Progress Report on the Quantification and Planning Exercise for Antiretroviral Medicines in 2013, within the Framework of SUGEMI Implementation

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INTRODUCTION

The Dominican Republic's Ministry of Public Health, acting within the framework of the health sector reform process, is currently implementing its Single System for Managing Medicines and Medical Commodities (Sistema Único de Gestión de Medicamentos e Insumos; SUGEMI) in the Public Health Service Network. The objective is to improve public access to essential medicines and quality health products, while at the same time to promote decentralized management and the optimum use of existing resources.

The task of quantifying needs and planning procurement is one of the priority components in the pharmaceutical supply management cycle, because it determines the amount of products to be purchased and delivered. The procurement of insufficient amounts leads to stock-outs affecting patient care, whereas excess amounts lead to oversupply, product expiration and deterioration, and inappropriate use of available financial resources.[1] Appropriate quantification and planning requires complete and exact information, a method to adequately predict future consumption, and personnel trained and experienced in the supply of medicines and health commodities at the local level.

[1] *Manual de Estimación y Programación de medicamentos e insumos.* 2011. Serie de documentos del Sistema Único de Gestión de Medicamentos e Insumos (Santo Domingo: Ministerio de Salud Pública).

SUGEMI establishes that the process of quantification and planning of needs for supplies is an activity to be carried out annually by Regional Health Service Centers in coordination with collective health programs.[2] In July 2012, the National Medicine and Supply Management Unit (Unidad Nacional de Gestión de Medicamentos e Insumos; UNGM), operating under the Office of Regional Service Development and Strengthening (in Spanish, DDF-SRS), carried out an exercise aimed at quantifying the needs for HIV/AIDS and tuberculosis (TB) medicines and supplies to be procured for 2013 and then planning their purchase. This planning exercise included anti-TB medicines, antiretroviral (ARV) medicines for adult and pediatric use, commodities for controlling mother-to-child transmission, screening tests, and DNA-PCR diagnostic tests.

This progress report presents the results of the quantification and planning exercise for ARV medicines intended for adult use (including pregnant women taking ARVs) and to be purchased in 2013. It emphasizes data and financial analyses, given the priority importance assigned by the Ministry of Public Health to determining the amount of national funds required to satisfy national demand in view of the reduction in the amount of grant funds available through the Global Fund to Fight AIDS, Tuberculosis and Malaria (Global Fund). The results of the quantification and planning exercise for HIV/AIDS and TB medicines and supplies will be included in the technical report on the planning of medicine and medical supply purchases for 2013.[3]

OBJECTIVES

- To quantify and plan the procurement in 2013 of ARV medicines for use by adults seen at the Dominican Republic's Public Health Service Network

- To determine the financial shortfall for which national resources will be required to satisfy national demand, given the reduction in grant funds available from the Global Fund

METHODOLOGY

The process was divided into three stages:

1. **Information gathering.** Information was obtained on medicines and supplies delivered and inventory on hand in the YOBEL[4] central warehouse and regional warehouses; purchases pending delivery and estimated arrival date; historic number of cases

[2] *Procedimiento operativo de Estimación y Programación de medicamentos e insumos.* 2011. Serie de documentos del Sistema Único de Gestión de Medicamentos e Insumos (Santo Domingo: Ministerio de Salud Pública).
[3] Its publication is expected in October 2013.
[4] YOBEL Supply Chain Management is the business specialized in supply chains that manages the ARV warehouse at central level.

recorded and cases expected, by treatment regimen, for the year in question; and treatment regimens used over the past three years. This information was made available by the Directorate General for the Control of Sexually Transmitted Diseases and AIDS (Dirección General de Control de Infecciones de Transmisión Sexual y SIDA; DIGECITSS) and the National HIV and AIDS Council (Consejo Nacional del VIH y el SIDA; CONAVIHSIDA).

