

The early impact of the National HPV Vaccination Program

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The human papillomavirus (HPV) family are a group of DNA viruses that are diverse and ubiquitous. There are about 100 HPV genotypes known to infect humans, of which about 40 infect the anogenital epithelium. These genotypes can be further divided into risk categories depending on their association with cancer. Low-risk genotypes (such as HPV 6 and 11) are responsible for over 90% of genital warts and high-risk genotypes (such as HPV 16 and 18) are responsible for 70–80% of cervical, 85–90% of anal, about 50% of penile and 40–70% of vulvovaginal cancers.¹

Although the incidence of cervical cancer in Australia has reduced over time, mostly due to the National Cervical Screening Program, there is morbidity, potential psychosocial harm and economic cost associated with detecting and treating pre-cancerous cervical abnormalities. In the last decade, clinical trials have demonstrated the safety, immunogenicity and efficacy of HPV vaccines. In 2006 the Pharmaceutical Benefits Advisory Committee considered the cost effectiveness of the quadrivalent vaccine, Gardasil[®], which protects against HPV types 6, 11, 16 and 18. Gardasil[®] became the first vaccine licensed in Australia for the prevention of HPV infection. Based on this evidence, and with some political pressure, Australia became the first country in the world to fund a mass vaccination program against HPV infection.

Within a short time, each jurisdiction organised the purchasing, provision and infrastructure to implement the vaccine program for school girls in 2007. The vaccine was also made freely available through general practitioners between 2007 and 2009 for women up to the age of 26. In NSW between 2007 and 2011, over 900 000 doses of HPV vaccine were administered in schools, with 79% of the eligible cohort receiving at least one dose and 68% being fully vaccinated (three-dose schedule). Three doses of the vaccine continue to be offered routinely to all NSW schoolgirls in Year 7. Data from the National HPV Vaccination Program Register have shown that, during the catch-up campaign, the national schools-based program had coverage rates of 66–73% for all three doses; uptake declined in all age groups after the first dose.² Recent data

have also shown that Australia has a comparably low rate of adverse events following immunisation and that serious events are rare.³

With the ongoing national vaccination and cervical screening programs, a further reduction in cervical cancer incidence is expected, but given the long interval between the acquisition of HPV infection and cancer diagnosis, a reduction may not be obvious for some time. However, early data from the Victorian Cervical Cytology Registry have revealed a significant decrease in the detection of high-grade cervical abnormalities in girls under 18 years during the vaccine period.⁴ Data from eight sentinel sexual health clinics across Australia revealed that the prevalence of genital warts also declined substantially in women (aged 12–26 years in 2007) with the vaccine program. In addition, the proportion of heterosexual men diagnosed with warts significantly declined over this time, perhaps indicating the protective effects for men through herd immunity.⁵

Early data suggest that the National HPV Vaccination Program is effective at the population level. However, challenges include increasing vaccine coverage rates (particularly in low socioeconomic and non-English speaking groups) and educating women about the continued need for cervical screening. The Pharmaceutical Benefits Advisory Committee has recently recommended extending the vaccination program to include all boys aged 9–15 years, which may further protect men and unvaccinated women from HPV-related disease.

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