



National Immunisation Advisory
Committee
An Coiste Comhairleach Náisiúnta
um Imdhíonadh



**Health
Information
and Quality
Authority**

An tÚdarás Um Fhaisnéis
agus Cáilíocht Sláinte

Updated HPV vaccination recommendations for individuals aged 25-45 years attending women's health services, sexual health services or HIV services

Advice provided to the Minister for Health

Issued: 29 June 2026

About the National Immunisation Advisory Committee

The National Immunisation Advisory Committee (NIAC) is Ireland's National Immunisation Technical Advisory Group (NITAG). NIAC provides independent evidence-based recommendations and advice to the Minister for Health on immunisation and related health matters to inform health policy in Ireland.

First established in 1998, NIAC has been hosted by HIQA as a statutory function under Section 8(1)(g) of the Health Act 2007 (as amended) since 31 March 2025.

NIAC membership is voluntary, and includes nominees from the Royal College of Physicians in Ireland, its Faculties and Institutes, the Royal College of Surgeons in Ireland, the Irish College of GPs, the Nursing and Midwifery Board of Ireland, the Infectious Diseases Society of Ireland, the Travel Medicine Society, the National Virus Reference Laboratory, the HSE's National Health Protection Office (NHPO) as well as members with expertise in gerontology and inclusion health, and lay members. Meetings are attended by representatives from the Department of Health and the Health Service Executive (HSE) including the HSE's National Immunisation Office (NIO). Representatives of the Health Products Regulatory Authority (HPRA) attend to provide regulatory advice in relation to vaccines. Representatives of the HSE's Health Protection Surveillance Centre (HPSC) attend to provide and support the interpretation of epidemiological data.

The NIAC Secretariat team, situated within the Health Technology Assessment (HTA) Directorate in HIQA, provides clinical, evidence synthesis, and administrative support to NIAC.

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RECOMMENDATIONS

In line with NIAC's HPV9 vaccination recommendation for gay, bisexual and other men who have sex with men (gbMSM) aged ≤ 45 years, NIAC recommends HPV9 vaccination for individuals aged 25-45 years attending women's health services, sexual health services or HIV services whose populations are also deemed to be at increased risk of HPV. Assessment of risk should consider previous HPV exposure, future risk of HPV exposure, and access to cervical screening services. Examples of populations deemed to be at increased risk include some transgender individuals, some people living with HIV and people in the sex industry.

Throughout this document, the term 'people or women in the sex industry' is used to refer to people selling or exchanging sex for money or for other reasons (such as for accommodation, drugs and other commodities), including those who are experiencing exploitation in the sex industry.

Recommendations may be updated when more information becomes available.

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List of abbreviations used in this report

AHTT	Anti-Human Trafficking Team
ATAGI	Australian Technical Advisory Group on Immunisation
CIN	cervical intraepithelial neoplasia
cis	cisgender
EMT	executive management team
DSE	Dublin and South-East
gbMSM	gay, bisexual and other men who have sex with men
GUM	genitourinary medicine
HIQA	Health Information and Quality Authority
HIV	human immunodeficiency virus
HPV	human papillomavirus
hrHPV	high-risk HPV
HSE	Health Service Executive
JCVI	Joint Committee on Vaccination and Immunisation
MSM	men who have sex with men
NACI	National Advisory Committee on Immunization
NITAG	National Immunisation Technical Advisory Group
NSS	National Screening Service
PPSN	Personal Public Service Number
PrEP	pre-exposure prophylaxis
STI	sexually transmitted infection
UKHSA	UK Health Security Agency
VLP	virus-like particles
WG	working group
WHO	World Health Organization
WHS	Women's Health Service

Vaccine abbreviations used in this report

HPV4 vaccine	quadrivalent human papillomavirus vaccine
HPV9 vaccine	nonavalent human papillomavirus vaccine

Terminology

Throughout this document, the term 'people or women in the sex industry' is used to refer to people selling or exchanging sex for money or for other reasons (such as for accommodation, drugs and other commodities), including those who are experiencing exploitation in the sex industry.

