



World Health  
Organization

# HIV/AIDS Programme

Annual 2010 Survey on ARV Use  
and Trends in Implementation of WHO 2010  
ART Recommendations

Presented by F. Renaud-Théry

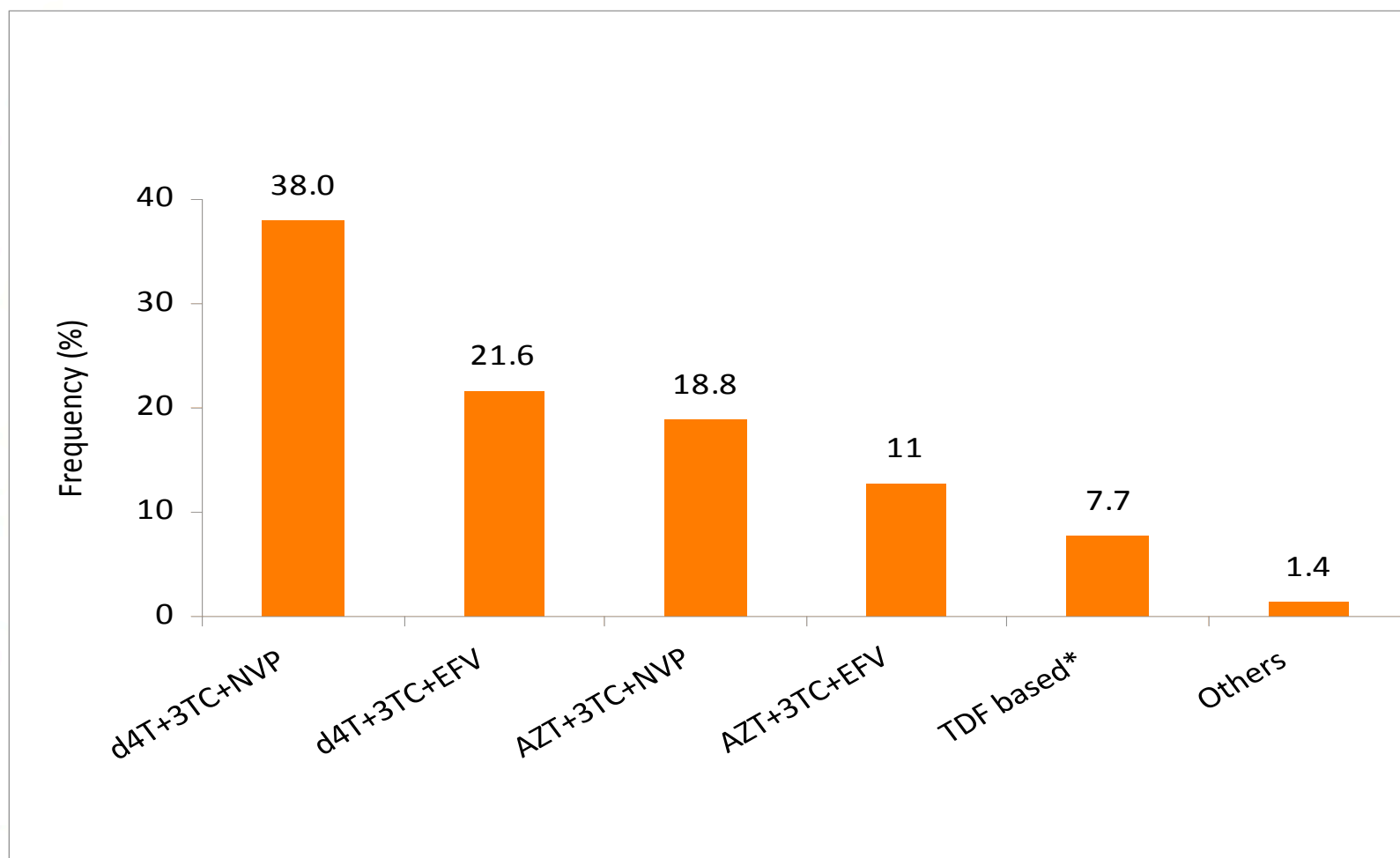
WHO & UNAIDS Annual Consultation With Pharmaceutical  
Companies – Global Forecasts of Antiretroviral Demand 2011-2012  
Geneva, 9&10 December 2010 (version 15 February 2011)

## An expanding survey

- 2006: 1st survey
  - 23 countries
  - data on 0.8 millions of patients = 53% of all patients on ART in LMIC as of Dec. 2006
  
- 2010: 4th survey
  - 76 countries and 94% of patients on ART
  - Data on ARV use by December 2009
  - Trends in ARV use over 4 years
  - Situation on adoption of WHO 2010 recommendations by countries

