

Quarterly report comparing the transaction prices paid in the last 3 months for antiretroviral drugs by low and middle income countries to the price paid the previous years

A summary report from the Global Price Reporting Mechanism on Antiretroviral Drugs, March 2007

The Global Price Reporting Mechanism on Antiretroviral Drugs contains information on real transaction prices of quantities (in bulk) of antiretroviral drugs (ART) purchased by HIV/AIDS programmes in low and middle income countries¹. It complements reports of price quotes from pharmaceutical companies^{2,3,4}, as well as smaller sets of transaction prices published by others^{5,6,7}. The transaction data in the Global Price Reporting Mechanism are provided by the Global Fund to Fight AIDS, Tuberculosis, and Malaria (GFATM), the International Dispensary Association, John Snow Inc./Deliver, Management Sciences for Health, Missionpharma, the United Nations' Children's Fund (UNICEF), the World Health Organization (WHO) Contracting and Procurement Service, as well as WHO staff working in different countries. These data were compiled into a searchable database by the WHO AIDS Medicines & Diagnostics Service (AMDS) in the Department of HIV/AIDS.

This summary report contains information on transactions of 34 commonly-used adult formulations of ART, recommended by WHO for first and second line antiretroviral treatment^{8,9}, (Tables 1(a) and 1(b) and 2(a) and 2(b)) carried out in year 2004 to 2006 and the first quarter of 2007. Transaction data received up to 30 March 2007 were included in this report. Data of less-frequently used formulations of ART and more detail on the transactions summarized in this report can be found in the Global Price Reporting Mechanism's (GPRM) database, which can be accessed at <http://www.who.int/hiv/amds/price/hdd/>.

In our comparative analysis, we used the median price (half of the transactions having a price lower than the median price and half of the transactions having a price higher than the median price). We also have in brackets the range between the 25 and 75th percentiles (the range including prices that are 25 per cent lower or higher than the median). The range between the 25 and 75 percentiles is called the inter-quartile range.

The combination of the median value and the inter-quartile range (instead of the mean \pm standard deviation) were selected for this analysis due to the non-normally distributed (asymmetrical) 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 dollars (US\$) per patient and year of a defined daily dose of each drug in adults.
- 2) As taxes, tariffs, and/or International Commercial Terms (Incoterms) were not consistently reported, these were not considered in the analysis. Previous investigations by the US Government Accounting Office³ and MSH suggest that any variation as a result would be 3-15% over the factory or ex-works (EXW) price².
- 3) All transactions listed with a price of US\$ 0 in the GPRM and thus considered to be ART donations or wrongly reported were removed from the analysis, along with their corresponding purchase volumes.
- 4) The report is on international transactions of antiretroviral drugs, not about the price consumers paid for these medicines. The latter are often higher (because of tariffs, taxes, transportation, and make-ups during their distribution) or lower (because of subsidies). More information on end-user prices can be found on the WHO medicines website at <http://mednet2.who.int/sourcesprices/>

Table 1a: Median price (in US\$ for 1 year's treatment at a defined daily dose (DDD)) of first line antiretroviral drugs bought by **low income countries** for adult use

INN	Median Price (25th -75th Quartile range) in US\$				
	DDD Tablets or capsules	Median Price 2004	Median Price 2005	Median Price 2006	Median Price Jan - March 2007
Stavudine (d4T) 30 mg	2	49 (49-49)	49 (49-49)	43 (39-49)	21 (21-21)
Stavudine (d4T) 40 mg	2	55 (55-55)	55 (43-55)	49 (36-54)	27 (27-27)
Lamivudine (3TC) 150 mg	2	70 (70-74)	70 (64-70)	60 (56-60)	51 (50-51)
Nevirapine (NVP) 200 mg	2	88 (66-438)	95 (69-438)	63 (59-66)	60 (54-65)
d4T/3TC 30/150 mg	2	91(79-100)	88 (81-104)	76 (76-76)	67 (64-70)
d4T/3TC 40/150 mg	2	110 (95-110)	92 (87-106)	73 (73-73)	74 (71-78)
d4T/3TC/NVP 30/150/200 mg	2	153 (121-165)	158 (146-185)	100 (100-104)	94 (93-94)
d4T/3TC/NVP 40/150/200 mg	2	159 (126-172)	161 (155-193)	139 (109-146)	142 (99-146)
Zidovudine (ZDV) 100 mg	6	346 (261-346)	215 (165-346)	227 (181-346)	161 (161-161)
Zidovudine (ZDV) 300 mg	2	152 (133-212)	141 (128-204)	135 (128-165)	123 (123-123)
ZDV/3TC 300/150 mg	2	222 (195-238)	213 (192-238)	176 ((168-210)	125 (125-125)
ZDV/3TC/NVP 300/150/200 mg	2	232 (232-232)	309 (301-309)	294 (260-310)	190 (190-190)
Efavirenz (EFV) 50 mg	12	509 (507-558)	507 (507-540)	482 (482-482)	482 (482-482)
Efavirenz (EFV) 200 mg	3	507 (507-535)	507 (507-472)	269 (235-395)	351 (351-351)
Efavirenz (EFV) 600 mg	1	347 (347-371)	347 (347-365)	245 (245-245)	208 (203-218)

