Cost Effectiveness and Resource Allocation

Research

Cost-effectiveness of models for prevention of vertical HIV transmission – voluntary counseling and testing and choices of drug regimen

Yot Teerawattananon[*1,3], Theo Vos[2], Viroj Tangcharoensathien[1] and Miranda Mugford[3]

Address: [1]International health Policy Program, Bureau of Policy and Strategy, Ministry of Public Health, Nonthaburi, Thailand, [2]Centre for Burden of Disease and Cost-Effectiveness, School of Population Health, University of Queensland, Brisbane, Australia and [3]School of Medicine, Health Policy and Practice, University of East Anglia, Norwich, UK

Email: Yot Teerawattananon* - yot.t@uea.ac.uk; Theo Vos - t.vos@sph.uq.edu.au; Viroj Tangcharoensathien - viroj@ihpp.thaigov.net; Miranda Mugford - m.mugford@uea.ac.uk

* Corresponding author

Abstract

Objectives: From a health care provider prospective, to assess the cost-effectiveness of four Antiretroviral therapy (ART) regimens given in addition to voluntary counselling and testing (VCT) for preventing mother-to-child transmission of HIV: a) Zidovudine (AZT); b) Nevirapine (NVP); c) a combination of AZT for early antenatal attenders and NVP for late arrivals; and d) combined administration of AZT and NVP and to assess the incremental cost-effectiveness of adding a second VCT session in late pregnancy.

Design & Setting: We examine a hypothetical cohort of 100,000 pregnancies as a decision model. Cost and outcome parameters are estimated as they would apply under Thai routine health service conditions. Effectiveness probabilities are based on best available evidence, from systematic reviews where possible. The main outcome is the number of cases of paediatric HIV averted.

Results: The combining administration of AZT and NVP is the most cost-effective drug option. One VCT session with AZT+NVP averts 337 cases of infection at 556 USD per case averted, while two VCT with the same drug regimen averts 16 additional cases at cost of 1,266 USD per infection averted. The incremental cost-effectiveness ratio of moving from 1VCT, AZT+NVP to 2VCT, AZT+NVP is 16,000 USD per additional averted case, which is much lower than the recommended threshold value for HIV infection averted in Thailand. Multivariate uncertainty analysis supports the findings, showing that at a threshold of 35,000 USD, 2VCT, AZT+NVP is preferable to other VCT and drug strategies.

Conclusion: Interventions for preventing mother-to-child transmission of HIV are cost-effective. Further costs and negative effects of drug resistance, are unlikely to outweigh the social benefits of reduce transmission of HIV. This model suggests that the new drug regimen is a cost-effective option in the Thai health system at currently accepted thresholds for adopting health technologies.