## 1st line regimen- Adults LMI countries (except America region)

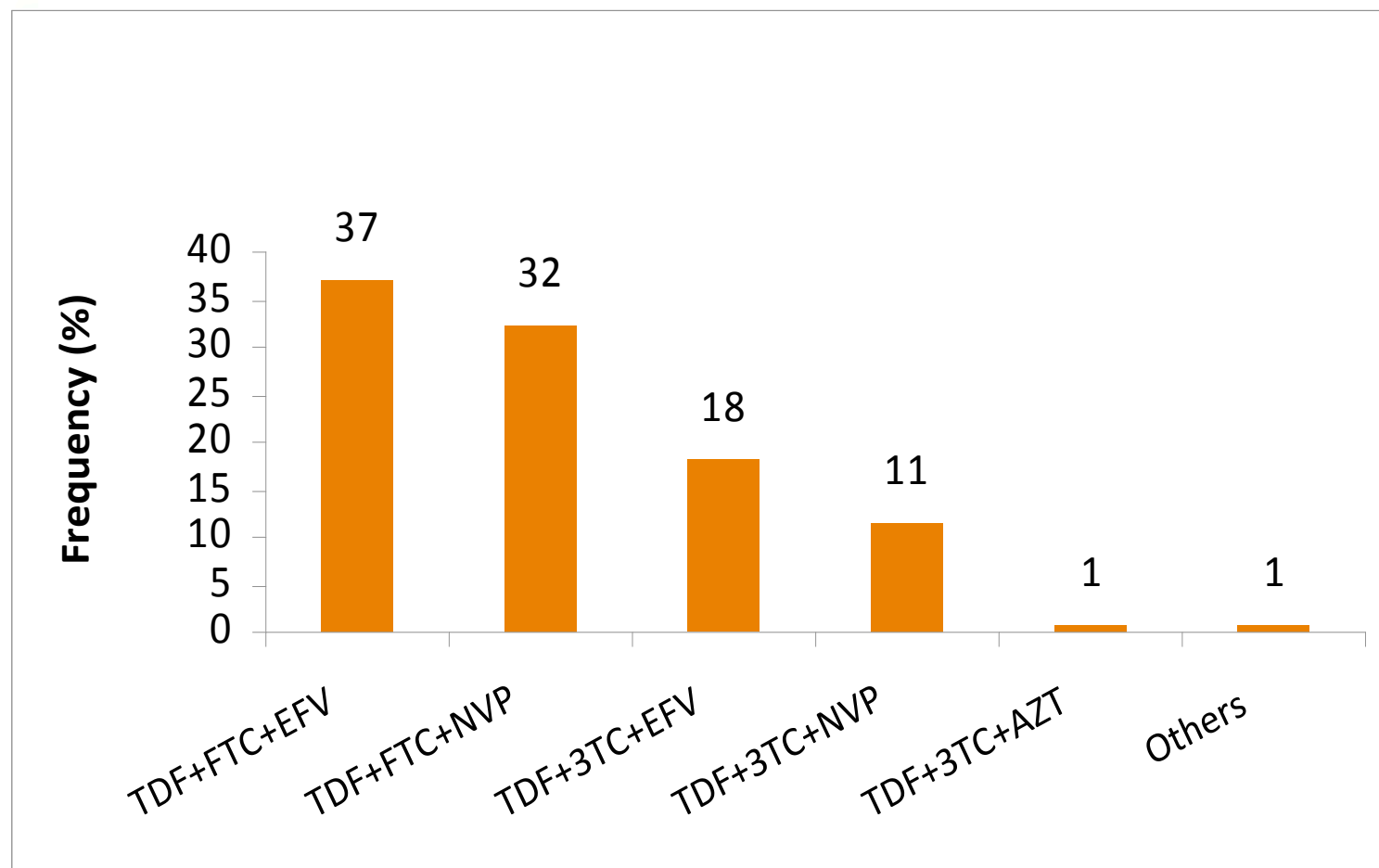
97.5% adults receiving first-line regimens with more than half using d4T (60%) and NVP (60%)



Source: WHO survey 2010 on ARV use, December 2010

## 1st line regimen- Adults LMI countries (except America region)

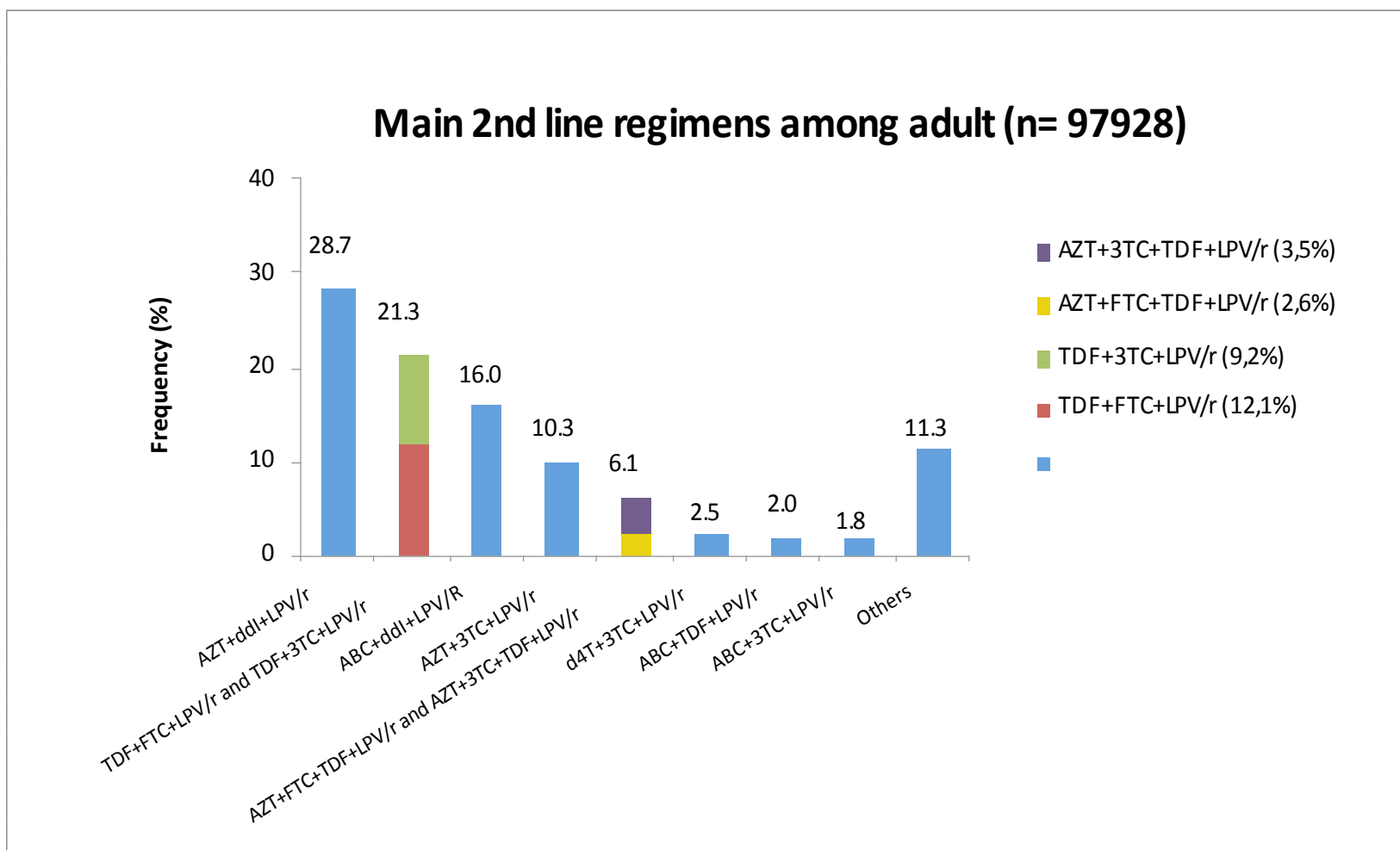
In first line, tenofovir was used with EFV (55%) or NVP (44%) and a majority with FTC (70%)



