

# **A SUMMARY REPORT FROM THE GLOBAL PRICE REPORTING MECHANISM ON ANTIRETROVIRAL MEDICINES (February 2008)**

## **Transaction prices paid by low- and middle-income countries for antiretroviral medicines for adult treatment from 2004 to 2007**

The Global Price Reporting Mechanism (GPRM) contains information on transaction prices and quantities of antiretroviral medicines (ARVs) purchased by HIV/AIDS programmes in low-income countries<sup>1</sup> (countries with a gross national income (GNI) per capita of US\$ 905 or less, according to the World Bank Atlas calculation method)<sup>2</sup> and middle-income countries<sup>1,2</sup> (countries with a GNI per capita between US\$ 906 and US\$ 11,115). It complements reports of price quotes from pharmaceutical companies<sup>3,4,5</sup>, as well as smaller sets of transaction prices published by other sources<sup>6, 7, 8</sup>.

The transaction data in the Global Price Reporting Mechanism are provided by the Clinton Foundation HIV/AIDS Initiative (CHAI)/UNITAID (transactions up to January 2008), the Global Fund to Fight AIDS, Tuberculosis, and Malaria (GFATM) (up to January 2008), the International Dispensary Association (up to October 2007), John Snow Inc./Deliver (up to January 2008), Management Sciences for Health (up to January 2008), Missionpharma (up to October 2007), Partnership for Supply Chain Management (SCMS) (up to January 2008), the United Nations Children's Fund (UNICEF) (up to October 2007), the World Health Organization Contracting and Procurement Service (WHO\_CPS) (up to December 2006), and WHO country staff.

Transactions data received up to 31 December 2007 are included in this report. These data have been compiled and stored in a searchable database by the AIDS Medicines & Diagnostics Service (AMDS) of WHO HIV/AIDS Department and are available at <http://www.who.int/hiv/amds/price/hdd/>.

This summary report contains price information on twenty-eight (28) adult ARV formulations that are recommended by WHO for the first- and second- regimens<sup>9, 10, 11</sup> and commonly used in low- and middle-income countries. Please note that the GPRM also contains the data of less frequently used ARV formulations, anti-malaria and anti-tuberculosis medicines, HIV diagnostics, commodities for HIV and malaria prevention, diagnostics for HIV, TB and malaria as well as more detailed information on specific transactions featured in the report.

In this comparative analysis 'median price' (the price separating the higher half of transaction prices from the lower half) is used. The range between the 25<sup>th</sup> and 75<sup>th</sup> percentiles called the inter-quartile range (IQR, also called the midspread, is a measure of statistical dispersion being equal to the difference between the third and first quartiles), is expressed in brackets in the tables. The combination of the median value and the IQR, instead of the mean  $\pm$  standard deviation, was selected for this analysis in view of the asymmetrically distributed nature of the data.

For the interpretation and use of the data shown here it is important to note that:

- 1) All prices are shown in US\$ per patient per year of a defined daily dose of each medicine for adults or children.
- 2) Since taxes, tariffs, and/or International Commercial Terms (Incoterms: cost or condition of transport, insurance, etc.) are not consistently reported, these are not considered in the analysis. Previous investigations by the U.S. Government Accounting Office and Management Sciences for Health suggested that any variation in Incoterms constituted a 3-15% increase over the factory or ex works (EXW) price<sup>8</sup>.
- 3) All transactions listed in the GPRM with a price of US\$ 0 or appearing as duplications were considered to be either ARV donations or wrongly filed information and, as such, were removed from this analysis, along with their corresponding purchase volumes.
- 4) The prices in this report are international transactions prices, and not the prices paid by end-users at country level. The end-user prices are often higher because of tariffs, taxes, transportation, and mark-ups, however, in certain instances, they could be lower because of subsidies. More information on end-user prices can be found on the Health Action International website at <http://www.haiweb.org/medicineprices/><sup>12</sup>

