PROJECTED CLINICAL BENEFITS AND COST-EFFECTIVENESS OF AN HPV 16/18 VACCINE

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OBJECTIVE: To project the health and economic consequences associated with a prophylactic type-specific HPV-16/18 vaccine in the setting of a cervical cancer screening program. METHODS: A computer-based model of the natural history of cervical cancer that incorporates the type-specific HPV distribution within precancerous lesions and cancer was used to estimate cancer incidence and mortality, quality-adjusted life years (QALY), lifetime costs, and incremental cost-effectiveness ratios associated with different cancer prevention policies consisting of vaccination, screening, and combined vaccination/screening strategies. Strategies included (1) no vaccination and no screening; (2) no vaccination and cytology screening every 1, 2, 3, 4, and 5 years; (3) vaccination and cytology screening every 1, 2, 3, 4, and 5 years. Screening strategies included conventional and liquid-based cytology initiated at ages 18, 21, 25, or 30. We assumed vaccination occurred at age 12 and was 90% effective in reducing the probability of acquiring persistent infection with HPV 16/18, but evaluated the impact of alternative assumptions about vaccine efficacy and waning immunity. RESULTS: Vaccination at age 12 followed by triennial cytology screening beginning at age 30 provided reductions in cervical cancer mortality above those provided by annual conventional cytology and had an incremental cost-effectiveness ratio of below $50,000 per QALY compared to the next best strategy of vaccination and triennial cytology screening beginning at age 35. These results were stable over a range of vaccine efficacies (60% to 100%) but sensitive to the degree to which vaccination effect persists over time. CONCLUSIONS: A prophylactic vaccine that prevents persistent HPV 16/18 infection can be expected to significantly reduce HPV-16/18-associated high-grade lesions and cervical cancer even in a setting of cytology screening. A program of vaccination that permits a later age of screening initiation and a less frequent screening interval is likely to be a cost-effective use of health care resources.

ECONOMIC IMPACT OF ANTIRETROVIRAL DRUG PRICE REDUCTIONS IN NINE LATIN AMERICAN COUNTRIES

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OBJECTIVE: A recent agreement to lower the price of antiretroviral drugs in several Latin American countries will decrease the cost of treating HIV/AIDS patients to levels similar to those in Brazil’s established, prototypical universal access program. This analysis estimates the likely economic impact of these price reductions in nine countries (Argentina, Bolivia, Chile, Colombia, Ecuador, Mexico, Peru, Uruguay, Venezuela) compared to the economic impact afforded by Brazil. METHODS: The cost of two- and three-drug combination antiretroviral was estimated by applying 2000 Brazilian drug prices (in U.S. dollars). These costs were multiplied by each country’s estimated HIV/AIDS population and by the rate of coverage given by Brazil’s universal access program (14.4% of the HIV/AIDS population). The ratio of these estimated drug costs to gross domestic product (GDP) was determined to measure each country’s relative ability to afford treatment. Similar calculations were made to include cost savings from averted hospitalizations due to antiretroviral care. RESULTS: Mexico, Colombia, and Argentina have the largest HIV/AIDS populations, and thus, the highest estimated annual drug costs ($91.18 million, $86.1 million, and $79.5 million, respectively). Bolivia and Uruguay have the lowest costs at $2.8 million and $3.8 million, respectively. Compared to Brazil’s drug-cost-to-GDP ratio (0.026%), 6 countries are estimated to have lower ratios. Chile and Mexico have the lowest ratios (0.08% and 0.010%, respectively). Only Colombia (0.032%), Ecuador (0.029%), and Venezuela (0.026%) have higher ratios equal to or higher than Brazil’s. Savings from averted hospitalizations reduced overall costs between 33% and 52% when triple-combination therapy is included in the program. CONCLUSIONS: For programs including triple-combination therapy, only Colombia and Ecuador may find the new drug program less affordable than Brazil. Countries with lower drug-cost-to-GDP ratios should be able to cover a higher percentage of patients than Brazil.

THE IMPACT OF COST-EFFECTIVENESS OF COUNTRY SPECIFIC APPLICATION—THE CASE OF DROTRECOGIN ALFA (ACTIVATED) IN SEVERE SEPSIS

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OBJECTIVES: The purpose of this study was to assess the cost-effectiveness of drotrecogin alfa (activated) (DAA) as an adjunct to standard therapy compared to standard therapy alone for Swedish patients with severe sepsis by using 1) country specific cost and resource data compared to 2) exchange rate transferring of a UK model application based on the results from the clinical trial and UK treatment patterns. METHODS: In the PROWESS trial DAA has been found to decrease the all cause 28-day mortality in adult patients with severe sepsis. A C/E model was developed for estimating costs and outcomes and could be applied taking account of local treatment...