Antiretroviral Treatment in the spotlight: a public health analysis in Latin America and the Caribbean

2013

Pan American Health Organization
Introduction and Objectives

• 2nd report on the situation of ART in LAC, its progress, difficulties and vulnerabilities.

• Participation of GCTH and networks of civil society

• Objectives:
  – To show advances of the last 2 years with regard to care and ART and its relation to changes in world recommendations, as well as areas left behind or vulnerable.
  – To promote sustainable regional progress in order to achieve the goal of universal access to ART in 2015
Analytical Framework

- **Sustainability:**
  - Dependence on external funding

- **Costs:**
  - Regimen cost

- **Optimization:**
  - Compliance with WHO recommendations
  - Number of regimens
  - Obsolete drugs in use
  - Preferential regimen
  - Stock outs

- **Programmatic effectiveness:**
  - Patients per line
  - Viral load
  - ART coverage
  - Retention on ART
  - Cascade of HIV care
  - Community participation
ARV Funding

Distribution of spending on HIV treatment and care in Latin America, 2009-2010

- Antiretroviral therapy (74.8%)
- Other (8.8%)
- Opportunistic infection outpatient prophylaxis and treatment (3.7%)
- Inpatient treatment of opportunistic infections (3.3%)
- Specific HIV-related laboratory monitoring (7.0%)
- Provider-initiated testing and counseling (2.4%)

From total HIV funds: Funds for treatment and care represent 70% and for prevention: 18%.
National sources: 94% total expenditure.
Majority of national funds for treatment and care.
International funds (6% of HIV funding): Mainly for prevention and key populations

UNAIDS. Country reports on the advances in the world response to AIDS 2010-2013. Data of 17 countries of Latin America, last reported year.
## Distribution of countries by dependency on external sources for ARV financing, 2007/2008--2013

<table>
<thead>
<tr>
<th>Year</th>
<th>High</th>
<th>Medium</th>
<th>Low</th>
<th>No Dependency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>75-100% external funding of ARV</td>
<td>20-75% external funding of ARV</td>
<td>5-20% external funding of ARV</td>
<td>0%-5% external funding of ARV</td>
</tr>
<tr>
<td>2007-2008</td>
<td>Antigua and Barbuda, Bolivia, Dominica, Grenada, Guyana, Haiti, Jamaica, Nicaragua, St. Kitts and Nevis, St. Vincent and the Grenadines</td>
<td>Cuba, Guatemala</td>
<td>Anguilla, Belize, Ecuador, Honduras, British Virgin Islands, Monserrat, Peru</td>
<td>Argentina, Bahamas, Barbados, Brazil, Chile, Colombia, Costa Rica, Mexico, Panama, Trinidad and Tobago, Uruguay, Venezuela</td>
</tr>
<tr>
<td>2013</td>
<td>Antigua and Barbuda, Bolivia, Dominica, Grenada, Guyana, Haiti, Jamaica, Nicaragua, St. Kitts and Nevis, St. Vincent and the Grenadines</td>
<td>Cuba, Guatemala</td>
<td>Dominican Republic, St. Lucia</td>
<td>Anguilla, Netherlands Antilles, Belize, Argentina, Ecuador, Aruba, Honduras, Bahamas, British Virgin Islands, Barbados, Brazil, Monserrat, Chile, Colombia, Curacao, Cayman Islands, Turks and Caicos, Mexico, Panama, Saint Martin, Trinidad and Tobago, Uruguay, Venezuela</td>
</tr>
</tbody>
</table>

*WHO Antiretroviral Use Survey, 2013; PAHO. Antiretroviral therapy under the spotlight: a public health analysis in Latin America and the Caribbean 2012*
ARV Regimen Cost

• New guidelines imply ART expansion to a greater number of people: 400,000 more than with the previous recommendations (for 2013).

• This implies an increase of the ARV expenditure: between $250 and $475 million (3% to 24% more than the total HIV expenditure).

