**UK healthcare professionals’ uncertainties, barriers and facilitators to the introduction of targeted HPV vaccination for men who have sex with men.**

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**Abstract:**

**Background:**Female-only HPV vaccination will fail to protect MSM against HPV and its sequelae i.e. genital warts and anal cancers. In the absence of gender-neutral HPV vaccination, targeted vaccination for MSM at sexual health clinics offers a valuable preventive opportunity. We aimed to identify sexual healthcare professionals’ (HCPs) perceived barriers and facilitators for MSM-targeted HPV vaccination.

**Methods:** Nineteen telephone interviews, with UK-based self-referred HCPs (13 doctors, 3 nurses, 3 health advisers), were conducted in October and November 2014. The interviews were recorded and transcribed verbatim. Data were analysed thematically by two researchers.

**Results:** HCPs were unsure about selection criteria, acceptable healthcare settings and the source of vaccination funding for the introduction of MSM-targeted HPV vaccination. The lack of political and public support, MSMs’ restricted access to HPV vaccination and disclosure of sexual orientation to HCPs, identification of eligible MSM, poor HPV awareness and motivation to complete HPV vaccination were perceived as significant barriers. HCPs believed that the introduction of official guidelines on HPV vaccination for MSM, awareness campaigns and integrated clinic procedures could improve vaccination coverage.

**Conclusion:** HCPs recognised a need to protect MSM against HPV. However, several challenges and obstacles associated with the introduction of MSM-targeted HPV vaccination in the UK were reported. HCPs’ perspectives and concerns need to be addressed when developing policies and guidelines for a potential MSM-targeted HPV vaccination. Future research needs to examine whether negative views of HCPs towards MSM-targeted HPV vaccination are associated with lower HPV vaccine uptake and completion rates in MSM.

**Keywords: HPV, vaccination, MSM, healthcare professionals, barriers, views**

# **INTRODUCTION**

 Human papillomavirus (HPV) is a common sexually transmitted infection (STI) associated with genital warts and ano-genital cancers [1]. From 2008, female adolescents in the United Kingdom have been selected for routine school-based HPV vaccination. This strategy, also initiated in Australia, has achieved coverage of over 85% and has already resulted in a decline of HPV in young women and unvaccinated heterosexual men of similar age [2-3]. Although vaccinating only one gender leads to substantial herd protection, data from Australia, which initially implemented a similar female-only vaccination programme, found that it did not protect men who have sex with men (MSM). Epidemiological studies have demonstrated that HPV is the most common STI amongst MSM, with over 64% being infected with the virus [4]. In a study of MSM attending a sexual health clinic in London, 72% were infected with HPV, and the virus was more prevalent (92%) in those that were HIV-infected [5]. HIV and HPV co-infection is the biggest risk factor for anal cancer in MSM; the incidence rates of anal cancer in HIV negative MSM is 5 per 100 000 (95% CI: 0-11) and 46 per 100 000 (95% CI: 31-60) in HIV-positive MSM (Machalek et al., 2012) [4].

 In 2015, the Joint Committee on Vaccination and Immunisation (JCVI) stated that a targeted HPV vaccination programme for MSM below the age of 45 years and delivered through a national network of specialist sexual health clinics is likely to be cost-effective [6]. A year later the Department of Health launched a pilot HPV vaccination programme for 40,000 MSM attending sexual health clinics in England [7]. The pilot aimed to assess potential uptake and completion rates, to inform the cost-effectiveness modelling of this strategy.

 The assessment of HPV vaccine acceptability in MSM is essential, but in parallel there is also a need to monitor attitudes of healthcare professionals (HCPs) towards an MSM-targeted HPV vaccination programme, as their attitudes can influence vaccination uptake [8]. A lack of support from health professionals could lead to sub-optimal vaccination uptake thus compromising the overall effectiveness of this strategy. Our previous online survey of UK HCPs showed that whist recognising MSM were at risk of HPV-related diseases, the majority would recommend gender-neutral HPV vaccination over the targeted strategy [9]. A deeper understanding of why HCPs may not be supportive of MSM-targeted HPV vaccination is needed. This study aimed to explore potential barriers and facilitators to the introduction of MSM-targeted HPV vaccination.

