

JCVI statement on HPV vaccination of men who have sex with men**November 2015****Summary**

1. In 2008 following a detailed review of the cost-effectiveness and impact of human papillomavirus (HPV) vaccination in adolescents, JCVI recommended a universal programme of HPV vaccination in girls aged 12-13 years of age in schools, along with a catch up programme for girls 13 to under 18 years of age.¹
2. JCVI has kept the HPV vaccination programme under review, and since introduction of the adolescent girls programme evidence has emerged that HPV immunisation is likely to provide protection against a wider range of HPV-related diseases, including anal, penile and oropharyngeal cancers. In response to this new data JCVI identified concerns that men who have sex with men (MSM) are a group at high risk of HPV infection and associated disease who receive very little indirect health benefit from the current HPV vaccination programme.²
3. The majority of evidence on the sexual behaviours, incidence and risk of infection in MSM is limited to those MSM who attend genitourinary medicine (GUM) and HIV services. GUM and HIV clinics are however the most accessed sexual healthcare service by self-declaring MSM. MSM accessing GUM services are known to be a high-risk group within the MSM population in terms of risk behaviour and STI transmission and JCVI considered it reasonable to undertake analysis on the cost-effectiveness of vaccinating this sub-population of MSM.
4. After considering modelling work from Public Health England (PHE) on the impact and cost-effectiveness of a programme to vaccinate MSM who attend GUM and HIV clinics JCVI issued interim advice for consultation. Following review of the consultation responses, and peer review comments, the Committee agreed to a number of updates to the modelling and cost-effectiveness analysis, and changes to the age ranges being considered.
5. JCVI has now considered the revised analysis, which indicates that it is highly likely a programme to vaccinate MSM up to 40 years of age attending GUM and HIV clinics would be cost-effective, as long as the vaccine is procured, and the programme is delivered at a cost-effective price. JCVI considers it reasonable to extrapolate the findings to those MSM aged 45 years, although there is too much uncertainty in the data to extrapolate further. JCVI also agrees that there should no longer be a lower age limit, previously set at 16 years of age.

6. JCVI recognises the complexities associated with commissioning and delivery of a programme involving GUM and HIV services, and that other providers such as GPs, may wish to offer the vaccine opportunistically. As access to GUM services may vary geographically, restricting a service solely to GUM and HIV clinics also introduces potential for concern around equity of access.
7. Any analysis undertaken can only be based on the available evidence, which in this instance is on the impact and cost-effectiveness of vaccinating the GUM/HIV clinic-attending MSM population. JCVI is offering advice on the basis of that evidence, however the advice provided does not preclude delivery through other providers and JCVI believes there is potentially scope for this.
8. On the basis of the evidence considered, JCVI advises that a targeted HPV vaccination programme with a course of three doses for MSM aged up to 45 who attend GUM and HIV clinics should be undertaken, subject to procurement of the vaccine and delivery of the programme at a cost-effective price.
9. JCVI considers that there may be considerable benefit in offering the HPV vaccine to other individuals who have a similar risk profile to that seen in the 16 to 40 year old GUM attending MSM population, including some MSM over 45, sex workers, HIV+ve women, and HIV+ve men. Clinicians are able to offer vaccinations outside of the national programme using individual clinical judgement, and HPV vaccination could therefore be considered for such individuals on a case-by-case basis. Following the meeting, the Department of Health has agreed to consider this from a national perspective alongside the advice of the Committee on the vaccination of MSM up to 45 years of age who attend GUM and HIV services, and will report back to the Committee at a future date

Background

Consideration of the vaccination of all adolescent boys

10. Although not the subject of this position statement, the Committee recognises the importance of the on-going assessment of HPV vaccination of adolescent boys. JCVI will consider two independent mathematical models which will use different approaches to assessing cost-effectiveness of HPV vaccination in this group. This process will ensure that that the Committee's conclusions are as robust as possible. Both models are currently in development, and JCVI hopes to receive the information required to begin its deliberations in early 2017.

Consideration of the vaccination of MSM

11. JCVI and the HPV sub-committee first considered the evidence on the impact and cost-effectiveness of a targeted programme of vaccinating MSM in the autumn of 2014.^{3;4} The evidence indicated that a targeted programme undertaken in GUM and HIV clinics could be cost-effective, subject to implementation at a cost-effective price.
12. In November 2014 JCVI issued an interim position statement and stakeholder consultation on HPV vaccination of MSM⁵ setting out the key evidence and describing the considerations and interim position of the Committee on this issue. As part of the consultation JCVI invited stakeholders to comment on the validity of the assumptions and findings of the modelling and cost effectiveness study and the interim advice of the committee. JCVI also advised, for assurance purposes, that the modelling and cost effectiveness work undergo additional peer review in parallel to the stakeholder consultation.
13. JCVI and the HPV Subcommittee met in early 2015^{6;7} to consider the feedback from the stakeholder consultation and the results of the peer review. As a result of this feedback PHE agreed to make some changes to the model and cost-effectiveness assessment.
14. The HPV Subcommittee met In June 2015⁸ to consider the updated modelling and cost effectiveness assessment and this together with the subcommittees advice was subsequently considered at the October 2015 JCVI meeting.⁹
15. The outcome of the deliberations of JCVI and the HPV Subcommittee on the updated model and cost-effectiveness assessment for a targeted HPV vaccination programme for MSM are reported here together with JCVI's finalised advice to the Secretary of State for Health.

