

Vaccinating against cervical cancer

Since last year, it has become possible to vaccinate against the human papillomavirus (HPV) that causes most cases of cervical cancer, but countries face tough decisions before making the vaccine widely available.

The excitement surrounding the HPV vaccine is not surprising given that half a million women a year develop cervical cancer and half of those die as a result.

But the HPV vaccine is no magic bullet: it has the potential to substantially reduce the prevalence of cervical cancer, but not to eradicate it. Now that an HPV vaccine is already on the market, while a second is expected to receive regulatory approval soon, health professionals and health-care policy-makers face tough decisions.

Questions such as 'who should get the vaccine and at what age?', 'how to include HPV vaccination in a comprehensive cervical cancer control programme?' and 'which sustainable funding mechanisms should be in place?' are just the start.

Such decisions may be easier for developed countries which have data on HPV and cervical cancer prevalence, existing vaccination programmes and ample clinical trial data on the HPV vaccine itself, while developing countries may not have a complete set of epidemiological data or a mechanism to deliver the vaccine.

But even for developed countries, cost is a major barrier to making the vaccine widely available.

In June 2006, Merck's Gardasil received approval from the US Food and Drug Administration and, shortly afterwards, was provisionally recommended by the US Advisory Committee on Immunization Practices for girls and women aged nine to 26.

As of the end of 2006, the vaccine had been approved in 49 countries worldwide, with more expected to join the list this year. The quadrivalent vaccine gives 100% protection against infection from HPV types 16 and 18, which are responsible for around 70% of all cervical cancers. It also protects against HPV types 6 and 11 that cause genital warts.

GlaxoSmithKline Biologicals applied to the European Agency for

the Evaluation of Medicinal Products for international regulatory approval in March 2006 to market its bivalent vaccine Cervarix for HPV types 16 and 18.

Meanwhile, the World Health Organization (WHO) has been developing information that countries can use to formulate their policies on HPV vaccination.

"Vaccines have been tested in North America, Latin America, Europe, to some extent in Asia, but not in Africa yet," said Dr Teresa Aguado, WHO's coordinator for the Initiative for Vaccine Research, Product Research and Development team.

Last year WHO made available to countries policy and programme guidance notes and technical briefing notes on introducing HPV vaccines. The documents drive home the need to educate governments, health professionals and the public about both viruses and vaccines, and the importance of collaboration between reproductive health, immunization, child and adolescent health and cancer control programmes.

"The guidelines make it clear that partnership between health programmes is vital for a coordinated introduction of the vaccine," said Dr Nathalie Broutet of WHO's Department of Reproductive Health and Research. "Vaccine introduction gives these programmes the opportunity to deliver other interventions while immunizing against HPV."

This year promises to be a significant one for HPV vaccination. WHO's six regions plan meetings to discuss these issues, starting with one in April of WHO experts and government officials from the South-East Asian and Western Pacific regions.

Merck's market price, before agents' fees, is approximately US\$ 90 a dose for a three-dose vaccination schedule in the United States, so the vaccine is expensive even by developed-world standards. "Whether it saves money will vary from country to country, but according to our analysis and others' it's expected to be cost-effective in the developed world," said Dr Richard Haupt, executive director for medical affairs at Merck's vaccine division.

"It's important to make sure Gardasil is available globally. We're working with international organizations like WHO, the GAVI Alliance and the Bill & Melinda Gates Foundation, organizations that are crucial in getting vaccines to the developing world, and we will engage in tiered pricing," Haupt added.

The vaccine is also on the WHO prequalification list, which could open the door to purchases in developing countries via United Nations agencies.

Developing countries that acquire the vaccine would need to decide

whether to start vaccinating females alone or both adolescent girls and boys.

The most successful vaccination programmes have been community-wide and avoid any stigma associated with single-sex vaccination, but the cost may restrict HPV vaccination to girls, especially since clinical data on efficacy in boys are still being gathered.

The second question is how to reach the population. Although the vaccine is approved for women up to the age of 26, it is generally considered to be best administered at the age of nine to 13 years, before girls become sexually active and potentially exposed to HPV.

