

Impact of drug resistance on HIV programs

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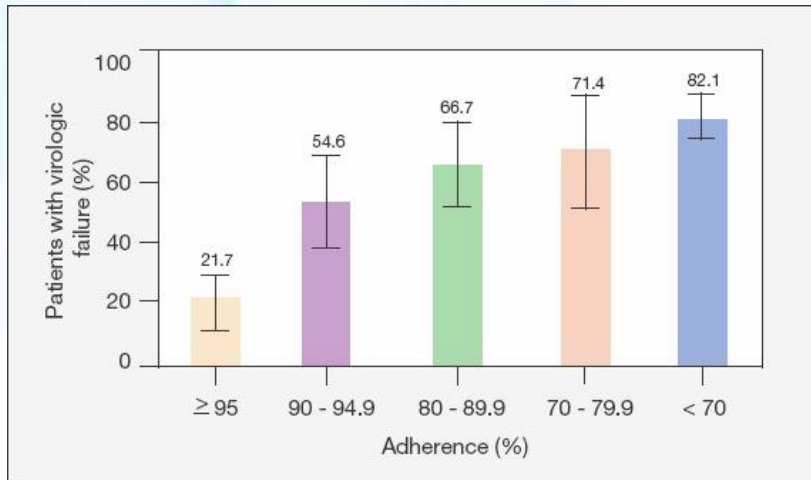
**Pan American
Health
Organization**



Regional Office of the
World Health Organization

Introduction

- 33.4 million people with HIV at global level
- HAART revolutionized HIV treatment
- Yet, adherence is the weakest link of ART



- Full adherence is essential for achieving suppression of viral replication
- Low adherence is associated with the emergence of resistance

