

JOURNAL REVIEW

Overall efficacy of HPV-16/18 AS04-adjuvanted vaccine against grade 3 or greater cervical intraepithelial neoplasia: 4-year end-of-study analysis of the randomised, double-blind PATRICIA trial

Lehtinen M, Paavonen J, Wheeler CM, *et al.*
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Cross-protective efficacy of HPV-16/18 AS04-adjuvanted vaccine against cervical infection and precancer caused by non-vaccine oncogenic HPV types: 4-year end-of-study analysis of the randomised, double-blind PATRICIA trial.

Wheeler CM, Castellsagué X, Garland SM, *et al.*
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Persistent infection with high-risk (HR) human papillomavirus (HPV) is the underlying cause of cervical cancer.¹ HR HPV types 16/18 have the highest type-specific risk of cervical cancer development² and predominate in 70% of cervical cancer cases worldwide.³

There are two licensed prophylactic HPV vaccines: Cervarix™ targeting 16/18 and Gardasil® targeting 16/18 and HPV types 6/11 that cause genital warts. Clinical trials of both vaccines demonstrate high vaccine efficacy for prevention of cervical intraepithelial neoplasia grade 2 or greater (CIN2+).^{4,5} The clinical evidence supported the UK-wide implementation of Cervarix, for cervical cancer prevention, from September 2008. The vaccination programme began in schools targeting girls aged 12–13 years, with a catch-up campaign for girls aged 14–17 years.

In January 2012, the 4-year end-of-study analysis from the HPV Papilloma

TRial against Cancer In young Adults (PATRICIA) Phase III randomised, double-blind study of Cervarix was published in *Lancet Oncology*. In women who had not been exposed to the virus, the vaccine had 100% efficacy against HPV16/18-associated CIN3+ and adenocarcinoma, supporting the benefit of vaccination early in adolescence.⁶ The total vaccinated cohort included women who were sexually active and overall vaccine efficacy against HPV16/18-associated CIN3+ was 45.6%, highlighting how the catch-up vaccination campaign would be beneficial to the UK population.

Wheeler *et al.*⁷ reported data on the cross-protective vaccine efficacy of Cervarix against persistent infection and CIN2+/CIN3+ associated with non-vaccine-targeted types. In HPV-naïve women, vaccine efficacy against 12 non-vaccine types associated with CIN3+ excluding HPV16/18 co-infection was 81.9% as a result of cross-protection. This suggests Cervarix may confer additional protection against cervical cancer development.

The overall findings from the PATRICIA study group highlight how the success of the HPV vaccination programme is dependent upon vaccine uptake before exposure to the virus, in conjunction with good programme coverage.⁸

The most effective method for global cervical cancer prevention would be introduction of the vaccine in low-resource settings, where cervical cancer incidence remains high, due to limited resources for screening, prevention and treatment.

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Competing interests None.

Provenance and peer review

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References

- 1 **Walboomers JM**, Jacobs MV, Manos MM, *et al.* Human papillomavirus is a necessary cause of invasive cervical cancer worldwide. *J Pathol* 1999;**189**:12–19.
- 2 **Powell NG**, Hibbitts SJ, Boyde AM, *et al.* The risk of cervical cancer associated with specific types of human papillomavirus: a case-control study in a UK population. *Int J Cancer* 2011;**128**:1676–1682.
- 3 **Muñoz N**, Bosch FX, de Sanjosé S, *et al.* Epidemiologic classification of human papillomavirus types associated with cervical cancer. *N Engl J Med* 2003;**348**:518–527.
- 4 **Muñoz N**, Kjaer SK, Sigurdsson K, *et al.* Impact of human papillomavirus (HPV)-6/11/16/18 vaccine on all HPV-associated genital diseases in young women. *J Natl Cancer Inst* 2010;**102**:325–339.
- 5 **Paavonen J**, Naud P, Salmerón J, *et al.* Efficacy of human papillomavirus (HPV)-16/18 AS04-adjuvanted vaccine against cervical infection and precancer caused by oncogenic HPV types (PATRICIA): final analysis of a double-blind, randomised study in young women. *Lancet* 2009;**374**:301–314.
- 6 **Lehtinen M**, Paavonen J, Wheeler CM, *et al.* Overall efficacy of HPV-16/18 AS04-adjuvanted vaccine against grade 3 or greater cervical intraepithelial neoplasia: 4-year end-of-study analysis of the randomised, double-blind PATRICIA trial. *Lancet Oncol* 2012;**13**:89–99.
- 7 **Wheeler CM**, Castellsagué X, Garland SM, *et al.* Cross-protective efficacy of HPV-16/18 AS04-adjuvanted vaccine against cervical infection and precancer caused by non-vaccine oncogenic HPV types: 4-year end-of-study analysis of the randomised, double-blind PATRICIA trial. *Lancet Oncol* 2012;**13**:100–110.
- 8 **Schiffman M**, Wacholder S. Success of HPV vaccination is now a matter of coverage. *Lancet Oncol* 2012;**13**:10–12.