

'Jabs for the boys':

time to deliver on HPV vaccination recommendations

Human papillomavirus (HPV) vaccination programmes in the UK were established in 2008, and targeted females aged 12–13 years. This decision was based on recommendations from the Joint Committee for Vaccination and Immunisation (JCVI), after assessing the available evidence for the impact and cost effectiveness of HPV vaccination programmes. The theory was that reducing HPV rates in females would result in lower infection rates in males of a similar age. This herd immunity did not extend to men-who-have-sex-with-men (MSM) or heterosexual men having sex abroad. Public Health England (PHE) undertook a trial of a targeted HPV vaccination programme for MSM in 2016–2017. The 12-month pilot involved MSM up to 45 years of age being offered Gardasil® 4, a quadrivalent HPV vaccine, through genitourinary medicine (GUM) and HIV clinics across England. GPs were not included in the pilot as there was insufficient evidence of acceptability and effective delivery. The pilot was reported as a success, and PHE has recommended rolling out this programme across England.¹ The JCVI issued an interim statement regarding extending HPV immunisation to adolescent males in July 2017, again concluding that there was insufficient evidence for benefit in males.² However, after strong responses through stakeholder consultations, continued pressure from lobby groups such as HPV Action (www.hpvaction.org), and further analysis of the latest research, the JCVI recently (18 July 2018) recommended extending the HPV vaccination programme to adolescent males.³

HUMAN PAPILLOMAVIRUS

HPV is a major cause of infection-related cancers. It is associated with cervical, anal, oropharyngeal, penile, vulval and vaginal cancers, as well as anogenital warts. HPV subtypes 16 and 18 are the most prevalent forms, and they are also the subtypes most strongly associated with HPV-related cancers.⁴ Risk factors for HPV infection include increasing age after 18 years, number of sexual partners, co-infection with other sexually transmitted diseases, condom use, anal sex, immunosuppression, and cigarette smoking.⁵ HPV infection rates in women and heterosexual men of corresponding age in England and Wales are expected

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to fall following the introduction of a HPV vaccination programme for girls in 2008.

The incidence of HPV-related cancers that affect males, such as anal, penile, and oropharyngeal cancers, are on the rise. Rates of anal squamous cell carcinoma in England between 1990–2010 in men increased from 0.43 per 100 000 population to 0.73 per 100 000, a rise of 69%.⁶ MSM are at higher risk of anal cancer compared to heterosexual males (OR 17.3 95% CI = 8.2 to 36.1); HIV positive MSM have an up to 80-fold higher risk.⁷ In the US, men were found to have rates of oropharyngeal cancer of 7.6 per 100 000, over four times higher than women (1.7 per 100 000) between 2008–2012.⁸ Anogenital warts are caused by a number of HPV strains, not just those covered by currently available HPV vaccines. The total number of patients with genital warts in England from 1971–2001 increased eight-fold, presumed to be mainly due to changing sexual practices,⁴ although there has been a reduction in incidence in recent years.

HPV VACCINATION PROGRAMMES

All nations of the UK currently employ HPV vaccine programmes for adolescent females aged 12–13, using the quadrivalent HPV vaccine. Scotland also offers HPV vaccination for MSM through sexual health and HIV clinics.

Forty-two sexual health and HIV clinics in England were included in the pilot programme of vaccinating MSM, with 18 875 MSM attending in that time. Out of those, 8580 (45.5%) accepted at least one dose of the vaccine. The vast majority of MSM who completed a feedback survey during their clinic visit (7821/9584 [81.6%]) stated they would prefer to receive subsequent vaccine doses at the same clinic; 677 (7.1%) would have preferred to receive subsequent doses at their GP practice. Only 636 (3.4%) declined the vaccine, meaning the vaccination status of

over half of the participants (9659 [51.2%]) in the pilot is unknown.¹

Internationally, various approaches have been adopted to protect those at high-risk of HPV-related diseases. Australia and the Canadian province of Quebec offer gender-neutral HPV vaccination programmes. Targeted HPV vaccination for MSM aged <26 years is available in the US and Ireland. Denmark recently announced a time-limited HPV vaccination of MSM via their GPs. There is ongoing debate about the cost-effectiveness of gender-neutral versus female-only HPV vaccination, and the efficacy of relying on herd immunity to protect males from HPV infection. Ethical and equality concerns about denying HPV vaccination to an individual on the basis of their gender have also been raised.³

DELIVERING AN EFFECTIVE HPV VACCINATION PROGRAMME

Following the JCVI's recommendation to extend HPV vaccination to males, the Welsh and Scottish governments quickly confirmed they would be following the JCVI's advice in offering HPV vaccination to adolescent males as well as females. The English government and the Northern Ireland assembly subsequently made similar statements, meaning all nations of the UK have now committed to gender-neutral HPV vaccination. However, there has been no discussion of any form of catch-up vaccination programme for older males.