Table 1b: Median price (in US\$ for 1 year's treatment at a defined daily dose (DDD)) of first line antiretroviral drugs bought by **middle income countries** for adult use

INN	Median Price (25th -75th Quartile range) in US\$				
	DDD Tablets or capsules	Median Price 2004	Median Price 2005	Median Price 2006	Median Price Jan -March 2007
Stavudine (d4T) 30 mg	2	40 (33-90)	45 (39-66)	36 (32-72)	34 (33-34)
Stavudine (d4T) 40 mg	2	45 (44-56)	51 (44-59)	41 (34-73)	49 (49-49)
Lamivudine (3TC) 150 mg	2	70 (69-79)	76 (67-117)	64 (53-79)	59 (57-63)
Nevirapine (NVP) 200 mg	2	103 (80-123)	97 (81-438)	65 (59-132)	66 (66-66)
d4T/3TC 30/150 mg	2	90 (88-91)	96 (88-104)	81 (63-110)	68 (68-68)
d4T/3TC 40/150 mg	2	91 (91-91)	95 (91-95)	85 (80-108)	69 (69-69)
d4T/3TC/NVP 30/150/200 mg	2	155 (154-155)	206 (171-216)	155 (132-169)	100 (100-100)
d4T/3TC/NVP 40/150/200 mg	2	163 (160-165)	212 (179-265)	164 (146-173)	170 (159-170)
Zidovudine (ZDV) 100 mg	6	253 (234-363)	346 (217-394)	197 (159-330)	349 (349-349)
Zidovudine (ZDV) 300 mg	2	145 (141-212)	157 (148-226)	136 (122-228)	165 (147-183)
ZDV/3TC 300/150 mg	2	238 (197-254)	213 (190-248)	176 (156-221)	198 (191-220)
ZDV/3TC/NVP 300/150/200 mg	2	303 (301-304)	366 (286-433)	277 (275-329)	329 (329-347)
Efavirenz (EFV) 50 mg	12	575 (551-595)	570 (534-570)	526 (513-544)	449 (433-466)
Efavirenz (EFV) 200 mg	3	471 (469-529)	538 (480-588)	377 (306-487)	395 (395-395)
Efavirenz (EFV) 600 mg	1	376 (347-427)	406 (373-547)	304 (273-367)	274 (197-274)

Table 2a: Median price (in US\$ for 1 year's treatment at a defined daily dose (DDD)), of second line antiretroviral drugs bought by **low income countries** for adult use

INN	Median Price (25th -75th Quartile range) in US\$				
	DDD Tablets or capsules	Median Price 2004	Median Price 2005	Median Price 2006	Median Price Jan -March 2007
Abacavir (ABC) 300 mg	2	887 (887-887)	887 (887-887)	637 (541-887)	520 (520-520)
Didanosine (ddI) 100 mg	4	311 (311-311)	311 (311-311)	239 (239-311)	326 (326-326)
Didanosine (ddI) 200 mg	2	311 (311-357)	311 (311-313)	228 (228-311)	228 (228-228)
Didanosine (ddI) 400 mg	1	253 (222-254)	288 (288-288)	288 (278-289)	291 (284-297)
Indinavir (IDV) 400 mg*	4	406 (406-439)	406 (402-406)	429 (406-435)	383 (382-407)
Lopinavir/ritonavir (LPV/r) 133/33 mg	6	566 (536-594)	548 (500-967)	538 (500-646)	788 (788-788)
Nelfinavir (NFV) 250 mg	10	990 (986-1123)	1012 (939-1112)	1021 (992-1108)	1089 (1061-1287)
Ritonavir (RTV) 100 mg**	2	238 (90-583)	85 (84-95)	114 (99-141)	94 (89-98)
Saquinavir (SQV) 200 mg*	10	1028 (988-1069)	943 (934-994)	1080 (1018-1086)	1077 (1012-1083)
Tenofovir (TDF) 300mg	1	308 (305-313)	301(299-308)	219 (208-234)	217 (217-217)
Tenofovir/Emtricitabine(TDF/FTC) 300/200mg	1	-	362 (362-362)	318 (318-318)	335 (335-335)

