

# Bug Breakfast in the *Bulletin*: Human Papilloma Virus

**Cate Wallace<sup>A</sup>, Edith Weisberg<sup>B</sup> and  
Kirsten McCaffery<sup>C</sup>**

<sup>A</sup>*NSW Public Health Officer Training Program, NSW Department of Health*

<sup>B</sup>*Research Division, Family Planning NSW*

<sup>C</sup>*Screening and Test Evaluation Program, University of Sydney*

The Bug Breakfast topic for October was Human Papilloma Virus (HPV). The presenters covered the epidemiology of HPV, the newly introduced HPV vaccine and social and psychological issues relating to HPV vaccination.

## Epidemiology of Human Papilloma Virus

HPV is the most prevalent viral sexually transmitted infection (STI) in the world; over 75% of sexually active adults will contract the virus at some stage in their life.<sup>1</sup> While the majority of infections are asymptomatic, a small proportion (1%) of people develop genital warts.<sup>1</sup> Genital HPV infection is also associated with precancerous changes in the cervix, vulva, anus and penis and cancers of the cervix, vagina and penis.<sup>1</sup> Cervical cancer can develop in up to 2% of infected people.<sup>1</sup> Worldwide there are over 30 million HPV cases diagnosed each year; 9.2 million of those (74%) are in the 15–24 year age group.<sup>1</sup> The risk factors for HPV infection include younger age at first sexual intercourse, a history of unprotected sex and other STIs and use of oral contraceptives.<sup>1</sup> High-risk behaviour and cervical biology place adolescents at a high risk of HPV infection.<sup>1</sup> Risk of infection increases substantially with each new partner and condom use is not fully protective. Australian women at an increased risk of contracting cervical cancer include those who are Aboriginal, live in rural and remote areas, are born overseas and who have not participated in cervical cancer screening programs.<sup>2</sup> Persistent infection with high-risk types of HPV is associated with the development of 99.8% of cases of cervical cancer.<sup>1</sup> There are approximately 15 high-risk (persistent and progressive) HPV types, of which HPV 16 and 18 are by far the most common, and these two types are responsible for more than 70% of all diagnosed cervical cancers. In addition, there are approximately 11 low-risk types, of which 6 and 11 are associated with clinical disease such as genital warts.<sup>1</sup>

## HPV vaccine

The HPV vaccine was introduced onto the market in August 2006. The vaccine is a quadrivalent recombinant

vaccine which protects against HPV types 16, 18, 6 and 11.<sup>3</sup> The vaccine is administered intramuscularly on a three-dose regimen at 0, 2 and 6 months.<sup>3</sup> Vaccine efficacy against these HPV types has been demonstrated in a number of double-blind randomised control trials involving more than 25 000 people in 33 countries. Phase III trials have reported 100% protection against precancerous cervical lesions and genital warts associated with HPV 16, 18, 6 and 11 in women aged 16–26 years naïve for these HPV types.<sup>4</sup> For women who have been exposed to one or more of these HPV types, protection is still afforded against the remaining types.<sup>4</sup> The vaccine is well tolerated and few adverse events have been reported. Swelling or tenderness at the injection site is the most common side-effect. The exact duration of protection is not yet known; however, based on the immunogenicity and four-year efficacy data available, lifelong protection is anticipated.<sup>4</sup> Vaccination will benefit girls and women from pre-adolescence onwards. The best time to vaccinate is before the onset of sexual activity, preferably in early adolescence when the maximum immune response is obtained.<sup>5</sup> Because the vaccine does not prevent infection with all HPV types associated with cervical cancer, regular participation (i.e. once every two years) in the cervical screening program by vaccinated women and adolescent girls is still strongly recommended.<sup>5</sup>

## Social and psychological issues in HPV vaccination

Whilst the HPV vaccine has the potential to significantly reduce the health and psychological burden of cervical cancer, its introduction presents a major public health challenge due to the sensitivity and complex nature of the disease. As an STI, HPV has been associated with feelings of stigma, shame and embarrassment.<sup>6</sup> The key vaccine target group is presexually active children (from nine years of age) and the use of STI vaccines among this age group is likely to be contentious. HPV is also a complicated disease and the vaccine does not prevent all HPV types. Knowledge about HPV among both the public and health care providers is low and education is needed. General practitioners report limited knowledge of HPV and express concerns about raising the issue of an STI vaccine with parents.<sup>7</sup> Large population and community-based surveys indicate very low levels of awareness among the general public, with only 2% of Australians aware that HPV causes cervical cancer.<sup>8</sup> Similar findings are reported in the UK (1%) and Europe (3%).

Research shows that Australian parents are generally

supportive of HPV vaccination, with over 70% of those surveyed willing to have both their sons and daughters vaccinated; however, 64% expressed concerns about vaccine safety and a further 4% were concerned about promiscuity.<sup>8</sup> Factors associated with positive parental attitudes to HPV vaccine include: a strong desire to prevent serious illness regardless of the means of acquisition, a recommendation from a health care provider to get the child vaccinated and provision of the vaccine to children at an older age (11–12 years). Adolescents similarly have a high acceptance of the vaccination, with between 74% and 85% indicating they would be vaccinated. Health professionals have also reported a positive response to HPV vaccination with 98% likely to recommend vaccination in scenario-based studies.<sup>9</sup>

### Summary

HPV is highly prevalent, with evidence of infection in nearly 80% of sexually active adults. Persistent infection with high-risk types of HPV is strongly associated with the development of cervical cancer. A safe, reliable and highly efficacious quadrivalent vaccine is available which protects against the four types of HPV most commonly associated with cervical cancer and genital warts. Australian parents, adolescents and health professionals appear generally supportive of HPV vaccination. Participation in cervical cancer screening is still required for vaccinated women.

### References

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