

Commentary

Towards Gender-Inclusive HPV Vaccination in England: Addressing Misconceptions and Missed Opportunities for Boys

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Highlights

What are the main findings?

- Despite the United Kingdom's transition to a gender-neutral, single-dose HPV vaccination programme, uptake remains below the 90% target, with persistent disparities by gender and region.
- Parental misconceptions, limited public awareness of boys' eligibility and systemic barriers in school delivery contribute to lower vaccination coverage among adolescent boys.

What is the implication of the main finding?

- Improving HPV vaccine equity requires gender-inclusive public health messaging, enhanced school-based delivery systems, and stronger engagement from primary care providers.
- Expanding the role of healthcare professionals—including dentists and pharmacists—offers a promising strategy to improve vaccine uptake among boys.
- Embedding interventions within established theoretical models of health behaviour ensures that barriers are translated into practical, theory-informed strategies.



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Abstract

Human papillomavirus (HPV) vaccination is a cornerstone of cancer prevention across genders. In the United Kingdom (UK), the programme now includes boys, yet uptake remains below target, with persistent disparities by gender and region. This commentary examines the drivers of these gaps, including the historical framing of the HPV vaccine as a vaccine for girls, limited public awareness of boys' eligibility, and challenges in school-based delivery. Gendered misconceptions, cultural norms, and inadequate communication continue to limit uptake in boys, while healthcare professionals, including general practitioners, dentists, and pharmacists, remain underused in supporting vaccine access and tackling parental hesitancy. Schools are central to equitable delivery, but teachers often lack training and possess low-to-moderate knowledge of HPV-related topics, including HPV vaccination availability for boys and HPV-related cancers affecting men. Drawing on health behaviour theory, we propose evidence-informed, multi-level recommendations to improve uptake, from gender-inclusive messaging and more efficient consent processes to digital engagement tools that support parents. We also highlight our ongoing research into parental attitudes toward HPV vaccination for boys aged 9–12 in England, which will inform future targeted interventions and policy development.

Keywords: human papillomavirus; gender-neutral vaccination; cancer prevention

1. Introduction

It is well known that human papillomavirus (HPV)—mainly HPV types 16 and 18—causes almost all cervical cancer cases, but it is also the cause of >50% of penile cancer, as well as 60–70% of oropharyngeal cancer cases [1–4]. In England, there has been a 47% increase in the incidence of oropharyngeal cancer since 2013 (2021 data), surpassing that of cervical cancer in the United Kingdom (UK), and with the incidence rate in men being more than twice that observed in women. Interestingly, men were shown to be less aware than women that HPV causes oropharyngeal cancer even though they are the ones most affected [5]. Thus, it can be deduced that greater emphasis should be placed on HPV-related cancers affecting men by focusing on prevention in boys [2,4].

The HPV vaccination programme was introduced in the UK in 2008, initially targeting 12–13-year-old girls to reduce the risk of cervical cancer. In July 2018, the Joint Committee on Vaccination and Immunisation (JCVI) issued a statement outlining the reasons for extending HPV vaccination to adolescent boys, including the safety of the vaccine, comparable immunogenicity with that of girls, indirect protection for unvaccinated girls and men who have sex with men (MSM; by offering vaccination before becoming sexually active), and prevention of additional cases of HPV-attributable non-cervical cancers [6]. Following these recommendations, the programme was extended to boys of the same age group in 2019, marking a considerable policy shift towards gender-neutral vaccination (GNV). Modelling from the University of Warwick has estimated that the addition of boys to the HPV vaccination programme could prevent circa 100,000 cancers by 2058, and thus is a long-term cost-effective solution [7,8]. In 2021, the UK further strengthened the programme by switching from a 4-valent HPV vaccine to the 9-valent vaccine (GARDASIL® 9), which protects against five additional cancer-causing HPV types. A study by Owusu-Edusei et al. found that over a 100-year period, the 9-valent vaccine could avert 4–56% more HPV-related cases (depending on the disease) while remaining highly cost-effective, with an estimated cost of £8,500 per quality-adjusted-life-years gained (3.5% discount rate), even with a higher per-dose price [9]. In September 2023 the UK transitioned to a single-dose HPV vaccination schedule for individuals < 25 years of age.