Source: WHO survey 2010 on ARV use, December 2010

## 2nd line regimen- Adults LMI countries (except America region)

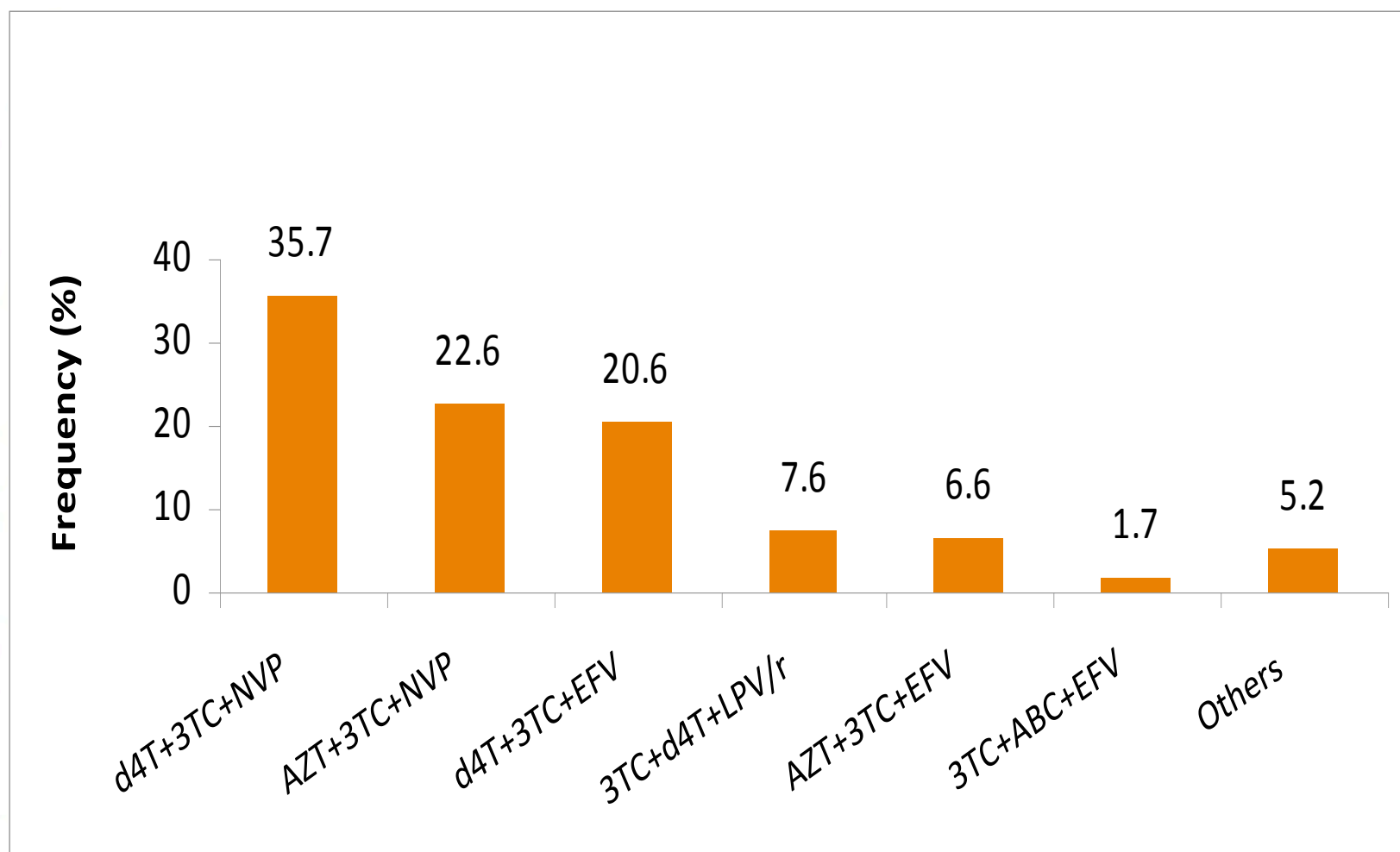
Only 2.5% adults on second-line with 47% using ZDV, 32% TDF and a vast majority LPV/r (92%)



Source: WHO survey 2010 on ARV use, October, 2010

## 1st line regimen- Children LMI countries (except America region)

96.9% children receiving first-line regimens with more than half using d4T (64%) and NVP (60%)