Executive Summary

Background

- Worldwide, cervical cancer is one of the most common cancers and causes of cancer-related death in women. Each year, in Ireland, about 250 women are diagnosed with cervical cancer and about 80 women die as a result. Ireland has committed to eliminating cervical cancer (meaning fewer than four cases per 100,000 women) as a public health problem by 2040. Cervical cancer is caused by persistent infection with human papillomavirus (HPV). Cervical cancer can be eliminated because it is largely preventable through HPV vaccination, cervical screening, and treatment. Ireland's Cervical Cancer Elimination Plan was published in 2023 when the incidence of cervical cancer in Ireland was 10.1 per 100,000 women.⁽¹⁾
- NIAC first issued recommendations in relation to HPV vaccination in 2009, which were published in Chapter 10 (Human Papillomavirus) of the Immunisation Guidelines for Ireland. HPV vaccination was recommended for all 12- to 13-year old females to reduce their risk of developing cervical cancer as adults. Following this, the publicly funded HPV vaccination programme in Ireland based on the quadrivalent (HPV4) vaccine was introduced for females in the first year of second level school in September 2010. A publicly funded gender-neutral second level school nonavalent (HPV9) vaccination programme was introduced in September 2019. Since September 2019, NIAC has recommended HPV9 vaccination for gay, bisexual and other men who have sex with men (gbMSM) aged up to and including 45 years.⁽²⁾ HPV vaccination of this cohort is publicly funded. Since April 2022, NIAC has recommended HPV catch-up vaccination for unvaccinated females and males under the age of 25 years, with priority given to second level students and females under the age of 25 years.⁽²⁾ Catch-up programmes, which provide HPV vaccine to people who may not have had the opportunity to take it up when they were first offered it, have been run. NIAC also

recommends HPV9 vaccination for specific cohorts of immunocompromised persons and those with Fanconi anaemia over 12 months of age.

- The HSE's Women's Health Service (WHS) was established in 1991 to address the specific needs of women in the sex industry in Ireland, initially providing sexual health and outreach support services from Baggot Street Hospital. The WHS provides accessible health services which are free and confidential for cisgender (cis) women and transgender women in the sex industry. Although based in Dublin, the WHS is a national service. The Anti-Human Trafficking Team (AHTT) was established in 2010 as part of the National Referral Mechanism for protection of victims of human trafficking. Screening to identify victims of human trafficking is conducted by the WHS. The WHS and the AHTT are under the governance of the HSE Dublin and South-East (DSE) health region. While their executive management team (EMT) decided to fund HPV vaccination of cis women in the sex industry up to and including the age of 45 years who attend their services from 2025 to 2027, funding was only secured for 2025. In May 2025, NIAC received a request from the WHS and the AHTT to consider recommending HPV vaccination of this cohort attending their services.

Epidemiology

- HPV prevalence in women aged 25-65 years who attended CervicalCheck from 1 April 2020 to 31 March 2023 was 11.2% (range 10.5-12.3%). HPV prevalence in women aged 25-45 years was 13.7% (range 12.8-14.6%). HPV prevalence in women aged 25-34 years was 20.2% (range 19.4-21.4%) while in women aged 35-44 years it was 8.5% (range 8.2-8.9%).
- Internationally, the reported pooled HPV prevalence in women in the sex industry ranged between 39.5% and 47.8%. Two international studies compared risk in women in the sex industry with risk in women in the general population in terms of prevalence of high-risk HPV (hrHPV) (OR 2.8; 95% CI: 2.3-3.4), incidence of hrHPV (RR 4.72; 95% CI: 2.45-9.09) and persistence of hrHPV (RR 1.93; 95% CI: 1.08-3.46).

Safety, immunogenicity and effectiveness

- The safety, immunogenicity and effectiveness of HPV vaccines are well established and are outlined by NIAC in Chapter 10 of the Immunisation Guidelines for Ireland.⁽²⁾

Values and Preferences, Acceptability, Resource Use and Feasibility

- There are anecdotal reports of high HPV vaccination willingness among those attending the WHS.
- HPV vaccines are already available free of charge to transgender women up to and including the age of 45 years attending the WHS and the AHTT.
- HPV vaccines are available free of charge to eligible individuals through the public sexually transmitted infection (STI), pre-exposure prophylaxis (PrEP) and HIV clinic network, but not within primary care, student health or private STI clinics and PrEP services.
- The WHS secured temporary funding for HPV vaccination in 2025 of cis women in the sex industry who were not otherwise eligible for vaccination.