2. **Planning workshop.** With technical assistance from the Systems for Improved Access to Pharmaceuticals and Services (SIAPS) Program and financial support provided by the US Agency for International Development (USAID) and Global Fund/CONAVIHSIDA, in mid-July 2012, the UNGM held a quantification and planning workshop for HIV medicines and supplies. During the workshop, technical staff from the Ministry of Public Health, CONAVIHSIDA, and SIAPS reviewed available information and completed the standardized quantification matrixes, using the SUGEMI methodology.[5]

   The morbidity, or epidemiological profile, method of quantification was used. The SUGEMI quantification and planning manual provides guidelines for using this method to quantify medicines and health supplies for programs to control diseases such as TB, malaria, and HIV/AIDS,[6] based on the number of cases expected to be treated. In projecting the number of cases per treatment regimen expected for 2013, information provided by DIGECITSS for the two most recent years was used. Using the historical number of cases for each treatment regimen, graphs were prepared to allow identification of an upward, downward, or linear (horizontal) trend line. If the graphs showed an upward or downward trend in the number of cases per treatment regimen, the mathematical method of linear regression or simple linear adjustment was used to project the number of estimated cases for the scheduling period. If case behavior per treatment regimen was linear, or horizontal, the average was used. Results were compared with adjustments made in accordance with the estimates contained in the report *Estimaciones y Proyecciones Nacionales de la Prevalencia y Carga de Enfermedad en República Dominicana del 2011*.

   The estimated number of cases per treatment regimen was multiplied by the number of medicines or health commodities required for treatment to obtain estimated quantities needed. To determine the amounts of medicines and products to be procured, adjustments were made to the estimates, taking into account stock on hand in warehouses, purchases pending delivery, storage capacity, the time lapse between order placement and arrival, and previously established levels of safety stock. The identification of treatment regimens and priority medicines, based on greatest consumption, was made using an ABC analysis, or the Pareto principle. The following formulas were used in carrying out quantification and planning:

[5] *Manual de Estimación y Programación de medicamentos e insumos, op. cit.*
[6] Ibid.

Quantification formula:

Estimated needs =
Number of patients seen or treated × Amount of medicines per treatment

Scheduling formula:

Final requirement =
Estimated need + Safety stock − Stock on hand at the beginning of the planning period

3. **Validation and adjustments with key actors.** After completing the preliminary planning matrixes for the 2013 purchase using the national requirement for ARVs for adult use, the UNGM held a validation and adjustment meeting with the participation of representatives from DIGECITSS and CONAVIHSIDA, which was supported by SIAPS/MSH. During the meeting, the planning results were presented and the financial information for 2013 procurement of adult ARVs with Global Fund/CONAVIHSIDA resources was incorporated into the matrix. The difference between the total costs for the purchase of ARVs based on projected demand and the amount of grant funds available from the Global Fund reflects the *financial shortfall* that needs to be covered using national resources.

The result of this analysis was delivered to authorities to facilitate short-term decision making.

RESULTS

The national program reports the use of 72 therapeutic treatment regimens in 2012.[7] For planning purposes, the treatment regimens used were those that reported at least one case in the 12 months prior to the planning exercise. Treatment regimens ultimately totaled 54, including combinations of the various lines of treatment: first line, second line, and rescue. The number of cases by treatment regimens reported for 2011 and 2012 were supplied by the DIGECITSS Integrated Care Program.

For 2013, the total number of adults between the ages of 15 and 49 using ARVs is estimated at 23,000 cases.[8] The National Program for the Prevention of Mother-to-Child Transmission of HIV (PMCT) estimates that 1,616 HIV-positive pregnant women will be identified in 2013, for a total number of persons living with HIV/AIDS (PLWHA)—and who will therefore require ARVs—of approximately 24,616 cases. The PMCT program has determined that HIV-positive pregnant women should receive ARVs in an early stage of their pregnancy. Accordingly, the PMCT program determined that 15 percent (225) of the total number of pregnant women will receive one dose of nevirapine + 15 days of zidovudine/lamivudine (tail), while 50 percent (637) of the

[7] Cuadro de asignación de medicamentos ARV bimestre junio-julio 2012. Unidad Nacional de Medicamentos/REDES, UCAI/DIGECITSS.

[8] ONUSIDA, DIGECITSS, CONAVIHSIDA y Ministerio de Salud de la Republica Dominicana. *Informe de Estimaciones y Proyecciones Nacionales de Prevalencia de VIH y Carga de Enfermedad, República Dominicana, 2011*.

remaining pregnant women will be included in treatment regimens of zidovudine/lamivudine + lopinavir/ritonavir and 50 percent (695) in regimens of lamivudine/tenofovir + efavirenz.