* Protease to be used boosted with ritonavir

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

Table 2b: Median price (in US\$ for 1 year's treatment at a defined daily dose (DDD)), of second line antiretroviral drugs bought by **middle income countries** for adult use

INN	Median Price (25th -75th Quartile range) in US\$				
	DDD Tablets or capsules	Median Price 2004	Median Price 2005	Median Price 2006	Median Price Jan -March 2007
Abacavir (ABC) 300 mg	2	901 (887-937)	957 (887-968)	953 (642-969)	679 (679-679)
Didanosine (ddI) 100 mg	4	580 (265-584)	365 (307-526)	307 (263-569)	263 (249-555)
Didanosine (ddI) 200 mg	2	235 (233-235)	182 (176-272)	176 (176-301)	343 (343-343)
Didanosine (ddI) 400 mg	1	1941 (1350-1942)	1271 (767-1811)	1269 (507-1907)	292 (292-292)
Indinavir (IDV) 400 mg*	4	401 (392-518)	518 (406-696)	695 (406-698)	743 (479-790)
Lopinavir/ritonavir (LPV/r) 133/33 mg	6	4510 (3899-4687)	3975 (572-4986)	2963 (2123-4440)	3796 (2790-4488)
Nelfinavir (NFV) 250 mg	10	1894 (1620-3466)	1599 (1466-2264)	2086 (1338-2192)	2296 (2296-2296)
Ritonavir (RTV) 100 mg**	2	797 (759-923)	96 (88-265)	351 (81-888)	1059 (796-1321)
Saquinavir (SQV) 200 mg*	10	2376 (2373-2379)	2526 (2015-2570)	2154 (1643-2359)	2154 (2136-2209)
Tenofovir (TDF) 300mg	1	279 (253-306)	299 (234-321)	372 (237-1294)	1351 (1351-1351)
Tenofovir/Emtricitabine(TDF/FTC) 300/200mg	1	-	-	323 (321-384)	442 (383-501)
Atazanavir (ATV) 150mg*	2	-	3752 (3727-3778)	2208 (2208-2208)	2212 (2212-2212)
Atazanavir (ATV) 200mg*	2	-	-	2300 (2300-3157)	2300 (2300-2300)

* Protease to be used boosted with ritonavir

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

Discussion

The value of the procurement transactions reported in the Global Price Reporting Mechanism so far is US\$ 426,523,087 worth of ART procurement data (including paediatric formulations) made up by 10,534 line of items (separate procurement orders) included in the database since January 2004. The volume of ART in the GPRM database is estimated to represent approximately 44% of the volume of transactions by low and middle income countries when compared to total number currently on treatment as reported by UNAIDS/WHO¹⁰

The average price of first line regimens continues to go down. In middle-income countries the average price paid for first-line treatment has significantly decreased and is getting very close to those paid in low income countries. **For the first time the average treatment cost per patient per year of the most prescribed fixed dose combination in first line regimens (Stavudine 30 mg + lamivudine 150 mg + nevirapine 200 mg) has gone below US\$ 100 in the low and middle income countries with the median price at US\$94 and US\$ 100 respectively (See graphs below).**

Second-line treatment is still significantly more expensive than first-line treatment in both low and middle income countries and continues to be considerably more expensive in the latter. Prices of second line treatment have not dropped considerably in low income countries during the total reporting period. In 2007, a regimen of didanosine + abacavir + lopinavir/ritonavir (the most commonly used 2nd line according to a WHO survey) cost an average of US\$ 1,599 in low income countries and US\$ 4,767 in middle income countries. Tenofovir + didanosine + lopinavir plus ritonavir cost on average US\$ 1296 per person per year in low income countries, and US\$ 5,439 per person per year in middle income countries. These are median prices. Actual prices being paid for second line regimens vary significantly from country to country (see tables above).