However, despite these improvements and the strong, protective benefits of vaccination, uptake has declined in recent years [10]. Recent data from the 2023–2024 academic year in England indicate that vaccine uptake remains below the 90% target and continues to reflect a gender disparity. According to the UK Health Security Agency (UKHSA), HPV vaccination coverage among Year 8 students was 72.9% for girls and 67.7% for boys. Uptake improved slightly in Year 9 to 74.1% for girls and 68.5% for boys, although both figures represented a modest decline from the previous academic year. By Year 10, coverage increased further to 76.7% for girls and 71.2% for boys. Regional disparities were also evident. In Year 9, London recorded the lowest coverage (60.9% girls; 56.5% boys), while the South East reported the highest (79.7% girls; 74.2% boys) [11].

The lower uptake in boys may be due to the historical association of HPV vaccination with cervical cancer and female health, with the public not yet recognising its importance for boys. A systematic review by Karakusevic and Foss (2024) found that while over half of parents in England and Wales were aware of HPV and vaccination for girls, only 23% knew the vaccine was also available for boys [12]. Considering the above, we aim to identify the most prevalent misconceptions around HPV vaccination for boys, examine the current disparities in uptake between gender, and offer recommendations for more inclusive, equitable

vaccination strategies. Given the consistently lower coverage in adolescent boys, and the limited research exploring adolescent and parental attitudes in the UK, understanding the factors involved in uptake for GNV is vital for designing targeted interventions to improve vaccine equity. We also provide the background for our ongoing research investigating parental attitudes to HPV vaccination among parents of boys aged 9–12 in England, as this age group is when parents will most likely be considering vaccination.

2. Why Boys Are Missing Out: Exploring Barriers to HPV Vaccine Uptake

While broader vaccination barriers and hesitancy, such as safety concerns, mistrust of health services, and demographic factors, affect uptake, several specific barriers contribute to reduced HPV vaccine uptake amongst boys [12]. Public health campaigns for the HPV vaccine historically targeting girls has contributed to the enduring perception that the vaccine is less relevant or necessary for boys, and that HPV is a “feminine vaccine” [13]. Indeed, Sherman and Nailer (2018) found that parents with daughters were significantly more likely to have heard about HPV compared to parents of sons only and demonstrated poorer knowledge about the HPV-related cancers that also affect men [14]. A YouGov survey conducted in 2025 revealed that only 18% of UK adults knew that 12–13-year-old boys were eligible to receive the HPV vaccine in school, and only 9% were aware that men up to the age of 25 were eligible for the NHS catch-up programme if they missed their school vaccination [15]. While these findings provide a useful indication of general public awareness, the survey did not specifically target parents of eligible boys and therefore should be interpreted with this limitation in mind.

Concerningly, boys themselves are generally less knowledgeable about the risks of HPV compared to girls and are more likely to associate the virus solely with cervical cancer rather than other cancers. Many boys believe they are at low risk of contracting HPV or experiencing HPV-related health conditions, despite recognising the seriousness of cancer overall [16,17]. Better knowledge of HPV has been linked with higher vaccination uptake, suggesting that increased awareness among boys could significantly improve coverage [18]. However, with public health messaging still heavily focused on cervical cancer, the risks HPV poses to boys have been unintentionally overlooked [19]. Moreover, most public health campaigns and interventions tend to focus primarily on parents, with limited direct engagement aimed at boys themselves. This lack of peer-to-peer outreach and youth friendly resources tailored specifically to boys may undermine their understanding of the vaccine’s relevance to their own health, increasing the likelihood of disengagement and reduced uptake.

Cultural and social norms may also present a barrier to vaccinating boys. Some parents perceive HPV as not being important due to their child being too young and not sexually active [16,20], and concerns that the vaccine may signal sexual readiness [21,22]. Hence, this can create discomfort when discussing the vaccine in relation to their young sons. For example, a study of 357 UK-based adolescents (aged 12–13 years) found that of the 129 boys who participated, 55.1% agreed they may take more sexual risks following HPV vaccination that could increase their risk of STIs [23]. This concern may be especially pronounced in more conservative or religious communities, where topics related to adolescent sexuality are often considered sensitive or inappropriate [24]. Recent UK-based qualitative research supports this: Fisher et al. (2024), in interviews with vaccine-hesitant, ethnically diverse parents in London, identified “sexual transmission” as a key theme [20]. Parents from Somali, South Asian, White British and British Asian backgrounds described difficulties in reconciling cultural norms around sexual behaviour with the rationale for HPV vaccination, highlighting the persistence of stigma and taboo around these discussions [20]. Additionally, framing HPV vaccination for boys within the context of preventing transmission

among MSM could unintentionally reinforce the misconception that the vaccine is relevant only for gay or sexually active boys—further complicating parental acceptance and uptake.