The result of this exercise shows that some 7,980 (33.36 percent) projected cases will use the first therapeutic option within the first-line treatment regimens established by DIGECITSS: zidovudine 300 mg/lamivudine 150 mg/nevirapine 200 mg in a fixed-dose combination (FDC). Some 6,316 cases (26.40 percent) will use the second therapeutic option within the first-line treatment regimens: zidovudine/lamivudine 300 mg/150 mg FDC + efavirenz 600 mg in a single-drug presentation. Approximately 5,160 (20.69 percent) will use lamivudine 150 mg/tenofovir 300 mg FDC + efavirenz 600 mg in a single-drug presentation. The treatment regimen of zidovudine 300 mg/lamivudine 150 mg FDC + lopinavir 200 mg/ritonavir 50 mg FDC presents a total of 1,937 (7.77 percent) cases for 2013. A total of 19,456 (78.67 percent) cases expected for 2013 will be included in first-line treatment regimens.

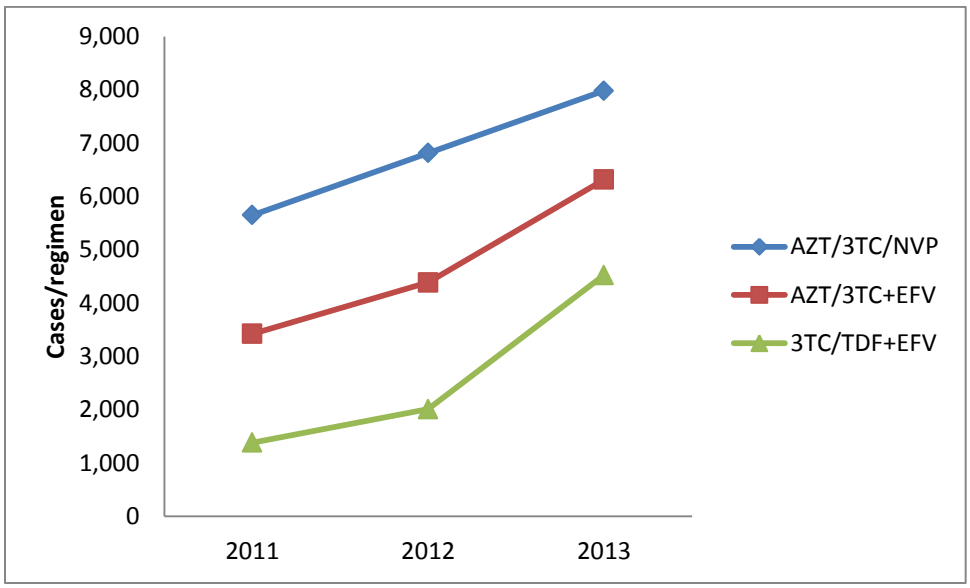

Figure 1. Projected consumption trends for first-line treatment regimens in 2013

The ABC or Pareto analysis shows that 85 percent of all cases will use the first four treatment regimens, including both first and second line, disaggregated into five medicines—zidovudine 300 mg/lamivudine 150mg/nevirapine 200 mg in FDC; zidovudine 300 mg/lamivudine 150 mg in FDC + efavirenz 600 mg in a single-drug presentation; lamivudine 150 mg/tenofovir 300 mg in FDC + lopinavir 200 mg/ritonavir 50 mg in FDC—while 97 percent of cases will use the first seven treatment regimens, including both first and second lines of treatment, disaggregated into eight medicines.

The lamivudine/tenofovir combination shows an increase of 61 percent compared to cases reported in 2012, attributable to the fact that DIGECITSS determined that a percentage of HIV-positive pregnant women, plus all cases currently on stavudine-based treatment regimens, should migrate to tenofovir/lamivudine + efavirenz combinations by late 2012 and early 2013.

The zidovudine/lamivudine + lopinavir/ritonavir treatment regimen shows an increase of 39 percent compared to 2012, because a lower percentage of HIV-positive pregnant women will be using this combination.

