

A second peak in genital warts in later life suggests that behavioural factors explain a second peak in human papillomavirus prevalence in older women

Eric P. F. Chow^{A,B,C} and Christopher K. Fairley^{A,B}

^AMelbourne Sexual Health Centre, Alfred Health, 580 Swanston Street, Carlton, Vic. 3053, Australia.

^BCentral Clinical School, Faculty of Medicine, Nursing and Health Sciences, Monash University, Melbourne, Vic. 3004, Australia.

^CCorresponding author. Email: Echow@mshc.org.au

Abstract. An age-based pattern of human papillomavirus (HPV) was observed among unvaccinated women in Australia, with a second peak occurring when women were in their early 50s. A similar age-based pattern for genital warts was also observed among unvaccinated Australian women, with the first peak (8.4%) occurring at age 15–20 years, which then declined gradually to 4.8% when women were aged 41–45 years; this then increased to 5.4% when women were aged 46–50 years. This data suggests that behavioural factors may explain the changes in HPV occurrence.

Additional keywords: human papillomavirus, vaccination.

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A recent Australian study published by Brotherton *et al.* in the *Journal* shows that a U-shaped age-based pattern of any human papillomavirus (HPV) types among unvaccinated women was observed. The primary peak of HPV occurred in women aged ≤ 20 (64%) years, and the prevalence decreased gradually with age, but a second peak appeared in women aged in their early 50s (19%).¹ This U-shaped, age-based pattern has also been reported in some countries but not worldwide.² As Brotherton *et al.* describe, the reasons for the second peak among older women is unclear and may be due to a cohort effect, reactivation of latent infection or an increase in new sexual partners among older women. We analysed the age-specific presentations of genital warts in both women and heterosexual men because they are an accurate measure of recent sexual exposure to an infected sexual partner and therefore should help clarify the reason for the later rises.

We used similar methodology to our previous publications that found reductions in genital warts among younger but not older individuals.^{3,4} Our analysis examined the age-based pattern of genital warts among unvaccinated Australian women ($N=11\,973$) and heterosexual men ($N=17\,397$) aged 15–60 years over a 10-year period from July 2004 to June 2014.³ We acknowledge that the HPV vaccine has a significant impact on genital wart reduction, so our estimates among the younger age group may be lower because of a herd immunity effect. We excluded individuals who reported receiving a vaccine.

We found that the age-based pattern of genital warts among unvaccinated Australian women was consistent with the pattern

that was reported by Brotherton *et al.* Our results showed that the proportion of women diagnosed with genital warts had a first peak at age ≤ 20 years (13.8%; 95% CI: 12.2–15.5%) before it declined gradually to 5.1% (95% CI: 3.7–7.5%) among women aged 41–45 years and then this was followed by a second peak at age 46–50 years (5.9%; 95% CI: 3.7–8.8%) (Fig. 1a). It is expected that heterosexual men may also have a similar age-based pattern for genital warts if their number of partners in the last 12 months was similar among both heterosexual women and men in Australia in the absence of herd protection from vaccinated women.^{5,6} However, interestingly, we found that the proportion of genital warts started at 9.5% (95% CI: 7.9–11.3%) among heterosexual men aged ≤ 20 years, before it increased gradually to 14.0% (95% CI: 12.5–15.7%) at aged 31–35 years, and then decreased to 6.7% (95% CI: 4.8–9.0%) at aged 51–55 years but increased up to 8.2% (95% CI: 5.4–11.8%) at aged 56–60 years (Fig. 1b). This late first peak in heterosexual men could be due to younger men receiving a substantial herd immunity benefit from vaccinated women.⁵ However, the later peak among older men may relate to the recent observation that men have younger female sexual partners.⁷

As of 2014, women aged over 32 years would have not been eligible for the free vaccine as they were over 26 years when the vaccination program started in 2007. We found that the second peak of genital warts in women occurs at age 46–50 years, which is 5 years of age earlier than the second peak of HPV prevalence (i.e. 51–55 years);¹ this is possibly related to the short incubation period of genital warts.

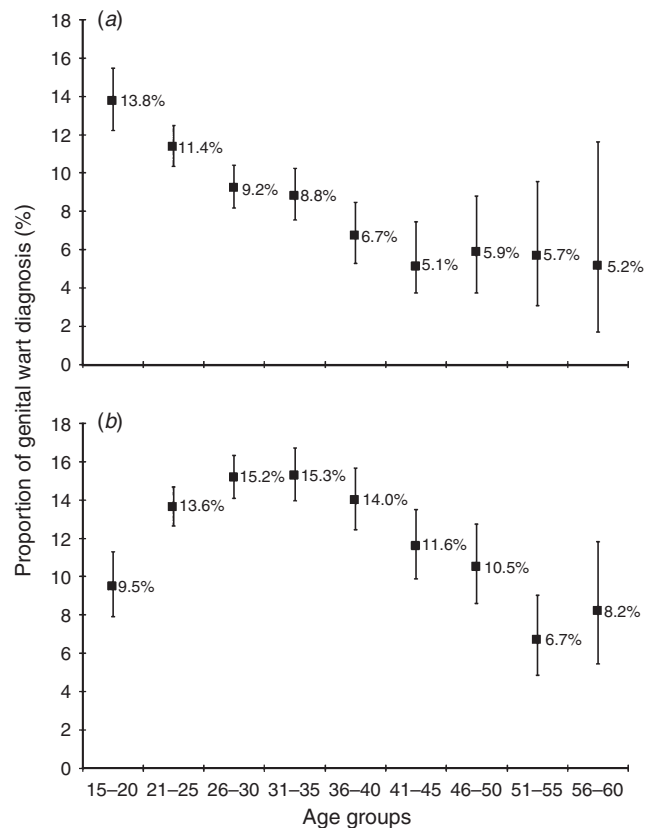


Fig. 1. Proportion of genital warts by age group in (a) 11 973 unvaccinated Australian women; and (b) 17 397 unvaccinated Australian heterosexual men.

Conflicts of interest

None declared.

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