PD15 Cost Effectiveness Of The Wolbachia Method For Dengue Control In Brazil

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Introduction: Dengue virus is a significant public health threat in Brazil. It is transmitted by *Aedes aegypti* mosquitoes and causes severe symptoms such as hemorrhagic fever and dengue shock syndrome. This study explored the economic evaluation of Wolbachia mosquito replacement as a promising dengue virus control strategy.
Methods: The model considered Wolbachia mosquito replacement in seven Brazilian cities: Belo Horizonte, Campo Grande, Fortaleza, Goiânia, Manaus, Niterói, and São Paulo. A mathematical microsimulation model tracked 23 million residents over 20 years and considered transitions between five health states (susceptible, asymptomatic, ambulatory, hospitalized, and death). The current dengue control strategy and the incorporation of Wolbachia mosquito replacement were analyzed from both the health sector (public and private) and the Unified Health System perspectives. Direct costs included local dengue control program resources, Wolbachia replacement implementation, and care of patients with dengue virus. The primary outcome was disability-adjusted life-years (DALYs) averted. Sensitivity analyses were also performed.
Results: The model projected 1,762,688 dengue cases over 20 years without Wolbachia replacement. Implementing Wolbachia replacement would prevent at least 1,295,566 cases, demonstrating a high benefit in all simulated cities. Except for Manaus and São Paulo, Wolbachia replacement was dominant (lower costs and higher effectiveness) over current control strategies. Nevertheless, estimated incremental cost-effectiveness ratios for Manaus and São Paulo, which ranged from BRL1,747.11 to BRL5,072.21 (USD309.51 to USD898.56), were well below the Brazilian cost-effectiveness threshold of BRL120,000 (USD21,258.50) for neglected diseases. Furthermore, all incremental net monetary benefit values remained positive for both scenarios in all cities—from BRL41.37 to BRL1,852.42 (USD7.33 to USD328.16).
Conclusions: Wolbachia replacement is a highly cost-effective option in the Brazilian context, aligning with previous international and diverse perspective studies. Sensitivity analysis and alternative scenarios confirmed the robustness of the findings.

PD18 Cytomegalovirus Prophylaxis With Valganciclovir For HIV-Immunosuppressed Patients: Cost Effectiveness And Budget Impact Analysis From The Brazilian Healthcare System Perspective

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Introduction: Cytomegalovirus (CMV) infections are usually mild but can lead to serious consequences in immunocompromised patients, such as those infected with human immunodeficiency virus (HIV). Valganciclovir, which is approved for treating CMV, may be a cost-effective prophylactic for CMV disease in immunocompromised patients. Cost-effectiveness and budget impact analyses were conducted to compare valganciclovir prophylaxis with no prophylaxis in immunosuppressed patients with HIV.
Methods: Immunosuppressed patients with HIV who were seropositive for CMV were modeled in a one-year horizon decision tree. Outcomes were occurrence of CMV end-organ disease (EOD)–retinitis and gastroenteritis (85 and 15 percent of cases, respectively)–and survival probability after EOD. Direct medical costs related to prophylaxis (induction and maintenance phases) and treatment of EOD were considered. The budget impact analysis (BIA) used the clinical and cost parameters of the cost-effectiveness analysis to compare scenarios with valganciclovir prophylaxis and no prophylaxis in the public health system over a five-year time horizon. The annual market share adoption rate used was 10 percent. The number of eligible patients was calculated from HIV and acquired immunodeficiency syndrome cases reported in the country and epidemiological estimates.
Results: Valganciclovir prophylaxis had an incremental cost of BRL31,781 (USD6,531) and added 0.69 percent in one-year survival, resulting in an incremental cost-effectiveness ratio (ICER) of BRL4,610,022 (USD947,414) per death avoided in one year. The annual budget impact ranged from BRL35,660,931 (USD7,328,743) in the first year to BRL457,707,796 (USD94,064,365) in the fifth year, totaling BRL1,230,400,576 (USD252,861,870) over five years. In sensitivity analyses, the lack of a maximum treatment time for the maintenance phase with valganciclovir (50 to 365 days per year) resulted in a wide variation in the ICER and BIA results.
Conclusions: Despite being recommended for the treatment of CMV retinitis, the use of valganciclovir in immunocompromised patients with HIV who are seropositive for CMV but have not developed CMV disease has a higher ICER when compared with no prophylaxis. For these patients, appropriate use of standard antiretroviral therapy to improve the immune system may be more appropriate.

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