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Cost-Effectiveness Calculations of Human Papillomavirus Vaccination in Punjab May Be Flawed

Prinja et al[1] looked at the cost-effectiveness of the human papillomavirus (HPV) vaccine for adolescent girls in Punjab, India. They assumed that the cost of vaccination would be US $14.1 per child. The report suggests a 90% probability that vaccination would be cost-effective in Punjab (at a willingness-to-pay threshold of 10,000 Indian rupees per quality-adjusted life-year gained, which is one-tenth of the gross domestic product per capita [65 Indian rupees = US $1]). This contrasts with the findings of Diaz et al,[2] who examined health and the economic impact of HPV vaccination and found that as the cost per vaccinated girl exceeded US $3.30, vaccination alone would no longer be more efficient than screening alone.

For their calculations, Prinja et al[1] estimated that in the current scenario in Punjab, with no one vaccinated against HPV, 1140 cases of cervical cancer due to HPV-16 and HPV-18 occur during the lifetime of a given year's birth cohort. They suggested that vaccinating 70% of the population with a vaccine that is 93% effective would bring this down to 400 cases and result in the prevention of 740 cases of cervical cancer. "Ultimately," they wrote, "it would lead to a reduction of 733 deaths due to cervical cancer." They estimated that vaccinating girls would result in saving 18,477 life-years.

There are a few problems with these estimates:

1. The calculations suggest that despite expensive private-sector treatment, the mortality rate for cervical cancer is 99.1% in Punjab (733 deaths among 740 cases). This mortality rate for cervical cancer is unprecedented anywhere in the world.

2. Furthermore, they estimated that, on average, 25 life-years would be saved per death avoided (733 lives saved and 18,477 life-years saved). Because the life expectancy among women in Punjab is 72 years,[3] this could be true if, on average, all the deaths from cervical cancer were to occur at the age of 47 years. However, 56% of cervical cancer cases develop only after the age of 50 years.[4]

There appears to be an error in these projections. Cost-effectiveness calculated with these assumptions may not be correct. We hope that the authors will clarify this.

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CONFLICT OF INTEREST DISCLOSURES

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