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Cost-effectiveness of Human Papillomavirus Vaccination for Prevention of Cervical Cancer in Brazilian Amazonic Region.

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Objectivos (Objectives): To assess cost-utility of the HPV vaccination on the prevention of ICC in Brazilian Amazonic Region using a special Mrkov Model developed for this region using the best available epidemiological data.

Metodologia (Methodology): A Markov cohort model was developed to simulate the natural history of HPV and its progress to ICC, considering the current preventive programs and treatment costs. The 1-year transition probabilities were based mainly on empirical data of local and national studies. The model evaluated the addition of the vaccine to 3 cervical cancer screening scenarios (0, 3 or 10 exams throughout life).

Resultados (Results): Results: The scenario of three Pap tests resulted in satisfactory calibration (base case). The addition of HPV vaccination would reduce by 35% the incidence of ICC (70% vaccination coverage). The incremental cost-effectiveness ratio (ICER) was R\$ 1,200 (US\$ 667) for each quality-adjusted life year (QALY) gained. The sensitivity analysis confirms the robustness of this result, and duration of immunity was the parameter with greater variation in ICER.

Conclusões (Conclusions): The main conclusion of the paper is that vaccination has a favorable profile in terms of cost-utility, and its inclusion in the immunization schedule would result in substantial reduction in incidence and mortality of ICC in Brazilian Amazonic Region. Invasive cervical cancer (ICC) remains an important public health problem, particularly in developing countries. The Brazilian Amazonic region is a high incidence area of ICC, comparable to low-income countries (crude incidence rate: 46/100.000), what suggests weaknesses of current secondary prevention programs. Vaccines against oncogenic HPV serotypes have demonstrated efficacy, safety and ability to induce prolonged immunologic memory, but their real effects on the magnitude of the ICC will take decades to be available. Mathematical models can be useful tools for the evaluation of preventive strategies, assisting medical decisions that are needed now.