Equity

- NIAC currently recommends HPV vaccination for gay, bisexual and other men who have sex with men (gbMSM) and transgender women aged ≤ 45 years irrespective of whether they are pre-exposed to HPV.⁽²⁾ The vaccine is funded in this population. There is currently no recommendation and thus no permanently funded programme for HPV vaccination of cis women in the sex industry aged greater than 25 years, who are also at high risk of HPV.
- In September 2016, the Immunisation Guidelines for Ireland stated that HPV4 and HPV9 vaccines should be considered for MSM. However, since September 2019, NIAC has recommended HPV9 vaccine for MSM aged ≤ 45 years.⁽²⁾ The lack of a mechanism for anal cancer screening was an important consideration in strengthening this recommendation.
- Women in the sex industry may have barriers to accessing cervical screening in Ireland. While ordinarily a Personal Public Service Number (PPSN) is required to join the CervicalCheck register, women attending the WHS can access cervical screening without a PPSN.

International recommendations

- The UK Health Security Agency (UKHSA) and Australian Technical Advisory Group on Immunisation (ATAGI) specifically recommend and fund HPV vaccination of gbMSM. HPV vaccination recommendations in Australia, New Zealand and Canada apply a broad risk-based assessment to groups other than gbMSM.

- In the UK, the Joint Committee on Vaccination and Immunisation (JCVI) recommends that HPV vaccination is offered to other individuals who have a similar risk profile to that of the 16-40 year old gbMSM population who attend genitourinary medicine (GUM) clinics.

NIAC considerations

- HPV vaccines are safe and well tolerated.
- HPV prevalence reported internationally is higher in women in the sex industry than in the general population.
- An evidence base on the incidence of cervical intraepithelial neoplasia (CIN), cervical cancer and anal cancer is lacking for cis women in the sex industry, and this is likely to remain the case.
- A cervical screening programme (CervicalCheck) is available in Ireland but women in the sex industry may have difficulty accessing this service. Data on the uptake of cervical screening in this cohort in Ireland are lacking.
- HPV vaccination is well established in clinical settings similar to the WHS such as in the HSE's STI, PrEP and HIV services.
- HPV vaccine is already available free of charge to gbMSM in such clinical settings.
- There was concern about the potential to further increase health inequity if an updated NIAC recommendation referred specifically to cis women in the sex industry rather than applying a broader risk-based assessment.

1 Introduction

Globally, cervical cancer is the fourth commonest cancer in women, with around 660,000 new cases and around 350,000 deaths in 2022.⁽³⁾ The highest rates of cervical cancer incidence and mortality are in low and middle-income countries. Cervical cancer is the ninth commonest cancer in women in Ireland. Each year, about 250 women are diagnosed with cervical cancer and 80 women die because of cervical cancer.⁽⁴⁾

Over 90% of cervical cancer is caused by HPV, which most people encounter when they become sexually active. More than 200 different HPV types have been identified. Most types infect the cutaneous epithelium and can cause common skin warts. About 40 types infect the mucosal epithelium, which is the epithelium of the anogenital tract and oropharyngeal tract. The International Agency for Research on Cancer classifies 12 HPV types as oncogenic or hrHPV (types 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, and 59), one type as probably hrHPV (68) and 12 types as possibly hrHPV.⁽⁵⁾ The HPV 16 type has the highest risk of progression to cancer. HPV 6 and HPV 11, which are not classified as oncogenic, cause almost all cases of anogenital warts and recurrent respiratory papillomatosis.⁽⁶⁾ While HPV infections usually resolve spontaneously, persistent infections with hrHPV types can progress to premalignant intraepithelial lesions (cervical intraepithelial neoplasia (CIN)), which in time can progress to cervical cancer.

HPV vaccination plays a major role in eliminating cervical cancer because the HPV vaccine is effective against the hrHPV types that cause cervical cancer. HPV infection also increases the risk of other cancers such as vulval, vaginal, penile, anal and head and neck cancer. HPV vaccination reduces the risk of cervical, vulval, vaginal and anal cancer caused by vaccine HPV types. The HPV vaccine is most effective when it is given during the pre-adolescent years, before people are in contact with HPV. The HPV9 vaccine protects against HPV types 6, 11, 16, 18, 31, 33, 45, 52 and 58.