### **Table of abbreviations**

<b>International Non-proprietary Name</b>	<b>Abbreviations</b>
abacavir	ABC
atazanavir	ATV
didanosine	ddI
efavirenz	EFV
fos-amprenavir	FPV
indinavir	IDV
lamivudine	3TC
lopinavir/ritonavir	LPV/r
nelfinavir	NFV
nevirapine	NVP
ritonavir	RTV
saquinavir	SQV
stavudine	d4T
stavudine/lamivudine	d4T/3TC
stavudine/lamivudine/nevirapine	d4T/3TC/NVP
tenofovir	TDF
tenofovir/emtricitabine	TDF/FTC
zidovudine	ZDV
zidovudine/lamivudine	ZDV/3TC
zidovudine/lamivudine/nevirapine	ZDV/3TC/NVP

**Table 1 :** Median transaction price of **first-line** ARV medicines per patient per year treatment (US\$/ppy) at a WHO recommended adult defined daily dose (DDD)

**a) Low-income countries**

INN and strengths	Median transaction price (25th -75th Quartile range) (US\$/ppy)				
	DDD (tablets or capsules)	2004	2005	2006	2007
d4T 30 mg	2	49 (49-51)	45 (38-48)	36 (33-39)	<b>22 (21-27)</b>
d4T 40 mg*	2	55 (53-55)	49 (41-55)	39 (34-49)	<b>23 (23-27)</b>
3TC 150 mg	2	70 (70-75)	70 (65-79)	60 (53-60)	<b>40 (38-41)</b>
NVP 200 mg	2	88 (66-438)	84 (68-436)	63 (60-63)	<b>44 (44-47)</b>
d4T/3TC 30/150 mg	2	89(86-99)	88 (81-97)	76 (76-76)	<b>47 (47-64)</b>
d4T/3TC 40/150 mg*	2	107 (99-107)	95 (87-98)	73 (73-78)	<b>51 (51-60)</b>
d4T/3TC/NVP 30/150/200 mg	2	153 (121-164)	166 (145-194)	100 (100-120)	<b>92 (79-99)</b>
d4T/3TC/NVP 40/150/200 mg*	2	159 (126-170)	165 (155-195)	105 (105-121)	<b>81 (81-95)</b>
ZDV 300 mg	2	147 (131-212)	141 (128-165)	149 (131-149)	<b>104 (100-110)</b>
ZDV/3TC 300/150 mg	2	234 (195-238)	211 (190-238)	152 ((139-179)	<b>121 (113-134)</b>
ZDV/3TC/NVP 300/150/200 mg	2	232 (232-250)	156 (155-298)	242 (196-321)	<b>221 (198-250)</b>
EFV 200 mg	3	507 (507-550)	507 (501-542)	270 (235-394)	<b>226 (206-336)</b>
EFV 600 mg	1	347 (347-376)	347 (347-367)	245 (245-273)	<b>173 (151-198)</b>
ZDV/3TC/ABC 300/150/300 mg	2	1629 (1629-1629)	1241 (1241-1241)	1275 (1176-1311)	<b>852 (852-852)</b>

\* d4T 40mg x 2/day is not recommended by WHO (<http://www.who.int/hiv/treatment/en/index.html>)

**Table 1 :** Median transaction price of **first-line** ARV medicines (US\$/ppy) at a WHO recommended adult DDD

**b) Middle-income countries**

INN and strengths	Median transaction price (25th -75th Quartile range) (US\$/ppy)				
	DDD (tablets or capsules)	2004	2005	2006	2007
d4T 30 mg	2	41 (40-48)	50 (43-60)	39 (32-116)	<b>28 (26-37)</b>
d4T 40 mg*	2	45 (44-52)	55 (51-66)	46 (35-526)	<b>32 (29-52)</b>
3TC 150 mg	2	71 (70-75)	75 (69-96)	60 (50-186)	<b>46 (41-69)</b>
NVP 200 mg	2	103 (87-108)	95 (68-111)	61 (58-81)	<b>50 (47-53)</b>
d4T/3TC 30/150 mg	2	90 (88-91)	153 (153-153)	77 (73-99)	<b>85 (77-143)</b>
d4T/3TC 40/150 mg*	2	92 (92-92)	95 (93-99)	83 (79-125)	<b>86 (79-150)</b>
d4T/3TC/NVP 30/150/200 mg	2	154 (154-154)	187 (176-207)	147 (132-173)	<b>91 (78-94)</b>
d4T/3TC/NVP 40/150/200 mg*	2	160 (160-164)	213 (189-326)	154 (138-206)	<b>86 (79-95)</b>
ZDV 300 mg	2	141 (139-198)	212 (180-228)	145 (120-204)	<b>113 (102-158)</b>
ZDV/3TC 300/150 mg	2	238 (209-254)	234 (193-254)	177 (157-429)	<b>137 (123-621)</b>
ZDV/3TC/NVP 300/150/200 mg	2	303 (303-304)	273 (271-276)	277 (277-277)	<b>335 (211-417)</b>
EFV 200 mg	3	469 (469-487)	482 (431-653)	306 (231-507)	<b>231 (206-670)</b>
EFV 600 mg	1	347 (347-767)	438 (370-767)	338 (251-664)	<b>220 (183-359)</b>
ZDV/3TC/ABC 300/150/300 mg	2	1304 (1304-1311)	3612 (2482 - 4741)	-	<b>1825 (1825-1825)</b>