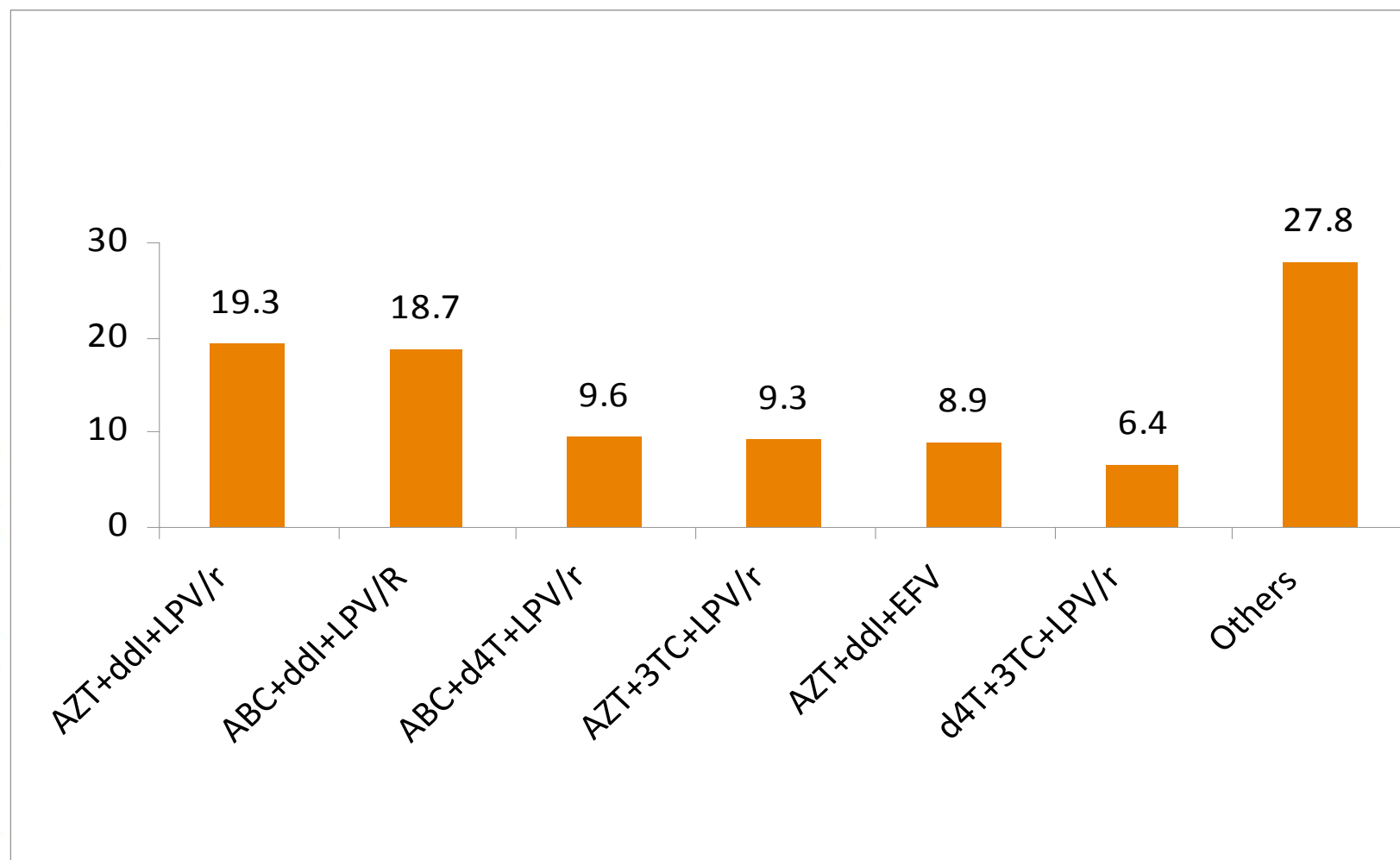


Source: WHO survey 2010 on ARV use, December 2010



## 2nd line regimen- Children LMI countries (except America region)

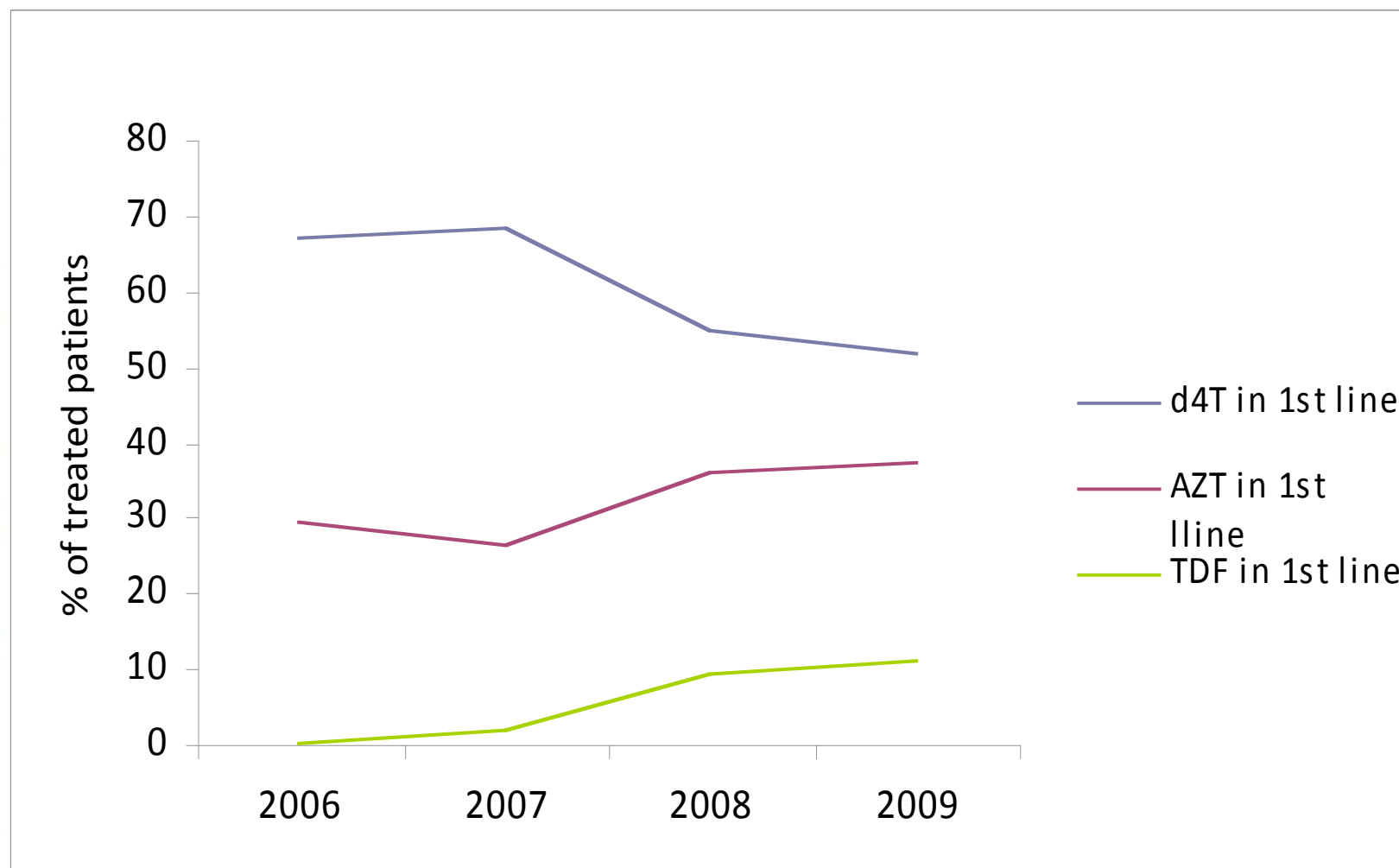
Only 3.1% children on second-line with 42% using ZDV, 40% ABC and a vast majority LPV/r (80%)



