

### S15 – Evaluating the Health Economics of Routine Female Adolescent HPV Vaccination for Reducing the Burden of Cervical Cancer in Hong Kong

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**Objective:** To evaluate the health and economic impact of routine female adolescent nonavalent HPV vaccination on reducing the burden of cervical cancer in Hong Kong.

**Methods:** We develop an age-structured heterosexual transmission dynamic model coupled with stochastic individual-based cohort simulations to estimate the health and economic impact of routine nonavalent HPV vaccination for girls at age 12 in Hong Kong with vaccine uptake at 25%, 50% and 75%. The model is parameterized using local epidemiologic data and the duration of vaccine protection is assumed to be at least 20 years. We perform cost-benefit analyses from the societal perspective with a time horizon of 100 years and an annual discount rate of 3%. We use both the human capital approach and quality-adjusted life-year (QALY) monetization approach to calculate the threshold vaccine cost, the maximum cost for fully immunizing one girl at which routine female adolescent HPV vaccination would be cost-beneficial.

**Results and Conclusions:** Threshold vaccine costs under the human capital approach are uniformly lower (i.e. economically more stringent) than that under the QALY monetization approach. Threshold vaccine cost is lowest when the duration of vaccine protection is 20 years and vaccine uptake is 75%. For routine vaccination to be cost-beneficial in this worst-case scenario, the cost for fully immunizing one girl would need to be lower than HK\$1,738 (\$1,505-\$2,095) and \$2,499 (\$2,235-\$2,809) under the human capital and QALY monetization approach, respectively. Adding 2 years of catch-up vaccination for girls at age 13-18 has little impact on the threshold vaccine costs.

*Project Number: HKS-15-E04*