For a few first line drugs (efavirenz 50 mg, stavudine 40 mg + lamivudine 150 mg) in 2007 a higher median price was paid by low income countries than by middle income countries. As this observation would appear counter intuitive, we assessed the reason for the above and found the following: That, (i) the quantity procured for specific formulation, (ii) the number of countries for which the specific formulation was procured, (iii) the number of transactions, and (iv) the source of procurement (research based or generics manufacturers, different procurement organizations).

While scaling up, countries will need more and more second line drugs because of treatment failure. If nothing changes, they will soon be confronted with budgetary constraints that may put treatment programmes at risk. Price reductions for second line treatment, including through increased generic competition, is paramount to ensure sustainability of treatment programs.

Fig. 1a: The price trend for the most common used first line regimens in low income countries (LIC) by adult patients.

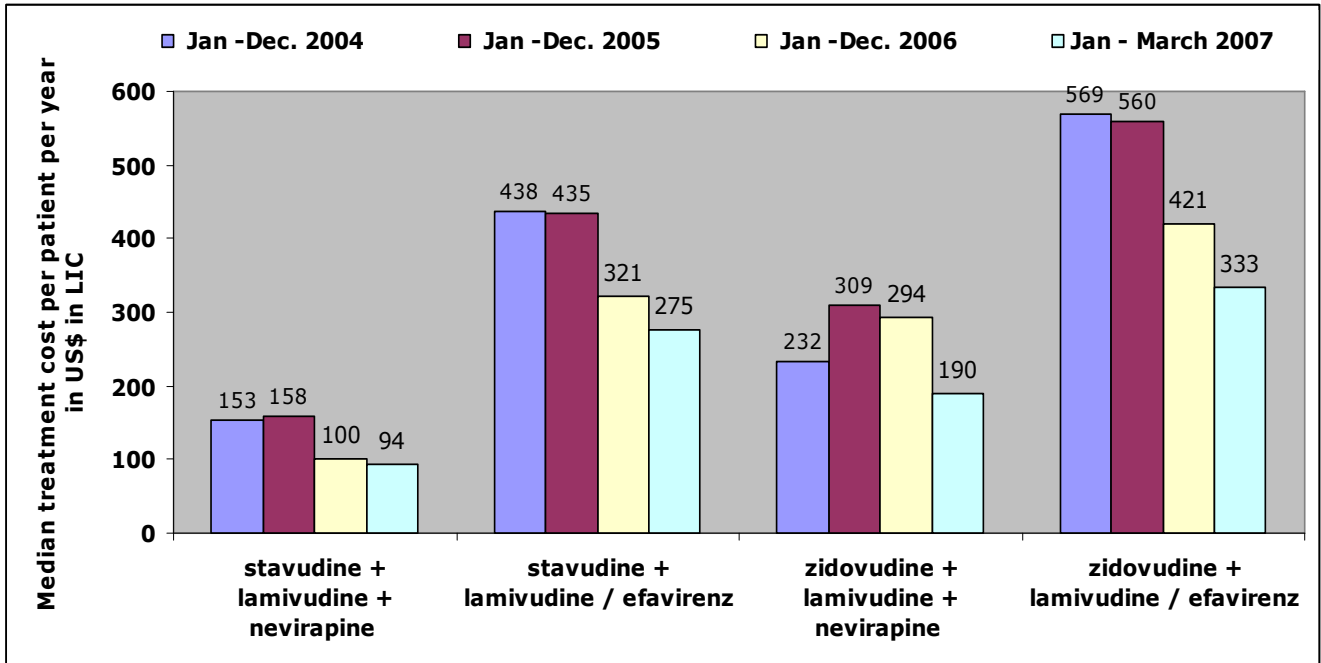


Fig. 1b: The price trend for the most common used first line regimens in middle income countries (MIC) by adult patients.