The barriers outlined above map directly onto established health psychology models. Within the Health Belief Model [25], parents' beliefs that boys are "too young/not at risk" indicate low perceived susceptibility; concerns about promiscuity and safety reflect perceived barriers; limited understanding of male cancers reduces perceived benefits; and inconsistent consent/reminder processes indicate weak cues to action and may lower self-efficacy. Moreover, the Theory of Planned Behaviour [26] adds that stigma around adolescent sexuality depresses subjective norms, with complex catch-up routes also hindering perceived behavioural control. Hence, taken together, these theoretical models highlight several opportunities for intervention—namely, increasing perceived susceptibility and benefits, reducing perceived barriers, strengthening cues to action, shifting subjective norms, and enhancing perceived behavioural control. These are explored in greater depth in Section 6.

3. The Central Role of Schools in Driving HPV Vaccination Success

While the shift to GNV reflects progressive policy intent, its success relies heavily on effective implementation through schools. Schools are the primary setting for administering the HPV vaccine to 12–13-year-olds, and help to improve equity, increase uptake and ensure timely protection [27]. School-based HPV programmes are generally positively viewed by parents, and support HPV decision-making for parents through increased health communication [28]. Indeed, schools increase accessibility to healthcare professionals during routine immunisation [29]. Schools are also an important point of contact for HPV-related health messaging, with teachers able to complement information received from healthcare professionals. However, a recent systematic review by Choi et al. explored schoolteachers' perspectives on adolescent HPV vaccination [30]. They identified that teachers had low-to-moderate levels of HPV knowledge, including the causes of HPV-associated diseases, effectiveness in preventing HPV-associated cancers, vaccine availability and boys' eligibility for HPV vaccination. Moreover, teachers were found to hold negative attitudes towards HPV vaccines including the belief that students were too young to be considered vulnerable to sexually transmitted infections (STIs) and expressed fear of parents' HPV vaccine disapproval (primarily due to its perceived association with sexuality). Considering the above, better education, vaccine communication training and collaboration with healthcare professionals is needed to improve teachers' HPV knowledge and confidence if they are to effectively support efforts to increase HPV vaccination within schools.

In addition to the identified training needs of schoolteachers themselves, Fisher et al. co-developed an educational package ('EDUCATE') to improve the uptake of HPV vaccinations through addressing the educational needs of young people, including from ethnically diverse and socio-economically deprived populations [31]. The 'EDUCATE' HPV school educational content, to be used by teachers and school nurses in school lessons, clarifies the purpose of HPV vaccination for both boys and girls, and importantly, reframes it as cancer prevention rather than solely STI prevention, with the interactive content and materials further helping to reinforce the preventative role of the HPV vaccine. Further work is also underway to develop educational content aimed at vaccine-hesitant ethnically diverse parents in relation to the HPV vaccination programme, and it has also been suggested that gender-neutral health messaging should be provided to increase HPV uptake in parents of boys in the UK [32,33]. Multi-component interventions for young people and parents have also shown some promise in improving HPV vaccination uptake, and innovation in this area includes the use of virtual agents and chatbots, and informational 2 min 'video pills' delivered at schools by community nurses [34–37].

Evidence on adolescents' own perspectives remains limited, with comparatively little research involving younger adolescents who are offered the vaccine in schools. Evidence on peer education is particularly scarce, though early findings suggest promise. A study in Turkey evaluated the impact of peer education on HPV knowledge among 913 high school students (equivalent to UK Years: 10–12; ages 14–17). Prior to the intervention, very few students had received information about HPV (8.8%), and only 0.3% had been vaccinated. Following peer-led sessions, mean HPV knowledge scores increased significantly, demonstrating that peer education can be an effective strategy for improving adolescents' awareness of HPV and vaccination. Importantly, given that boys are typically less aware of HPV risks and less likely than girls to perceive the vaccine as relevant, incorporating peer-led education into school-based programmes may be especially valuable in addressing this gender gap [38].

