



# Expenditure on antiretroviral treatment in The Netherlands: growing volume, stable per-patient costs

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## Abstract

### Background

With the advent of combination antiretroviral treatment (cART), life expectancy of HIV-infected patients has improved enormously and, as a consequence, HIV has become a chronic disease requiring life-long treatment. Since every year more than 1,200 new patients start ART, the total number of treated patients is steadily increasing. We examined how this expanding group of patients on ART has impacted the expenditure on antiretroviral drugs.

### Methods

For all HIV-infected patients in the ATHENA cohort treated at any time between January 2004 and January 2010, we calculated the number of days each specific antiretroviral drug was used. Per-patient monthly treatment costs were calculated using price levels based on the Z-index of February 2011 as published in the Farmacotherapeutisch Kompas; these were compared with price levels in September 2008.

### Results

In February 2011, costs of individual drugs were approximately 10% lower than in September 2008. Using the appropriate price levels, there was almost no change in average monthly per-patient treatment costs, being 1000 euro in September 2008 and 990 euro in February 2011, with an increasing use of relatively more expensive combinations. Using February 2011 price levels, total (for all patients) monthly costs of antiretroviral treatment increased from 5.0 million euro (6773 patients on treatment) in January 2004 to 10.4 million (11,427 on treatment) in January 2010. On average, costs of treatment were 800 euro per month for regimens containing EFV or NVP in combination with TDF/FTC and 1,200 euro for PI/r-based regimens. Similar regimens but with backbones other than TDF/FTC (most frequently zidovudine/lamivudine and abacavir/lamivudine), were less costly: 675 euro for EFV- or NVP-based regimens and 1000 euro for PI/r-based regimens.

### Conclusion

The increase in total expenditure on antiretroviral medication is largely the result of a growing number of treated patients with per-patient treatment costs having remained the same in the past 3 years.

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## Background

- HIV has gradually become a chronic disease requiring lifelong treatment.
- The life expectancy of HIV-infected patients has dramatically improved and, as a result, the number of people living with HIV and on treatment is increasing.
- Furthermore, every year 1200 new patients start combination antiretroviral treatment (cART).
- We examined how this expanding group of patients on treatment has impacted the expenditure on antiretroviral drugs.

## Methods

### Patient population

- All patients in the ATHENA cohort treated at any time between January 2004 and January 2010.

### Analysis

- Calculate number of days per month each specific antiretroviral drug was used.
- Calculate per-patient treatment costs using price levels based on the Z-index of February 2011.
- Compare with price levels in September 2008.

### Monthly treatment costs

	Sep 2008	Feb 2011
Truvada	€ 593.94	€ 509.65
Kivexa	€ 503.33	€ 422.00
Efavirenz 600 mg	€ 283.18	€ 262.76
Nevirapine	€ 254.44	€ 238.06
Kaletra 200/50	€ 494.47	€ 447.58

Table 1. Costs per month for selected antiretroviral drugs in September 2008 and in February 2011 based on the Z-index (no correction for inflation).

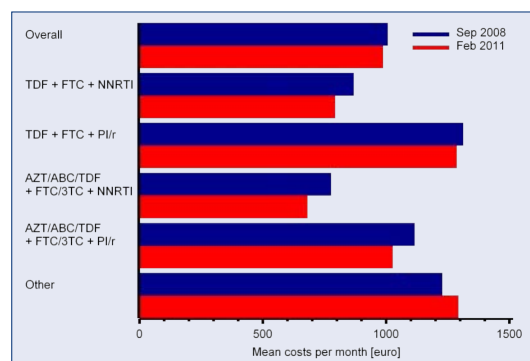


Figure 1. Average monthly per-patient treatment costs in September 2008 and February 2011.

## Results

- Medication costs in 2011 are ca. 10% lower than in 2008 (Table 1).
- Almost no change in per-patient treatment costs between September 2008 and February 2011 (Figure 1).
- Increasing use of relatively more expensive combinations (Figure 2).
- Monthly costs of treatment in January 2010 were 10.4 million euro (Figure 3).
- Follow-up time on treatment increased from 6489 to 11,057 person-months (Figure 3).

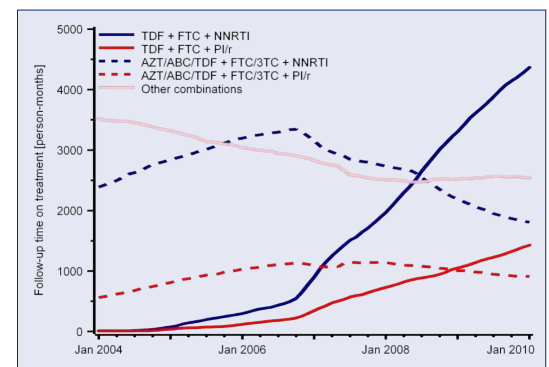


Figure 2. Total monthly follow-up time on antiretroviral treatment for all treated HIV-infected patients.

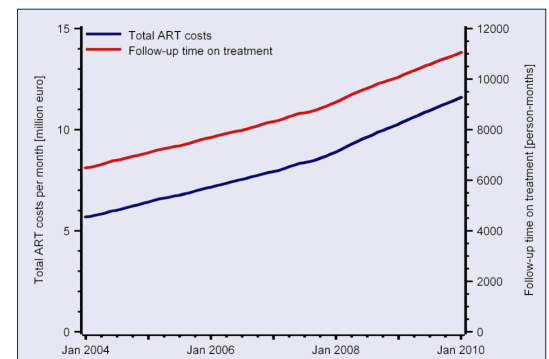


Figure 3. Total monthly costs of antiretroviral treatment (ART) based on 2011 price levels and follow-up time on treatment for all treated HIV-infected patients.

## Conclusions

- In the past 3 years, per-patient costs of treatment have remained the same or even decreased.
- The increase in total expenditure on antiretroviral medication is largely the result of a growing number of treated patients.

## Abbreviations

NNRTI: non-nucleoside reverse transcriptase inhibitor, including efavirenz and nevirapine; PI/r: ritonavir-boosted protease inhibitor, including darunavir, atazanavir, lopinavir, and fosamprenavir; TDF: tenofovir; FTC: emtricitabine; AZT: zidovudine; ABC: abacavir; 3TC: lamivudine