

## SELECTED SUMMARY

# HPV vaccines: separating real hope from drug company hype

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**Rothman SM, Rothman DJ. Marketing HPV vaccine. Implications for adolescent health and medical professionalism. JAMA. 2009 Aug 19;302 (7):781-6.**

In 2008, Harald Zur Hausen received the Nobel Prize in physiology and medicine for showing that two human papilloma viruses, HPV16 and HPV18, were associated with the bulk of cervical cancers, and that some of the genes contained within the viruses were incorporated into the infected host tissue, resulting in carcinogenesis. These carcinogenic strains of HPV cause 70% of cervical cancer and kill an estimated 175,000 women annually.

In 2006, the first HPV vaccine, Gardasil(r), made by Merck, was launched on the US market, as the "first anti-cancer" vaccine. Subsequently, a second HPV vaccine, Cervarix(r), has been released by GlaxoSmithKline. As with other pharmaceutical company products, both vaccines have been widely marketed and promoted by the companies. However, the marketing of these vaccines and the nature of the information and advocacy provided have led to concerns regarding the role of pharmaceutical companies in the dissemination of information relevant to consumer and public health decision making. In an article published in the JAMA, Rothman and Rothman have considered the marketing strategy for Gardasil(r) and its implications for medical professionals (1).

In order to understand the ethical issues surrounding the marketing of this vaccine, it is important to understand key facts about HPV infection and disease and the role of these vaccines in prevention of cervical cancer. Essentially, HPV infections occur in sexually active individuals and the risk of infection increases with increasing partners. Infection can result in no symptoms or a range of symptoms, from warts to cervical cancer depending on the virus type. The risk of cervical cancer is associated not only with HPV infection, but also with socio-economic status, smoking and other risk factors. The vaccine contains four common virus types, and, if given before sexual activity, prevents infection. Once infection has occurred, the vaccine is ineffective. In vaccine trials, because cervical cancer occurs several years after infection, it was not possible to demonstrate an actual decline in cervical cancer incidence, but based on the pathogenesis and natural history of disease it is likely that cervical cancer due to HPV 16 and 18 will be prevented. Again, because of the length of the follow-up required, the studies have not been conducted to show long protection due to the vaccine will last.

With these facts, Rothman and Rothman point out that the drug companies have adopted a multi-pronged strategy to promote the vaccines. Professional medical associations are offered educational and training grants that come with strings attached, where it is clear that the message to be delivered at all costs is to have the vaccine used as much as possible. This is, at least, in part to the prior experience where hepatitis B vaccine had little uptake for the period when it was viewed as vaccine for particular risk groups (2). While the lay media is known to fasten on to new products and present them as the panacea to end the disease of the moment, it is a matter of concern that medical scientists are being asked and encouraged to deliver a message that may present an unbalanced view, and where the emphasis on promoting the vaccine discounts key facts or hides information. In so doing, clarity in communication is lost and the public receives an incomplete message that presents a one-sided view of the disease and prevention of cervical cancer.

There are four important ethical issues that need to be considered in using HPV vaccines. The first is that public knowledge needs to be sufficiently detailed to enable informed choices. The vaccine is currently being presented as an alternative which will remove the need for Pap smears. However, both vaccines contain only two types, HPV16 and HPV18 which cause 70% of cervical cancers and offer no protection against types not in the vaccine. Additionally, with no data on the duration of persistence of antibody response, it cannot be stated with certainty whether the proven protection from persistent infection and cervical intraepithelial neoplasia will result in a life-long protection from cervical cancer (3). The vaccines are not therapeutic, which means that women already infected will continue to need monitoring for early detection. These are important issues, but in the hype surrounding the vaccine, promoted by the "educational material" or Speaker Lecture Kit provided by companies, the authors report that trainers are asked to focus instead on the possibility that a woman infected with one type may yet benefit from protection against the other types (4).

The second important ethical question is regarding access to medical intervention, including preventive interventions such as vaccines. In most countries where the vaccine is available outside a trial setting, the mortality rates due to cervical cancer are low, because most women have access to and participate in screening which allows earlier detection and effective

management of the lesions. In the settings where cervical cancer rates and mortality are high, women have limited access to screening programmes (5), and most likely will not receive the vaccine in the near future, given the pricing models adopted by the companies, where cost recovery and profit must come before altruism. However, if low or tiered pricing were to be made available, a vaccination programme may, in time, be a more effective means of reducing the burden of disease in countries where the considerable resources needed in terms of trained personnel, laboratories and functional referral systems, for running screening programmes are unavailable or inadequate. In the marketing of these vaccines, the target audiences are largely in developed countries, and even within them, issues of healthcare disparities across ethnicity, socio-economic status and education are not a priority.

The third question is the role of women and the development of inappropriate gender stereotypes. At present the vaccine is to be given to female adolescents, and the implication is that women are responsible for issues related to reproductive health. This is inaccurate as both men and women are infected and spread the disease, although the bulk of the disease burden is on women.

Finally, the vaccines are to be given at adolescence. Children at this age should be asked for assent, and the purpose of the vaccine and its risks and benefits explained. This could lead to difficult situations, with parents being uncomfortable with having the vaccine discussed or worried about the vaccine potentially promoting unsafe sexual behaviour. However, in the marketing campaigns, no reference is made to the fact that this "anti-cancer" vaccine does not prevent sexually transmitted disease and no advice is offered on practising safer sex (6).

In all of these issues and their careful consideration, professional medical associations have critical roles to play in educating their members, disseminating appropriate, balanced information to the public and helping to develop policy. As the authors highlight, in allowing themselves to latch on to the hype surrounding a new product without presenting a complete picture, the associations do themselves a profound disservice and diminish their role as leaders and policy makers for the populations they serve. To enable public trust in fair and well-founded research and resulting products, healthcare professionals and academic bodies need to act without fear or favour enabling appropriate decisions about the role of vaccines and secondary preventions programmes, particularly for those populations most in need of these interventions.

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