

The impact of cART on HIV-related costs of care in the next decade



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Background

As a result of successful treatment with combination antiretroviral therapy (cART) in the Western world, the HIV-infected population is not only growing but also ageing. We analysed the impact of an expanding and ageing population in the Netherlands on HIV-related costs of care.

Methods

Costs analysis

- 8127 patients were selected from the ATHENA national observational cohort in the Netherlands who
 - were diagnosed before September 2004.
 - were followed between September 2004 and September 2005.
- For each month and each patient were recorded
 - number of hospitalisation days
 - number of outpatient visits
 - antiretroviral drug use
 - use of co-medication
 - number of laboratory tests, including viral load, genotyping, immunology, haematology, and clinical chemistry.
- Costs were calculated for each of the five categories based on the 2006 price level.

Future projections

- A mathematical model was used to describe the HIV-infected population in (outpatient) clinical care over time since 2000, stratified by age, gender, transmission route, region of origin, and treatment status.
- Model parameters were derived from 2000-2005 ATHENA data.
- Future predictions were made by extrapolating trends observed in the cohort.

Results – HIV-related costs of care

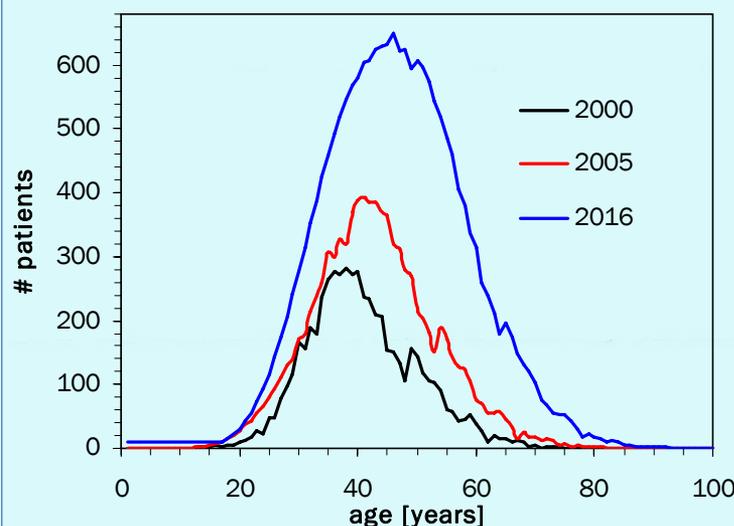
- As shown in Table 1, the majority of costs, 88.9%, were related to antiretroviral (ARV) treatment.
- Per capita costs of ARV treatment were 10,068 euro in 2006, which was marginally higher than in 2001, when ARV-related costs were 10,080 euro, corrected for inflation.
- For treated patients, annual costs increased by 243 euro per 5 years increase in age.
- Costs of care decreased from 1506 euro per month when CD4 cell counts were <50 cells/mm³ to 900 euro per month when CD4 counts exceeded 500 cells/mm³. This decrease was mainly attributable to a decrease in costs related to hospitalisation.

Table 1: annual and monthly HIV-related costs of care for treated and untreated patients (price level 2006)

		mean costs [€]		
		annual	monthly	%
treated	ARV treatment	10,068	839	88.9
	laboratory	516	43	4.6
	hospitalisation	384	32	3.4
	outpatient visits	288	24	2.5
	co-medication	72	6	0.6
	total	11,328	944	
untreated	total	768	64	

Results – population over time

- According to the mathematical model, the number of patients in clinical care would increase from 9151 (data: 9081) in 2005 to 19,392 in 2016.
- In 2005, 7348 (80.3%) of the HIV-infected patients were treated. In 2016, 16,125 (83.2%) patients would be treated.
- The mean age of the population in follow-up would increase from 42.7 years in 2005 to 46.3 years in 2016 (see figure).
- The proportion of patients above 50 years of age would increase from 23.5% in 2005 to 38.7% in 2016.



Results – projected costs of care

- Per capita HIV-related costs of care for treated patients would slightly increase in the next years from 11,346 to 11,451 euro per year (Table 2).
- Costs of HIV-related care for the total HIV-infected population would increase from 85 million euro per year in 2005 to 187 million in 2016.
- Total costs would be 204 million euro if costs of ARV increased by 1% per year after 2006.

Table 2: per capita HIV-related costs of care in 2005 and 2016 for treated patients

	2005	2016	
total	11,346	11,451	+ 0.9%
ARV	10,099	10,171	+ 0.7%
hospitalisation	372	412	+ 11%
other costs	874	869	- 0.6%

Conclusions & discussion

- By 2016, HIV-related costs of care in the Netherlands will have doubled in size, mainly because of the increased number of people living with HIV.
- Until now, cART-related costs have been stable over time, but this might change with the advent of new ARV drugs and drug classes.
- Despite an ageing population, per capita costs of care only slightly increase.
- Treatment of HIV will be complicated, however, by the increasing age of the HIV-infected population which might lead to increasing costs (e.g. age-related diseases, co-infections).