"For countries where schools are well attended by girls, a school-based vaccination programme can be the answer. Otherwise, alternatives for vaccine delivery will have to be identified and tailored to the country context," said Aguado.

“There are challenges for countries in terms of cost and so on, but this vaccine is unique and offers tremendous possibilities.”

Dr Teresa Aguado, WHO's coordinator for the Initiative for Vaccine Research, Product Research and Development team.

For the public and even health professionals, the first stage is education. For example, researchers found that few women in Hong Kong are aware of the role of HPV in causing cervical cancer. "HPV and cervical cancer are not that well-taught in medical or nursing school, so health-care providers need education too," said Professor Hexter Y S Ngan of the Department of Obstetrics and Gynaecology at the University of Hong Kong Li Ka Shing Faculty of Medicine.

Hong Kong officials say they do not have enough data to decide whether to introduce the HPV vaccine widely. "There are data on the prevalence of HPV infection of certain population sub-groups in Hong Kong,

but prevalence data for the general female population and some population sub-groups, such as very young females, are insufficient," said Dr Tse Lai Yin, consultant in community medicine at the Hong Kong Department of Health's Centre for Health Protection.

Aside from cost-effectiveness, vaccination delivery and education, the advent of the HPV vaccine has raised other issues. Promoting an anti-cancer vaccine and, at the same time, making it clear that HPV is a sexually transmitted infection will require deft handling in the wording of policy, education and publicity materials.

"Screening and treatment services will still be required, because the vac-

cines only prevent about 70% of cervical cancer cases and because it will be years, if not decades, before we see the full benefit of vaccination in terms of a reduction in the incidence of cervical cancer," said Dr Andreas Ullrich, medical officer with WHO's department of Chronic Disease and Health Promotion.

Countries will also need to decide what type of screening testing to use, as traditional cytology, visual methods and HPV-specific testing have their pros and cons.

"There are challenges for countries in terms of cost and so on," said Aguado, "but this vaccine is unique and offers tremendous possibilities." ■

Jane Parry, *Hong Kong SAR*

Recent news from WHO

- WHO and the United Nations Population Fund welcomed two new vaccines **for human papillomavirus (HPV)**, the virus that causes most cervical cancer, as a major opportunity for the developing world on 12 December.
- **Dr Margaret Chan** took office as Director-General of WHO on 4 January. On 9 January, Chan named **Dr Anarfi Asamoah-Baah** (see picture) as her new deputy director-general. Asamoah-Baah took up his duties immediately. He has held senior positions at WHO since 1998. He has been widely respected for his leadership in HIV, tuberculosis and malaria, as well as communicable diseases, health technology and pharmaceuticals, and in external relations. Prior to joining WHO, he was the director of medical services in his native Ghana.
- WHO said on 9 January it was drawing up a five-year plan to improve access to treatment for the victims of **rabies and snake-bites**. Close to five million snake-bites and scorpion stings are reported each year, mostly in Africa, Asia and Latin America.
- WHO reported on 16 January progress made by an **electronic record-keeping system** in western Kenya that has revolutionized HIV care with timely medical tests and treatment. The programme, which serves 70 000 patients, was developed through a partnership between Moi University in Eldoret and Indiana University in the United States, with assistance from WHO.
- **Measles** deaths have fallen sharply since 1999, from an estimated 873 000 in 1999 to 345 000 in 2005, according to the Measles Initiative partners. This group, comprising the American Red Cross, the United States Centers for Disease Control and Prevention, the United Nations Foundation, UNICEF and the WHO, said on 18 January that this 60% decrease means that the partnership has surpassed the United Nations goal to halve measles deaths between 1999 and 2005.
- WHO published its first report with global and country data on progress being made by Member States on the use of **information and communications technologies** to improve public health. *Building Foundations for eHealth* was released on 23 January. The web version is available at: <http://www.who.int/goe/>



WHO

Dr Anarfi Asamoah-Baah

For more about these and other WHO news items, please see: <http://www.who.int/mediacentre/news/releases/2007/en/index.html>