ZIDOVUDINE (AZT or ZDV)

GENERAL INFORMATION

- Therapeutic class: Nucleoside reverse transcriptase inhibitor (NRTI).
- WHO guidelines: Indicated for first- and second-line for adults, adolescents and children.[6, 22]
- Originator company and product brand name: GlaxoSmithKline (GSK), Retrovir. In April 2009, Pfizer and GSK jointly announced the creation of ViiV, a new joint venture focusing solely on the R&D and commercialisation of HIV medicines.
- First approval by U.S. Food and Drug Administration (FDA): March 1987.[23]
- WHO Model List of Essential Medicines (EML): Included in the 17th edition.[24]
- World sales of originator product: 2005: US$ 84 million; 2004: $80 million. After 2005, there are no sales figures for this product listed in the company's annual report.[26, 27]
- Patents: AZT was first discovered in 1964 as an anti-cancer medicine. The U.S. National Institutes of Health funded the majority of the research that showed the drug's effectiveness as an antiretroviral. Glaxo Wellcome filed patents on AZT for the treatment of AIDS and brought the drug onto the market in 1987 as one of the most expensive ever sold. Patents have expired in most countries at this point.

PRICE INFORMATION

Developing country prices in US$ per patient per year, as quoted by companies.

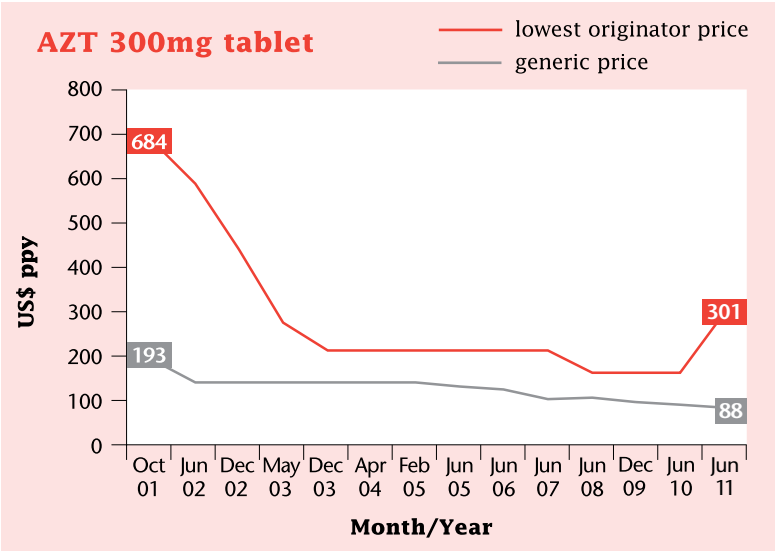
The price in brackets corresponds to the price of one tablet / capsule / ml of oral solution. Products quality-assured by US FDA or WHO prequalification (as of May 2011) are in **bold**.

	Daily dose	ViiV	Aspen	Aurobindo (CF)	Cipla (CF)	Hetero (CF)	Matrix (CF)	Micro Labs (CF)	Ranbaxy
Who can access this price?		See annex 2							
AZT 10mg/ml oral solution	20 ml	**380 (0.052/ml)**	88 (0.012/ml)	**66 (0.009/ml)**	**110 (0.015/ml)**	73 (0.010/ml)			
AZT 60mg tablet	4			**115 (0.079)**					
AZT 100mg capsule	-	**(0.185)**		**(0.048)**	**(0.055)**				
AZT 250mg tablet	-	**(0.301)**							
AZT 300mg tablet	2	**301 (0.412)**	**99 (0.136)**	**88 (0.121)**	**91 (0.125)**	**100 (0.137)**	**88 (0.121)**	**91 (0.125)**	**91 (0.125)**

(CF) The Clinton Foundation has negotiated with this manufacturer for reduced prices on some formulations for countries in their consortium. See annex 13 for details.

Continued overleaf

Zidovudine (AZT or ZDV) continued



Evolution of the lowest price quoted for developing countries since 2001:

As of May 2011, seven generic sources of AZT 300mg tablet were quality-assured by US FDA or WHO prequalification. The one with the lowest price is shown here.

The originator price increased for the first time this year by 87% compared to 2010, while the generic price has steadily decreased by 54% since 2001.

SPOTLIGHT ON ACCESS ISSUES

In 2010, WHO released new recommendations for antiretroviral therapy for HIV in adults and adolescents. These new recommendations advise countries to phase out stavudine- (d4T) based regimens because of their long-term irreversible side effects and to move towards zidovudine- (AZT) or tenofovir- (TDF) based first-line regimens.

For many years, the regimen containing d4T has played a crucial role in ART scale-up in resource-limited settings, due to its availability in a fixed-dose combination and most importantly its low cost. d4T remains a widely used ARV in first-line regimens.

AZT is also used in second-line treatment as the NRTI backbone – in combination with either lamivudine (3TC) or emtricitabine (FTC), to which a boosted protease inhibitor (PI) should be added – if d4T or AZT have been used in first-line treatment.

In 2011, ViiV clarified their pricing structure (see annex 2), confirming that their standardised price discounts were not in fact available to all fully-financed Global Fund or PEPFAR programmes, contrary to previous announcements. Global Fund financed programmes in middle-income countries have not been and will not be eligible for those prices, and will have to negotiate prices on a case-by-case basis.

Patents

Patents have expired in most countries at this point.

Paediatrics

AZT is approved for use and is widely used in children.[307] In its 2010 guidelines for antiretroviral therapy for HIV in infants and children, WHO recommends AZT as the preferred NRTI to be given with 3TC and either an NNRTI or a PI in the first-line. AZT can also be part of second-line regimens, depending on what has been used as a first-line.[22]

Because of the long-term risks of toxicity, particularly lipoatrophy in children treated with d4T-containing regimens, the use of AZT is preferred. Toxicity risks are also associated with AZT, with possible anaemia developing over the first few months of therapy, but the drug remains much better tolerated than d4T.[22] WHO guidelines recommend a preferential order of NRTIs to be used in first-line regimens, with AZT preferred over ABC, and ABC preferred over d4T.

As of April 2011, there is one generic version of AZT 60mg quality-assured by US FDA.

Generic manufacturers have also been developing both double and triple paediatric fixed-dose combinations including AZT. As of May 2011, four paediatric FDCs containing AZT were quality-assured by either US FDA or WHO prequalification.