In line with the World Health Organization's (WHO) global initiative, Ireland committed to eliminating cervical cancer (meaning fewer than 4 cases per 100,000 women) as a public health problem by 2040. In 2023, when Ireland's Cervical Cancer Elimination Plan was published, the incidence of cervical cancer in Ireland was 10.1 per 100,000 women.⁽¹⁾ Cervical cancer can be eliminated because it is largely preventable through HPV vaccination, cervical screening, and

treatment. Ireland plans to eliminate cervical cancer through strong community involvement, pilot projects for underserved groups, and the national CervicalCheck screening programme. CervicalCheck is Ireland's national screening programme for the prevention of cervical cancer. It offers free screening to eligible women and anyone with a cervix aged 25 to 65 years using HPV testing as the primary screening method. The National Sexual Health Strategy, 2025 – 2035, a strategic framework for the sexual health and wellbeing of the Irish population, was launched in June 2025.⁽⁷⁾ Inclusion is key to this strategy with a goal to improve access for key groups, including people in the sex industry and those new to Ireland, all of whom may benefit from targeted information and supports on sexual health. The National Sexual Health Strategy acknowledges that there is inequity of access to free HPV vaccines.⁽⁷⁾ These are available free of charge through the public sexually transmitted infection (STI), pre-exposure prophylaxis (PrEP) and HIV clinic network, but not within primary care, student health or private STI clinics and PrEP services. Some groups, such as people new to Ireland and people in the sex industry, may not have benefitted from childhood or school vaccination programmes and remain unprotected. The Programme for Government 2025 – Securing Ireland's Future, supports further increasing HPV vaccination coverage.⁽⁸⁾

NIAC first issued recommendations in relation to HPV vaccination in 2009, which were published in Chapter 10 (Human Papillomavirus) of the Immunisation Guidelines for Ireland. HPV vaccination was recommended for all 12- to 13-year old females to reduce their risk of developing cervical cancer as adults. Following this, the publicly funded HPV vaccination programme in Ireland based on the quadrivalent HPV (HPV4) vaccine was introduced for females in the first year of second level school in September 2010. A catch-up programme for sixth year females (aged 17-19 years) was conducted from 2011 to 2014; this would generally have included those born between 1992 and 1996. A publicly funded gender-neutral second level school nonavalent HPV (HPV9) vaccination programme was introduced in September 2019. Since September 2019, NIAC has recommended HPV9 vaccination for gay, bisexual and other men who have sex with men (gbMSM) aged up to and including 45 years.⁽²⁾ HPV vaccination of this cohort is publicly funded. Since April 2022, NIAC has recommended HPV catch-up vaccination for unvaccinated females and males under the age of 25 years, with a recommendation that second level students and females under the age of 25 years should be prioritised.⁽²⁾ Ideally, the vaccine should be administered before potential exposure to HPV through sexual contact. Those

who are sexually active should be advised that the vaccine has not been shown to have a therapeutic effect on existing HPV infection or cervical lesions. Catch-up programmes, providing HPV vaccine to people who may not have had the opportunity to take it up when first offered, have also been run. The Programme for Government 2025 – Securing Ireland's Future, states that this Government will extend the Laura Brennan HPV Catch-up programme to anyone under 25 who missed it.⁽⁸⁾ NIAC also recommends HPV9 vaccination for specific cohorts of immunocompromised persons and those with Fanconi anaemia aged over 12 months.⁽²⁾ The number of HPV vaccine doses recommended by NIAC differs somewhat from those specified in the SmPC. NIAC recommends a single dose of HPV vaccine for those aged 9-24 years, two doses for those aged 25 years and older and three doses for immunocompromised persons regardless of age.⁽²⁾ Chapter 10 (Human Papillomavirus) was most recently updated in June 2023.