HIV-Drug Resistance

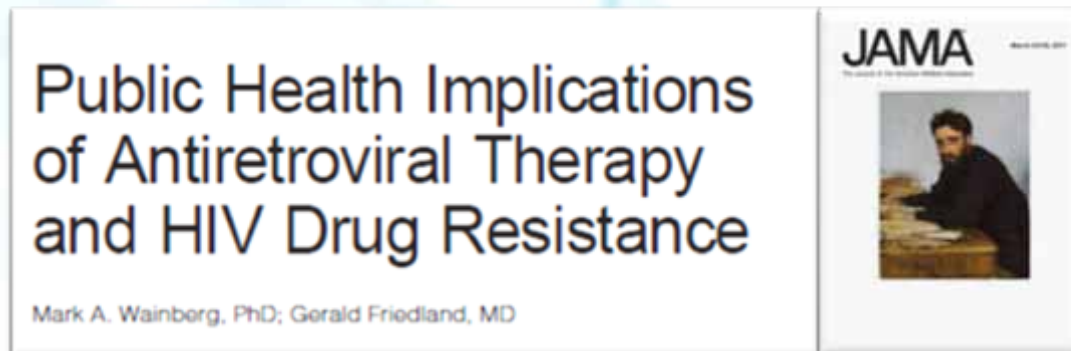
Lifelong treatment with no cure

High rate of HIV replication/mutation

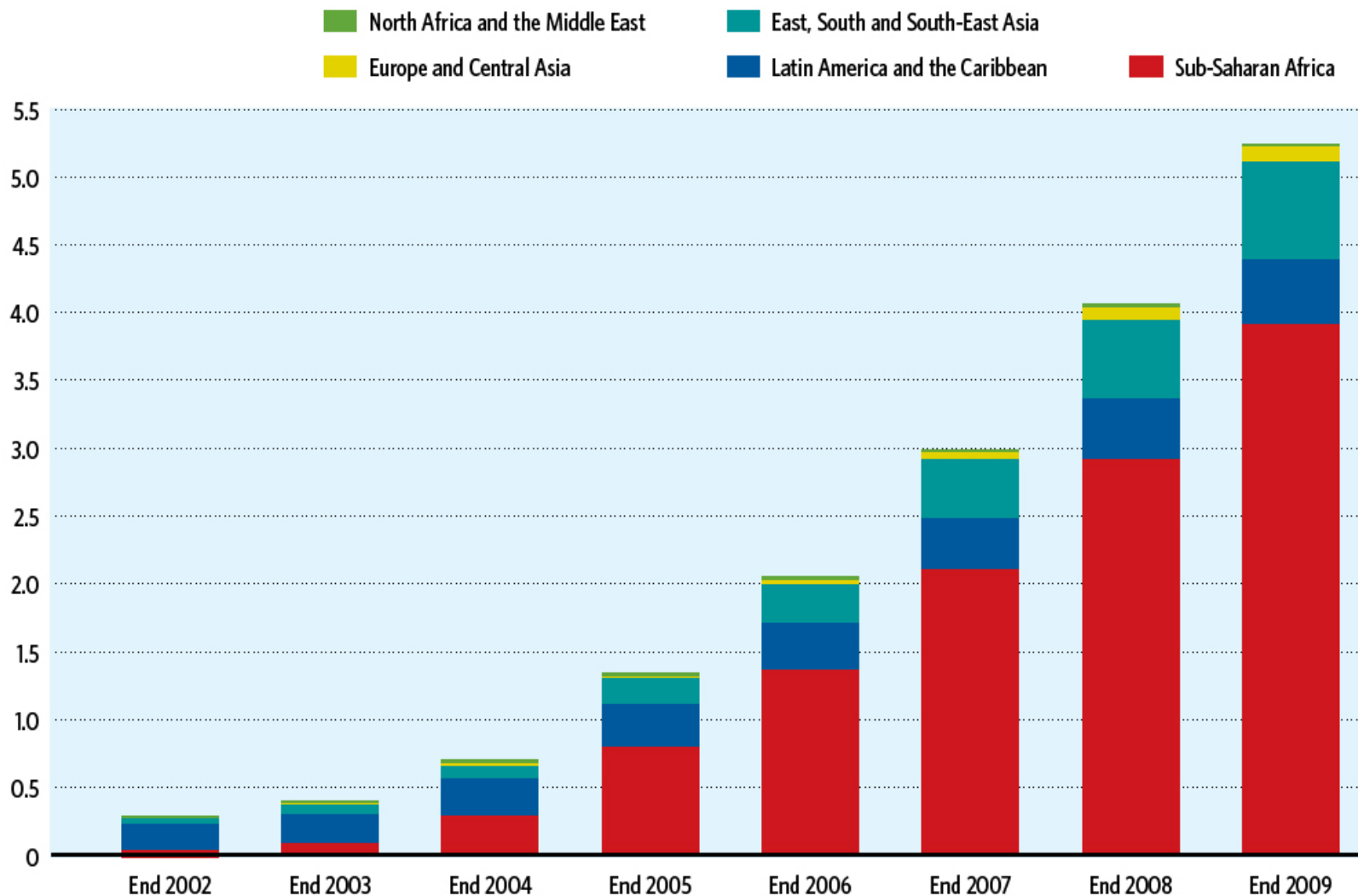
Some degree of HIV drug resistance (HIVDR) is inevitable

- Resistant strains can emerge if drug pressure is not sufficient to suppress HIV replication → **SECONDARY HIVDR**
- Resistant strains persist indefinitely and can re-emerge (even if they are not detected by standard resistance assays)
- Resistant strains can be transmitted → **PRIMARY HIVDR**

HIV-DR, costs, complexities of the regimens resulted in reluctance to widely expand ART treatments until early 2000



Number of people receiving antiretroviral therapy in low- and middle-income countries, by region, 2002–2009