Modelling and Cost-effectiveness

16. The modelling and cost effectiveness study initially considered vaccination of four groups of MSM attending GUM and HIV clinics: HIV positive MSM aged 16-25 years, HIV positive MSM aged 16-40 years, MSM aged 16-25 years and MSM aged 16-40 years. In all scenarios both the quadrivalent and bivalent vaccines were considered and MSM were assumed to be vaccinated with a three dose schedule. Detailed information on the original modelling and cost-effectiveness assessment is available in the interim JCVI statement.⁵

17. As a result of the stakeholder consultation, peer review and feedback from JCVI PHE made a number of changes to the model and cost-effectiveness assessment including:
- expansion of the assessment to look at more subgroups in terms of age and HIV status;
 - changes to the estimated proportion of HIV positive MSM attending GUM clinics and distinguishing between the rate of attendance for diagnosed and undiagnosed HIV positive MSM;
 - accounting for how not all MSM attending will take up the offer of HPV vaccination and, of those that do, not all will complete the three dose course;
 - inclusion of newer data on anal cancer survival rates from a more recent trial;
 - recalibration of the model for anal cancer to achieve a better fit with the HPV prevalence estimates from the Mortimer Market GUM study and anal cancer incidence from the Office of National Statistics (ONS); and
 - a correction for discounting QALYs in the future.
18. A number of smaller changes were also made to the model including updates to demographic data, using data from the third National Survey of Sexual Attitudes and Lifestyles (Natsal-3) data instead of Natsal-2 data. Cancer incidence and genital warts incidence were also averaged over a number of years rather than using data from a single year.

Implementation costs

19. The Department of Health (DH) investigated the administrative costs of vaccination and agreed that the administrative cost of vaccination in the school based HPV programme is a reasonable estimate to use for the administrative cost of the MSM programme. JCVI's deliberations are based on this assessment.

Uncertainty

20. Extending the analyses undertaken beyond the age of 40 was considered highly speculative and uncertain because of the paucity of data in terms of sexual mixing and HIV prevalence beyond 40 and especially beyond 45 years of age. Similarly under certain assumptions a strategy targeting HIV positive MSM might be more cost-effective but was also subject to greater uncertainty around the attendance of undiagnosed HIV positive MSM and the duration of protection of the vaccine. JCVI agreed that given these uncertainties it was reasonable for the base case analysis to be all MSM aged 16-40 attending GUM and HIV services.

Results

21. The estimated threshold price per dose, including administrative costs, at which a targeted programme would be cost-effective (extending incrementally from a programme for HIV+ve MSM aged 16-40 to all MSM 16-40) is now higher compared to the original estimate presented in September 2014.
22. The threshold price per dose of vaccinating all MSM 16-40 is higher still when the option of an HIV+ve MSM only programme is excluded from the incremental analysis, as advised by JCVI. The threshold price was considered practically achievable given the estimated administration costs used in the assessment .
23. When herd effects are excluded (where uptake is so low that benefits due to potential herd effects are small) the threshold price for cost effectiveness decreases, although it remains a positive value which may still be cost-effective, depending on the combined costs at which the vaccine is procured and the programme delivered.
24. There is a paucity of data on the sexual behaviours of MSM over 40 years of age, however JCVI considers it reasonable to extrapolate to MSM age 45 as the sexual behaviour of MSM is unlikely to change between the age of 40 and 45.
25. The uncertainty analysis indicates that it is almost certain that a programme to vaccinate MSM attending GUM and HIV clinics aged up to 40 years of age would be cost-effective at the threshold price.
26. Overall the results from the revised analysis have not qualitatively changed the results from those outlined in the interim statement. A programme to vaccinate MSM aged up to 40 years old who attend GUM and HIV clinics is highly likely to be cost-effective, subject to procurement of the vaccine and delivery of the programme at a cost-effective price.

Other considerations

Monitoring and Surveillance

27. The Committee welcomes work undertaken by PHE in outlining a comprehensive plan for monitoring and surveillance of the programme as this will be critical for determining the success of the programme. JCVI recognises that the monitoring and surveillance of the programme poses some specific challenges for the sexual health clinical surveillance systems.

