PE1477/A

Health Protection Scotland Letter of 31 July 2013

GENDER NEUTRAL HPV IMMUNISATION

Situation

On 11th June 2013, a petition was raised to introduce a gender neutral HPV immunisation programme, essentially the extension of the current programme to boys. While this has been introduced in both Australia and the USA, it should be noted that vaccination rates in girls in these countries is approximately 70% and 31% respectively. In Scotland, vaccine uptake in girls is approximately 90% with early effects on cervical cancer precursors, now becoming apparent.

Background

The main aim of the HPV vaccination programme is to protect girls against cervical cancer, rather than protecting against the risks associated with HPV overall. However scientific evidence indicates that, in terms of cost-effectiveness, if at least 80% of girls are immunised, boys will probably be adequately protected from the main cancer causing HPV types. This is because there will be fewer HPV viruses circulating in the population and the chance of a non-infected boy coming into contact with an infected girl will be considerably reduced. On this basis, in 2007 the JCVI recommended the introduction of school based HPV immunisation incorporated into the routine schedule, targeted at girls aged 12-13 years. A 3 year catch-up programme aimed at those aged 13-17 years was also recommended.

Ministers accepted the advice and both the routine and catch-up elements of the programme commenced in September 2008. Since the programme's start, uptake rates in girls in secondary school for completed courses of HPV vaccination in Scotland have been well in excess of 80%.

The vaccine used since 2012 also protects against genital warts. Evidence from Australia where the joint cervical cancer and genital wart preventing vaccine has been used since 2007 has shown that the incidence of warts in males is falling although during the period of monitoring, only girls were offered the vaccine.

It is clear that a proportion of men who have sex with men (MSM) will not benefit from this measure. Emerging evidence suggests that HPV vaccination could provide protection against a wider range of HPV-related diseases and that there may be a higher burden of HPV-related disease in MSM. Because of this, the JCVI issued a call for scientific evidence to help it review whether vaccination strategies to protect MSM should be evaluated. HPS has provided evidence to the Committee's secretariat.

Persistent high-risk HPV infection is also associated with other anogenital cancers (vulval, penile, anal) and head and neck cancers (oropharyngeal, laryngeal). Apart

from anal cancers, the estimated proportions of these types of cancers associated with the infection are significantly lower than for cervical cancer e.g. 12-65% for oropharyngeal compared to over 95% for cervical cancer.

The introduction of HPV immunisation was based on reviewing evidence from large scale clinical trials which showed that the vaccines prevented the development of cervical cancer precursors. Evidence is now appearing in the scientific literature that the vaccine prevents against the precursors of anal carcinoma. However there is no like evidence for oropharyngeal cancers. Because of this, currently no vaccine is licensed to prevent head and neck cancers. All vaccines must undergo a rigorous assessment of their likely cost-effectiveness and will only be introduced into the UK immunisation schedule if the cost per QALY is equal to or lower than those seen for other NHS interventions.

Assessment

Initial evidence from HPV surveillance indicates that rates of the infection are significantly lower in Scottish women aged 20 years who have been immunised compared to those who have not. Preliminary data highlight the reduction in both HPV prevalence and early cervical cancer precursors in vaccinated women.

Scotland has very high rates of immunisation which remain well above the cost-effectiveness threshold of 80%. Since 2012, we have used the vaccine which protects against both cervical cancer and genital warts. At these levels of uptake, we expect to see a significant fall in rates of genital warts in both younger females and heterosexual males over the next few years, as seen in Australia.

Rates of oropharyngeal cancer in Scotland have been increasing especially in males. This is a phenomenon noted throughout most of the developed world. The epidemiology of the cancer has also changed with rates on the whole increasing in those aged 55 years or less and falling in over 75 years. Evidence points to this being associated with changes in the pattern of causal factors with disease due to long term use of alcohol and tobacco falling while that due to sexual behaviour is rising, most probably due to persistent HPV infection occurring earlier in life. The lag period between infection and cancer is not exactly known but is assumed to be around 15 years. The trend for the cancer shifting to be more common in younger ages is expected to continue. HPS, ISD, the Glasgow Dental School and other partners have been awarded CSO-funding for a study to ascertain whether vaccination reduces the prevalence of oral HPV infection (HOPScotch). Results from this study are unlikely to be available until early 2015.

Rates of anogenital carcinoma are increasing also. Numbers are smaller but rates of anal cancer are going up in males but particularly in females with the rate being almost double that for males (1.1 compared to 2.1 per 100,000 European age standardised population). Penile and vulval cancers have also increased. Anal cancers in males occur almost exclusively in men who have sex with men. Given the evidence that the vaccine may be effective in this group, the petition is timely. A decision as to whether the immunisation will be extended to MSM will depend on an analysis of its likely cost-effectiveness. Given that the vaccine is most effective prior to the sexual debut of the recipient and there is considerable uncertainty in pre- and

early adolescence about current and future sexual preferences, this could be difficult to establish.

Why the Australian Federal and US Governments decided to introduce immunisation for boys is unclear. In March 2011, the Australian equivalent to NICE (PABG) rejected Sanofi's bid to extend Gardasil to all boys but reversed this decision in November 2011 following re-submission from the company which included more trial data. PABC considered a position statement from a working party of ATAGI (the Australian JCVI). Whether the PABG/ATAGI advice was based on cost effectiveness or other considerations is unclear.

In summary:

- Vaccine coverage of school girls in Scotland remains high but this must be sustained to realise public health benefits. Further work is ongoing to understand pattern of genital warts in Scotland and data on potential herd immunity to HPV in males should be available by December 2013;

- HPS, ISD, the Glasgow Dental School and other partners have been awarded CSO-funding for a study to ascertain whether vaccination reduces the prevalence of oral HPV infection (HOPScotch). Data from this study are likely to better inform any decision to implement gender neutral immunisation;

- There is no current evidence indicating that immunising all boys will be cost-effective particularly with regard to reducing the incidence of oropharyngeal cancers. Given the major extension of the current UK public health immunisation programme between 2013/14 and 2015/16, the opportunity costs of introducing an extension could be considerable.

Recommendations

1. Further research should be undertaken to understand the role of the HPV virus in the causation, treatment and prognosis of oropharyngeal cancers and to assess the impact of immunisation on their epidemiology;

2. The current HPV immunisation programme should not be extended to include boys until consideration is given to what impact the high uptake in girls is currently having on preventing HPV infection in boys and the review of the cost-effectiveness of immunising MSM is completed.

3. Extending HPV immunisation to include boys should only be carried out when the cost per QALY has been defined and is equal to or less than that used for other NHS interventions.

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