# **METHODS**

This was a qualitative follow-up study to an online survey on attitudes towards MSM-targeted HPV vaccination among 325 HCPs in the UK, published in 2015 [9]. Sexual healthcare workers, notably doctors, nurses and health advisors, were recruited through sexual health networks and professional organisations, such as the British Association for Sexual Health and HIV (BASHH), using email groups, newsletters and online bulletins. All survey respondents were invited to take part in a voluntary, 20-minute long telephone interview about the potential introduction of MSM-targeted HPV vaccination in the UK. Out of 325 surveyed HCPs, 51 respondents submitted their contact details for further telephone interview on the subject and they were sent information page and consent form All interviews were semi-structured and supported by a topic guide, which explored attitudes towards vaccinating MSM of different ages and in different settings. A trained qualitative researcher (TN) from Brighton and Sussex Medical School conducted all telephone interviews. No incentives were offered for participation.

The interviews were audio-recorded and transcribed verbatim. Any information that could result in the identification of participants was removed. Thematic analysis, using Microsoft Excel software, was conducted to identify common themes, sub-themes and novel perspectives. All identified themes went through the process of validation by a second independent researcher (AP) to confirm that they were based on data. The study was approved by BSMS Research Governance and Ethics Committee (ref: 13/164/LLE).

# **RESULTS**

 Nineteen HCPs (13 doctors, 3 nurses and 3 health advisors), employed in sexual health settings, returned signed consent forms and were interviewed . Eight interviewees were from London and South East England, 11 were males, with the average year of gaining clinical qualification of 1993. Six interviewees reported vaccinating men against HPV. Findings were categorised into three themes (Table 1). There were no clear differences in opinions based on professional role, years of experience and geographical location of HCPs.

**Uncertainties about targeted HPV vaccination for MSM**

 HCPs were divided about the suitable clinical settings for HPV vaccination for MSM. Specialist sexual health clinics were considered the most suitable because they are used by many self-disclosed MSM, and these clinics already provide targeted hepatitis B vaccination. However, six participants argued that a multi-setting approach is needed, involving primary care and third sector charities. Some HCPs were uncertain whether general practice was a suitable setting for targeted vaccination, believing that MSM feel less comfortable disclosing their sexuality in this context. The participants were also unsure which groups of MSM should be selected for vaccination. There was a perception that only the youngest MSM would benefit from HPV vaccination as its effectiveness decreases with sexual experience and potential exposure to the virus. The participants proposed the vaccine should be targeted to males between the age of 11 and 26 years, HIV-positive MSM or those without a prior history of genital warts. HCPs had difficulties identifying a source of funding for an MSM-targeted HPV vaccination programme, being unsure whether it would be funded centrally or locally. Four participants believed that the Department of Health would not be supportive of funding the MSM-targeted HPV vaccination, leading to negative views about this strategy.

**Barriers to MSM-targeted HPV vaccination**

 HCPs suspected that in comparison with the gender-neutral HPV vaccination programme of school children, the MSM-targeted strategy would be less effective. They believed that the lack of political support and backing from the community of HCPs could influence the perception about the importance of protecting MSM against HPV. For example, five participants expressed objection to MSM-targeted HPV vaccination, believing that the gender-neutral strategy would help to achieve greater protection for unvaccinated women and direct protection for men. Concern was expressed about reactions from the general public to HPV vaccination for gay men, fuelled by the public’s poor understanding of MSMs’ greater need and a sense that heterosexual men were being denied it. Three participants were worried that the targeting of gay men with HPV vaccination would result in this intervention becoming branded a “*sex vaccine*” with its perceived status changing from “*anti-cancer*” to “*anti-sexually transmitted infection*”.

 Difficulties in accessing sexual health services and discomfort in discussing same-sex experiences by some men were seen as important barriers to achieving optimal uptake. Young MSM, especially those living in rural areas, were thought to be less likely to receive HPV vaccination, particularly if only offered through sexual health clinics. One participant highlighted that some of her MSM patients would not access specialist clinics for ‘young gay men’ due to embarrassment. Eight HCPs argued that as some MSM identified as heterosexual, they might refuse HPV vaccination if only given to gay men. Several HCPs were also concerned about the delay in sexual orientation disclosure; younger men might lack the skills or motivation to reveal their same-sex practices in the early stages of their sexual career, when the vaccine is most effective. Participants recognised that if they were unable to readily identify men who would benefit from vaccination, the success of this strategy would be compromised.

 The lack of awareness about HPV and low motivation to receive the vaccine amongst MSM were also perceived as significant challenges. There was a concern that many men are not sufficiently informed about HPV before exposure. One participant supported this concern by citing how, despite two decades of vaccinating MSM against hepatitis B, in the UK at least a fifth of adult MSM in the UK are not aware of the virus. Many MSM fail to return for their second and third hepatitis vaccinations, so course completion was seen as one of the biggest challenges for a HPV programme.