Source: WHO survey 2010 on ARV use, October, 2010

## MARKET DYNAMIC – LMI countries (except America region)

Proportion of patients receiving d4T, ZDV and TDF in 1st line in a subset of 17 countries\*, 2006-2009

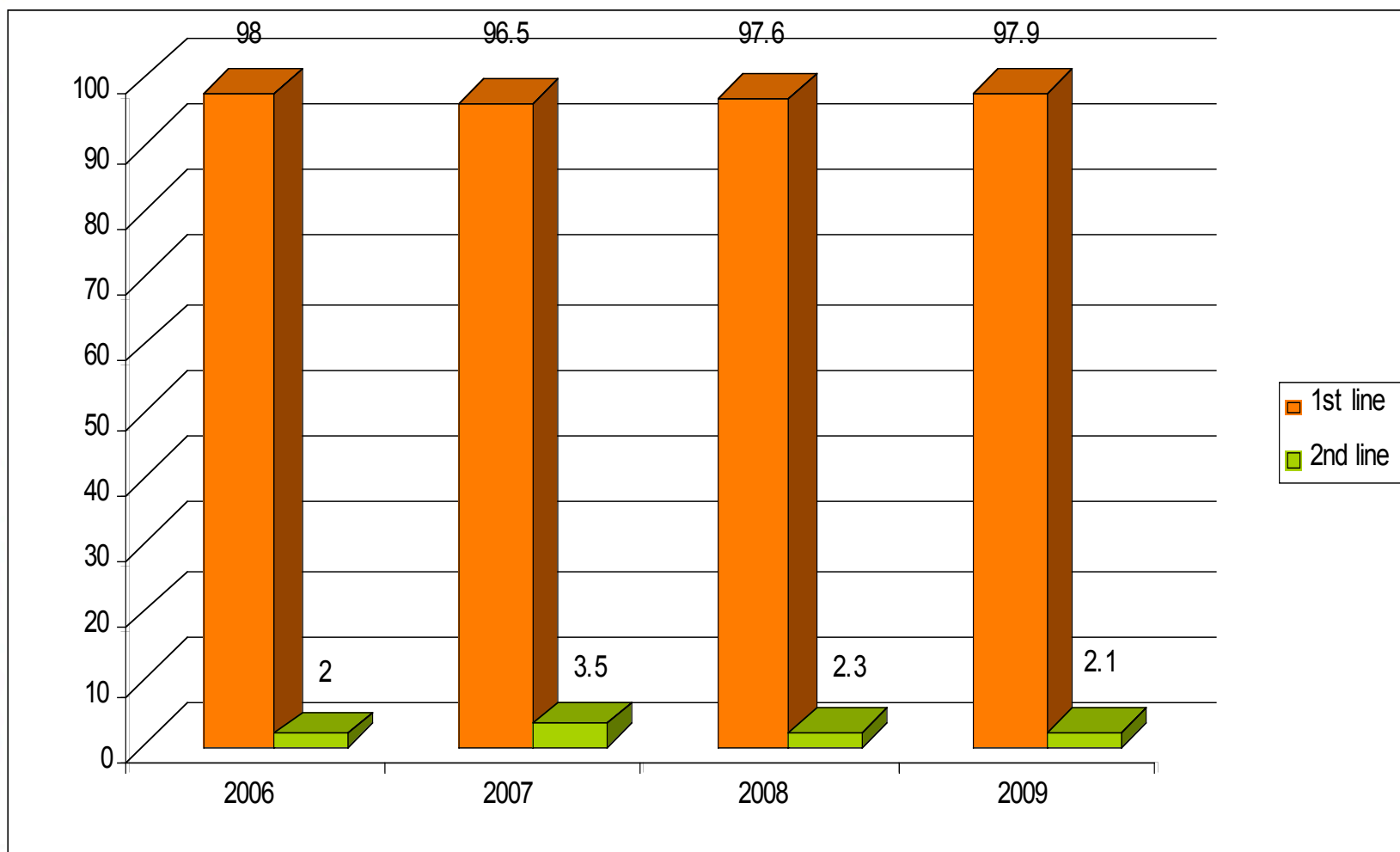


Source: WHO survey 2010 on ARV use, October, 2010 - \* Burkina Faso, Burundi, Cambodia, Cameroon, Côte d'Ivoire, Ethiopia, India, Kenya, Lesotho, Namibia, Nigeria, Rwanda, Swaziland, the United Republic of Tanzania, Uganda, Zambia and Zimbabwe



## MARKET DYNAMIC – LMI countries (except America region)

Proportion of patients receiving 1st and 2<sup>nd</sup> line regimen in a subset of 17 countries\*, 2006-2009



Source: WHO survey 2010 on ARV use, October, 2010 - \* Burkina Faso, Burundi, Cambodia, Cameroon, Côte d'Ivoire, Ethiopia, India, Kenya, Lesotho, Namibia, Nigeria, Rwanda, Swaziland, the United Republic of Tanzania, Uganda, Zambia and Zimbabwe

# Proportion of Adults on second line in 2009

Regional average for countries in the survey

|                        | %           |
|------------------------|-------------|
| <b>Western Pacific</b> | <b>3.3</b>  |
| <b>South East Asia</b> | <b>0.6</b>  |
| <b>Americas</b>        | <b>11.7</b> |
| <b>Europe</b>          | <b>9.0</b>  |
| <b>Eastern Med</b>     | <b>4.6</b>  |
| <b>Africa</b>          | <b>2.5</b>  |