\* d4T 40mg x 2/day is not recommended by WHO (<http://www.who.int/hiv/treatment/en/index.html>)

**Table 2 : Median transaction price of **second-line** ARV medicines (US\$/ppy) at a WHO recommended adult DDD**

**a) Low-income countries**

INN and strengths	Median transaction price (25th -75th Quartile range) (US\$/ppy)				
	DDD (tablets or capsules)	2004	2005	2006	2007
ABC 300 mg	2	887 (887-887)	887 (887-887)	578 (540-887)	<b>426 (369-437)</b>
ddI 100 mg	4	311 (302-311)	311 (308-342)	260 (239-311)	<b>265 (209-310)</b>
ddI 200 mg	2	311 (311-350)	311 (218-311)	249 (228-310)	<b>248 (209-310)</b>
ddI 400 mg	1	253 (221-253)	288 (288-289)	288 (278-305)	<b>288 (288-292)</b>
IDV 400 mg*	4	406 (390-406)	406 (401-406)	422 (406-436)	<b>406 (404-437)</b>
LPV/r 133/33 mg	6	557 (536-594)	548 (500-607)	587 (500-610)	<b>500 (500-597)</b>
LPV/r 200/50 mg	4	-	-	500 (500-525)	<b>500 (500-500)</b>
NFV 250 mg**	10	990 (956-1074)	1005 (927-1093)	1013 (910-1108)	<b>1052 (931-1078)</b>
RTV 100 mg***	2	90 (89-306)	92 (84-98)	99 (84-129)	<b>83 (83-105)</b>
SQV 200 mg*	10	1108 (1027-1108)	1036 (941-1110)	1048 (999-1083)	<b>1064 (1057-1090)</b>
TDF 300mg	1	316 (307-322)	301 (301-310)	219 (208-239)	<b>207 (200-228)</b>
TDF/FTC 300/200mg	1	-	362 (362-362)	318 (318-319)	<b>320 (320-320)</b>
ATV 150mg*	2	-	-	-	-
ATV 200mg*	2	-	-	-	-

\* Protease inhibitor to be used boosted with ritonavir

\*\* NFV has been suspended from the list of WHO Pre-qualified products (June 2007)

\*\*\* The dose of ritonavir is given for its use as booster of other protease inhibitors only

