



# Journal of Family Planning and Reproductive Health Care

The Journal of the Faculty of Sexual and Reproductive Healthcare of the Royal College of Obstetricians and Gynaecologists

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# Human papillomaviruses (HPV) vaccines: implementation and communication issues

Mark A Kane

## Introduction

The development and use of vaccines against human papillomavirus (HPV) represents one of the most important medical developments of the 21st century: these vaccines could potentially prevent 70–80% of cervical cancer,<sup>1,2</sup> the number one or two cause of cancer death in women in most countries.<sup>3</sup> HPV vaccines also prevent other significant sequelae of HPV infection including cancers of the anus, vulva, vagina, penis, and head and neck. In addition, one vaccine prevents more than 90% of genital warts, which are a major cause of suffering for millions of people and account for large numbers of medical visits and high costs. The discovery, development, clinical trials and licensure of these vaccines are great achievements, but the greatest challenge may be their delivery to the groups that need it most: women in the developing world.

The first well-defined target group for the vaccines are pre-adolescent girls (or girls and boys). In Western cultures, data on sexual behavior in adolescence<sup>4</sup> has led expert groups in most countries to recommend pre-adolescent and adolescent immunisation as the primary immunisation strategy, since the greatest efficacy is achieved pre-exposure. Most industrial countries that have introduced the vaccine recommend the primary series between 9 and 12 years of age, with a catch-up in most countries to somewhere in the age range of 18–26 years. This target group raises certain challenges with respect to both vaccine delivery infrastructure and communications. While infant immunisation infrastructure is well developed in most countries including the poorest, reaching adolescents and adults will be more difficult. Financing these relatively expensive new vaccines will also be a significant problem for developing countries.<sup>5</sup>

## Communication issues

Communicating about HPV immunisation will be culturally dependent. It should be kept in mind that Pap testing programmes were put in place before the aetiology of cervical cancer or the role of sexual transmission of HPV were known, and these programmes were explained purely as cervical cancer prevention programmes, usually with no discussion of sexual issues. To the greatest extent possible, HPV immunisation programmes should focus on cancer prevention. However, immunising younger girls and public awareness of the HPV vaccine will often force the discussion of sexual issues, and vaccine providers need to be trained to discuss these issues in an informed way with sensitive and non-judgemental attitudes.<sup>6</sup> In addition, one of the current vaccines also prevents genital warts and communicating about this will obviously involve discussing sex. Most parents and young people in Western cultures are accepting of the need to immunise younger girls, but some politically, religiously, or culturally conservative groups and individuals in industrial countries have indicated they are uncomfortable giving this vaccine

to pre-adolescents, often citing concerns that this might lead to “permission to engage in sex” and that “my daughter will not be sexually active before marriage”. Evidence to support these assertions is hard to find.

In other countries with more conservative cultures, public discussion of sexual issues is taboo, and few topics are more taboo than the sexual behavior of adolescent girls. In fact, in these cultures most women are virgins at marriage and become infected with HPV by their husbands who have had other sexual exposures. Communicating about HPV in these cultures is very sensitive. There may be denial of the extent of pre- (or extra-) marital sexual activity even among men, difficulty accepting that HPV is *always* sexually transmitted, poor data on HPV infection because screening to prevent cervical cancer is rarely done, and poor data on the incidence of cervical and other genital cancers. In these cultures, as in the Western world, HPV immunisation should be primarily discussed as a cancer prevention tool. When the issue of age at immunisation comes up, a statement such as “your daughter needs this vaccine because she will get married” and “we need to immunise young people since that is when we can best reach them with our public health programmes” should elicit less resistance than discussing adolescent sexuality, which may in fact not be the primary issue. HIV/AIDS workers in each country should be consulted since they have experience discussing similar issues with families.

Rumours that immunisation is really a plot to sterilise girls, or to use them as guinea pigs for vaccine experiments, have seriously damaged immunisation programmes in a number of developing countries in Asia, Africa and Latin America. These rumours are sometimes propagated in settings where religious or cultural minority groups are distrustful of the government and may be spread by political opposition spokespersons or religious leaders. In the polio eradication programme the refusal to accept vaccine in communities in Northern Nigeria led to the spread of poliovirus into 22 countries as far away as Indonesia, most of which had been polio-free.<sup>7</sup> Similar rumours have kept polio from being eradicated in Northern India. There is concern that a female-only HPV programme could exacerbate and be damaged by these types of rumours.

