The human papillomavirus affects everyone. So why are boys in the UK still being denied the HPV vaccination? HPV Action UK's campaign director, Peter Baker MA FRSPH, argues the case

HPV vaccination: is it time for jabs for the boys?

Should boys as well as girls be offered vaccination against the human papillomavirus (HPV)? This has recently become a topical public health issue in Europe and beyond. In the UK, the government's vaccination advisory committee has been considering this step since 2013 and may well make a recommendation this year. Ireland is also actively looking at its policy, and several other European governments have already introduced gender-neutral vaccination or plan to do so. The factors involved in any decision about HPV vaccination include public health, ethics, equality and, of course, cost.

What is HPV?

HPV is a group of viruses affecting the skin and the mucous membranes of body cavities such as the cervix, anus and throat. There are around 200 types of HPV, with 12 of them being high-risk HPV types associated with several cancers. Other HPV types can cause genital warts and a rare but debilitating breathing disorder known as recurrent respiratory papillomatosis (RRP).

The HPV types that cause cancer and genital warts are transmitted sexually during intercourse but also through oral sex and probably also open-mouthed kissing. Condoms offer some protection against infection, but there is still a significant risk.

HPV infection in men and women is very common – most sexually active people can expect to be infected by HPV at some point. One multinational study found that about 65% of men tested positive for at least one HPV type and, of these, around 30% had an oncogenic (cancer-causing) type.[1] Men who have sex with men (MSM) have higher prevalence rates for HPV infection than heterosexual men.

Fortunately, the majority of HPV infections clear naturally in fewer than 12 months and do not cause any health problems. HPV is more likely to cause disease in people who have compromised immune systems (perhaps because of HIV or an organ transplant), are smokers, or who have been repeatedly infected by the high-risk HPV types perhaps because of higher numbers of sexual partners.

HPV Action UK is advocating a gender-neutral vaccine on the grounds of not just cost-effectiveness but also public health, issues of equality and equity, and patients' needs

HPV can cause a range of health problems. Of most concern is its link with several cancers: cervical, vaginal and vulval in women; penile in men; and anal and throat in both sexes. Globally, HPV is estimated to cause 5% of all cancer cases. Women are most likely to be affected by HPV-associated cancers, but one recent study suggested that, in Europe, almost 20% of vaccine-preventable HPV-related cancers occur in men, as do about half of the preventable cases of genital warts.[2]

HPV in men

The advocacy group HPV Action has estimated that there could be over 2,000 new cases of HPV-related cancer – penile, anal, head and neck – diagnosed each year in men in the UK.[3] There are also likely to be about 43,000 new male cases of genital warts caused by HPV. The impact of RRP is less certain, but a UK study recently estimated the prevalence to be over 900 cases and it can be assumed that about half of these are male.

The incidence of HPV-related cancers in men is increasing sharply. For example, anal cancer incidence rates have increased in males aged 50-59 and 60-69 in the UK since the early 1990s, with the largest increase in males aged 50-59, for whom rates increased by 74% between 1993-1995 and 2012-2014. MSM carry an unequal burden of anal cancer (15:1 compared with heterosexual men). MSM rates are in fact similar to cervical cancer rates before the introduction of screening. There is no screening programme for any of the cancers caused by HPV in men.

Why vaccinate boys?

Although the impact of HPV and its related diseases on men is clear, it has been argued by some that the currently relatively high uptake

(about 85%) of HPV vaccination by girls in the UK protects enough males (through 'herd protection') to make it not cost-effective to vaccinate boys, too.

But there are several serious flaws in any vaccination programme that targets girls alone:

- While males do undoubtedly derive some benefit from the vaccination of girls (because, clearly, they cannot catch HPV from vaccinated women), a significant number are still left at risk of acquiring HPV from unvaccinated women. These women include the 15% currently unvaccinated in the UK and women who grew up in countries with no or a limited vaccination programme for girls;
- With an 85% female vaccination rate, a man has an average one in seven chance of 'meeting' an unvaccinated woman in a new sexual encounter (and that assumes she was in a cohort eligible for vaccination in the UK). 20% of men in Britain aged 16-24 have had ten or more female sexual partners;
- Around one in ten men report forming a new sexual partnership while overseas in the past five years.[4] The proportion among younger men is far higher: 13% of 16-24-year-olds and 15% of 25-34-year-olds;
- MSM are also unprotected by a girls-only vaccination programme. An MSM-targeted programme has recently been launched in the UK. This is delivered via sexual health clinics to those attending for another reason, such as treatment for an infection.

  The median age of first presentation of MSM to sexual health services in England between 2009-14 is 32 years.[5] A recent study of MSM attending a London sexual health clinic found that 45% had a current HPV infection with a type that can cause cancer or anogenital warts, suggesting that a significant proportion of MSM will already have been infected before they were offered HPV vaccination.[6] A proportion of MSM attending clinics will also be unable to access the programme because they will choose not to disclose their sexual identity or may not self-define as a man who has sex with men.

  The best way to protect MSM is to vaccinate in adolescence, before sexual debut, and when the immune response is greatest. But questioning boys in this age group about their sexual orientation would be impractical (because orientation for many will not yet be firmly established) as well as unethical, and it would almost certainly be opposed by parents and boys themselves. The only effective solution is to vaccinate all boys;

HPV Action UK has estimated the additional cost of vaccinating boys in the UK to be a maximum of £20-22m per year – less than 0.02% of the annual NHS budget

- Vaccine confidence is currently high among girls and their parents in the UK, but this could change. Ireland and Denmark were countries with high uptakes in girls, but this has changed significantly in recent years following parental campaigns and media coverage which have increased scientifically unfounded fears about vaccine safety. Vaccinating boys could help to offset this and protect public health; and
- Vaccinating only girls is discriminatory against boys – and, indeed, girls themselves as it implies that they alone are responsible for transmitting and preventing HPV and must bear the burden of the vaccination process even though boys, because they have more sexual partners, are at greater risk of acquiring and transmitting HPV.

HPV Action has estimated the additional cost of vaccinating boys in the UK to be £20-22m (~€23-25m) a year at most. The cost of vaccinating boys would therefore be less than 0.02% of the NHS's annual budget. It can more directly be compared to the cost of treating anogenital warts, which is an estimated £58.44m a year in the UK. The secondary care costs of treating HPV-related oropharyngeal cancer are likely to exceed £21m a year, and another £7m is spent on treating men with anal cancer.

But the decision to vaccinate boys should not just be based on cost-effectiveness. It should also take account of public health, issues of equality and equity, and patients' needs.

Gaining momentum

The vaccination of boys is now widely supported by health organisations and individual clinicians in the UK. Almost 50 organisations are members of HPV Action, and gender-neutral vaccination is also supported by the British Medical Association and Jo's Cervical Cancer Trust.

An increasing number of countries are either already vaccinating boys or will be soon. These include Australia, Austria, Bermuda, Brazil, Canada, Croatia, Czech Republic, Israel, Italy, New Zealand, Norway, Serbia, Switzerland and the United States. If UK boys remain unvaccinated, not only will they be left at risk of HPV infection, but the UK will also be opting out of the opportunity to be part of an international effort to comprehensively tackle HPV infection and the diseases it can cause in both men and women.

Support is now growing for the introduction of gender-neutral vaccination across Europe. A multinational expert group has already made recommendations for action at the EU level, including making HPV vaccination a priority in national cancer control policies. There have recently been calls for the establishment of a multidisciplinary advocacy group, perhaps along the lines of HPV Action, to take a lead on the issue.

HPV is an international health problem that ultimately requires an international response if its serious risk to public health is to be eliminated successfully.

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