The HSE's Women's Health Service (WHS) was established in 1991 to address the specific needs of women in the sex industry in Ireland, initially providing sexual health and outreach support services from Baggot Street Hospital. The WHS services have expanded significantly since then, offering a comprehensive range of free and confidential services for cisgender (cis) and transgender women in the sex industry, covering sexual health, psychology, and social care support.⁽⁷⁾ Although based in Dublin, the WHS is a national service. The WHS opened a GP clinic in 2023 to address the gap in access to general healthcare for this cohort. Most do not have access to a regular GP service, and there are language barriers, cost barriers, as well as mobility challenges (women in the sex industry move or are moved to different locations often on weekly basis in response to buyer demand). The Anti-Human Trafficking Team (AHTT) was established in 2010 as part of the National Referral Mechanism for protection of victims of human trafficking. Screening to identify victims of human trafficking is conducted by the WHS. The Gay Men's Health Service, which is co-located with the WHS, and other STI clinics work with men and others who may identify as transgender or non-binary in the sex industry.⁽⁷⁾

In May 2025, NIAC received a request from the WHS and the AHTT to consider recommending HPV vaccination of cis women in the sex industry up to 45 years of age who attend their services. While their executive management team (EMT) had decided to fund this vaccination programme from 2025 to 2027, funding was only secured for 2025.

2 Methods

Targeted online searches were used to identify relevant recommendations issued by selected international NITAGs. Countries were selected for inclusion on the basis of having established NITAGs that meet all six WHO criteria, combined with other factors such as geographical proximity to Ireland, similarity of healthcare systems and or immunisation programmes to Ireland, and availability of relevant recommendations and or supporting documents in the English language.

Recommendations for NITAGs in countries including Australia, Canada, New Zealand and the UK were reviewed in addition to their supporting evidence and literature. WHO recommendations were also searched for.

Additional relevant literature was identified through forward and backward citation from key papers identified in international recommendation documents and the briefing document. PubMed searches for literature describing the epidemiology of HPV and HPV-related disease such as CIN, cervical cancer and anal cancer in the target population were conducted. Systematic reviews rather than cross sectional studies were included, when available.

Information on uptake of cervical screening in the target population was sought from the WHS. Data on the prevalence of HPV in age-specific cohorts were requested from CervicalCheck via the National Screening Service (NSS).

NIAC's HPV working group (WG) met on 5 November 2025 to discuss the WHS's request and to define the research questions to assist in addressing this request. The evidence summary was presented to the WG on 21 January 2026, and the WG's considerations and recommendation were documented. The evidence summary and WG considerations were subsequently presented to NIAC at a full committee meeting on 26 January 2026. NIAC considered the information presented and developed its recommendations in line with its Terms of Reference and Standard Operating Procedures.⁽⁹⁾

3 Evidence to Recommendation Framework

3.1 Domain 1: Problem

HPV prevalence in CervicalCheck cohort

HPV prevalence in women aged 25-65 years who attended CervicalCheck from 1 April 2020 to 31 March 2023 was 11.2% (range 10.5-12.3%) (Table 1).^(10, 11)

HPV prevalence in women aged 25-45 years over the same time period was 13.7% (range 12.8-14.6%) (Table 2). When further disaggregated by 10-year age band, HPV prevalence was noted to be higher in women aged 25-34 years at 20.2% (range 19.4-21.4%) compared with those aged 35-44 years, at 8.5% (range 8.2-8.9%) (Table 3). Prevalence data by HPV type are not currently available from the NSS.

Table 1. HPV prevalence in women attending CervicalCheck aged 25-65 years, 2020 to 2023

Time period (years)	Women (n)	HPV positive (n)	HPV positive (%)
1/4/2020-31/3/2021	190,900	23,514	12.3
1/4/2021-31/3/2022	286,414	30,095	10.5
1/4/2022-31/3/2023	232,943	25,736	11.0
Overall	710,347	79,345	11.2

Source: CervicalCheck 2020-2022 Report⁽¹⁰⁾ and CervicalCheck 2022-2023 report.⁽¹¹⁾

Table 2. HPV prevalence in women attending CervicalCheck aged 25-45 years, 2020 to 2023

Time period (years)	Women (n)	HPV positive (n)	HPV positive (%)
1/4/2020-31/3/2021	135,222	19,714	14.6
1/4/2021-31/3/2022	190,051	24,254	12.8
1/4/2022-31/3/2023	146,660	20,733	14.2
Overall	471,933	64,701	13.7

Source: NSS.

