

The cost-effectiveness of using antiretroviral drugs in HIV-negative people

Summary

Objectives: To assess the cost-effectiveness of using emtricitabine/tenofovir based pre-exposure prophylaxis (PrEP) in HIV-negative men who have sex with men (MSM), people who inject drugs (PWID) and high-risk heterosexuals to keep them from becoming infected with HIV compared to not using pre-exposure interventions.

Methods: The analysis was performed using a Markov cohort model. Hypothetical cohorts of 1,000 MSM, 1,000 PWID and 1,000 heterosexual men and women aged 33 were followed for 5 years in 3 month cycles. The rates of infection and HIV progression were based on published literature and Estonian data. Data on PrEP effectiveness and quality of life inputs were obtained from published literature. Costs were calculated based on Estonian data. The analysis was conducted from the perspective of the Estonian Health Insurance Fund. 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). Additionally, a budget impact analysis was carried out.

Results: The results of the cost-effectiveness analysis suggest that in the base-case scenario implementing PrEP in a cohort of 1,000 MSM, PWID or heterosexuals enables to gain 387, 89 and 62 QALYs compared to using no pre-exposure interventions, respectively. Respective ICERs are estimated at €63,793 per QALY for PWID and €117,754 per QALY for heterosexuals. Implementing PrEP in MSM was found to be dominant (more effective and less costly) compared to not using pre-exposure interventions. The results were most influenced by HIV incidence rates, HIV-infection related quality of life estimates, PrEP drug costs, PrEP administration scheme and the extension of the model time horizon.

Conclusions: This study confirms the findings of most previous cost-effectiveness analyses indicating that PrEP is most valuable when delivered to individuals at the highest risk of HIV acquisition.

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