To obtain the total number of bottles of each ARV to be used, the treatment regimens projected to have the highest consumption in 2013 were disaggregated into the medicines making up the various combination forms, providing giving a total of 13 medicines. The number of bottles required by a PLWHA for a period of one year was then multiplied by the number of cases projected to consume that medicine to obtain the total estimated number of bottles for each of the medicines to be consumed in 2013.

The adjustments made to the estimated medicine needs were based on inventory on hand in the central warehouse, purchases pending delivery or being processed, provider delivery times, and safety stock. The availability in months of medicines in the central warehouse and incoming medicines pending arrival was calculated as a function of projected consumption for 2013, the result indicating that 38 percent (5/13) of the ARVs had either zero stock on hand or stock equal to one month's consumption, while 46 percent (6/13) had an availability equal to or greater than six months in the central warehouse. The average availability of medicines pending delivery was equal to three months' consumption (table 2). The number of months of availability of lamivudine shows excess stock equal to more than 50 months' consumption, while stock equivalent to more than 7 months' consumption can be observed in the case of stavudine, use of which will gradually decrease.

Table 1. Cumulative percentage requirements, 2011–2013

Regimens	Number of cases, June 2011	Number of cases, June 2012	Number of cases, June 2013	Pareto	Percentage of cases, 2013	
	13,160	**16,543**	**24,940**			
AZT/3TC/NVP	5,648	6,814	7,980	32.00%	32.00%	A
AZT/3TC+EFV	3,421	4,386	6,316	25.32%	57.32%	A
3TC/TDF+EFV	1,379	2,009	5,160	20.69%	78.01%	A
AZT/3TC+LOP/RTV	982	1,173	1,937	7.77%	85.78%	A
3TC/TDF+LOP/RTV	556	832	1,470	5.89%	91.67%	B
ABC+DDI+LOP/RTV	530	508	486	1.95%	93.62%	B
3TC/TDF+NVP	198	220	879	3.52%	97.15%	C
3TC/ABC+EFV	116	146	176	0.71%	97.85%	C
TDF+ABC+LOP/RTV	94	127	160	0.64%	98.49%	C
3TC+ABC+LOP/RTV	92	86	80	0.32%	98.81%	C
3TC/ABC+NVP	33	49	65	0.26%	99.07%	C
ABC+TDF+ EFV	21	33	45	0.18%	99.25%	C
3TC+DDI+LOP/RTV	14	17	23	0.09%	99.35%	C
3TC + ABC + TDF +LPV/r	0	16	16	0.06%	99.41%	C
3TC + DDI + EFV	18	15	15	0.06%	99.47%	C
TDF+DDI+LOP/RTV	11	13	15	0.06%	99.53%	C
3TC/TDF+ATV + RTV	3	12	14	0.06%	99.59%	C
3TC+DDI+NVP	3	12	21	0.08%	99.67%	C
DDI+ABC+EFV	9	12	15	0.06%	99.73%	C
3TC/TDF+ATV+ RTV	3	7	11	0.04%	99.78%	C
3TC/TDF + DDI + LPV/r	0	6	6	0.02%	99.80%	C
3TC/TDF+DRV	0	5	5	0.02%	99.82%	C
ABC + TDF + EFV + LPV/	0	5	5	0.02%	99.84%	C
AZT/3TC+ATV + RTV	8	9	9	0.04%	99.88%	C
DDI+ABC+ATV + RTV	4	4	4	0.02%	99.89%	C
TDF+ABC+ATV+RTV	1	4	4	0.02%	99.91%	C
3TC + ABC+DDI + LPV/r	0	3	3	0.01%	99.92%	C
EFV + LPV/r	0	3	3	0.01%	99.93%	C
TDF+ABC+NVP	5	3	3	0.01%	99.94%	C
3TC/ABC+TDF	2	2	2	0.01%	99.95%	C
AZT+ABC +LOP/RTV	0	2	2	0.01%	99.96%	C
3TC/ABC+ATV+RTV	0	1	1	0.00%	99.96%	C
3TC/AZT + ABC + ATV+ R	0	1	1	0.00%	99.97%	C
3TC/AZT + ABC + LPV/r	0	1	1	0.00%	99.97%	C
3TC/AZT + ABC + RIT	0	1	1	0.00%	99.98%	C
3TC/AZT + EFV + LPV/r	0	1	1	0.00%	99.98%	C
3TC/AZT + TDF + LPV/r	0	1	1	0.00%	99.98%	C
3TC+DDI+ATV+RTV	2	1	1	0.00%	99.99%	C
DDI + ABC + EFV +LPV/r	0	1	1	0.00%	99.99%	C
DDI+TDF/3TC	0	1	1	0.00%	100.00%	C
TDF+DDI+ATV + RTV	1	1	1	0.00%	100.00%	C

