



HPV and anal cancer in gay and bisexual men

Introduction

- The announcement by the Prime Minister on 2 May, 2008 that the quadrivalent Human Papillomavirus (HPV) vaccine Gardasil is to be publicly funded for women in New Zealand is welcomed.
- The government is to be commended by taking this action in the interests of enhancing public health outcomes.
- However, there are strong reasons why public funding of an HPV vaccine for gay and bisexual men should also now be considered.

Sequelae of HPV infection

- Many individuals are infected with HPV after becoming sexually active.
- While the immune system often controls HPV infection, some strains of HPV are more virulent, and these can cause the pre-cancerous condition dysplasia.
- Pap smears for both males and females can detect this, and affected tissue can be treated before it becomes cancerous.
- HPV is the causal agent of cervical cancer in women and is also the causal agent of anal cancer (anal squamous cell carcinoma) which affects men, particularly gay, bisexual and other men who have sex with men (MSM).¹
- The prevalence of high-risk HPV infection in gay men is especially high, with 26% of HIV-negative gay men in one study found to be infected with HPV 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 68 or 73.²
- Accordingly, rates of anal cancer are consistently shown to be higher in gay and other homosexually active men than in heterosexual men, and are equivalent to and sometimes exceed rates of cervical cancer in women.^{3,4,5}
- For example, Palefsky et al. (1998) report that “[T]he estimated incidence of anal cancer in homosexual men before the onset of the HIV epidemic was approximately 35/100,000. This incidence is similar to that of cervical cancer in women before introduction of cervical cytology screening and is considerably higher than the current incidence of cervical cancer, which is approximately 8/100,000.”
- HIV infection appears to considerably heighten the risks of anal cancer among people infected with HPV strains. Anal squamous intraepithelial lesions are more commonly detected among HIV positive than HIV negative MSM for instance⁴, and are more likely to progress from low-grade to high-grade lesions among HIV positive than HIV negative MSM.^{6,7}
- A recent Australian study found that 84% of HIV positive patients had high-risk HPV strains, 67% exhibited abnormal cells in the anus, with 13% demonstrating

high-grade pre-cancerous cell changes. Of the latter, all had anal infection with a high-risk HPV strain.⁸ Another recent study of HPV infection among HIV-positive males in the US found that 33% had abnormal anal pap smear results. Genotypic testing on the 32 HPV-positive samples revealed that 31% were positive for HPV-16, 3% were positive for HPV-18, and a further 7% tested positive for both HPV-16 and HPV-18.⁹

Evidence-based public health and equity

- Gay and other homosexually active men are expressing concern about the lack of publicly funded HPV vaccines for them in New Zealand as this is an important prophylactic tool for reducing the incidence of anal cancer - and also, of course, ano-genital warts.
- Based on the known efficacy of the HPV vaccine in women, MSM as a population group are likely to also benefit greatly from Gardasil being publicly funded for them.
- This is based on evidence demonstrating that rates of anal cancer among MSM are equivalent to or greater than rates of cervical cancer among women; that the Gardasil vaccine protects against HPV strains predictive of both cervical and anal cancer;^{10,11} and consequently MSM have as great a health need for HPV vaccination as do women.
- As MSM in New Zealand are more likely to become infected with HIV than are heterosexually active men and women, the HIV/HPV co-infection risks are also consequently greater for MSM in relation to progression to anal cancer.
- The considerable diversity in HPV strains among both HIV-negative MSM and HIV-positive MSM further warrants the provision of an HPV vaccine since many MSM will not yet have contracted all potentially cancer-causing HPV strains.
- Gardasil will also be beneficial to younger gay and bisexual men in a similar way it will be for younger heterosexual women in terms of preventing acquisition of cancer-causing HPV strains.

Recommendations

- We have no information on the availability of laboratory-based testing for HPV strain type in New Zealand at this time.
- The long-term prophylactic efficacy of Gardasil to fight HPV 16 and 18 is high. Even in the current absence of specific clinical trials on the efficacy of this vaccine for MSM, we are not aware of any reasons why this population will not benefit substantially.
- Recently, a London-based clinic (Freedomhealth) began providing Gardasil as a prophylactic for MSM who did not possess the full range of cancer-causing HPV strains, and last year's International AIDS Society Conference in Sydney witnessed strong advocacy for the provision of Gardasil for MSM.
- The government now has an opportunity to address a significant health disparity experienced by MSM by urgently considering the extension of publicly funded HPV vaccine provision to gay and bisexual males.

¹ Daling, J. et al. Sexual practices, sexually transmitted diseases and the incidence of anal cancer. *New England Journal of Medicine* 1987; 317:973-977.

² Chin-Hong, P., Vittinghoff, E., Cranston, R. et al. Age-specific prevalence of anal human papillomavirus infection in HIV negative sexually-active men who have sex with men: The EXPLORE Study. *Journal of Infectious Diseases* 2004; 190:2070-6.

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- ³ Chin-Hong, P., Vittinghoff, E., Cranston, R. et al. Age-related prevalence of anal cancer precursors in Homosexual Men: The EXPLORE Study. *Journal of the National Cancer Institute* 2005; 97:896-905.
- ⁴ Palefsky, J., Holly, E., Ralston, M. et al. Anal squamous intraepithelial lesions in HIV-positive and HIV-negative homosexual and bisexual men: Prevalence and risk factors. *Journal of Acquired Immune Deficiency Syndromes* 1998; 17:320-6.
- ⁵ Qualters, J., Lee, N., Smith, R. et al. Breast and cervical cancer surveillance. United States 1973-1987. *MMWR Morbidity Mortality Weekly Report* 1992; 41:1-7.
- ⁶ Palefsky, J., Holly, E., Hogeboom, C. et al. Virologic, immunologic, and clinical parameters in the incidence and progression of anal squamous intraepithelial lesions in HIV-positive and HIV-negative homosexual men. *Journal of Acquired Immune Deficiency Syndromes and Human Retrovirology* 1998; 17:314-9.
- ⁷ McCloskey, J., Metcalf, C., French, M. et al. The frequency of high-grade intraepithelial neoplasia in anal/perianal warts is higher than previously recognised. *International Journal of STD and AIDS* 2007; 18:538-42.
- ⁸ Anderson, J., Hoy, J., Hillman, R. et al. Abnormal anal cytology in high-risk human papillomavirus infection in HIV-infected Australians. *Sexually Transmitted Infections* 2008; 84:94-6.
- ⁹ Berman, S. et al. HPV DNA screening as an adjunct to standard PAP testing in identifying a subset of HIV-positive males at higher risk of developing anal neoplasia – a pilot study. Paper presented at Fourth International AIDS Society Conference on HIV Pathogenesis, Treatment and Prevention, Sydney, 2007.
- ¹⁰ Stanley, M. Prophylactic HPV vaccines: Prospects for eliminating ano-genital cancer. *British Journal of Cancer* 2007; 96:1320-1323.
- ¹¹ Future II Study Group. Prophylactic efficacy of a quadrivalent human papillomavirus (HPV) vaccine in women with virological evidence of HPV infection. *Journal of Infectious Diseases* 2007; 196:1438-46.