• High variation of ARV prices: up to 77 times higher than the lowest.
ARV Regimen Cost:
GCTH 2012-2013 study

Annual cost per patient of tenofovir/emtricitabine + efavirenz (2012) and of tenofovir/emtricitabine/efavirenz in fixed-dose combination (2012-2013), per country

GCTH with the technical assistance of the Director of AIDS and STDs and Director of Health Economics of the Ministry of Health of the Nation (Argentina). Análisis de precios de medicamentos antirretrovirales en el ámbito del GCTH de Latinoamérica y el Caribe. Argentina: GCTH; 2013
ARV Regimen Cost: GCTH 2012-2013 study

Annual cost per patient of the regimen zidovudine/lamivudine + lopinavir/ritonavir, 2011-2013, per country

GCTH with the technical assistance of the Director of AIDS and STDs and Director of Health Economics of the Ministry of Health of the Nation (Argentina). Análisis de precios de medicamentos antirretrovirales en el ámbito del GCTH de Latinoamérica y el Caribe. Argentina: GCTH; 2013
Proportion (%) of LAC countries that adapted their national guides to WHO recommendations and criteria to start ARV treatment, August 2013

- Child ART guidelines reviewed per WHO 2010
- Adult ART guidelines reviewed per WHO 2010
- 500 cells/mm³-CD4 threshold for starting ART in asymptomatic adults
- Starting ART with chronic hepatitis B
- Starting ART with active tuberculosis
- Starting ART in serodiscordant couples
- Option B+

Compliance with the WHO ART recommendations of 1st and 2nd line

Adults in regimens recommended by WHO for:
• 1st line: 78% (range 28-100%)
• 2nd line: 39% (range 0-95%)

Increase from 2010 to 2012:
• 13 percentage points for 1st line treatments
• 12 points for 2nd line

WHO Antiretroviral Use Survey, 2013
### Use of the preferential first-line regimen (TDF/ FTC or 3TC/ EFV)

**% Patient in preferential regimen on 1st line in LAC**

<table>
<thead>
<tr>
<th>Country</th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anguilla</td>
<td>0.0</td>
<td>0.0</td>
<td>0.0</td>
</tr>
<tr>
<td>Antigua and Barbuda</td>
<td>0.0</td>
<td>ND</td>
<td>ND</td>
</tr>
<tr>
<td>Argentina</td>
<td>2.2</td>
<td>4.8</td>
<td>6.6</td>
</tr>
<tr>
<td>Barbados</td>
<td>ND</td>
<td>29.1</td>
<td>41.6</td>
</tr>
<tr>
<td>Belize</td>
<td>4.5</td>
<td>ND</td>
<td>7.4</td>
</tr>
<tr>
<td>Bolivia</td>
<td>0.3</td>
<td>0.0</td>
<td>36.2</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>ND</td>
<td>ND</td>
<td>1.8</td>
</tr>
<tr>
<td>Cuba</td>
<td>0.0</td>
<td>ND</td>
<td>0.0</td>
</tr>
<tr>
<td>Dominica</td>
<td>ND</td>
<td>ND</td>
<td>19.1</td>
</tr>
<tr>
<td>Ecuador</td>
<td>2.3</td>
<td>ND</td>
<td>19.6</td>
</tr>
<tr>
<td>El Salvador</td>
<td>0.0</td>
<td>0.0</td>
<td>7.5</td>
</tr>
<tr>
<td>Grenada</td>
<td>0.0</td>
<td>3.5</td>
<td>12.5</td>
</tr>
<tr>
<td>Guatemala</td>
<td>54.8</td>
<td>57.0</td>
<td>57.8</td>
</tr>
<tr>
<td>Guyana</td>
<td>73.4</td>
<td>70.3</td>
<td>76.7</td>
</tr>
<tr>
<td>Haiti</td>
<td>ND</td>
<td>ND</td>
<td>18.5</td>
</tr>
<tr>
<td>Honduras</td>
<td>5.6</td>
<td>0.0</td>
<td>6.6</td>
</tr>
<tr>
<td>Mexico</td>
<td>39.9</td>
<td>ND</td>
<td>43.4</td>
</tr>
<tr>
<td>Virgin Islands (RU)</td>
<td>ND</td>
<td>6.7</td>
<td>12.5</td>
</tr>
<tr>
<td>Turks and Caicos Islands</td>
<td>ND</td>
<td>ND</td>
<td>6.9</td>
</tr>
<tr>
<td>Nicaragua</td>
<td>9.1</td>
<td>11.3</td>
<td>12.4</td>
</tr>
<tr>
<td>Panama</td>
<td>8.1</td>
<td>ND</td>
<td>66.0</td>
</tr>
<tr>
<td>Paraguay</td>
<td>0.7</td>
<td>1.7</td>
<td>5.1</td>
</tr>
<tr>
<td>Peru</td>
<td>0.0</td>
<td>ND</td>
<td>0.0</td>
</tr>
<tr>
<td>Saint Lucia</td>
<td>ND</td>
<td>17.9</td>
<td>ND</td>
</tr>
<tr>
<td>St. Vincent and the Grenadines</td>
<td>ND</td>
<td>11.1</td>
<td>ND</td>
</tr>
<tr>
<td>Suriname</td>
<td>1.0</td>
<td>ND</td>
<td>1.1</td>
</tr>
<tr>
<td>Dominican Rep.</td>
<td>11.0</td>
<td>11.1</td>
<td>21.2</td>
</tr>
<tr>
<td>Uruguay</td>
<td>0.1</td>
<td>0.5</td>
<td>0.9</td>
</tr>
<tr>
<td>Venezuela</td>
<td>0.0</td>
<td>ND</td>
<td>24.6</td>
</tr>
<tr>
<td>TOTAL</td>
<td>7.0</td>
<td>14.1</td>
<td>21.6</td>
</tr>
</tbody>
</table>