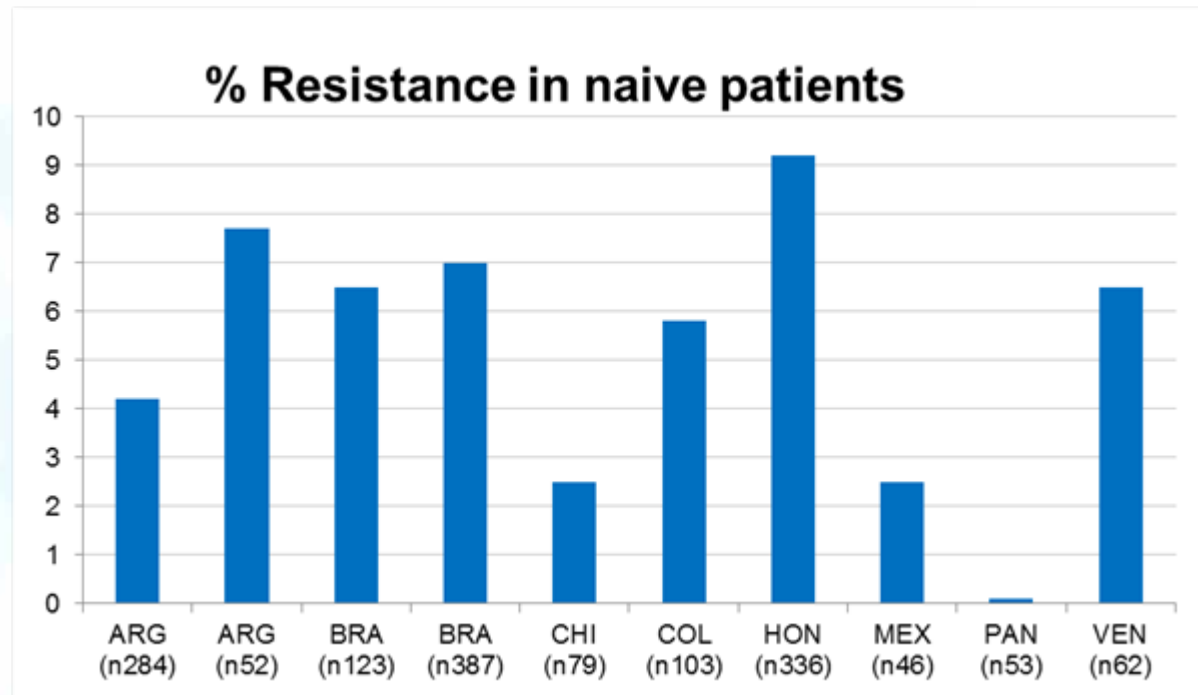
Primary HIV-DR in LAC

In LAC all countries started public ART programs between 1996-2003.

2010: >500,000 patients under TARV, 50% coverage

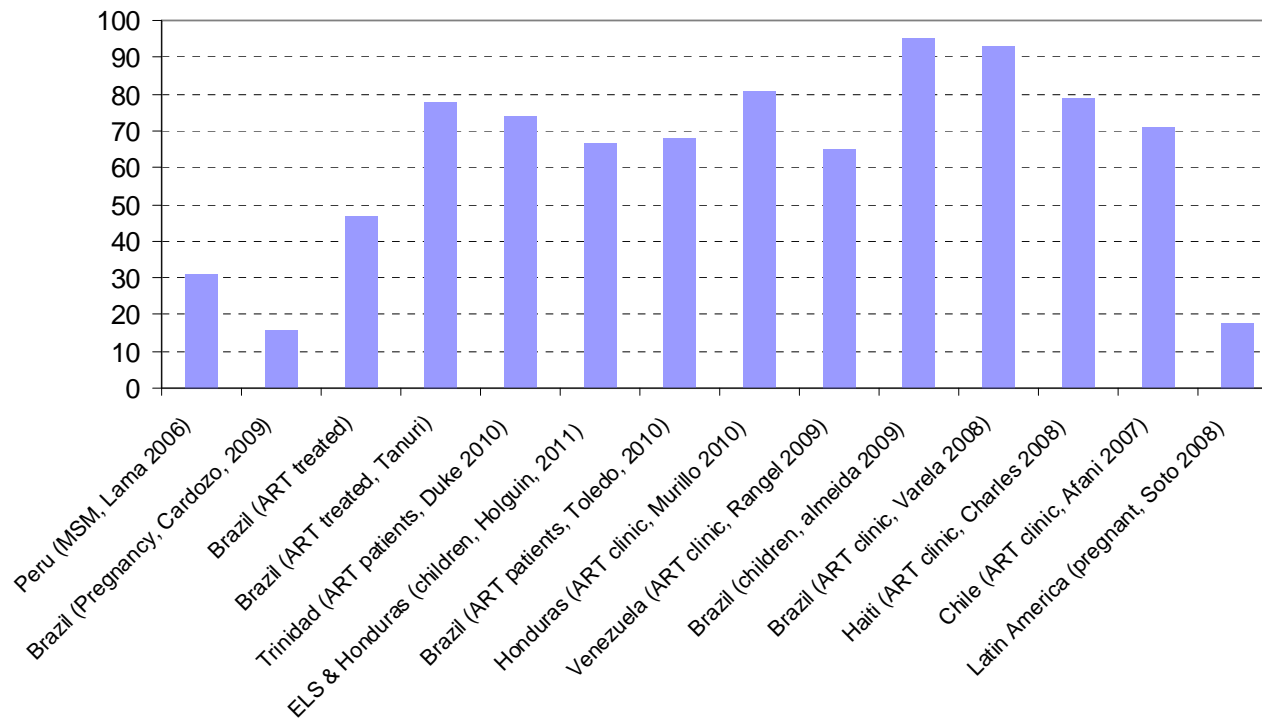
Primary HIV-DR remains relatively low (<10%)