# Many countries have already adopted WHO new recommendations

Criteria eligibility - In 2010, among 52 countries with available data

- 47 countries are adopting a CD4 threshold  $\leq 350$  cells/mm<sup>3</sup> for ART initiation in their national guidelines

- **42 countries for all patients:** Angola, Benin, Burkina Faso\*, Cameroon, CAR, Cape Verde, Chad, China, Congo, Côte d'Ivoire, Eritrea, Gabon, Gambia, Ghana, Guinea, Indonesia, Iran, Kenya, Lesotho, Malawi, Mali, Morocco, Moldova, Namibia, Nigeria, Pakistan, PNG, Saudi Arabia\*, Sierra Leone, Rwanda\*, Romania, Sao Tome, Seychelles\*, Senegal, Sudan, Swaziland, Tanzania, Togo, Ukraine, Viet Nam, Zambia, Zimbabwe

- **3 countries for pregnant women:** Botswana (other patients CD4  $\leq 250$ ), South Africa (other patients CD4  $\leq 250$ ), DRC

- **2 countries are planning the adoption in 2011 :** Burundi, Djibouti

- **5 countries are in process of decision (by end 2010):** Equatorial Guinea, Ethiopia, India, Mozambique, Uganda

( \* GL already revised in 2009)

# Many countries have already adopted WHO new recommendations

Regimen choice - In 2010, among 52 countries with available data:

- 38 countries are phasing out from d4T to AZT or TDF containing regimen\*
  - 33 countries already started: Angola, Botswana, Burkina Faso, Burundi, Cameroon, Cape Verde, CAR, Chad, China, Comoros, Côte d'Ivoire, Congo, Djibouti, Eritrea, Ethiopia, Ghana, Indonesia (TDF), Kenya, Lesotho\*, Liberia, Madagascar, Morocco, Moldova, Mozambique (AZT), Namibia, Rwanda, Senegal, Seychelles, South Africa\*, Sudan, Togo, Uganda, Ukraine
  - 3 countries are developing a phase out plan: Swaziland, Tanzania, Zimbabwe
  - 2 countries have future plans: Cambodia (2013), Malawi (2011 - TDF)
- 5 countries are in process of decision (by end 2010): India, Iran, Mali, Pakistan, PNG
- 5 Countries with no specific plan: Equatorial Guinea, Niger, Sao Tome, RDC, Viet Nam
- 2 Countries with no specific plan but already a minority of patients on d4T: Nigeria and Zambia

\* Approaches vary among the 33 countries from slow to faster phasing out for patients already on d4T:  
→ maintaining existing patients on d4T when no failure (Lesotho, South Africa),  
→ reducing procurement of d4T (China),  
→ no new procurement of d4T (Burundi, Togo, Ukraine)

But all countries starting naive ART patients with new AZT or TDF containing regimen

Source: WHO survey 2010 on ARV use, October, 2010

## Future ARV Regimens: a fragmented market

Two strategies for phasing out d4T in existing patients: substitution for toxicity or by target year (by 2011 to 2013)

| Replace d4T based on toxicity                          |                   | Replace d4T by target year   |  |
|--|-------------------|--|--|
| TDF-preferred  | AZT-preferred     | TDF-preferred  | AZT-preferred  |
| <b>Ethiopia<br/>Kenya<br/>Lesotho<br/>South Africa</b> | <b>Mozambique</b> | <b>Botswana<br/>Cameroon<br/>Malawi<br/>Namibia<br/>Nigeria<br/>Rwanda<br/>Zambia<br/>Zimbabwe</b> | <b>Côte d'Ivoire<br/>India<br/>Thailand<br/>Uganda</b> |
| <b>36%</b>   | <b>3%</b>         | <b>23%</b>   | <b>14%</b>   |

## Future ARV Regimens: a fragmented market

No new patients on d4T with a majority initiated with TDF in adults

| TDF-preferred  | AZT-preferred   |
|--|---|
| <b>Botswana<br/>Cameroon<br/>Ethiopia<br/>Kenya<br/>Lesotho<br/>Malawi<br/>Namibia<br/>Nigeria<br/>Rwanda<br/>South Africa<br/>Zambia<br/>Zimbabwe</b> | <b>Côte d'Ivoire<br/>India<br/>Mozambique<br/>Thailand<br/>Uganda</b> |
| <b>59%</b>   | <b>17%</b>  |

Source: WHO survey 2010 on ARV use, October, 2010



## MAIN ASSUMPTIONS

Replace d4T by substitution for toxicity: (Source: HIV/ATC)