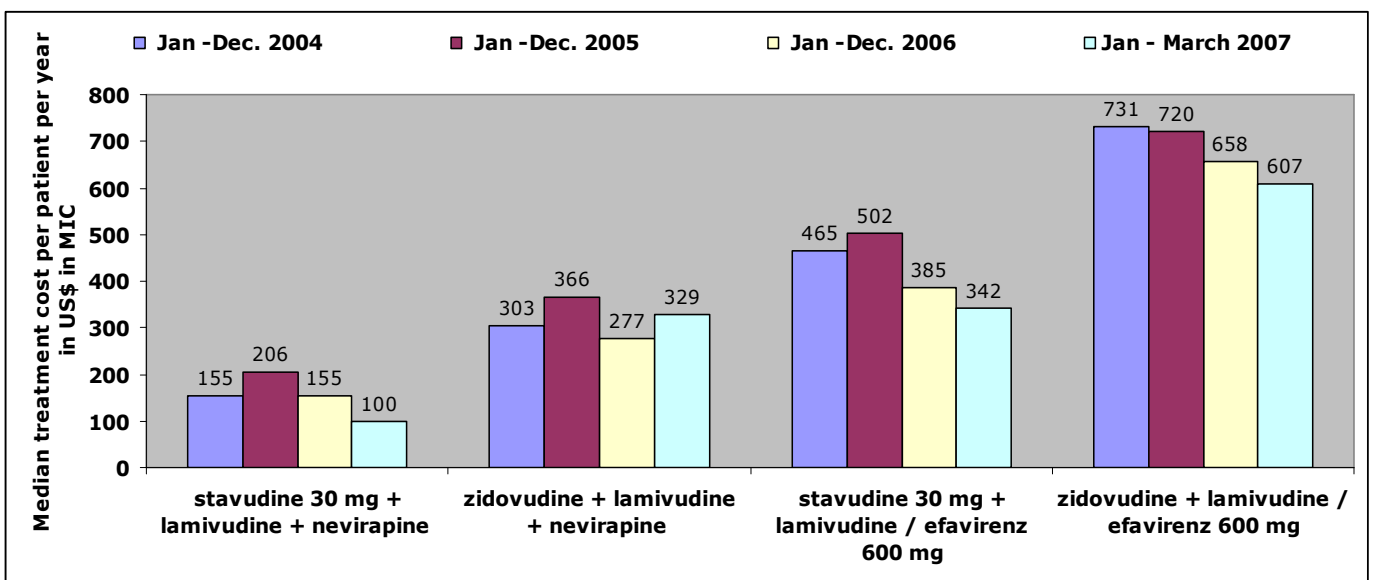


Fig. 1c: Comparison of median prices between low and middle income countries for the most common used first line treatment by adult patients.