Different studies published between 2001-2008



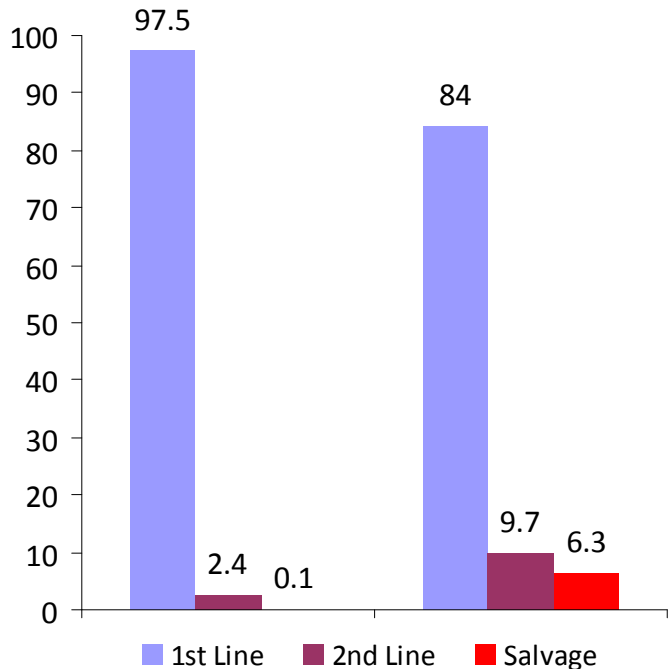
Secondary HIV-DR

- Rate of secondary HIV DR is difficult to compare due to the variability of criteria for inclusion, definition of failure, schemes used, time of collection of samples, population, etc.



ART in LAC: Strengths and Challenges

Patients by ART regimens



Survey of 59 low and middle income countries vs. 17 LAC countries. Universal Access Report 2010.

Strengths:

- Long term programs
- Wide availability of drugs
- Lab monitoring available

Challenges:

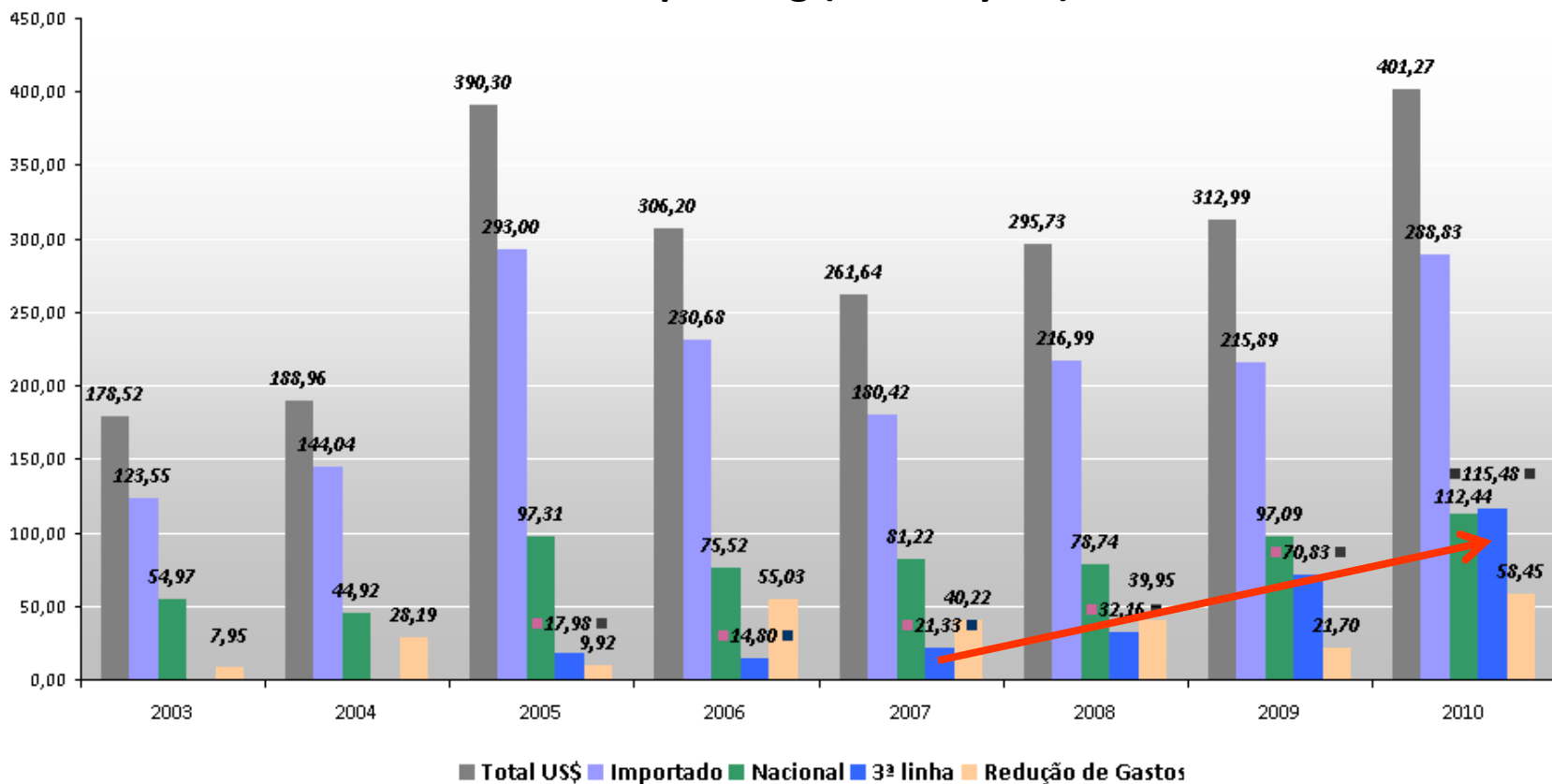
- Fragmented health services
- Variable quality of care
- Variable ART prices in the region
- Sustainability of programs



Need to optimize efficacy and effectiveness of first line schemes for long-lasting use

Expenditures in new HIV drugs are increasing

Brazil, ART spending (US\$ M/year)



Cost of most used **1st line** ART:

20 US\$/month

2nd line ART regimen costs:

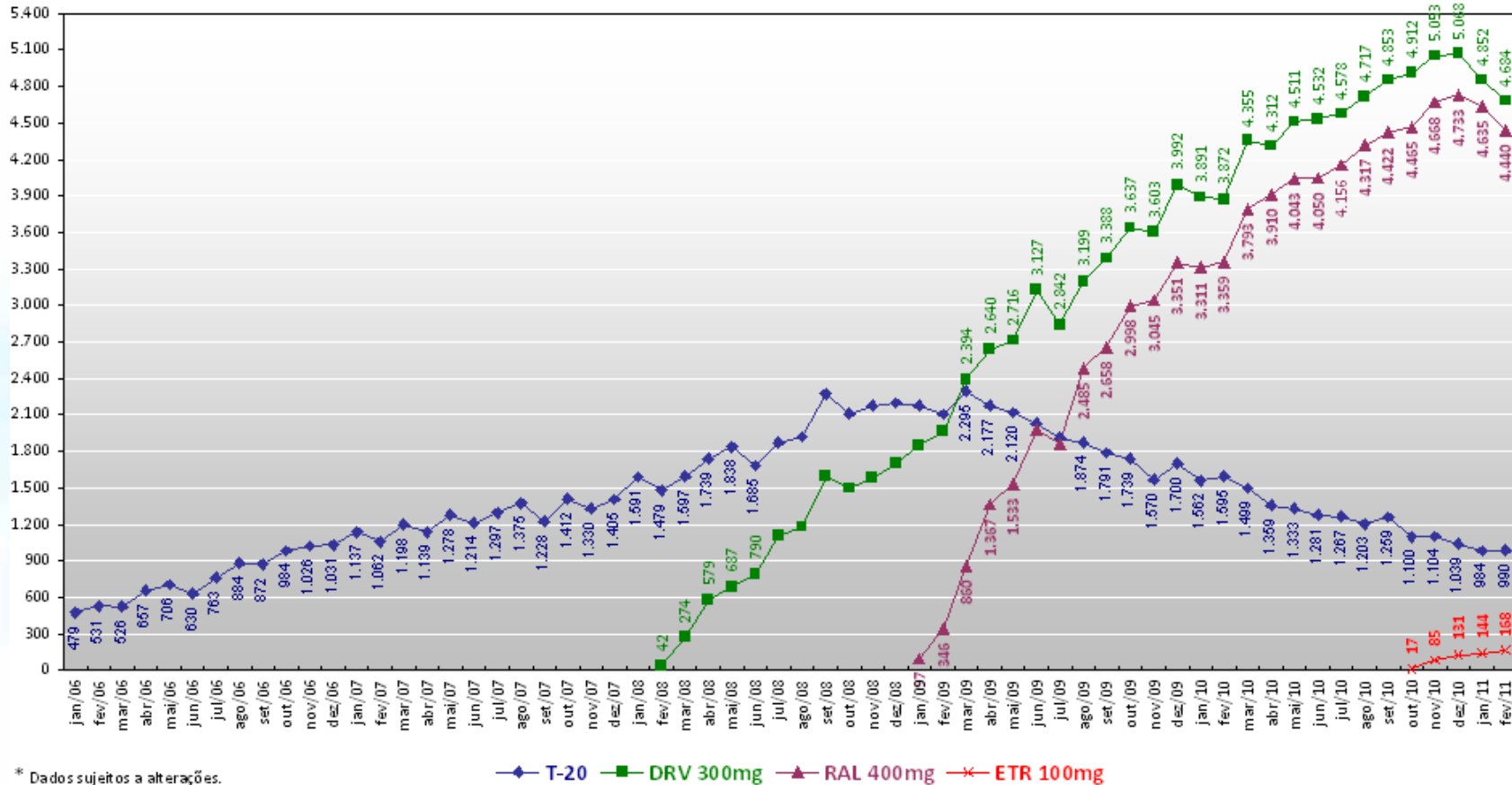
80-300 US\$/month

3rd line ART regimen costs:

1600-4200 US\$/month

Patterns of use of new drugs in Brazil

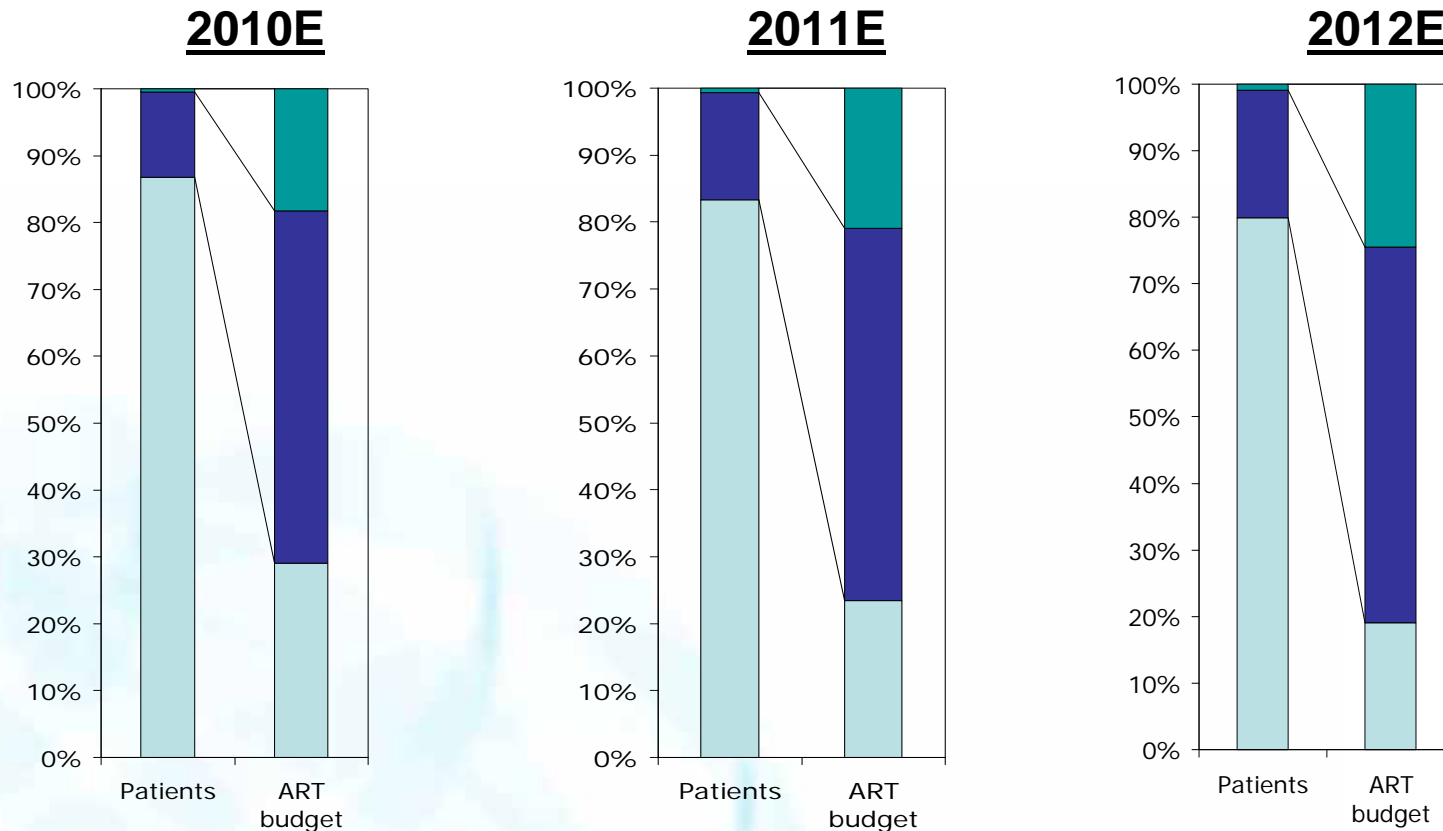
EVOLUÇÃO DO NÚMERO DE PESSOAS QUE VIVEM COM HIV/AIDS EM USO DE ENFUVIRTIDA (T-20), DARUNAVIR (DRV) 300mg, RALTEGRAVIR (RAL) 400mg e ETRAVIRINA (ETR) 100mg (Brasil, de jan/2006 a fev/2011*)