**Table 2 :** Median transaction price of **second-line** ARV medicines (US\$/ppy) at a WHO recommended adult DDD

**b) Middle-income countries**

INN and strengths	Median transaction price (25th -75th Quartile range) (US\$/ppy)				
	DDD (tablets or capsules)	2004	2005	2006	2007
ABC 300 mg	2	887 (841-919)	954(921-968)	951 (601-965)	<b>410 (382-555)</b>
ddI 100 mg	4	580 (311-580)	678 (406-1566)	565 (442-621)	<b>427 (190-565)</b>
ddI 200 mg	2	235 (233-235)	176 (176-176)	175 (175-343)	<b>248 (239-251)</b>
ddI 400 mg	1	1876 (1119-1941)	902 (401-1676)	988 (507-1808)	<b>1811 (507-1928)</b>
IDV 400 mg*	4	391 (391-686)	696 (433-696)	696 (696-746)	<b>696 (695-725)</b>
LPV/r 133/33 mg	6	4510 (4509-4705)	4608 (4441-5559)	4095 (2373-4468)	<b>1134 (1085-2227)</b>
LPV/r 200/50 mg	4	-	-	1489 (876-1489)	<b>1085 (1000-1207)</b>
NFV 250 mg**	10	1633 (1620-3466)	2113 (1597-2325)	2113 (1621-2295)	<b>1847 (1335-2227)</b>
RTV 100 mg***	2	798 (779-908)	870 (600-1238)	774 (533-978)	<b>778 (83-911)</b>
SQV 200 mg*	10	2380 (2379-2390)	2544 (2404-2577)	2263 (2147-2459)	<b>2216 (2116-2720)</b>
TDF 300mg	1	279 (253-306)	234 (139-321)	344(207-1278)	<b>225 (220-318)</b>
TDF/FTC 300/200mg	1	-	-	360 (340-461)	<b>357 (340-439)</b>
ATV 150mg*	2	-	3753 (3729-3778)	2208 (2208-2208)	<b>2212 (2212-2212)</b>
ATV 200mg*	2	-	-	2300 (2300-3157)	<b>4010 (4010-4010)</b>

\* Protease inhibitor to be used boosted with ritonavir

\*\* NFV has been suspended from the list of WHO Pre-qualified products (June 2007)

\*\*\* The dose of ritonavir is given for its use as booster of other protease inhibitors only

## Discussion

### First-line regimens

The median price for first-line regimens for adults continued to decrease from 2004 to 2007, in both low- and middle-income countries. The price for first-line treatment paid by middle-income countries has become close to or in case of a fixed-dose combination less than that paid by low-income countries (see below). The median price of the most commonly prescribed fixed dose combination in first-line regimen (d4T 30 mg + 3TC 150 mg + NVP 200 mg) has dropped by 40% from US\$ 153 (2004) to US\$ 92 (2007) in low-income countries and from US\$ 154 (2004) to US\$ 91 (2007) in middle-income countries.

The median price of ZDV (300mg) + 3TC (150mg) and EFV (600mg) decreased by about 50% in low-income countries from US\$ 234 (2004) to US\$ 121 (2007) and from US\$ 347 (2004) to US\$ 173 (2007), respectively. Similar reductions were observed in the median price of ZDV (300mg) + 3TC (150mg) and EFV (600mg) in middle-income countries by a range of 36 to 40% over the last 4 years.

### Second-line regimens

Prices of some ARVs for second-line treatment decreased substantially over the last 4 years. The median price of ABC (300mg) decreased by more than 50% in both low- and middle-income countries from US\$ 887 (2004) to US\$ 426 (2007) and from US\$ 887 (2004) to US\$ 410 (2007), respectively. The median price of LPV/r (133/33mg) more significantly decreased in middle-income countries from US\$ 4510 (2004) to US\$ 1134 (2007) or by 75% compared to that in low-income countries from US\$ 557 (2004) to US\$ 500 (2007). However, median prices of other ARVs for the second-line regimen have been very stable and the second-line treatment is still significantly more expensive than the first-line treatment in both low- and middle-income countries, disproportionately so in the latter.

In 2007, the median price of a regimen consisting of ABC (300mg) + ddI (400mg) + LPV/r (200/50mg) (the most commonly used WHO recommended second-line regimen)<sup>13</sup> decreased from US\$ 1,697 to US\$ 1,214 in low-income countries and from US\$ 7,273 to US\$ 3,306 in middle-income countries. The aggregate median price for TDF (300mg) + 3TC (150mg) + LPV/r (200/50mg), another WHO preferred treatment regimen, decreased from US\$ 956 to US\$ 892 in low-income countries and from US\$ 6527 to US\$ 3,009 in middle-income countries.

