HPV vaccine has a significant impact even if not universal

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Gardasil vaccine and box. Image: Wikipedia

Human papillomavirus (HPV) vaccines applied in national vaccination programs protect against most cancers associated with oncogenic, high-risk (hr) HPV types. Two recent studies demonstrate the impact of gender-neutral HPV vaccination in the overall protection against hrHPV infections already with low vaccination coverage.

More than 30,000 12-15-year-old Finnish girls and boys participated in a community-randomized trial that evaluated the impact of gender-neutral vs. girls-only HPV16/18 vaccination in the two school years of

2007-2008 and 2008-2009 in 33 communities. To evaluate the occurrence of HPV infections, pre- and post-vaccination serum samples collected in the same communities were used to measure the antibodies against 16 different types of HPV. The samples came from the population-based Finnish Maternity Cohort between 2005 and 2016 comprising data from 8,000 women aged 23 or younger.

In the gender-neutral communities with HPV vaccination coverage in boys and girls 20-30% and 50% respectively, the occurrence of cervical HPV16/18 infections decreased. Most notably, this also occurred among unvaccinated women due to the herd effect. In communities where only girls were immunized, herd effect was not achieved, and the occurrence of HPV infections in the unvaccinated women remained indistinguishable from the communities where a hepatitis B-virus vaccination had been given.

"The herd effect from gender-neutral HPV vaccination can eradicate oncogenic hrHPV types from the young adult population. Low vaccination coverage already achieves the herd effect against such sexually transmitted agents as HPV," says Principal Investigator, Visiting Scientist Matti Lehtinen from Karolinska Institute.

"Moreover, our work demonstrates that the elimination of HPV associated cancers also from unvaccinated individuals is possible only if gender-neutral HPV vaccination is implemented," Lehtinen adds.

More information: Penelope Gray et al, Human papillomavirus seroprevalence in pregnant women following gender-neutral and girls-only vaccination programs in Finland: A cross-sectional cohort analysis following a cluster randomized trial, *PLOS Medicine* (2021). DOI: 10.1371/journal.pmed.1003588

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