* Dados sujeitos a alterações.

Darunavir, raltegravir or enfuvirtide are used by 3.5% of the individuals receiving ART in Brazil but represent more than 20% of the ART spending

Estimated trends in ART spending in El Salvador



In 2012 80% of ART budget for 2nd line and salvage ART drugs.

3% of patients will use 25% of the ART resources.

What Needs to be Done?

Efforts should be focused on reducing the rate of emergence and spread of HIV-DR to limit its public health impact

Strengthening public health approach to ART:

- Simplification, standardization of schemes
- Increasing efficacy of first line therapy
- Improving quality of services to support adherence and retention
- Implementing a strategy to prevent and monitor HIV-DR

PAHO/WHO HIV-DR Strategy

2000:
HIVResNet

Monitor secondary
HIVDR in patients on
ART

Monitoring Survey

Assess primary HIVDR
in recently infected
patients

Transmission Survey

2003:
3by5 Initiative

2004:
Threshold Survey

Prevention:
Monitor factors
associated with HIVDR

Early Warning Indicators

2006:
EWI

Results lead to **programmatic action** to:

- Minimize emergence and transmission of HIVDR
- Optimize quality of patient care
- Maximize programmatic efficiency
- Select population-based ART regimens

Early Warning Indicators

Programmatic and site factors associated with secondary HIVDR.

The collection provides low cost, site-based evidence to optimize patient care.

EWI	Target
Prescribing practices	100%
Lost to follow-up at 12 months	≤20%
Retention on appropriate 1 st line ART at 12 months	≥ 70%
On time pill pick-up	≥90%
Appointment keeping	≥ 80%
Drug stock out at the level of ART clinic	100%

Lessons Learned and Recommendations

- Increase of access has not resulted in any disquieting levels of primary HIV-DR
- Secondary resistance may jeopardize future sustainability of ART programs
- Public Health Principles to scaling-up ART need to be reinforced, in particular to select new HIV drugs
- National implementation of the PAHO/WHO HIV-DR Strategy would allow to investigate emergence and transmission of HIV-DR and to monitor causal and associated factors



Thanks!
Muchas gracias!

www.paho.org/FRVIH

www.who.int/hiv/topics/drugresistance/es/index.html

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