Implementation and delivery

28. JCVI agrees with the HPV sub-committee that GUM and HIV clinics are by far the most accessed sexual healthcare service by self-declaring MSM, who might not otherwise self-declare to a GP, and that MSM accessing GUM services are known to be a high-risk group within the MSM population in terms of risk behaviour and STI transmission. The cost-effectiveness analysis considered by JCVI is only possible because of the sexual health data available from GUM and HIV clinics. Data on partnership rates, numbers, or HPV prevalence in those MSM solely accessing GP services are very limited. Overall JCVI believes this makes a good case for vaccinating through GUM and HIV clinics.
29. JCVI however recognises that other providers may wish to offer the vaccine opportunistically (such as GPs), and as access to GUM services may vary geographically, restricting a service solely to GUM and HIV clinics could introduce concerns around equity of access. The advice of JCVI can only be based on the available evidence, which in this instance is on the impact and cost-effectiveness of vaccinating the GUM/HIV clinic-attending MSM population. Whilst it might be possible for eligible MSM to be identified in GUM clinics and then be given the option to receive follow up doses elsewhere, this is for DH, PHE and NHS England to consider, alongside any other identified options for delivery.
30. JCVI also recognises the complexities associated with commissioning and delivery of a programme involving GUM and HIV services in England. Sexual health is the responsibility of local government, whilst NHS England is responsible for commissioning primary care and national vaccination programmes. Work is required by DH, PHE, local government and NHS England to identify the commissioning arrangements and potential routes for delivery of any programme to vaccinate MSM, and JCVI noted that this work will likely be challenging.
31. Overall JCVI has considered evidence related to the scientific and economic assessment of a targeted programme for MSM attending GUM and HIV clinics, and it can therefore only make an informed decision and offer advice on the basis of that evidence. It is the view of JCVI that its advice does not preclude delivery through other providers and that there is potentially scope for this however this has not been assessed as part of the current cost-effectiveness modelling.

Vaccination of other groups

32. Prisoners who are MSM, and transgender women are also now acknowledged in the advice, with HPV vaccination to be considered through offender health and GUM services respectively.
33. JCVI considers that there may be considerable benefit in offering the HPV vaccine to other individuals who have a similar risk profile to that seen in the 16 to 40 year old GUM attending MSM population, including some MSM over 45, sex workers, HIV+ve women, and HIV+ve men. Clinicians are able to offer vaccinations outside of the national programme using individual clinical judgement, and HPV vaccination could therefore be considered for such individuals on a case-by-case basis.
34. The cost-effectiveness of a catch-up for women above 18 years who have not received the vaccine can be modelled although it is considered unlikely to be cost-effective based on the modelling used to inform the original advice in 2008 for the adolescent girls programme. Further consideration would be in the context of reduced risk of infection and disease due to the herd effects of the current programme, but also the latest evidence on the impact of vaccination on non-cervical cancers.

Conclusions and advice

35. Given the evidence available and the modelling work undertaken JCVI advises that a targeted HPV vaccination programme for MSM aged up to 45 who attend GUM and HIV clinics should be undertaken, subject to procurement of the vaccine and delivery of the programme at a cost-effective price. Work is required by DH, PHE, local government and NHS England to identify the commissioning arrangements and potential routes for delivery of any programme to vaccinate MSM, and JCVI understands that this work may be challenging.
36. Prisoners who are MSM should also be able to access the HPV vaccine through prison sexual health services and transgender women should also be eligible.
37. JCVI considers that there may be considerable benefit in offering the HPV vaccine to other individuals who have a similar risk profile to that seen in the 16 to 40 year old GUM attending MSM population, including some MSM over 45, sex workers, HIV+ve women, and HIV+ve men. Clinicians are able to offer vaccinations outside of the national programme using individual clinical judgement, and HPV vaccination could therefore be considered for such individuals on a case-by-case basis. Following the meeting, the Department of Health has agreed to consider this from a national perspective alongside the advice of the Committee on the vaccination of MSM up to 45 years of age who attend GUM and HIV services, and will report back to the Committee at a future date

References

1. [JCVI statement on human papillomavirus vaccines to protect against cervical cancer July 2008](#)
2. [Minute of the JCVI meeting held on June 13 2012](#)
3. [Minute of the JCVI HPV Subcommittee held on Sept 22 2014](#)
4. [Minute of the JCVI meeting held on 1 October 2014](#)
5. [JCVI interim position statement on HPV vaccination of men who have sex with men \(MSM\) November 2014](#)
6. [Minute of the JCVI HPV Subcommittee meeting held on January 22 2015](#)
7. [Minute of the JCVI meeting held on 4 February 2015](#)
8. [Minute of the JCVI HPV Subcommittee meeting held on June 8 2015](#)
9. [Minute of the JCVI meeting held on 7 October 2015](#)