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Proximal Methods in View of Interior-Point-Strategies

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Kurzfassung

Aim: Cervical cancer incidence and mortality have decreased for the last 20 years in Austria; however, they remain relatively high in comparison to other European countries. Screening quality has been suboptimal. In this paper we aim to predict the population-wide long-term effects on cervical cancer morbidity and mortality after introducing an HPV vaccination for 12-year-old girls (and boys) in addition to current screening in comparison with screening only. **Methods:** Health effects are predicted by a dynamic transmission model that was previously applied in the UK and the Norwegian contexts and validated for Austria. Outcomes analyzed are restricted to cervical cancer mortality and morbidity, which are predicted until 2060 assuming a coverage rate between 65% and 85%, a duration of protection between 10 years and lifelong, and a vaccine efficacy between 80% and 100% in the base case and best case, respectively. Additionally, implications for cancer epidemiology until 2088 are estimated. **Results:** Compared to screening only, screening plus vaccination of 12-year-old girls (and boys) would result in a median reduction of 10% (15%) fewer new cancer cases and 13% (20%) fewer cervical cancer deaths under best case assumptions over 52 years in the overall female population. In 2060, female population-based incidence and mortality would decrease by 27% and 43%, respectively, when vaccinating girls only and by 37% and 45% when additionally vaccinating boys. After 2060, a continuous further decrease in incidence and mortality can be expected with a maximum of minus 43% and 53%, respectively, in 2088 when vaccinating girls only. **Conclusion:** Although a constant decrease in cervical cancer incidence and mortality is to be expected after introducing a population-wide HPV vaccination program in Austria, the reduction predicted by this model is lower than expected from clinical trials. This is due to several factors, such as low coverage rate and the long time horizon required for generating the maximum benefit of the vaccination in the overall population. In the context of limited resources, for further reducing cervical cancer in Austria, HPV vaccination programs need to be weighed against other public health alternatives such as improving screening quality.