1st year: 15% of patients on d4T

2nd year: 10%

3rd year : 10%

4th year: stable at 35%

Replace d4T by target year\*

25% each year 2010 to 2013

Distribution in new patients\*

TDF AZT d4T 70:25:5

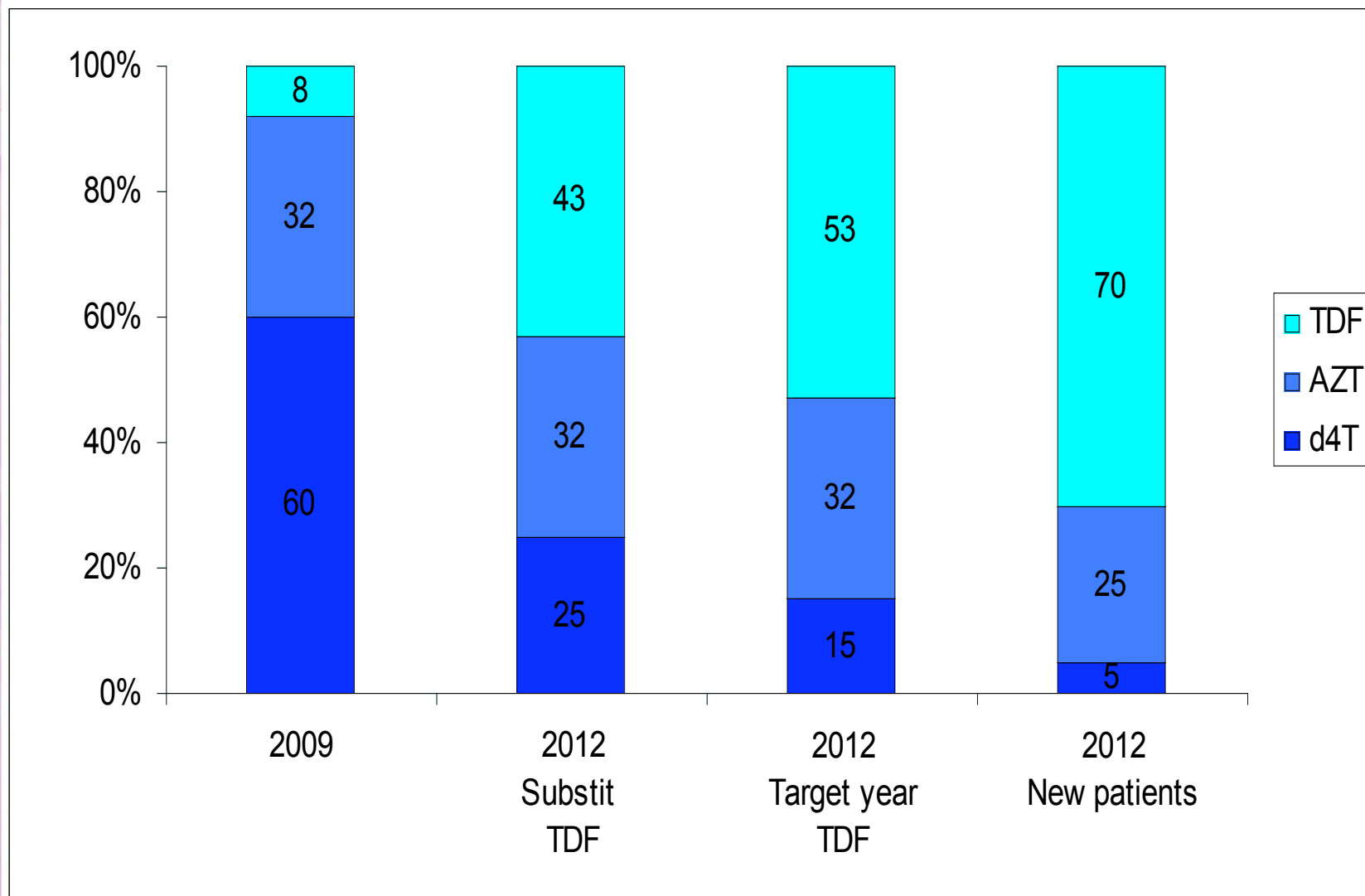
AZT TDF d4T 70:25:5

## MAIN ASSUMPTIONS

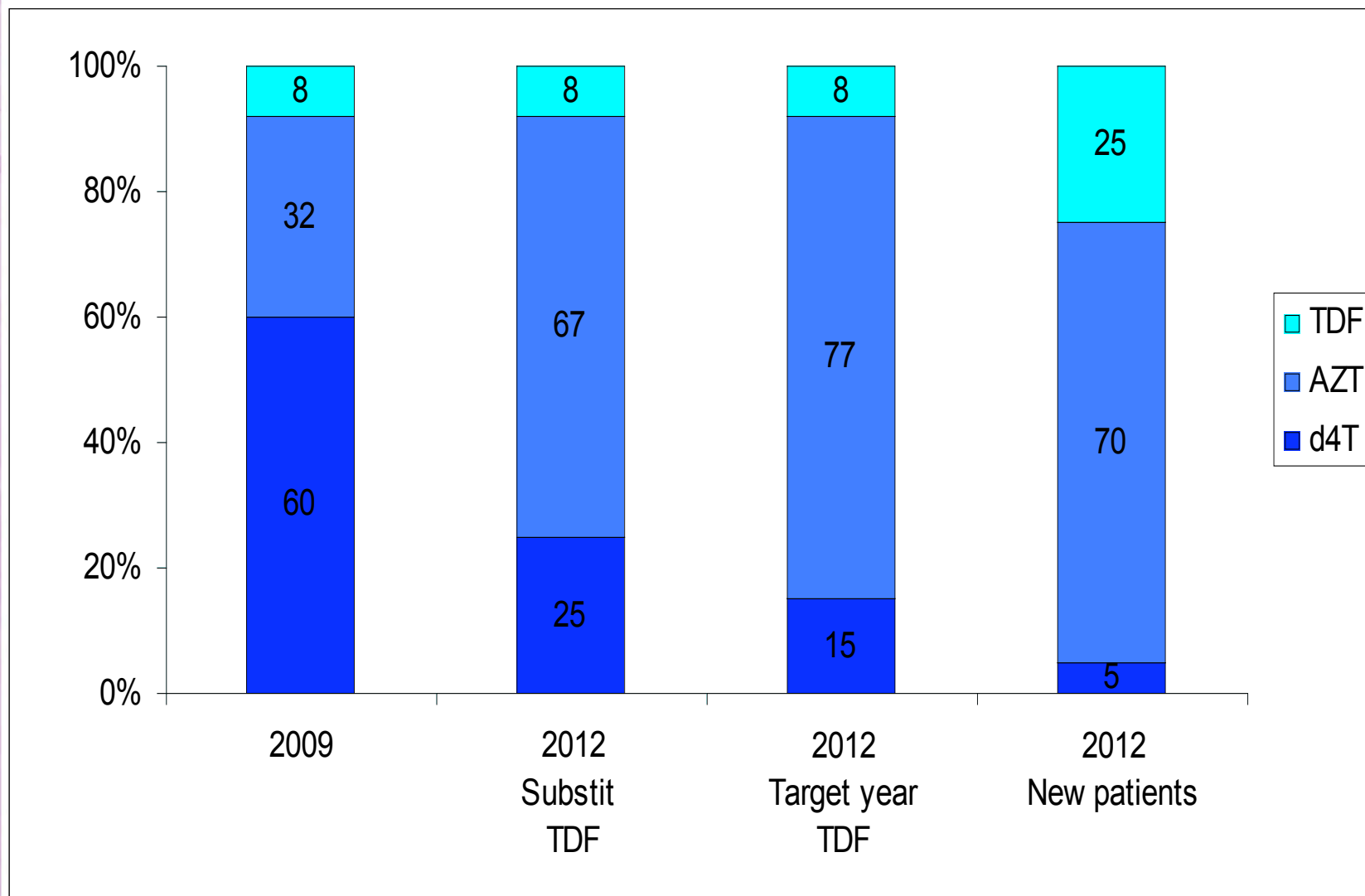
### Switch to 2nd line (Source: HIV/ATC)