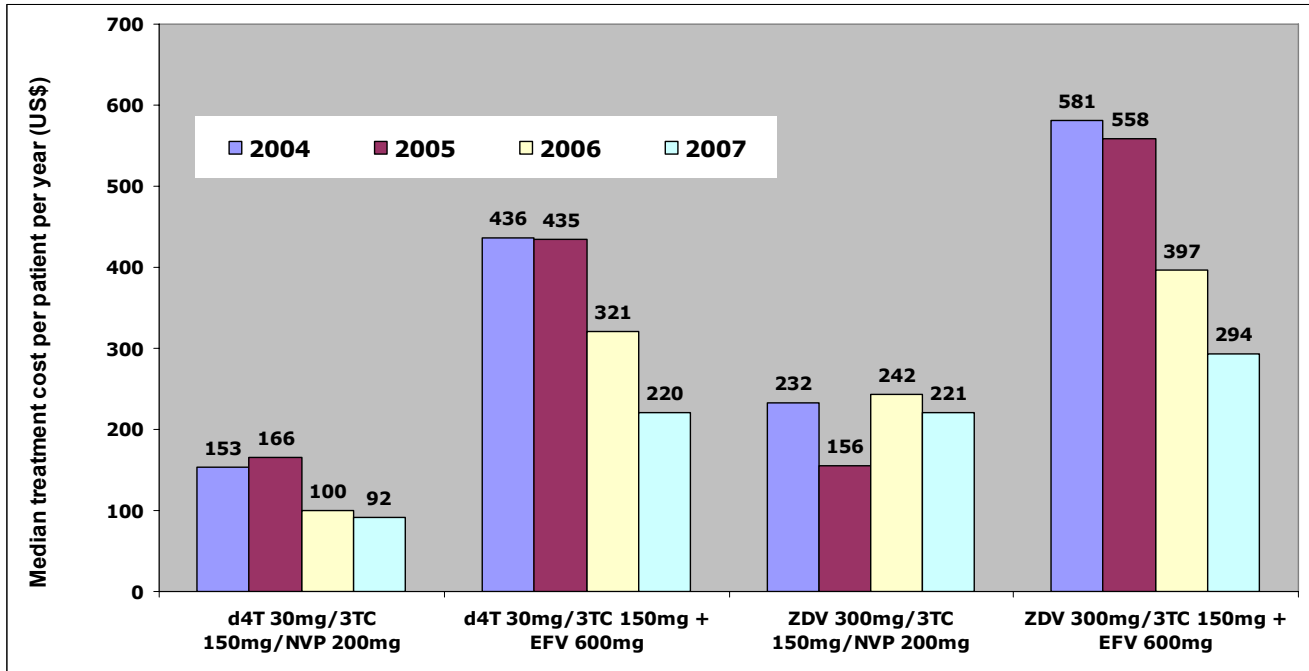
### Conclusion

The downward trend in the price of first line ARV medicines is seen to continue since 2004. The difference in the median price for the most commonly used fixed-dose combination in 2007 is now minimal. In addition, the cost for the second-line treatment also showed a significant reduction in 2007, especially in middle-income countries, mainly due to the price change of ABC and LPV/r for the regimen. However, the price of second-line regimens remains higher than that of first-line regimens. This is especially true with regard to protease inhibitors in low-income countries, where prices showed only 10% reduction over the last 4 years.

One of the many challenges in scaling-up access to ARV medicines towards universal access is the need to cover the cost of second-line medicines, as greater number of patients become eligible for second-line treatment. Unless their price decreases, national programmes will need to raise more funds to sustain their treatment programme requirements.

Fig. 1: Price trend for the most commonly used **first-line** regimens for adult patients