*WHO Antiretroviral Use Survey, 2011-2013.*
Although there is a concentration of more patients in the preferred regimens, the number of regimens in use in LAC is still high.

Very few countries have reduced sufficiently the number of regimens on every line.

### Changes in the number of regimens by line of treatment, 2010-2012

<table>
<thead>
<tr>
<th></th>
<th>First line</th>
<th>Second line</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Countries that increased number of regimens</strong></td>
<td>Argentina, Brazil, El Salvador, Grenada, Guyana, Honduras, Panama, Paraguay, Peru, and Uruguay</td>
<td>Argentina, Brazil, El Salvador, Guyana, Honduras, Mexico, Panama, Paraguay, Peru, Suriname, and Venezuela</td>
</tr>
<tr>
<td><strong>Countries that decreased the number of regimens</strong></td>
<td>Belize, Bolivia, Cuba, Ecuador, Rep. Dominican, Suriname, and Venezuela</td>
<td>Bolivia, Cuba, Ecuador, Guatemala, Nicaragua, Dominican Republic and Uruguay</td>
</tr>
<tr>
<td><strong>Countries with the same number of regimens</strong></td>
<td>Guatemala, Mexico, Nicaragua</td>
<td>----</td>
</tr>
</tbody>
</table>

*WHO Antiretroviral Use Survey, 2011-2013.*
The regional average is 11 different regimens on 1st line and 15 on 2nd line, similar to 2010 with an average of 12 and 15 regimens on 1st and 2nd line, respectively.

Note: The data of St Lucia and St Vincent and the Grenadines refer to 2011.
Number of ART regimens of 1st and 2nd line in adults

- Very few countries have reduced sufficiently the number of regimens in each line.
- A concentration of patients in a small number of regimens has been observed:
  - 70% of the patients are concentrated in 6 regimens.

For children < 15 years old, the number of regimens used is less than that of adults, with a regional average of 6 regimens, both for 1st and 2nd line in 2012.

Without change between 2010 and 2012.

Anguilla and Dominica have no children on ART. Argentina, Costa Rica, and Ecuador did not provide second-line regimen data. The data from Peru are for children under 17 years of age.
Use of obsolete or inappropriate drugs

- In 2012, 4% of the patients of LAC received obsolete or inappropriate ARV:
  - 3% of the patients in 1st line
  - 5% of those of 2nd line
- Three percentage points less than in 2010.
- The most used is d4T: 3% of the patients on 1st line (this amounts to 86% of the obsolete ARV used on 1st line).
- The next most used is ddl: 0.4% and 3% of patients in 1st and 2nd line, respectively.

In 2012, 45% (14/31) of the countries reported at least one stock-out episode; that proportion was 54% (14/26) in 2010.

Improvement in 17 countries comparing data of 2010, 2011 and 2012.

Although there is improvement from 2010 to 2012, the region is still experiencing a high frequency of these events.