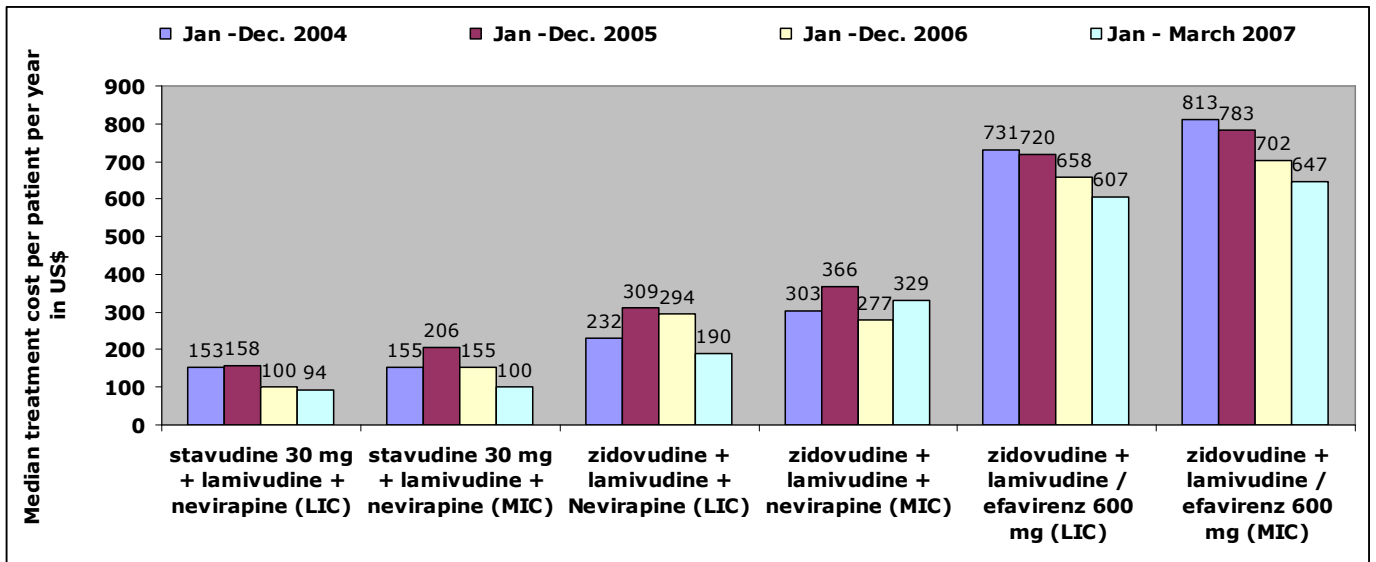


Fig. 2a: The price trend for the most common used second line regimens in low income countries (LIC) by adult patients.

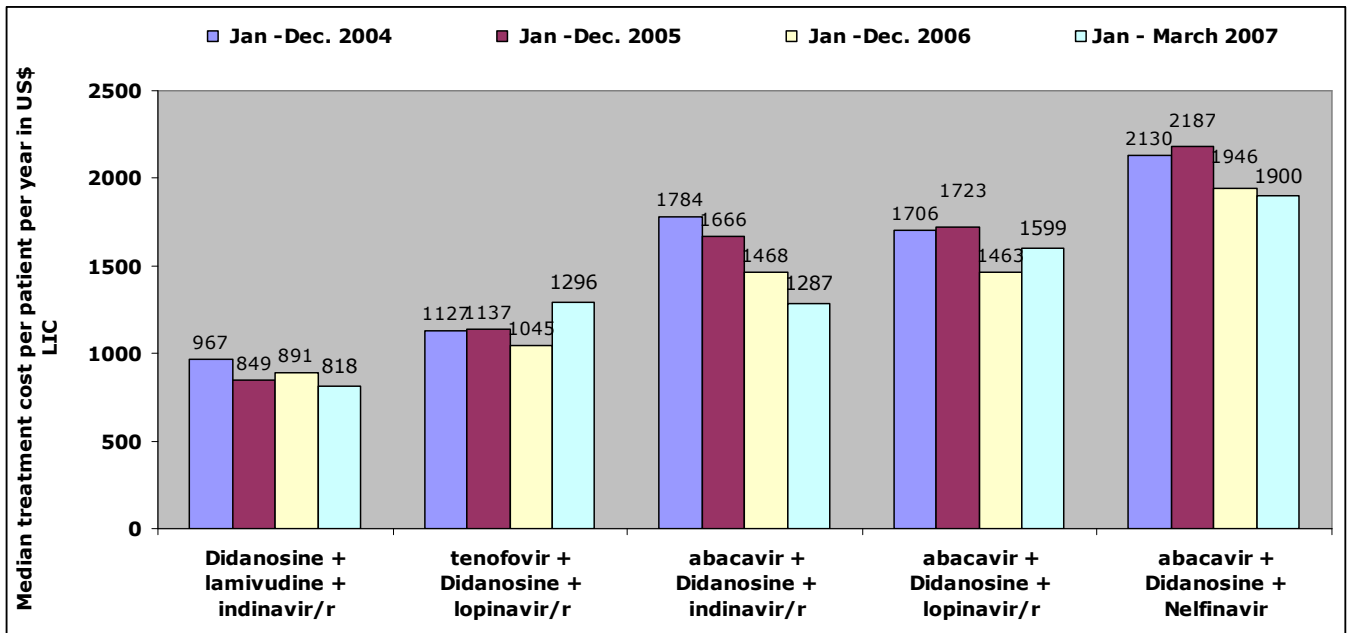


Fig. 2b: The price trend for the most common used second line regimens in middle income countries (MIC) by adult patients