a) Low-income countries



b) Middle-income countries

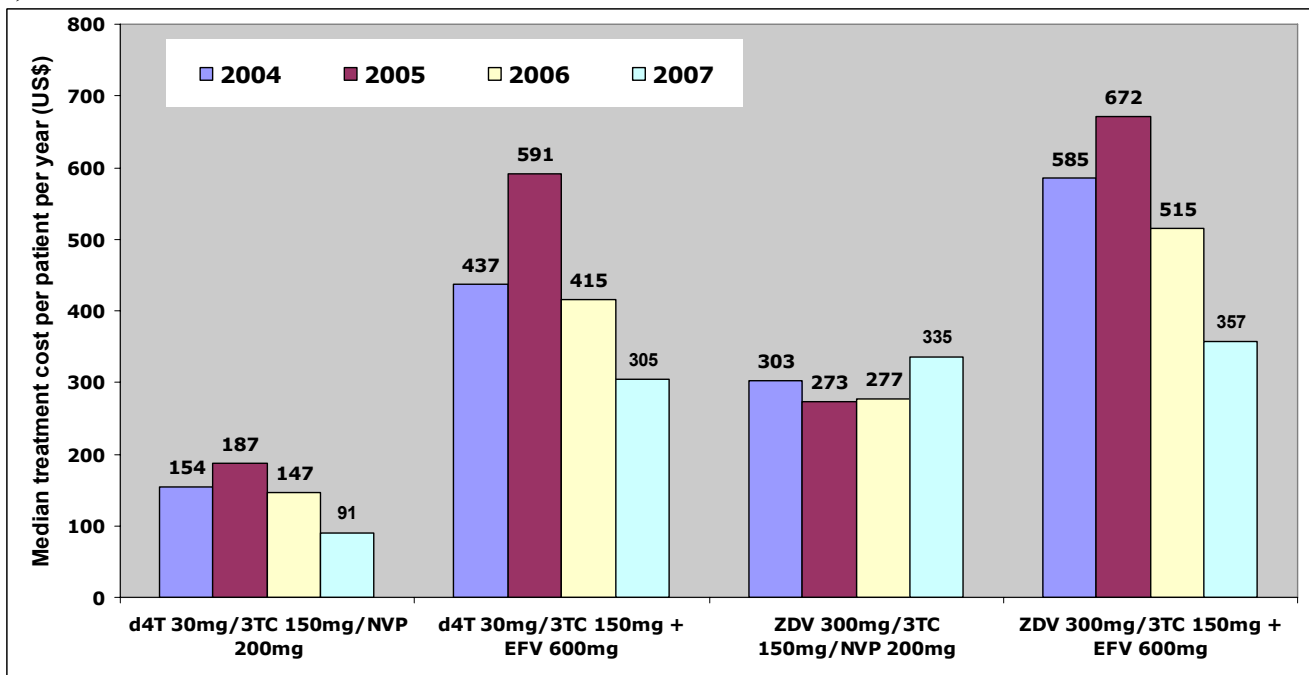
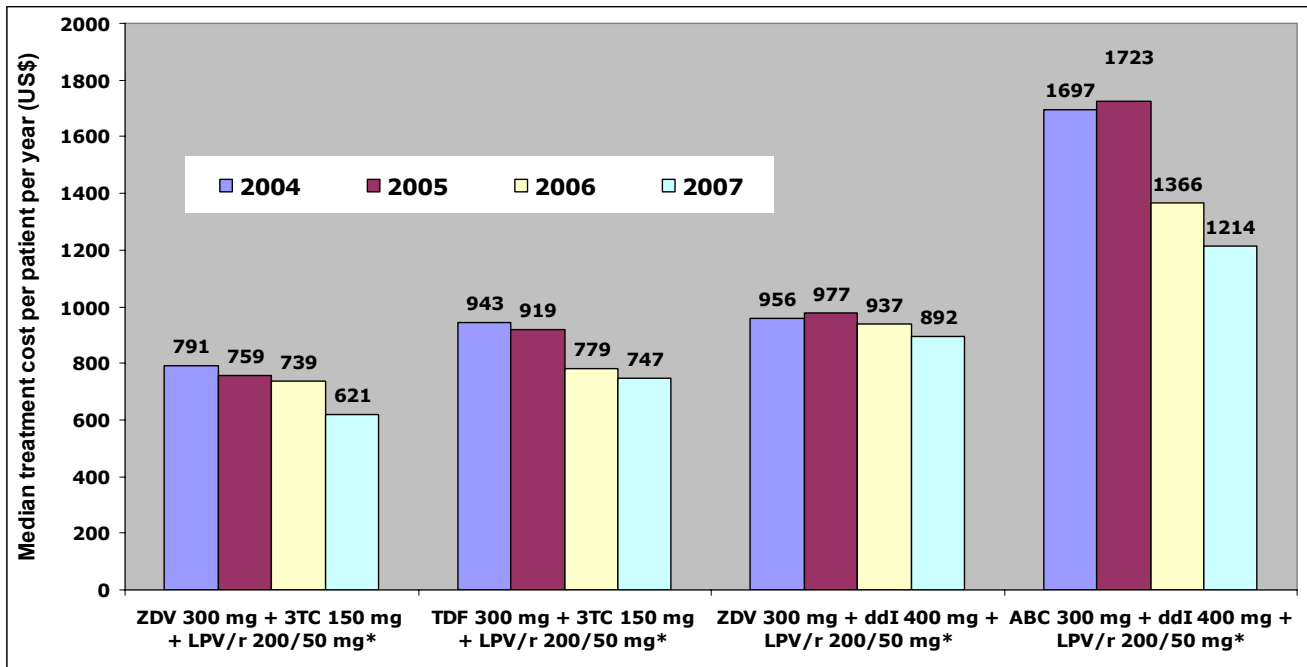