### Latin America and the Caribbean countries that presented some episodes of ARV stock-outs in 2012

<table>
<thead>
<tr>
<th>Stockout</th>
<th>Country</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>Anguilla, Antigua and Barbuda, Bahamas, Belize, Brazil, Costa Rica, Dominican Republic, Ecuador, Guatemala, Mexico, Nicaragua, Panama, Peru, Venezuela</td>
</tr>
<tr>
<td>No</td>
<td>Argentina, Barbados, Bolivia, Cuba, El Salvador, Grenada, Guyana, Haiti, Honduras, Virgin Islands (RU), Jamaica, Paraguay, Saint Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago, Uruguay</td>
</tr>
</tbody>
</table>

There are countries without official data reported in which declarations of groups of civil society suggest the presence of problems of supply of ARV; for example, Chile and Colombia.

Country reports to WHO concerning the progress toward the universal access, 2013.
Participants of 18 countries responded. Among the countries that had reported that they had NOT had stock-out episodes, the average scoring was 7.9 (median 8, range 6-10).

Of the 7 countries that reported that they had experienced stock-outs, the average scoring was 6.1 (median 7, range 1-8).

### ARV stock-out episodes:
**Perception of civil society**

<table>
<thead>
<tr>
<th>Countries</th>
<th>Perception by civil society groups of how well national programs ensured a constant supply of ARV Scale from 1 (worst) to 10 (best)¹</th>
</tr>
</thead>
<tbody>
<tr>
<td>Argentina</td>
<td>9</td>
</tr>
<tr>
<td>Barbados</td>
<td>10</td>
</tr>
<tr>
<td>Bolivia</td>
<td>6</td>
</tr>
<tr>
<td>Colombia</td>
<td>4.5</td>
</tr>
<tr>
<td>Costa Rica</td>
<td>8</td>
</tr>
<tr>
<td>Chile</td>
<td>4 and 10</td>
</tr>
<tr>
<td>Ecuador</td>
<td>5.5</td>
</tr>
<tr>
<td>El Salvador</td>
<td>8</td>
</tr>
<tr>
<td>Guatemala</td>
<td>8</td>
</tr>
<tr>
<td>Honduras</td>
<td>6</td>
</tr>
<tr>
<td>Nicaragua</td>
<td>8</td>
</tr>
<tr>
<td>Paraguay</td>
<td>6 (peripheral level)</td>
</tr>
<tr>
<td></td>
<td>8 (central level)</td>
</tr>
<tr>
<td>Peru</td>
<td>7</td>
</tr>
<tr>
<td>Dominican Republic</td>
<td>5</td>
</tr>
<tr>
<td>Saint Lucia</td>
<td>9</td>
</tr>
<tr>
<td>Suriname</td>
<td>6</td>
</tr>
<tr>
<td>Uruguay</td>
<td>9</td>
</tr>
<tr>
<td>Venezuela</td>
<td>1</td>
</tr>
</tbody>
</table>


Note: ¹ 1 indicates the lowest and worst score in the perception of a constant supply and 10, the highest and best.
Distribution of patients by ART line and switching rate from 1st to 2nd line

Percentage of patients on 2nd and 3rd line and exchange rate of 1st to 2nd line, in selected countries of Latin America and the Caribbean, 2012

Regional:
- 71% on 1st line
- 27% on 2nd line
- 2.5% on 3rd line

Virological monitoring intensity

Ratio of viral load tests by patient on ART per year, 2012
Regional: 1.8
HIV testing and early access to HIV diagnosis and care

• 2nd region with greater number of tests by population (after Sub-Saharan Africa).
  - 36 tested people per 1000 population in 2012 (median value of data of 29 countries), corresponding to 23 million tested people in LAC.

• The tests directed at pregnant women are approximately 30% of all the tests carried out in LAC in 2012.

• Coverage of HIV testing in pregnant women in 2012: 63%

• Slow progress in HIV testing in TB patients (regional value):
  - 39% in 2006
  - 52% in 2011, with stagnation in recent years
In half of the countries 40% or more of patients present an advanced immunological stage (<200 cell/mm³) in their 1st CD4 determination.
HIV testing and early access to HIV diagnosis and care

- Persistence of HIV diagnosis algorithms that depend on confirmation by Western Blot or other complex techniques and multiple intermediate tests.
- 40% of the countries (out of 42) still use exclusively Western Blot for the confirmation.