Note: ABC = abacavir; ATV = atazanavir; AZT = zidovudina; DDI = didanosina; EFV = efavirenz; LOP/RTV = loperamida/ritonavir; LPV/r = lopinavir/ritonavir; NVP =nevirapina; RTV = ritonavir; 3TC = lamivudina; TDF = tenofovir.

Table 2. Availability of medicines in the central warehouse and medicines pending delivery

Product			Pending deliveries				
Medicine name	Stock in central warehouse (9/21/2012)	Stock in regions	Quantity	Estimated date of arrival GF	Projected average monthly consumption, 2013	Availability in months per central warehouse	Availability in months including pending orders
Lamivudine/Zidovudine/Nevirapine	124,224				7,980	15.6	0.0
Lamivudine	14,262		1,006		159	89.7	6.3
Lamivudine/Abacavir	427		330	22-Oct-12	244	1.8	1.4
Lamivudine/Zidovudine	65,182				8,267	7.9	0.0
Lamivudine/Tenofovir	6,098		8,976	8-Oct-12	7,546	0.8	1.2
Abacavir	9,552		2,836	8-Oct-12	827	11.6	3.4
Atazanavir/ritonavir	48		314	8-Oct-12	46	1.0	6.8
Zidovudine	0				2	0.0	0.0
Stavudine	809				0	0.0	0.0
Stavudina/Lamivudine	9,782				1,329	7.4	0.0
Stavudine/Lamivudine/Nevirapine	0				1,254	0.0	0.0
Didanosine	8,461				592	14.3	0.0
Efavirenz	12		93,925	28-Sep-12	11,737	0.0	8.0
Lopinavir/Ritonavir	40,328				4,210	9.6	0.0
Nevirapine	734				968	0.8	0.0
Ritonavir	213		314		47	4.5	6.7
Tenofovir	0		2,500		252	0.0	9.9

Other variables used in making planning adjustments were the inclusion of 9 months of safety stock, which considers the virtual absence of safety stock at the time of planning, the low level of predictability of flows of government resources and donor agency disbursements, and variations in provider delivery times. Thus, planning took into account 12 months of consumption based on projected demand + 9 months of safety stock, for a total of 21 months. Using these criteria, table 3 shows the national requirement for adult ARV medicines to be procured for use in 2013 with various sources of financing.

Once the final required amounts of ARVs had been obtained, an analysis was conducted of the amounts to be financed by the Global Fund in 2013 and the shortfall—both financial and in terms of units—that will need to be covered using national resources. From the total ARVs required for 2013, the amount of medicines that CONAVIHSIDA, through the Global Fund, will acquire in year 5 of the grant (June 2013) was subtracted. The difference is the amount (shortfall) that will need to be arranged by the Ministry of Public Health or some other funding source.

Forty-six percent (6/13) of the ARV medicines with the greatest consumption, scheduled to be procured by the Global Fund in year 5, will satisfy approximately 50% percent or less of national needs, while 38 percent (5/13) will cover between 80 percent and 100 percent of total national needs for 2013. Table 3 shows that CONAVIHSIDA planned 22 percent of the national need for lamivudine/tenofovir FDC through the grant made available by the Global Fund (lamivudine/tenofovir FDC being the therapeutic option to which PLWHA on stavudine should migrate in late 2012 or early 2013), leaving a shortfall equal to approximately 78 percent of the total number of units that will need to be filled. The table shows that 25,100 bottles of tenofovir/lamivudine/nevirapine FDC (highlighted in yellow) were scheduled to be procured in

2012 by CONAVIHSIDA under the Global Fund grant; in mid-2012, however, the national program requested that the plan for purchasing this medicine be excluded, because of data indicating intolerance of this medicine by the population of PLWHA.