Table 3. Age-specific HPV prevalence in women attending CervicalCheck aged 25-45 years, 2020 to 2023

Time period (years)	HPV positive (%)	
	25-34* years	35-44 years*
1/4/2020-31/3/2021	21.4	8.9
1/4/2021-31/3/2022	19.4	8.2
1/4/2022-31/3/2023	20.2	8.6
Overall	20.2	8.5

*HPV vaccination of females aged 12-13 years was introduced in Ireland in 2010; a catch-up programme was provided for females aged 17-19 years from 2011 to 2014.

Source: NSS.

HPV prevalence in cis women in the sex industry in Ireland

No data are available on the prevalence of HPV in cis women in the sex industry in Ireland.

HPV prevalence in cis women in the sex industry internationally

Three systematic reviews, which included meta-analysis⁽¹²⁻¹⁴⁾ and one literature review,⁽¹⁵⁾ on the prevalence of HPV in women in the sex industry were identified. The prevalence reported varied by age and HPV type (Table 4). Two of the reviews estimated a pooled prevalence. In a review which included 62 studies conducted in 33 countries the pooled HPV prevalence was 42.6% (95% CI: 38.5-46.7).⁽¹²⁾ In a second review which included 107 studies conducted in 45 countries, the reported pooled global HPV prevalence was 39.5% (95% CI: 35.3-43.9).⁽¹³⁾ The reported European HPV prevalence was 40.3% (95% CI: 29.7-51.4).⁽¹³⁾

Table 4. International HPV prevalence in women in the sex industry

Author	Study type	Study details	HPV prevalence
Farahmand et al, 2020⁽¹²⁾	Systematic review and meta-analysis Database inception to Sept 2019	62 studies in 33 countries n=21,402 Age not reported	Pooled HPV prevalence: 42.6% (95% CI: 38.5-46.7) HPV 16: 10.1% (95% CI: 8.2-12.5) HPV 52: 7.9% (95% CI: 5.9-10.7) HPV 53: 6.0% (95% CI: 4.4-8.1)
Wu et al, 2021⁽¹³⁾	Systematic review and meta-analysis Jan 1990 to June 2019	107 studies in 45 countries or regions n=35,561 Mean/median age range: 21-45 years 27 studies in Europe n=9,455	Pooled global prevalence: 39.5% (95% CI: 35.3-43.9) <u>Region-specific prevalence</u> Europe: 40.3% (95% CI: 29.7-51.4) Western Pacific: 44.3% (95% CI: 36.4-52.2) South East Asia: 31.6% (95% CI: 22.9-40.9) <u>Age-specific prevalence</u> <25 years: 46.8% (95% CI: 37.4-56.3) 25-34 years: 35.5% (95% CI: 26.4-45.1) 35-44 years: 29.6% (95% CI: 16.6-44.5) ≥45 years: 51.2% (95% CI: 45.5-56.9) <u>HPV type-specific prevalence</u> HPV 16: 9.0% HPV 52: 8.3% HPV 53: 5.3% HPV 58: 6.2%

Peng et al, 2012⁽¹⁴⁾	Systematic review and meta-analysis Jan 1993 to Oct 2010	14 studies (6 East Asia, 6 SE Asia) n=4,198 from 9 Asian countries 2 studies compared HPV prevalence between women in the sex industry and women in general population East Asia: 47.8% (95% CI: 33.7-62.3) S-E Asia: 43.5% (95% CI: 26.4-62.4%) South Asia: 42.1% (95% CI: 13.1-77.9%)	Nearly a 10-fold higher prevalence HPV infection compared with controls (women in general population) Distribution of most common genotypes the same in both groups <25 years: 59.3% (95% CI: 43.0-73.8) 25-29 years: 53.7% (95% CI: 32.9-73.2) ≥30 years: 22.9% (95% CI: 11.0-41.5) <table><tr><td>East Asia</td><td>S-E Asia</td></tr><tr><td>HPV 16: 23.9%</td><td>8.5%</td></tr><tr><td>HPV 18: 11.0%</td><td>5.0%</td></tr><tr><td>HPV 58: 9.4%</td><td>5.2%</td></tr><tr><td>HPV 56: 6.3%</td><td>4.9%</td></tr><tr><td>HPV 52: 5.3%</td><td>12.9%</td></tr></table>	East Asia	S-E Asia	HPV 16: 23.9%	8.5%	HPV 18: 11.0%	5.0%	HPV 58: 9.4%	5.2%	HPV 56: 6.3%	4.9%	HPV 52: 5.3%	12.9%
East Asia	S-E Asia														
HPV 16: 23.9%	8.5%														
HPV 18: 11.0%	5.0%														
HPV 58: 9.4%	5.2%														
HPV 56: 6.3%	4.9%														
HPV 52: 5.3%	12.9%														
Soohoo et al, 2013⁽¹⁵⁾	Literature review Nov 1989 to Nov 2012	35 studies (10 in Europe) 10 cross sectional studies n=9,690 15-62 years (mean weighted age 26.9 years)	HPV 16: 38.9% HPV 18: 23.1% HPV 52: 32.7% HPV 58: 26.0%												

