

# Cost-effectiveness of antiretroviral drugs in the first-line treatment of HIV-infected patients in Estonia

## Summary

**Objectives:** To evaluate the cost-effectiveness and budget impact of initiating HIV-infection treatment with one of the four recommended or two alternative antiretroviral drug treatment regimens compared to no treatment in Estonia.

**Methods:** A literature review was conducted on the effectiveness and cost-effectiveness of compared treatment regimens. The cost-effectiveness analysis was performed using a Markov cohort model. A hypothetical cohort of 300 treatment-naive HIV-positive patients was followed in semi-annual cycles for 10 years. Effectiveness, tolerance and resistance profiles of compared drug regimens as well as quality of life estimates were based on published literature. Probabilities of treatment change and discontinuation were based on Estonian data and expert opinion. Estimated drug costs were calculated based on Estonian, Finish and UK retail drug prices. Costs of HIV-infection and AIDS treatment were derived from the database of the Estonian Health Insurance Fund, whose perspective the analysis used. Costs and effects were discounted using an annual discount rate of 5%. Results were presented in terms of costs, QALYs and incremental cost-effectiveness ratios (ICER). In addition, a 5-year budget-impact analysis from the healthcare payer perspective was carried out.

**Results:** The analysis showed that annual cost of treatment with all compared drug regimens lies in the same range. In the base-case scenario, the 10-year cost of HIV treatment ranges from €27,386 to €46,217 per HIV-positive patient initiating antiretroviral (ARV) treatment, depending on the drug regimen used. In the same time horizon implementing ARV-treatment enables to gain up to 0.7 QALYs per every HIV-positive patient treated compared to no ARV-treatment. The ICER of ARV-treatment strategies is €30,827 – 40,214 per QALY gained, depending on the treatment regimen. In sensitivity analysis, the results were most influenced by the choice of time perspective, drug costs and quality of life estimates. The 5-year budget impact analysis showed that if the annual number of patients starting ARV-treatment would remain constant and the use of integrase inhibitor based drug regimens would increase, additional cost of ARV-treatment would be €540 per year for each HIV-positive patient starting treatment.

**Conclusions:** Currently all six treatment regimens are available in Estonia. In order to get the best treatment result with less drug resistance and adverse events, HIV-positive patients should start initial ARV-treatment with integrase inhibitors. The rest of treatment regimens should also stay available for patients with special treatment needs.

**Citation:** Soodla P, Kõivumägi K, Jaaniso K, Lemsalu L, Lutsar K, Juus E, Kiiwet R-A. *HIV-infektsiooni esmavaliku ravimite kulutõhusus Eestis*. Tartu Ülikooli peremeditsiini ja rahvatervishoiu instituut; 2018.