 HCPs’ low levels of knowledge about the use of HPV vaccine for MSM was offered as an obstacle to a smooth introduction of a vaccination programme. There was concern that HPV prevention may not be prioritised over STI screening and diagnostic activates, three participants doubted the level of HCPs’ willingness and engagement to offer HPV vaccination to MSM.

**Facilitators to the introduction of MSM-targeted HPV vaccination**

 Almost all expressed a need for authorised guidelines on the use of HPV vaccination in men, clearly specifying the criteria for targeted intervention. To boost the confidence of HCPs to promote the vaccine it was suggested that the topic be included in established training sessions, for example British Association for Sexual Health and HIV Sexually Transmitted Infection Foundation course. Eight participants identified a need for a national public education campaign about HPV vaccination availability for MSM; they suggested utilising TV and gay-specific press advertisements, social media and mobile phone applications to boost the uptake and completion rates. Also recommended was the involvement of the third sector (charities, LGBT groups and youth projects) in running awareness campaigns and the incorporation of HPV vaccination information in schools’ sex and relationships curriculum. It was noted that framing the message about HPV vaccine reducing the risk of genital warts may have a bigger impact than if the message focused on anal cancer.

 Most participants considered male HPV vaccination to be integral to a comprehensive healthcare package for MSM. It was suggested that the development of a vaccination schedule that combined HPV and hepatitis vaccination would encourage MSM to utilise sexual health clinics. Vaccination was seen as one facet of health promotion, alongside initiatives such as free condoms, sexual health screening and psychological support. Several participants emphasised the need for a robust and non-judgemental process for gathering information in primary care about patient’s sexual behaviours, so that everyone eligible for HPV vaccination is identified. One participant suggested incentivising general practitioners to record sexual orientation and to encourage HPV vaccination of MSM not attending sexual health clinics. Implementing reminder services to complete vaccination doses could increase low completion rates.

**DISCUSSION**

 In this study, HCPs preferred a gender-neutral, universal approach to vaccination rather than a MSM-targeted HPV vaccination programme, the latter was considered inferior in terms of potential coverage, effectiveness and equity. The participants were unsure whether targeting adult MSM in sexual health clinics would be an effective approach against HPV, as they were not familiar with any evidence or aware of any guidelines. Several HCPs were concerned that those who would benefit most from HPV vaccination, that is young MSM at the beginning of their sexual activity, would not receive it before virus exposure because of difficulties in accessing sexual health services. Lack of support from policy-makers, the public and HCPs as well as the lack of awareness about HPV and low motivation for the vaccine amongst MSM were perceived as important obstacles, impeding the overall effectiveness of MSM-targeted HPV vaccination. MSM awareness campaigns, training for HCPs and the integration of HPV vaccination onto existing sexual health services were predicted to facilitate the introduction of a vaccination programme for MSM.

 Respondents’ hesitancy to recommend an MSM-targeted strategy may be associated with the paucity of evidence on the effectiveness of MSM–targeted HPV vaccination and their perception that a universal approach would be superior. Several months before female HPV vaccination was introduced, Hopkins et al. (2009) found that the majority of HCPs were concerned that vaccination of older children might be ineffective [10]. Similarly Weiss et al. (2010) found in the USA >80% of HCPs believed that HPV vaccination was not effective in sexually active men; perceived vaccine effectiveness is likely to be an important factor in HCPs’ recommendations and management [11]. Our study shows that HCPs perceived any previous sexual experience as a significant barrier to the effectiveness of HPV vaccination, and therefore many opposed HPV vaccination of sexually active individuals. Our previous survey showed that HCPs, whilst recognising the need to protect MSM against HPV, were more willing to recommend gender-neutral vaccination over an MSM-targeted approach [9]. It is necessary that there is an investment in the development of clear advice, guidelines and education for HCPs about the use of HPV vaccine in MSM to ensure equitable distribution of vaccination services, so that all men at risk of HPV are offered vaccination. Without HPV vaccination guidelines there will be disparities in opinions and variation in the clinical practice of HCPs [10,12]. Tissot et al. (2007) indicated that despite HCPs’ concerns about the lack of data on the safety and efficacy of HPV vaccination, most believed that universal rather than a targeted strategy should be recommended [13]. Betsch and Wicker (2014) argued that knowledge, personal attitudes and misconceptions alongside official recommendations guide HCPs’ decisions whether to offer vaccinations [14]. Hence, policy-makers need to acknowledge HCPs’ views and address them accordingly to facilitate positive attitudes towards the recommended vaccination strategy. A reluctance for some HCPs to adopt new vaccination guidelines has been previously documented with respect to hepatitis B vaccination; 67% of those believing hepatitis B vaccination should only be offered to individuals from high hepatitis B prevalence areas, were not supportive of new guidelines recommending universal infant vaccination [15]. This lack of support was based on a belief that their patients were not at risk of hepatitis B. HPV vaccination guidelines for men in the UK, training on the use and value of HPV vaccination in MSM, and education on communication skills are therefore urgently required to maximise the identification of MSM potentially eligible for vaccination.

