

# Study on government's controversial choice of HPV vaccine

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The UK government may save up to £18.6 million a year by deciding to use the HPV vaccine Cervarix, given that it is equally effective as the more expensive Gardasil in preventing cervical abnormalities, according to a study published on BMJ.com today.

Every year in the UK nearly 3 000 women are diagnosed with cervical cancer caused by human papillomaviruses (HPV). Some of these viruses also cause over 100 000 diagnosed cases of anogenital warts.

There are a number of different strains of HPV, but types 16 and 18 are known to be responsible for seven in ten cases of cervical cancer, while types 6 and 11 are linked to at least nine in ten cases of the less serious anogenital warts.

Two HPV vaccines have demonstrated similar efficacy against cervical abnormalities due to types 16 and 18 up to nearly five years, one which protects against types 16 and 18 only (a bivalent vaccine, Cervarix) and another which protects against types 6 and 11 as well (a quadrivalent vaccine, Gardasil).

The Department of Health recently chose Cervarix for use in the HPV immunisation programme in the UK which begins in September. All schoolgirls aged 12 and 13 will be routinely vaccinated, and it will be followed by a two year catch-up programme for girls up to 18 years old.

Mark Jit and colleagues from the Health Protection Agency, describe the

mathematical model used to predict the cost-effectiveness and long-term outcomes of vaccination programmes in the UK using either of the two available vaccines, and report the results which helped inform the Department of Health's decision to choose the bivalent vaccine, Cervarix.

Jit and colleagues predict that the HPV vaccination programme in the UK aimed at 12 year-old girls is highly likely to be cost-effective provided that protection lasts for more than 10 years.

They explain that, because the quadrivalent vaccine includes the added protection against non-cancerous anogenital warts, the bivalent vaccine must be priced £13 less per dose than the quadrivalent vaccine to be equally cost-effective.

The researchers say that the vaccination programme would also provide "herd immunity" benefits to those in the population who had not received the vaccine, from reduced HPV prevalence in the population.

They also find that vaccinating boys would not be cost effective because, if 80% of girls were covered, it is likely that most cases of cervical cancer would be prevented, as well as most cases of anogenital warts if the quadrivalent vaccine was used.

Using a bivalent vaccine priced at £13 less per dose than the quadrivalent vaccine translates to financial savings of between £11.5–£18.6 million from the vaccine price alone in the first year of the programme, if 80% of 12-year-olds in the UK receive the full three-dose vaccine series, estimates Professor Jane Kim from the Harvard School of Public Health, in an accompanying editorial.

"The decision to select the bivalent vaccine implies that the Department of Health is willing to accept foregone health benefits (and additional

cost-savings) from averting [non-cancerous] cases of genital warts for the reduced financial outlay, which may be allocated to other priority investment in health", says Kim.

Although the authors assume coverage of 70%<sup>70%</sup> and a previous study\* in the BMJ reported encouraging uptakes of the first and second vaccine doses in schoolgirls, it is unclear, says Kim, what the uptake rates will be for the three-dose series, and this will have a significant impact on the direct and indirect benefits of the vaccination programme.

Ensuring equitable access to the vaccine may also increase overall success of the vaccination programme and help mitigate disparities in cancer risk across socioeconomic groups. And, because nearly one third of cases of cervical cancer are attributable to HPV types that are not covered by vaccines, cervical screening will continue to be a vital component of efforts to prevent cancer, she adds.

Source: British Medical Journal

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