Key: HPV – human papillomavirus.

Two studies conducted in Europe compared HPV prevalence in women in the sex industry with that in the general population. One, a nested case control study to determine the prevalence of 12 hrHPV types in women in the sex industry matched 1:1 for age (mean 29.1 years; range 17-70 years) and testing date with women in the general population, was conducted in Antwerp from June 2006 to June 2010.⁽¹⁶⁾ The reported prevalence in the two cohorts was 41.7% and 19.8%, respectively, with an overall odds ratio (OR) of 2.8 (95% CI: 2.3-3.4) relative to women in the general population. The most notable difference was observed in the cohort under 21 years of age with a prevalence of 64.4% versus

14.8% in the control group; OR 10.3 (95% CI: 5.0-21.2). HPV 16 prevalence in women in the sex industry was almost double that of the control group (12.1% versus 6.6%) while HPV 18 prevalence was double that of the control group (5.0% versus 2.5%). The second was a retrospective cohort study conducted in Alicante, Spain from May 2003 to December 2006 to determine and compare the incidence rate and persistence rate of 13 hrHPV types in women in the sex industry with that of women in the general population.⁽¹⁷⁾ Women testing negative for hrHPV at study entry were evaluated for the analysis of hrHPV incidence while those with an established hrHPV infection at study entry were evaluated for the analysis of hrHPV persistence. A total of 736 women (592 women in the sex industry and 144 controls) were followed for a median of 16.8 months. The risk of new-onset hrHPV was almost five-fold higher in women in the sex industry compared with women in the general population (RR 4.72; 95% CI: 2.45-9.09). Persistence of hrHPV was almost twice as high in women in the sex industry compared with women in the general population (RR 1.93; 95% CI: 1.08-3.46).

HPV prevalence in gbMSM

A cross-sectional study conducted from October 2010 to July 2012 of 522 gbMSM aged 18-40 years attending a London sexual health clinic to determine the prevalence of 21 HPV types (including 12 hrHPV types) reported a prevalence of any of the 21 HPV types of 72.2% (95% CI: 68.1-76.1).⁽¹⁸⁾ The prevalence of any of the HPV4 vaccine types was 32.5% (95% CI: 28.6-36.7) and the prevalence of any of the HPV9 vaccine types was 45.4% (95% CI: 41.0-49.8). The prevalence of HPV 16 and HPV 18 was 13.5% (95% CI: 10.7-16.8) and 6.3% (95% CI: 4.3-8.7), respectively. The prevalence of HPV 16 and/or HPV 18 was 18.4% (95% CI: 15.1-22.0).

No data are available to determine the incidence of CIN, a histological diagnosis, in cis women in the sex industry in Ireland. Two cross-sectional studies which reported CIN in cis women in the sex industry in other countries were identified.^(19, 20) The HPV prevalence in a study conducted in Mumbai which included 488 participants aged 18-50 years was 35.5%.⁽¹⁹⁾ CIN 1 (CIN grade 1), CIN 2 (CIN grade 2) and CIN 3 (CIN grade 3) were diagnosed in four (0.9%), five (1.1%) and one woman (0.2%), respectively. The hrHPV prevalence in a self-sampling study conducted in 206 women without HIV and 194 women with HIV in Kenya was 29.6% and 44.0%, respectively.⁽²⁰⁾ High-grade CIN (CIN 2/3)

was detected in 19.0% and 9.7% of these women, respectively. However, the methods used in these studies and the results are not generalisable to the Irish context.

