Evaluation of additional benefits of HPV vaccination to cervical cancer screening in France

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Background:
The National Cancer Institute (INCa) undertook the evaluation of the expected impact of HPV vaccination in the context of the recent marketing of nonavalent vaccine (Gardasil®9) and the implementation of organized screening (OS) of cervical cancer (CC) in France.
Methods:
The study is based on a microsimulation model that replicates the natural history of CC. A cohort of 14-year-old women is generated and followed until death. Others HPV-infection related diseases (condyloma, anal cancer, penile cancer and oropharynx cancer) are not modelled. Different strategies were compared with the current vaccination coverage rate (VCR) of 21.4% (2017): impact of increased VCR alone and increased VCR combined with correction of inequalities (CI). Results are presented according to two hypotheses for the duration of protection offered by the vaccine (limited to 20 years and lifelong) and according to two hypotheses for price of the vaccine (French price and average European prices).
Results:
The incremental cost-effectiveness ratio (ICER) was less than 15 000 euros per QALY (quality-adjusted life year) in all the assessed strategies. For each 14-year-old women cohort, 85% VCR with CI would prevent at least: 2 546 conations, 2 347 precancerous lesions CIN 2 / 3 diagnosed, 377 CCs, 139 deaths per CC (20 years vaccine protection). Scenarios based on increasing VCR with CI are the most cost-effective.
Conclusions:
The study quantifies the increased risk of CC-related outcomes associated with current sub-optimal VCR and the possible investment to implement actions in order to improve the efficiency of the current strategies and tackle health inequalities (communication campaign, actions toward underserved women).
Key messages:
- Improving HPV vaccination uptake is a cost-effective measure, even considering only the cervical cancer prevention.
- Including health inequalities participation in modeling is crucial as underserved women are both less vaccinated and screened.