Total</b>	<b>6.22</b>	<b>6.78</b>	<b>7.37</b>	<b>7.82</b>	<b>8.47</b>	<b>8.53</b>

Figure 4 clearly shows the resource gap that exists between available resources in the region and resources required to implement the maintenance and 90/90/90 scenarios. In the case of the 90/90/90 scale up, this resource need increases sharply beginning in 2017 due to the scale up in ARV treatment and costs related to retaining an increased number of those with HIV and AIDS in care and treatment.

Figure 4: Estimated total costs versus resources available for OECS Countries' HIV response (ECD millions)



## IV. DISCUSSION

This regional analysis provides strategic information to guide future investment in the HIV and AIDS response in the OECS countries. Data indicates that the six countries region do not currently have the necessary resources to maintain or scale up their interventions, requiring additional strategies to obtain increased domestic funding and/or other sources, either donor or private sector, to fund future HIV and AIDS programming. Clearly, implementing a 90/90/90 scale up produces major gains in the short term, and even more in the longer term. With increased investments in prevention, treatment and care for key populations and others the six countries could turn the tide on the disease, potentially averting 593 new infections, and saving 639 lives in the first six years alone. This is an important result, which requires significant investment in terms of additional financial and human resources, including system strengthening amounting to more than 29.7 million ECD required per annum in the region by 2020. A



large proportion of these resources required (53%) are associated with prevention efforts including outreach with at-risk populations, condom promotion, PMTCT, HIV testing and counseling and workplace programs. Now is the time for an analysis of priorities, using evidence to inform the strategies that are most efficient and cost-effective. This process was initiated in 2014 at the country and regional levels in the OECS through several concurrent processes of investment case, national and regional strategic planning for HIV, and Global Fund application development.

Organizations, such as the CDC, recommend high-impact prevention strategies as a cost-effective way to reduce infections, which targets high risk populations while prioritizing wider population-based interventions that have proven effective.<sup>10</sup> Strategic exercises to obtain this type of focus include, but are not limited to revision of the region's most-at-risk populations, determining how to target high risk populations through HIV testing and counseling efforts followed by efforts to link to care and treatment, as well as analysis of program evaluations to indicate prevention strategies that have produced the greatest benefit<sup>11</sup>. Some countries, such as Antigua and Barbuda, contribute to a significant reduction in HIV infections and have a smaller resource gap as compared to the other countries, suggesting that they have either reduced costs or prioritized interventions to allocate spending to specific program areas.

The wider Caribbean region is committed to move towards meeting the long term goal of an AIDS Free Caribbean through a 90/90/90 scale up. This OECS investment framework analysis can support that goal as a useful tool to analyze priorities, assess the current allocation of resources, advocate with potential funding sources, to further understand the impact and costs associated with HIV and AIDS program implementation.

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<sup>10</sup> Centers for Disease Control (2013). *High-Impact HIV Prevention: CDC's Approach to Reducing HIV Infections in the United States*. <http://www.cdc.gov/hiv/policies/hip.html> (accessed December 22, 2014)