Anti-vaccine groups are also a challenge to vaccine implementation. While representing a wide spectrum of individuals and groups uncomfortable with immunisation (sincerely concerned parents, religious objectors, alternative medicine practitioners and clients, conspiracy theorists, anti-pharmaceutical industry sceptics, medical malpractice lawyers, selected media, and so on) these groups are increasingly sophisticated in their use of the media, especially the Internet, and their impact on immunisation programmes is well documented.<sup>8</sup> The HPV community needs to be aware of these groups and their claims, and to be able to effectively discuss their concerns.<sup>9</sup> Special training is advised for those who need to deal with these issues with the media.

## Implementation issues

Although infrastructure to deliver vaccine to infants is well developed in most countries, including the poorest, reaching pre-adolescents or adolescents is a much more

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difficult matter. Industrialised countries may (or may not) have fairly well developed infrastructure to reach adolescents, but few countries in the developing world can effectively and routinely reach adolescents with vaccine. While routine infant immunisation is recommended and funded in all countries, and all parents know they should take their infants for their shots, immunisation of adolescents (and adults) is usually not recommended, not funded, and knowledge about adolescent and adult immunisation is very poor even among health professionals. Polio and measles vaccine campaigns have reached more than 90% of children in even the poorest and most infrastructure-challenged countries, demonstrating that children can be reached, but investing in developing routine infrastructure will be challenging.

While school-based programmes are the most effective way to deliver vaccine to pre-adolescents, the effectiveness of, and funding for, school-based programmes varies widely from country to country: few poor developing countries have effective programmes. One hopeful sign is the increasing school attendance, including by girls, in most developing countries.<sup>10</sup> In some countries where 'mandatory' immunisation (sometimes enforced at school entry) is practised for infant immunisation and booster doses of primary vaccines, a vigorous debate is going on about whether or not to make HPV a 'mandatory' vaccine for school entry at the appropriate ages.

Use of this vaccine in women aged over 26 years is perhaps the most controversial topic of discussion among the HPV community. The age of 26 years is not based on disease risk, but was the upper age chosen by the investigators to recruit women into the initial clinical trials, and regulatory bodies chose this as the upper limit of their recommendations since they did not want to go 'beyond the data'. Recent data suggest that the vaccine is safe, immunogenic, and effective in women aged over 26 years.<sup>11</sup> Supporters of the immunisation of older women argue that sexual activity and HPV-related diseases are common; the psychosocial, physical and economic costs of HPV infection and its treatment are significant; and since many women and their health providers want the vaccine, who has the right to withhold it? While some advocates of immunisation for over-26-year-olds argue for government or insurance payment, others say that even if the women must pay they should be able to receive the vaccine. Those opposing immunisation of this cohort argue that many women will have been previously infected with the relevant HPV subtypes and that the cost-effectiveness and impact of immunising this older cohort is less than immunising younger women. Cost-effectiveness analyses currently in progress may help governments and insurers decide whether to fund this use of the vaccine.

The biggest issue in terms of vaccine implementation is the 'affordability' of the vaccine in developing countries.<sup>12</sup> Hepatitis B vaccine, the first vaccine against a major human cancer (primary liver cancer), has been successfully introduced in 80% of countries as a routine infant immunisation (some countries also do adolescent immunisation) but it has taken 20 years to get significant coverage in the developing world's poorest countries.<sup>13</sup> This has come about through the advent of The Global Alliance for Vaccines and Immunization (GAVI) and the GAVI Fund.<sup>14</sup> This fund now has 4–5 billion dollars committed over the next 5–10 years, and has made major progress since 2000 in increasing coverage of basic vaccines, introducing hepatitis B vaccine into most of the poorest countries, introducing *Haemophilus influenzae* type B (Hib) and yellow fever vaccine into some countries,

and in providing safe injections. The poorest 72 countries are eligible to apply to GAVI for support. The GAVI Board has approved the purchase of rotavirus vaccine against the number one cause of diarrhoeal death globally and of pneumococcal conjugate vaccine against the number one cause of death in children worldwide, pneumococcal pneumonia. While GAVI may take several years to get to this stage with the HPV vaccine, it provides hope that this vaccine may become available to the poorest developing countries without the 20-year delay that was seen with hepatitis B vaccine. Developing countries not eligible for GAVI support will need to negotiate for the best price with the manufacturers or encourage local producers to make the vaccine under joint venture-type agreements. The manufacturers have indicated their willingness to tier prices for GAVI and other developing countries.

### Concluding remarks

While implementation and communication about HPV vaccines remain challenging, their potential to control cervical cancer and other HPV-related diseases presents a unique opportunity to control the number one or two cause of cancer death in women in most countries. Such an opportunity must not be missed or delayed.

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