LIFETIME COST OF HIV MANAGEMENT IN AUSTRALIA: A MODELLING STUDY

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Background:
Antiretroviral therapy (ART) for Human Immunodeficiency Virus (HIV) has significantly reduced morbidity and mortality but drugs can be expensive. Providing an accurate estimate of cost is beneficial for evaluating HIV prevention strategies and healthcare budgeting. This study aims to estimate the lifetime cost of HIV management in Australia, from the healthcare provider perspective.

Methods:
A Markov cohort model was built to simulate disease progression and accrued costs over the lifetime of persons living with HIV (PLHIV). The model consisted of 21 health states based on their CD4 counts and line of ART. The model was parameterized using data from the Australian HIV Observational Database, Australian refined diagnosis-related groups, Medicare Benefits Schedule, Pharmaceutical Benefits Scheme, and other published sources of literature. We reported costs using 2019 Australian dollars (A$) and used a discount rate of 3.5% per annum. One-way analysis was conducted to explore the impact of input costs, transition probabilities, discount rates and proportion of PLHIV on ART on lifetime cost estimates as well as changes in ART drug cost. Probabilistic sensitivity analysis determined the credible interval (CrI).

Results:
The average discounted lifetime cost of HIV management was A$282,093 [95% CrI: $194,206 – 421,345]. The largest proportion (92%) of the estimate was due to the costs of ART drugs, and the lifetime cost was most sensitive to changes to third- and second-line ART drug costs. A 20% and 50% reduction in price of patented ART drugs would reduce lifetime cost to $243,638 and $161,400, respectively. Replacing patented ART drugs with currently available generic equivalents reduced the lifetime cost to A$141,345.

Conclusion:
The relatively high lifetime costs for managing HIV in Australia supports the urgent need to invest in HIV prevention strategies to avert new infections. Strategies to reduce the price of ART will have the greatest impact on lifetime costs.

Disclosure of Interest Statement:
JJO is supported by an Australian National Health and Medical Research Council (NHMRC) Emerging Leader Investigator Grant (GNT1193955). **The funding body had no influence on the research or decision to publish.**