HCPs believed that the impact of targeted vaccination was likely to be compromised because not all MSM are willing to visit sexual health clinics, to self-identify as gay or bisexual, or to disclose their sexual orientation to HCPs. At present, there is no precise estimate of the size of the MSM population in the UK, this means there is no accurate denominator when assessing the coverage of HPV vaccination. Bailey et al. (2017) demonstrated that approximately 374,983 MSM utilised sexual health clinics in England [16], which accounts for 45% of the estimated 830,558 MSM population [17]. Mercer et al. (2004) reported that only 35% of MSM utilised sexual health services in the UK, indicating that MSM-targeted vaccination delivered only through sexual health clinics is unlikely to reach the majority of eligible men [18]. Metcalfe et al (2015) found that only 40% of MSM disclose sexual orientation in general practice, so potentially a large proportion might not have access to specific services for MSM [19]. Previously Deblonde et al. (2010) showed that poor healthcare utilisation and the inability to discuss sexual orientation with a HCP were associated with a lower uptake of STI screening amongst MSM [20]. Exploring ways of targeting MSM who either do not utilise sexual health services or do not wish to be identified as gay or bisexual must be prioritised.

 Low levels of knowledge about HPV, the lack of motivation or fatigue completing a course of vaccination were also highlighted as important challenges. HCPs believed that MSM who did not know about HPV-related diseases would be less likely to request and complete HPV vaccination. Yee and Rhodes (2001) showed that poor awareness of the hepatitis B vaccination was associated with low completion rates amongst MSM [21]. In 2003, the UK introduced an MSM-targeted hepatitis B vaccination, but Wielding et al (2016) have reported suboptimal uptake, with 86% of MSM receiving their first dose, but only 50% completing the course [22]. In our study, HCPs recommended an integration of healthcare services, so that HPV vaccination could be a part of a comprehensive health intervention, which provides hepatitis A-B vaccination, health education and advice, free condoms and screening services. Van den Berg et al. (2014) demonstrated that the integration of HPV vaccination and HIV testing services for young MSM in Rhode Island, USA was highly acceptable, with 98% receiving the vaccine [23]. A systematic review of 34 interventions to increase HPV vaccination coverage demonstrated that the implementation of vaccination services in combined healthcare and community settings resulted in the highest coverage [24]. HCPs also expressed a need for national health campaigns about HPV vaccination for MSM, which utilise social media such as Facebook, poster advertising and messages. Subasinghe et al (2016) found that Facebook-based interventions are a cost-effective method of identifying unvaccinated individuals, especially those who are ‘hard-to-reach’ or less ‘visible’ [25].

 This is the first study to explore HCPs’ views on MSM-targeted HPV vaccination. Several limitations need to be outlined including small sample size, self-selection bias arising from HCPs with a particular interest in HPV vaccination being more likely to respond, leading to some polarisation of views. However, our recruitment method was developed to ensure neutrality within the survey and telephone interviews, we wanted to enable clinicians to express their views of male HPV vaccination without any particular focus on targeted HPV vaccination. Unfortunately we did not ascertain whether expressed attitudes were associated with knowledge about the use of the HPV vaccine in MSM. This study was conducted in 2014 before the release of the JCVI statement describing the cost-effectiveness of MSM-targeted HPV vaccination in the UK. Future studies need to assess how information about the cost-effectiveness of various targeted services affects HCP decision-making processes and attitudes. It is essential to measure whether JCVI’s recommendations increase support for MSM-targeted HPV vaccination. HCPs’ attitudes need to be monitored over time to ensure they remain favourable and supportive of the current policies. A longitudinal survey measuring changes in attitudes towards male HPV vaccination, and specifically the MSM-targeted approach, would increase our understanding of how educational programmes and guidelines influence HCPs’ recommendations.

 Although HCPs would support MSM-targeted HPV vaccination, the majority believed that a universal approach would be more effective against HPV. A number of barriers and facilitators have been identified to develop vaccination programmes capable of achieving optimal uptake. Clear advice, guidelines and education are urgently needed to standardise HPV vaccination practices and ensure equitable distribution of health promotion services. HCPs’ attitudes and recommendations need to be monitored to identify any changes that could impede the implementation of MSM-targeted HPV vaccination.

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**Conflict of interest**: None

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