Table 3. Units required in 2013, by funding source

Product	Planning				
		Requirements, units per donor			
Medicine name	Final national requirement, 2013	MOH or other donor	%	Global Fund for year 5	%
Lamivudine/Zidovudine/Nevirapine	**99,216**	19,188	19%	80,028	81%
Lamivudine	**0**	0	0%	12,740	0%
Lamivudine/Abacavir	**5,124**	2,458	48%	2,666	52%
Lamivudine/Zidovudine	**158,027**	94,223	60%	63,804	40%
Lamivudine/Tenofovir	**158,466**	124,006	78%	34,460	22%
Abacavir	**9,941**	0	0%	11,293	114%
Atazanavir/ritonavir	**880**	321	36%	559	64%
Zidovudine	**42**	0	0%	71	169%
Stavudine	**0**	0	0%	0	0%
Stavudina/Lamivudine	**0**	0	0%	0	0%
Stavudine/Lamivudine/Nevirapine	**0**	0	0%	0	0%
Didanosine	**7,523**	0	0%	9,498	126%
Efavirenz	**222,962**	142,018	64%	80,944	36%
Lopinavir/Ritonavir	**73,342**	32,363	44%	40,979	56%
Nevirapine	**20,328**	17,636	87%	2,692	13%
Ritonavir	**742**	183	25%	559	75%
Tenofovir	**4,304**	0	0%	13,562	315%
Tenofovir/Lamivudina/Nevirapina	**0**	0	0%	25,100	0%

In accordance with the described planning criteria, the dollar amount needed to purchase the required 760,897 units of ARV medicines for adult use (including pregnant women) in 2013 is USD 7,725,916. CONAVIHSIDA planned procurement of 43 percent (378,955 units) using Global Fund resources. This amount equals 52 percent of the budget required to finance purchases for 2013. By contrast, the number of units to be covered using national funds (or some other source of financing) is 432,396 (57 percent), at a cost of USD 3,809,865, equal to 48 percent of the budget required to finance 2013 purchases (table 4).

Table 4. Requirement in US dollars and funding source

Product	Planning								
		Requirements, units per donor							
Medicine name	Final national requirement, 2013	MOH or other donor	%	Global Fund for year 5	%	Unit price	National requirement for 2013 (USD)	Amount required from MOH (USD)	Amount required from Global Fund (USD)
Lamivudine/Zidovudine/Nevirapine	**99,216**	19,188	19%	80,028	81%	10.20	**$ 1,012,003.20**	$ 195,717.60	$ 816,285.60
Lamivudine	**0**	0	0%	12,740	0%	2.03	**$ 25,862.20**	$ -	$ 25,862.20
Lamivudine/Abacavir	**5,124**	2,458	48%	2,666	52%	22.00	**$ 112,728.00**	$ 54,076.00	$ 58,652.00
Lamivudine/Zidovudine	**158,027**	94,223	60%	63,804	40%	7.90	**$ 1,248,413.30**	$ 744,361.70	$ 504,051.60
Lamivudine/Tenofovir	**158,466**	124,006	78%	34,460	22%	7.45	**$ 1,180,571.70**	$ 923,844.70	$ 256,727.00
Abacavir	**9,941**	0	0%	11,293	114%	14.47	**$ 143,846.27**	$ -	$ 163,409.71
Atazanavir/ritonavir	**880**	321	36%	559	64%	27.50	**$ 24,200.00**	$ 8,827.50	$ 15,372.50
Zidovudine	**42**	0	0%	71	169%	6.65	**$ 279.30**	$ -	$ 472.15
Stavudine	**0**	0	0%	0	0%	0.00	**$ -**	$ -	$ -
Stavudina/Lamivudine	**0**	0	0%	0	0%	0.00	**$ -**	$ -	$ -
Stavudine/Lamivudine/Nevirapine	**0**	0	0%	0	0%	0.00	**$ -**	$ -	$ -
Didanosine	**7,523**	0	0%	9,498	126%	20.00	**$ 150,460.00**	$ -	$ 189,960.00
Efavirenz	**222,962**	142,018	64%	80,944	36%	5.50	**$ 1,226,291.00**	$ 781,099.00	$ 445,192.00
Lopinavir/Ritonavir	**73,342**	32,363	44%	40,979	56%	32.65	**$ 2,394,616.30**	$ 1,056,651.95	$ 1,337,964.35
Nevirapine	**20,328**	17,636	87%	2,692	13%	2.49	**$ 50,616.72**	$ 43,913.64	$ 6,703.08
Ritonavir	**742**	183	25%	559	75%	7.50	**$ 5,565.00**	$ 1,372.50	$ 4,192.50
Tenofovir	**4,304**	0	0%	13,562	315%	5.80	**$ 24,963.20**	$ -	$ 78,659.60
Tenofovir/Lamivudina/Nevirapina	**0**	0	0%	25,100	0%	5.00	**$ 125,500.00**	$ -	$ 125,500.00
	760,897	**432,396**		**378,955**		**USD**	**$ 7,725,916.19**	$ 3,809,864.59	$ 4,029,004.29
		57%		43%		**RD**	**RD$ 301,310,731.41**	RD$ 148,584,719.01	RD$ 157,131,167.31
								48%	**52%**