Despite the strengths of school-based delivery, several persistent challenges remain. Absenteeism on vaccination days can result in missing out on getting the vaccine, and follow-up procedures may not always be consistently applied. Schools are also responsible for managing, distributing and collecting consent forms—a process that presents administrative challenges requiring better standardisation, communication and clearer pathways [39]. While the introduction of electronic consent forms offers potential to streamline this process, it may inadvertently exclude families facing barriers related to digital access, health literacy or language proficiency. Further efforts are needed to increase parental reminders and improve accessibility of consent procedures. Additionally, ensuring that young people who are assessed as 'Gillick competent'—and therefore legally able to understand and consent to medical treatment—are supported in the vaccination process may help improve equity and uptake [40]. For boys, improving follow-up systems and catch-up opportunities is essential to avoid missed protection, especially as awareness of their eligibility remains lower than for girls. Clearer communication to parents about boys' risk of HPV-related cancers and catch-up routes available (e.g., through GP practices or community clinics) may reduce the likelihood of missed doses. Robust reminder systems targeted at families of boys could help address absenteeism and low parental prioritisation. Finally, embedding peer-led initiatives that feature male role models and messages normalising HPV vaccination as routine for boys may further strengthen uptake within school settings.

4. Healthcare Professionals as Key Enablers of HPV Vaccination Uptake

The NHS 10 Year Health Plan for England, published in July 2025, highlights the importance of integrated, collaborative approaches to healthcare delivery, aiming to improve preventative care and reduce health inequalities across communities. Recognising that adolescents may miss school-based vaccinations, it outlines targeted actions to improve access and coverage beyond schools. Central to this vision is strengthening joint working between healthcare professionals, schools, local authorities and community organisations to build public trust in vaccination, improving consent procedures in schools and ensuring vaccination programmes effectively reach all populations. By promoting co-ordinated care pathways and harnessing digital tools such as the NHS app, the plan aims to empower both healthcare providers and the public to improve vaccine access and uptake [41]. Healthcare professionals are central to the success of HPV vaccination efforts, acting not only as highly trusted sources of information and advice for parents, but also as key facilitators of vaccine delivery and engagement [42]. Research by Tsui et al. found that healthcare professionals can effectively reduce parental vaccine hesitancy by tailoring communication to parents' informational needs, combining evidence-based data with personal clinical experience, and normalising HPV vaccination as part of routine adolescent immunisations [43].

Within this collaborative framework, General Practitioners (GPs) support HPV vaccination uptake by offering catch-up vaccinations to adolescents who miss their school-based doses. For example, on 21 July 2025 NHS England announced that GP practices across England will urge hundreds of thousands of people to get the HPV vaccine, with GP practices sending out invitations via letters, emails, texts and the NHS app to patients aged 16–25 who did not get their vaccination in school [44]. As trusted healthcare providers, GPs are well-positioned to reassure hesitant parents, dispel common misconceptions about the vaccine, and emphasise its importance for both boys and girls. However, awareness among parents that HPV vaccinations can be accessed via GP practices still remains limited [15]. To support this, the NHS Vaccination Strategy outlines significant digital enhancements to the NHS App, currently being rolled out, which aim to increase transparency and ease of access. New features will allow users to view their full vaccination history—including HPV—receive real-time reminders, invitation alerts and directly book catch-up appointments. Although, not yet fully operational, these developments are expected to significantly improve vaccine accessibility and uptake in the coming years, which should help ensure boys and their parents are more aware of the availability of the HPV vaccine [45].

Beyond GPs, a range of healthcare professionals can also support HPV vaccination uptake among boys and their families. Sönmez and Bedi (2025) make a compelling case for the potential role of dentists in increasing uptake in the UK, including the possibility of authorising dentists to administer the HPV vaccine in the future [46]. However, they also highlight several concerns—such as vaccine storage, accurate record keeping and the need for appropriate training—which must be addressed before such an approach can be safely and effectively implemented. A recent narrative review identified several barriers impeding dental providers' ability to promote vaccine uptake including limited knowledge about HPV, communication challenges around sexually transmitted infections, and uncertainty whether HPV fits within their scope of practice [47]. Nevertheless, dentists, who regularly see adolescents and young adults, are well-placed to inform boys and their parents about the risks of HPV-related head and neck cancers and the protective benefits of vaccination [48]. To enhance this role, efforts are needed to improve dentists' confidence and preparedness in discussing HPV vaccination with patients [49]. The NHS 10 Year Plan for England also explicitly highlights the expanding role of community pharmacists, who from 2026 will be authorised to administer HPV vaccines to those who missed their school-based doses [41]. This initiative aimed to reduce the burden of cervical cancer through HPV immunisation of girls. Engaging this wider network of healthcare providers is especially welcome, as it supports tailored communication and improved vaccine uptake, which will ultimately contribute to the broader goal of reducing HPV-related cancers across both genders.

5. Addressing Evidence Gaps: Our Ongoing Research Collaboration

While the importance of increasing HPV vaccination uptake among boys is widely acknowledged, there remains limited UK-specific research exploring the psychosocial and demographic factors that influence parental intentions to vaccinate their sons, particularly among 9–12-year-olds, when HPV vaccination decisions are typically made.