- Articulation with 1st line regimen in change of NRTI:
  - d4T and AZT to TDF
  - TDF to AZT
- 10% Hep B co-infection: TDF +AZT (quadri-therapy)
- 5% ABC/ddI and 5% d4T/3TC
- 100% PIs (97% LPV/r)

## Projections by 2012 in countries replacing d4T by TDF in first line



## Projection by 2012 in countries replacing d4T by AZT in first line



# Children and Infants

## Most countries are adopting WHO 2010 recommendations

- Among 52 countries who provided information
  - 30 countries have revised their guidelines in 2010
  - 8 countries are planning the revisions for 2011 or 2012

more than 72% of children on ART

- ABC preferred first line in South Africa, Rwanda and Kenya (35% of children)
- LPV/r in first line in infants in Botswana, India, Kenya, South Africa (41% of children)

## MAIN ASSUMPTIONS

- Slow phase out of d4T by management of adverse reaction  
20% each year  
Less toxicity reported in children  
Prescribers maintaining d4T as long as child is doing well  
Fewer substitution options available
- Initiation of LPV/r in infants (15%)  
infants account for 25% of all new initiations  
a majority of infants will be using LPVr (60-70%)
- Distribution in new patients  
AZT d4T ABC 60:20:20  
NVP EFV LPV/r 55:30:15

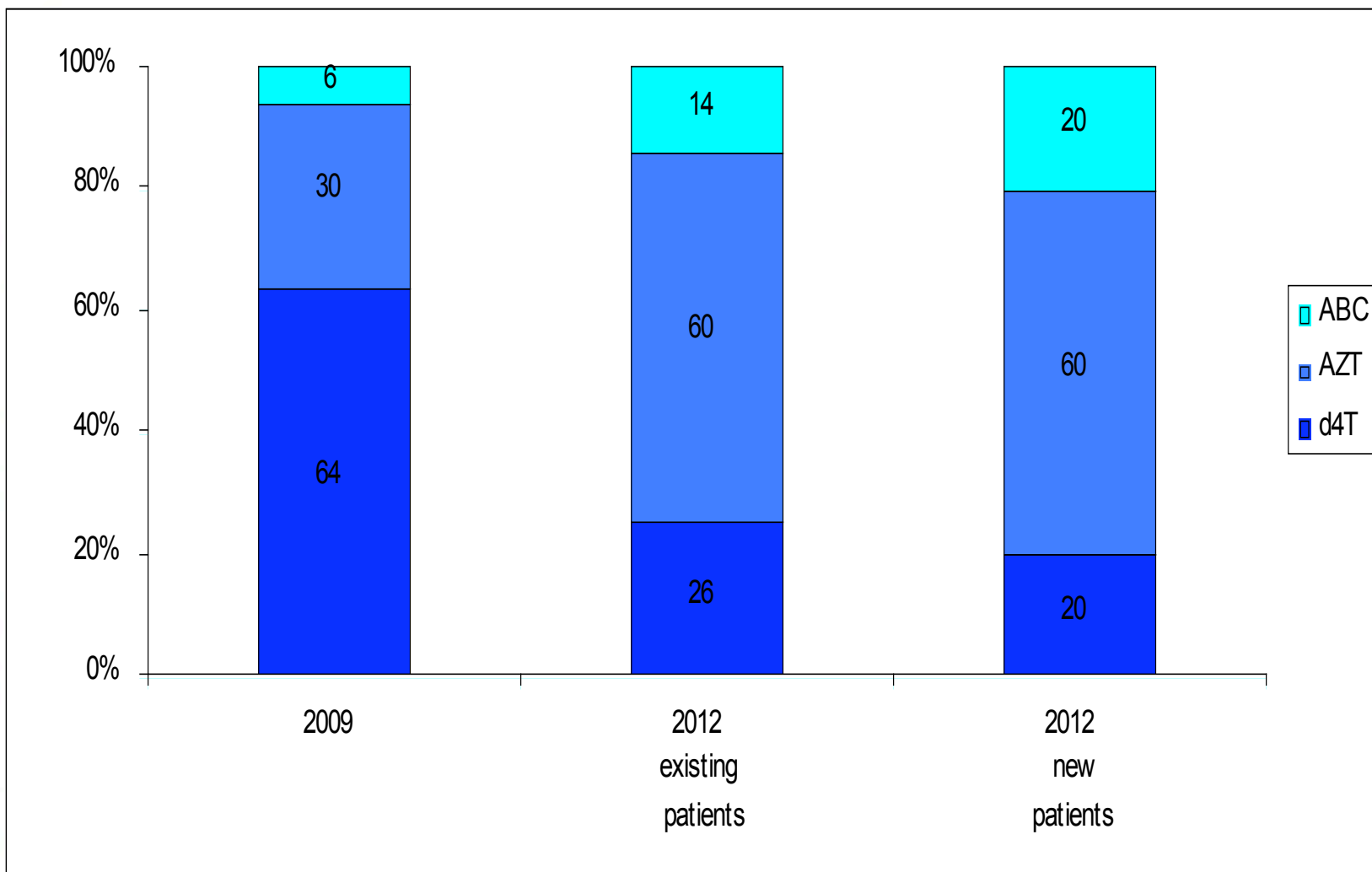


## MAIN ASSUMPTIONS

### Switch to 2nd line (Source: HIV/ATC)

- Articulation with 1st line regimen in change of NRTI:
  - d4T or AZT > 8 years to ABC or TDF
  - 100% d4T or AZT < 8 years to ABC
  - 100% ABC < or > 8 years to AZT
- 60% children will use 3TC as preferred option in WHO recommendations and 40% will use ddI
- 100% LPV/r

## Projection by 2012 of first line NRTI in children





THANK YOU