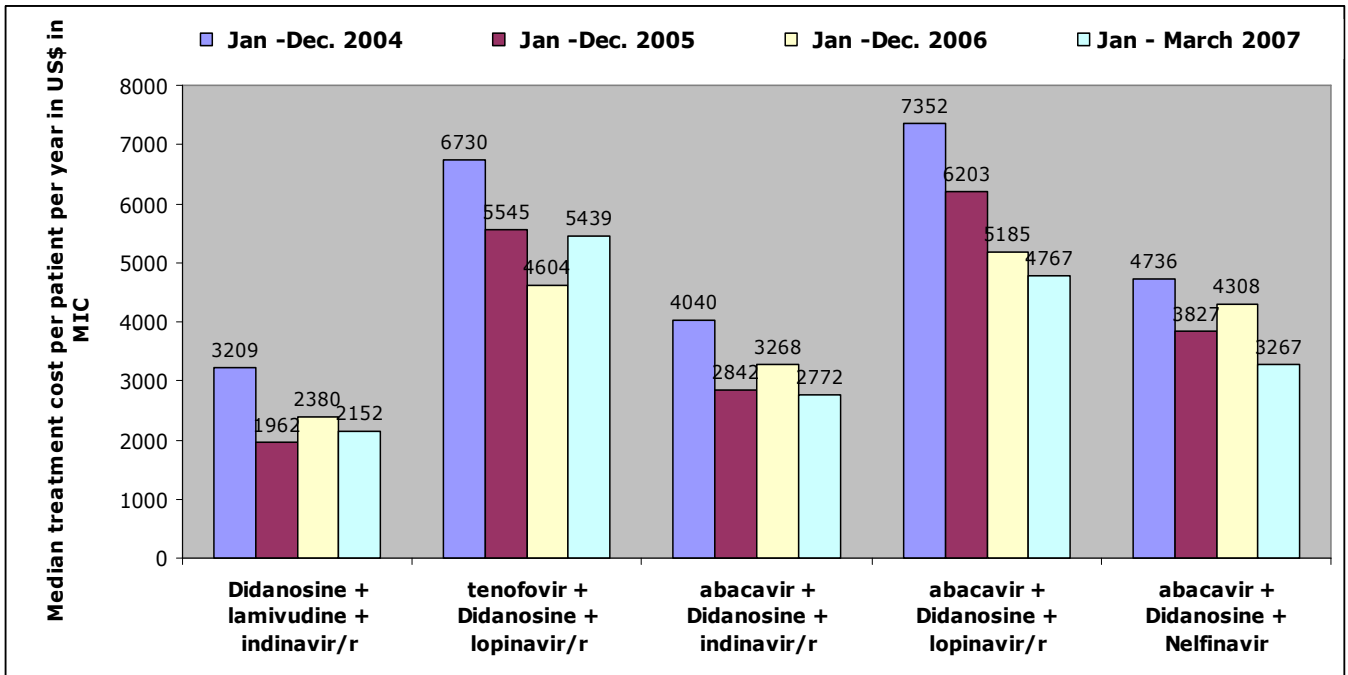
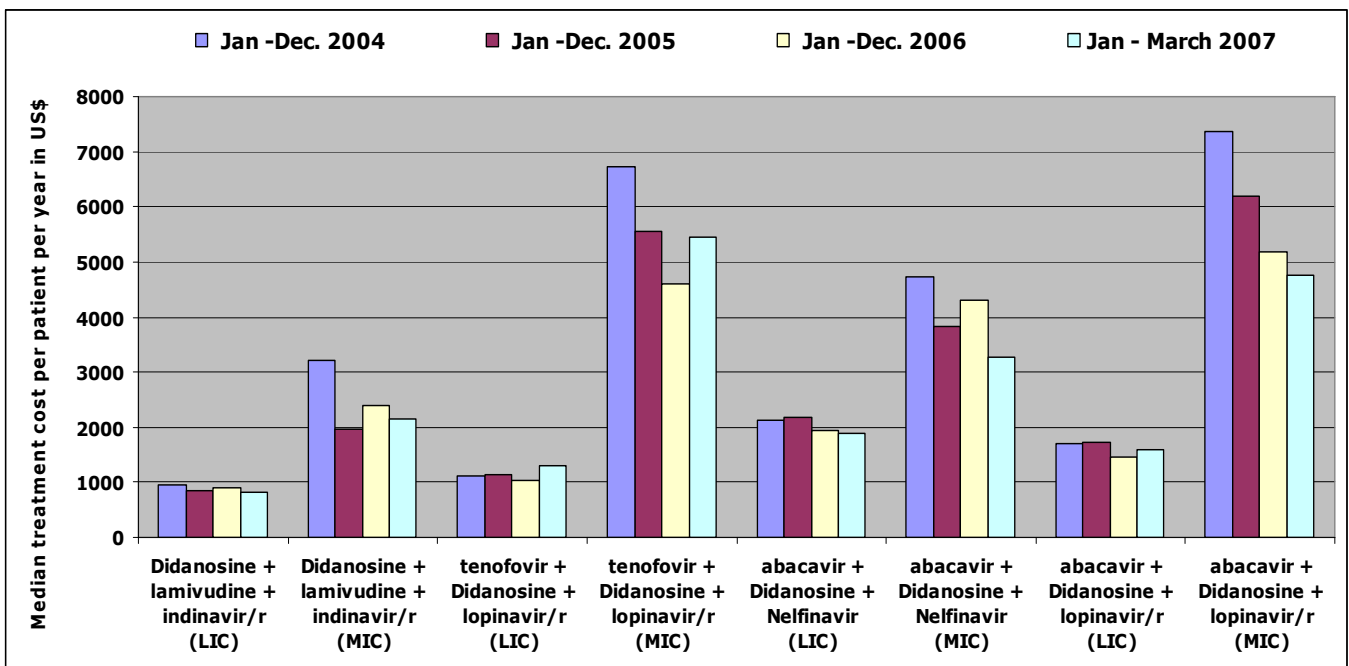