CONCLUSIONS AND RECOMMENDATIONS

SUGEMI has established a standardized methodology for quantifying and planning the annual purchase of medicines and supplies for disease control programs. This methodology has enabled it to analyze trends and obtain significant results for short-term decision making, based on currently available information reported by the Integrated Care Services to DIGECITSS .

The budget requirement for the purchase of ARV medicines for adult use in 2013 is USD 7,725,916. This figure includes funds totaling USD 4,029,004 to be provided by the Global Fund. The financial shortfall that will need to be covered using national resources (or some other source of grant funding) totals USD 3,809,865 and accounts for 48 percent of purchase requirements. These amounts would make it possible to procure ARV medicines for projected adult cases, including pregnant women, for a period of 12 months and to add safety stock (equivalent to 9 months' consumption), which would prevent the all too frequent stock-outs that have been occurring. The estimate takes into consideration a significant increase in the use of medicines such as tenofovir/lamivudine, efavirenz and lopinavir/ritonavir in comparison with earlier years. The last two (efavirenz and lopinavir/ritonavir), because of their high cost, account for a major portion of the budget increase, as compared to CONAVIHSIDA's purchase plan. It is recommended that controls be established based on criteria of rational use and compliance with protocols in prescribing high-cost medicines.

Authorities should identify funding mechanisms to completely cover the financial shortfall for 2013. Steps should be taken immediately to procure all ARV medicine stocks that are equal to zero or lower than three months of consumption in the central warehouse and/or are pending delivery. It is recommended that steps be taken to identify sources of funding for the procurement, in the amounts estimated in table 3, of the five ARV medicines with the greatest consumption that will be used by 91 percent of cases projected for 2013. This alternative, the estimated financial requirement for which is some USD 1.9 million, will ensure the supply of ARVs in the service center network for a greater period of time and contribute to access by most PLWHA who are receiving care through the public service center network.

It is recommended that the analysis of the financial shortfall be expanded to include in the estimates pediatric cases, commodities to prevent mother-to-child transmission, and diagnostic supplies for the planning period. The logistics for storage and distribution of emergency purchases and purchases scheduled for 2013 should be transferred to the UNGM from the DDF-SRS, as established by the health sector reform process and SUGEMI operating procedures.

A review should be conducted in March 2013 of projections, to track the behavior of the increased occurrence of new cases estimated in this exercise.

In addition, in view of the implications and impact for the development of procurement plans and the management of sustainability presented in this report, we must stress the importance of improving regular procedures for processing and analyzing reports sent from health centers. An audit of the quality of the data contained in such reports (or improve efficiency of such

audits) should be undertaken from DIGECITSS and the decentralized intermediate level, jointly with the management of health service centers, up to the primary sources currently existing in the Integrated Care Services, where the information required to project the needs for medicines and supplies to provide these services is generated. This would make it possible to ensure the quality of reporting and improve the accuracy of conclusions and recommendations using this type of analysis and projections in the future.