Our on-going study, Preventing HPV-induced cancer in males: predictors of HPV vaccination intention among parents of boys aged 9–12 in England, employs a cross-sectional questionnaire design, distributed online and via schools, with parents meeting inclusion criteria of living in England and parenting at least one son aged 9–12. Predictor variables include demographic characteristics, HPV general knowledge, vaccine hesitancy, and key constructs of the Extended Health Belief Model (i.e., susceptibility, severity, benefits, barriers, cues to act, health motivation, self-efficacy). The outcome variable is parental

intention to vaccinate their son(s) against HPV. By identifying key barriers and facilitators, we aim to support the development of targeted interventions and NHS England policy strategies to promote equitable HPV vaccine uptake among boys.

6. Recommendations for Policy Makers and for Research Funders

Given the gender disparities in HPV vaccination uptake and the structural, cultural and informational barriers we outline in this commentary, multi-level strategies to promote gender inclusive, equitable vaccination are vital. Below we outline several recommendations:

Launch gender-inclusive, age-appropriate public health campaigns

- Invest in evidence-based communication strategies that use developing media platforms to engage adolescents directly, particularly boys, in age-appropriate and culturally sensitive ways.
- Prioritise campaigns that challenge public perceptions that HPV is a female vaccine by embedding HPV vaccination within broader cancer prevention and normalising vaccination as a routine adolescent health behaviour for both boys and girls.
- Monitor and adapt messaging to respond to misinformation which will help to protect public trust and vaccine confidence.

Improve school-based vaccine delivery systems

- Expand training programmes for school nurses, teachers and allied health professionals to boost confidence in HPV vaccine advocacy.
- Streamline and standardise electronic consent systems to improve efficiency, reduce administrative burden and minimise missed vaccinations.
- Ensure that parents are provided with options should their son(s) miss their HPV vaccination. All parents should be aware their children can catch up through alternative routes (e.g., local GP practices and soon community pharmacists). These options must be clearly communicated to parents to reduce the risk of missed protection.
- Pilot peer education models within schools, ensuring they complement staff-led delivery and consent processes by leveraging adolescents' influence on one another

Strengthen GP and primary care involvement

- Integrate HPV vaccination status checks into routine adolescent healthcare appointments, including during mental health and sexual health supported by automated prompts in electronic health records.
- Develop continuing professional development modules for GPs, dentists and pharmacists to overcome vaccine hesitancy.
- Beyond 2026, encourage pharmacies to actively reach out to people in communities with low vaccination rates. This could include working with schools, community centres and faith organisations to continue to raise awareness about the HPV vaccination.

Support further research into HPV vaccine decision-making, equity and intervention effectiveness

- Develop and trial novel interventions informed by behavioural science and health psychology which involve digital health tools to reduce barriers to vaccination.
- Encourage open data sharing and cross-sector collaboration to monitor vaccine uptake disparities in real-time and inform rapid policy adjustments.
- Encourage use of digital health technologies to empower parents.
- Accelerate deployment of NHS App functionalities such as vaccination tracking, personalised reminders, educational content and direct booking, whilst ensuring equitable digital access and user-friendliness.

- Use data analytics to identify geographic and demographic gaps in vaccine coverage, which will support precise public health interventions.

While digital health technologies can help to identify and respond to geographic gaps, they must be combined with non-digital strategies to avoid reinforcing regional disparities in uptake. Gender-inclusive campaigns can be tailored to local contexts, school-based programmes can prioritise catch-up provision in areas with lower baseline coverage (e.g., only 28.2% of male Year 10 students are vaccinated against HPV in Lambeth, London, and GP and pharmacy outreach may be especially important in regions where follow-up systems or workforce capacity are inconsistent [50]).

Embed behavioural theory in intervention design

In addition to the practical recommendations outlined above, it is important that future interventions are grounded in behavioural science. These recommendations directly address the barriers outlined in Section 3, ensuring interventions target the psychosocial mechanisms shaping HPV vaccine decision-making.

- The HBM highlights the need to increase perceived susceptibility and benefits (e.g., emphasising boys’ risk of HPV-related cancers), while reducing perceived barriers (e.g., concerns about promiscuity, complex consent processes). Stronger cues to action (e.g., reminders from schools, GPs, pharmacists) and enhanced self-efficacy (e.g., clear digital booking tools) can also increase uptake.
- The TPB further points to shifting attitudes through reframing HPV as cancer prevention, strengthening subjective norms via trusted community and professional endorsements, and improving perceived behavioural control through multiple, accessible vaccination pathways.