Fig. 2c: Comparison of median prices between low and middle income countries for the most common used Second line regimens by adult patients.



This summary report is intended to provide data on ART pricing to governments, non-governmental organizations, donors, international organizations, academia, and individuals or institutions directly involved or interested in the procurement in resource-poor settings, the quality and quantity of the data presented here is of paramount importance.

In order to guarantee that the result of this analysis reflect the reality observed in the procurement of ART market, we have decided to update it regularly, to increase the frequency with which summary reports will be produced from two (2) to four (4) issues per year. The aim is to provide the stakeholders with up-to-date information. The next summary report will be available in July 2007, and will incorporate the paediatric formulation for selected formulations.

Any suggestions that could improve this report would be greatly appreciated. Please direct your remarks to Mr Boniface Dongmo Nguimfack at dongmonguimfackb@who.int.

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- ¹ World Bank Group -Data and statistics: Country Classification; Income group. Washington April 2007
<http://web.worldbank.org/WBSITE/EXTERNAL/DATASTATISTICS/0,,contentMDK:20421402~pagePK:64133150~piPK:64133175~theSitePK:239419,00.html>
- ² "Sources and Prices of Selected Medicines and Diagnostics for People Living with HIV/AIDS": A Joint UNICEF, UNAIDS, WHO, MSF Project. United Nations Children's Fund, Joint United Nations Programme on HIV/AIDS, World Health Organization, Médecins Sans Frontières. Geneva, Switzerland. June 2005.
- ³ Untangling the web of price reductions: a pricing guide for the purchase of ARVs for developing countries (9th edition). Campaign for Access to Essential Medicines. Médecins Sans Frontières. Geneva, Switzerland. July 2006 (revised).
- ⁴ Global HIV/AIDS Epidemic: Selection of Antiretroviral Medications Provided Under US Emergency Plan is Limited. Report to Congressional Requesters. United States Government Accountability Office. January 2005.
- ⁵ Purchase Price Report. The Global Fund to Fight AIDS, TB, and Malaria. Geneva, Switzerland. March 2007.
http://www.theglobalfund.org/en/funds_raised/price_reporting/default.asp
- ⁶ AFRO Essential Medicines Price Indicator. World Health Organization Regional Office for Africa (WHO AFRO). Brazzaville, Republic of Congo. December 2003.
- ⁷ *International Drug Price Indicator Guide*, 2005 edition. *Guide produced in collaboration with the World Health Organization and supported by the Strategies for Enhancing Access to Medicines (SEAM) Program.*
- ⁸ ANTIRETROVIRAL THERAPY FOR HIV INFECTION IN ADULTS AND ADOLESCENTS: Recommendations for a public health approach, 2006 revision. World Health Organization. Geneva, Switzerland. 2006.
<http://www.who.int/hiv/pub/guidelines/artadultguidelines.pdf>
- ⁹ Scaling Up Antiretroviral Therapy in Resource-Limited Settings: Treatment Guidelines for a Public Health Approach, 2003 Revision. World Health Organization. Geneva, Switzerland. 2004.
- ¹⁰ Towards Universal Access by 2010: How WHO is working with countries to scale-up HIV prevention, treatment, care and support. World Health Organization. Geneva, Switzerland. August 2006. <http://www.who.int/hiv/toronto2006/towardsuniversalaccess.pdf>