HPV vaccination uptake among adolescent females in the UK is currently above 80%, with 83.1% of 12–13 year-old females completing a two-dose schedule in 2016/2017. This rate has slightly dropped from 86.7% in 2013/2014.⁹ Coverage in the UK remains high despite a significant drop in recent years in coverage in some European countries, such as Denmark and the Republic of Ireland. UK nations that follow the JCVI recommendation and offer

HPV vaccination to adolescent males will need to clearly inform parents of the effects of HPV vaccination for their sons to try to ensure uptake is high enough for the vaccination programme to be effective.

The question needs to be asked whether rolling out a targeted HPV vaccination programme for MSM through sexual health clinics in England alongside a gender-neutral programme for adolescent males and females is an effective use of public health resources. The pilot failed to achieve 50% coverage for the first dose of the HPV vaccine for MSM, and even lower coverage for subsequent doses. The evidence is clear that HPV vaccination is most efficacious when delivered prior to exposure to the virus.¹⁰ It is also known that MSM are often reluctant to declare their sexual orientation to healthcare professionals and seldom attend healthcare services prior to sexual debut,¹¹ creating doubts about the effectiveness of a targeted programme delivered via sexual health clinics. Expanding access for a targeted programme to include GPs could boost coverage among MSM, however GPs are less confident in identifying young MSM who may benefit compared to sexual healthcare professionals.¹²

The International Papillomavirus Society recently released a statement calling for 'the policy, the resources, political will and the public's determination' to move towards eliminating HPV as a public health problem.¹³ The JCVI recommendation to extend HPV vaccination to males in the UK is the first step in changing policy. Public support for HPV vaccination for males has been strong. Now the political will and proper resources are needed to make gender-neutral HPV vaccination a reality and reduce the incidence of HPV-related diseases for future generations in the UK.

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REFERENCES

1. Public Health England. *HPV vaccination for men who have sex with men (MSM) programme*. 2018. <https://www.gov.uk/government/publications/hpv-vaccination-pilot-for-men-who-have-sex-with-men-msm> (accessed 10 Aug 2018).
2. Joint Committee on Vaccination and Immunisation. *JCVI Interim Statement on Extending HPV Vaccination to Adolescent Boys*. 2017. https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/630125/Extending_HPV_Vaccination.pdf (accessed 10 Aug 2018).
3. Joint Committee on Vaccination and Immunisation. *Statement on HPV vaccination*. 2018. https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/726319/JCVI_Statement_on_HPV_vaccination_2018.pdf (accessed 10 Aug 2018).
4. Forman D, De Martel C, Lacey CJ, *et al*. Global burden of human papillomavirus and related diseases. *Vaccine* 2012; **30(5)**: F12–F23.
5. King E, Gilson R, Beddows S. Human papillomavirus DNA in men who have sex with men: type-specific prevalence, risk factors and implications for vaccination strategies. *Br J Cancer* 2015; **112(9)**: 1585–1593.
6. Wilkinson JR, Morris EJA, Downing A, *et al*. The rising incidence of anal cancer in England 1990–2010: A population-based study. *Colorectal Dis* 2014; **16(7)**: O234–O239.
7. van der Zee RP, Richel O, de Vries HJ, Prins JM. The increasing incidence of anal cancer: can it be explained by trends in risk groups? *Neth J Med* 2013; **71(7)**: 401–411.
8. Viens LJ, Henley SJ, Watson M, *et al*. Human papillomavirus-associated cancers – United States, 2008–2012. *MMWR Morb Mortal Wkly Rep* 2016; **65(26)**: 661–666.
9. Public Health England. Human Papillomavirus (HPV) vaccination coverage in adolescent females in England: 2016/17. 2017.
10. Cutts FT, Franceschi S, Goldie S, *et al*. Human papillomavirus and HPV vaccines: a review. *Bull World Health Organ* 2007; **85(9)**: 719–726.
11. Nadarzynski T, Smith H, Richardson D, *et al*. Men who have sex with men who do not access sexual health clinics nor disclose sexual orientation are unlikely to receive the HPV vaccine in the UK. *Vaccine* 2018; **36(33)**: 5065–5070.
12. Merriel SWD, Flannagan C, Kesten JM, *et al*. Knowledge and attitudes of general practitioners and sexual health care professionals regarding human papillomavirus vaccination for young men who have sex with men. *Int J Environ Res Public Health* 2018; **15(1)**: pii:E151.
13. International Papillomavirus Society. *IPVS Statement. Moving towards Elimination of Cervical Cancer as a Public Health Problem*. 2018.