To improve accessibility, Table 1 below provides a concise summary of the key barriers to HPV vaccination uptake among boys in England alongside our proposed solutions, mapped to relevant behavioural frameworks.

Table 1. Summary of key barriers to HPV vaccination uptake among young boys in England and corresponding proposed solutions.

Barrier	Proposed Solution(s)	Relevant Framework
Historical framing of HPV as a “female vaccine”; limited awareness of boys’ eligibility.	Launch gender-inclusive, age-appropriate public health campaigns reframing HPV vaccination as cancer prevention for both girls and boys.	HBM: increase perceived benefits and health motivation; TPB: increase positive attitudes.
Parental misconceptions (e.g., boys not at risk, vaccine encourages sexual promiscuity).	Evidence-based sex-specific communication; culturally sensitive messaging.	HBM: increase perceived susceptibility, perceived severity and health motivation; decrease perceived barriers.
Teachers’ low knowledge/confidence in HPV advocacy.	Expand training for school nurses, teachers, allied health professionals.	HBM: increase cues to action.
Administrative challenges with consent; absenteeism on vaccination day.	Standardise e-consent; improve reminders; ensure awareness of catch-up opportunities via GPs/pharmacists.	HBM: increase cues to action and self-efficacy; TPB: increase perceived behavioural control.
Adolescents’ low knowledge and limited engagement.	Pilot peer education initiatives; co-produce youth-friendly digital campaigns (i.e., featuring male influencers); peer-to-peer outreach.	HBM: increase perceived benefits, cues to action and health motivation; TPB: increase attitudes and subjective norms.

Table 1. *Cont.*

Barrier	Proposed Solution(s)	Relevant Framework
Stigma/taboo around sexual transmission (esp. religious/conservative groups).	Provide culturally sensitive, community-based engagement and endorsements from trusted professionals targeting boys.	TPB: increase positive attitudes and supportive subjective norms.
Limited awareness of catch-up via GPs and pharmacies.	Strengthen GP/pharmacist role; integrate HPV checks into routine care.	HBM: increase cues to action, self-efficacy and reduce perceived barriers; TPB: increase perceived behavioural control.
Unequal regional uptake and equity gaps.	NHS App: tracking, reminders, direct booking (supports individual access); data analytics to identify/address low-uptake regions (system-level).	HBM: increase self-efficacy and cues to action (App functions); Structural/policy-level (data analytics).

Key: HPV = Human Papillomavirus; HBM = Health Belief Model; TPB = Theory of Planned Behaviour. HBM constructs include perceived susceptibility, severity, benefits, barriers, cues to act, health motivation and self-efficacy. TPB constructs include attitudes, subjective norms, and perceived behavioural control. Structural/policy-level denotes system-wide interventions.

While all of the above recommendations are important, their impact can be maximised through phased implementation. Immediate priorities should focus on gender-inclusive public health campaigns and strengthening school-based delivery systems, as these provide the foundation for equitable uptake. In the short-to-medium term, these efforts should be reinforced by enhanced training for school staff and healthcare professionals, stronger GP and primary care involvement, and the roll-out of digital health tools such as NHS App functionalities. Longer-term, more innovative strategies—such as peer education, pharmacy-led outreach in low-uptake communities, and behavioural science-informed intervention research—should be piloted and scaled once national campaigns have normalised HPV vaccination for both genders and school-based delivery systems are reliably achieving high baseline coverage.

7. Conclusions

England’s adoption of gender-neutral HPV vaccination represents significant progress toward equitable cancer prevention. However, the consistently lower uptake among boys highlights the need for more inclusive strategies that go beyond policy change alone. Persistent gendered perceptions of HPV as a ‘women’s health issue’ continue to influence parental attitudes and hamper uptake, particularly when accurate information and reassurance are lacking. Schools and healthcare professionals are essential for building trust and delivering vaccines, but both need sustained investment, training, and clearer support pathways. To reduce the future cancer burden and meet the World Health Organization’s elimination targets, efforts must centre on improving communication, access, and consent processes that are tailored to the specific needs of all young people, ensuring inclusivity across different genders and communities. Crucially, this also demands a deeper understanding of the psychosocial factors shaping HPV vaccine decisions. Future research, including our forthcoming study, will provide essential insights to inform evidence-based interventions that close the gender gap and increase long-term vaccine equity.

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