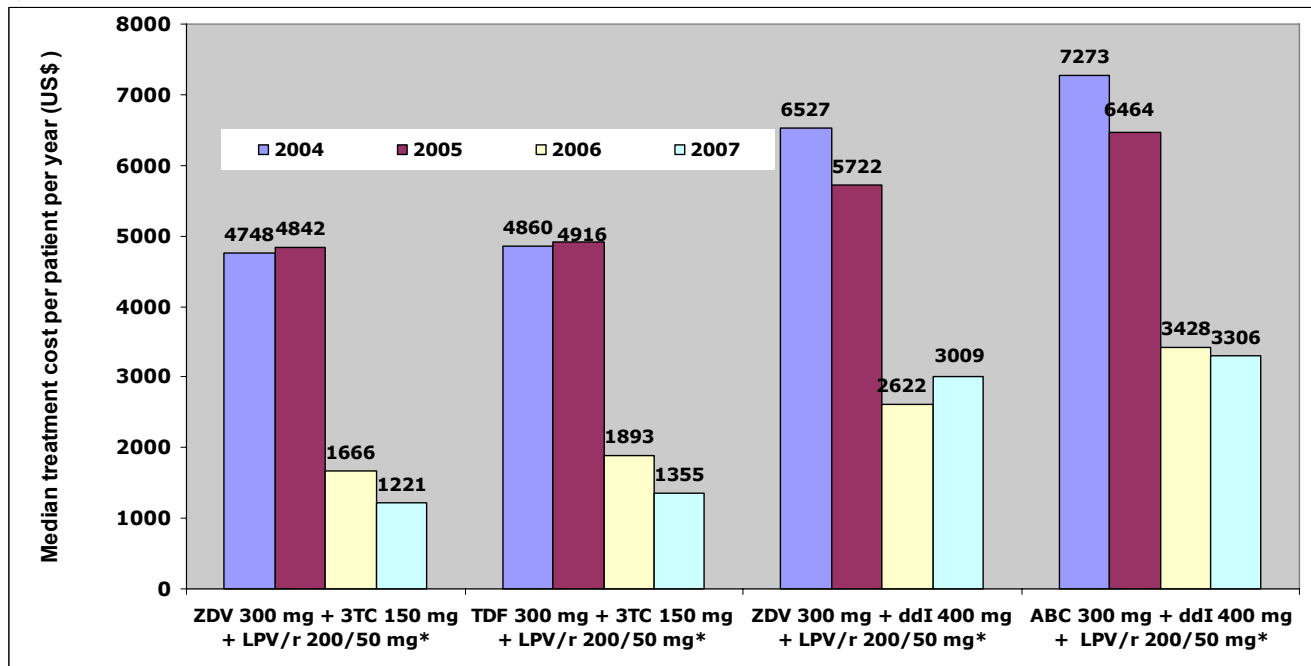
Fig. 2: Price trend for the most commonly used **second-line** regimens for adult patients

**a) Low-income countries**



\* calculated based on the median price of LPV/r (133/33 mg) in 2004 and 2005 and LPV/r (200/50 mg) in 2006 and 2007

**b) Middle-income countries**



\* calculated based on the median price of LPV/r (133/33 mg) in 2004 and 2005 and LPV/r (200/50 mg) in 2006 and 2007

This summary report is intended to provide ARV pricing data to governments, non-governmental organizations, donors, international organizations, academia, and individuals or institutions directly involved or interested in the procurement of ARVs in resource-poor settings. The next summary report will become available in May 2008.

Any suggestions you may have would be greatly appreciated. Please send your comments to Mr Boniface Dongmo Nguimfack at [dongmonguimfackb@who.int](mailto:dongmonguimfackb@who.int).

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