### Countries that use Western Blot to confirm HIV infection, 2013

<table>
<thead>
<tr>
<th>Confirm exclusively with Western Blot</th>
<th>Do not confirm exclusively with Western Blot</th>
</tr>
</thead>
<tbody>
<tr>
<td>Latin America: Chile, Colombia, Ecuador, Mexico, Paraguay, Peru, Uruguay, and Venezuela</td>
<td>Latin America: Argentina, Bolivia (in transition), Brazil, Costa Rica (in transition), El Salvador, Guatemala (in transition), Honduras, Nicaragua, Panama</td>
</tr>
<tr>
<td>Caribbean: Anguilla, Bonaire, Cayman Islands, Jamaica, Saba, Statia, St. Eustatius, St. Martin (French and Dutch), Turks and Caicos Islands</td>
<td>Caribbean: Antigua and Barbuda, Barbados, Bahamas, Belize, Cuba, Dominica, Grenada, Guyana, Haiti, British Virgin Islands, Montserrat, St. Kitts and Nevis, St Lucia, Saint Vincent and the Grenadines, Suriname, Trinidad and Tobago</td>
</tr>
</tbody>
</table>

Note: a Confirmation with immunofluorescence, not with Western Blot.
ART Coverage

• The number of patients on ART in LAC continues to increase.

• In 2012:
  - 725,000 patients on ART in LAC, of which 26,900 < 15 years old.
  - 715,000 patients on ART in LAC from low and middle income countries, 26,700 < 15 years old.
Antiretroviral therapy coverage (%) in Latin America and the Caribbean, per year, 2010 to 2012

Coverage ART< 15 years old:
67% (50%-82%)
• Latin America: 73%
• Caribbean: 45%

UNAIDS. Country reports on the advances in the world response to AIDS 2011-13 and estimates of UNAIDS on needs for treatment based on threshold of CD4 of 350 cell./mm3.
Coverage of the antiretroviral therapy (%) in Latin America and the Caribbean, per country, 2011 and 2012

Andean
- Bolivia
- Colombia
- Ecuador
- Perú
- Venezuela
- Bahamas
- Barbados
- Belize
- Cuba
- Rep. Dominicana
- Guyana

Caribbean
- Haiti
- Jamaica
- Suriname
- Trinidad Tobago
- Argentina
- Chile
- Paraguay
- Uruguay
- Costa Rica
- El Salvador
- Guatemala
- Honduras
- México
- Nicaragua
- Panamá

Southern Cone
- Argentina
- Chile
- Paraguay
- Uruguay

Meso America
- Colombia
- Ecuador
- Perú

Regional coverage: 75%
Retention in ART

- Retention on ART at 12 months after initiating ART ranges between the countries of the region from 53% to 97% for 2012.
- There are no observed differences between the retention in men and women. Median of retention in LAC:
  - 79% women
  - 78% men
- Although there are differences among countries, there are no observed clear patterns of retention in ART at 12 months between men and women.
Program tipping point in the response to HIV in LAC, 2002 to 2012

Program tipping point in the response to HIV: ratio of new HIV infections in patients who begin ART, LAC, 2012

Measurement of the effectiveness of the program for treatment: the HIV care cascade

NICARAGUA, 2012

| HIV+ needing ART | 3053 |
| HIV+ with ART | 2190 |
| Retention on ART | 1613 |
| Undetectable viral load | 1051 |

CUBA, 2013

| HIV persons | 19626 |
| Diagnosed | 17625 |
| Living at end of 2012 | 14648 |
| Linked to care | 13494 |
| Adherent to care | 12849 |
| HIV+ needing ART | 8264 |
| HIV+ with ART | 8102 |
| Undetectable VL | 5898 |

UNAIDS. Estimates of needs for treatment, 2013; Nicaragua report on progress toward universal access 2013 (WHO); WHO survey of antiretrovirals, 2013

Pan American Health Organization
World Health Organization

Organizations of 18 countries of the region answered the survey. Community participation is irregular (non-universal in countries), with limited coverage, vulnerable from financial standpoint.

Survey of GCTH and PAHO to civil society networks in countries, 2013.
Conclusions

• 2nd report on ART in LAC, with collaboration of GCTH and networks of civil society.

• The progress with regard to the expansion and sustainability of the ART is documented.

• Countries aligned with the recommendations of WHO, with strengthening of public health perspective of the ART and advances in innovation.

• However, important gaps persist, for example in the early diagnosis, that keep from taking maximum advantage of ART benefits.