

Cost-benefit analysis of a projected national HPV vaccination program in Lebanon

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Background: HPV vaccination is believed to be a determining factor in preventing cervical cancer (CC). The introduction of HPV vaccination in the national EPI program has been under debate in Lebanon for several years, in the absence of compelling cost-benefit evidence. This analysis compares the potential cost of such a decision to the cost of cervical cancer treatment, with the aim of contributing some evidence to the national debate.

Methods: The cost of HPV vaccination for all 11-year old girls in a given year was calculated and compared to the yearly cost of CC treatment. The first part of the equation was estimated based on the current price for the cheapest available vaccine in Lebanon (Cervarix®). The cost of cancer treatment was estimated for 100 cases, which is the average incident case-load registered nationally over several years, while weighing for the proportional distribution of non-invasive cases versus more expensive invasive ones. The analysis was conducted under the favorable assumption that the vaccine will provide lifelong protection against all cervical cancers, that the incidence of CC will not increase and that treatment will be

successful for all diagnosed cancers.

Results: The cost of two recommended doses of the vaccine with a current price of 70.8 USD per dose, administered to an estimated population of 38,000, 11-year old girl was estimated around 5 million USD. In comparison, the weighted cost of treating 100 cases of CC was about 1,650,000 USD in total. Thus, the ratio of expected cost of vaccination to that of CC treatment in a given year was 3.3/1. To break-even, the price of one vaccine dose would have to be dropped to about 5 USD, which is considered highly unlikely as long as the vaccine has not fallen in the public domain, an event expected within 10 years. A break-even point may also occur if cancer treatment costs continue to rise. The cost was accrued annually by 15.6%, based on increases in cancer drug costs recorded by the Ministry of Public Health. Even at year 10, the cost difference would remain substantial.

Conclusions: Despite WHO recommendations, the current epidemiological situation of Lebanon is not favorable to the adoption of universal mandatory HPV vaccination. Our analysis shows, even under the debatable assumption of life-long protection, HPV vaccination is not cost-beneficial and will remain so for at least 10 years to come.

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