No data are available to determine the incidence of cervical cancer in cis women in the sex industry in Ireland or internationally.

No data are available to determine the incidence of anal cancer in cis women in the sex industry in Ireland or internationally.

Working Group and Committee Considerations

These data demonstrate that the HPV prevalence in women in the sex industry as reported internationally is higher than the HPV prevalence in the general population in Ireland as reported by CervicalCheck and the NSS.

An evidence base on the incidence of CIN, cervical cancer and anal cancer is lacking for cis women in the sex industry. The WG noted that the existing evidence gaps as they relate to cis women in the sex industry are unlikely to be addressed in the near future and highlighted that there is often inequity in availability of data to inform vaccine recommendations in vulnerable groups.

3.2 Domain 2: Benefits and harms of the intervention

HPV vaccines are non-live vaccines containing virus-like particles (VLPs) prepared from surface proteins from constituent HPV types. VLPs are not infectious as they lack virus DNA. However, they closely resemble the virus and antibodies against the VLPs also have activity against the virus. The VLPs are strongly immunogenic.

All currently marketed HPV vaccines are prophylactic; research into therapeutic HPV vaccines is ongoing. Prophylactic HPV vaccines were developed to prevent HPV infection and ultimately the development of cervical cancer. The three types (bivalent, quadrivalent and nonavalent) of HPV vaccines available to date are highly effective at preventing infection with the HPV types covered by the vaccines. In recent years, vaccine registration has been expanded to provide protection against non-cervical HPV-associated disease (including other anogenital cancers) and to males as well as females.⁽²¹⁾ HPV9 vaccine protects against the nine HPV types (types 6, 11, 16, 18, 31, 33, 45, 52, and 58) and has

the potential to prevent 90% of invasive cervical cancer cases⁽²²⁾ and to prevent 85-95% of HPV-related vulvar, vaginal and anal cancers.⁽²³⁾

Generally, the best time for HPV vaccination to achieve maximum protection is before HPV exposure, since these prophylactic vaccines may not be effective against an existing HPV infection.⁽²⁴⁾ Therefore, HPV vaccination is most effective when administered before sexual exposure commences. Although younger adolescents (aged 9-14 years) produce higher levels of antibodies after vaccination, older adolescents (aged 15-18 years) and adults also have a robust immune response that produces antibody levels much higher than natural infection that likely confers substantial protection.⁽²⁵⁾

Although a person in the sex industry may have been previously infected or exposed to HPV, they may not have been exposed to all the hrHPV types covered by the HPV9 vaccine. Prior infection with one vaccine type does not diminish vaccine efficacy against other types. Vaccination can provide protection against HPV vaccine types not previously acquired.

A 14-year long-term follow-up study of the immunogenicity and effectiveness of three doses of HPV4 vaccine in women aged 16-23 years from Denmark, Iceland, Norway and Sweden reported no waning of immunity up to 14 years post-vaccination.⁽²⁶⁾

HPV vaccination induces mucosal immunity via the production of neutralising antibodies on the surface of the female genital tract, thus preventing potential transmission of HPV vaccine-related types.⁽²⁴⁾ This in turn could reduce onward transmission from clients in the community, providing benefit for the male and female population at large.

The use of HPV vaccine does not eliminate the need for cervical cancer screening as 10% of cervical cancers are caused by HPV types not included in the vaccines. Therefore, it is important to encourage women in the sex industry to attend for cervical screening regardless of vaccination status. However, women in the sex industry may have difficulty accessing cervical screening.

3.2.1 Safety

Since the first HPV vaccine was licensed in 2006, evidence from post-marketing monitoring confirms that HPV vaccines are safe and well tolerated.^(27, 28) The

safety profile of HPV vaccine in women aged 26 years and older, including those with a history of HPV infection or disease, has also been established.⁽²⁹⁾

3.2.2 Efficacy and Effectiveness

The efficacy of HPV vaccine in women aged 26 years and older, including those with a history of HPV infection or disease, has been established.⁽²⁹⁾

A 14-year long-term follow-up study of the immunogenicity and effectiveness of three doses of HPV4 vaccine in women aged 16-23 years from Denmark, Iceland, Norway, and Sweden reported vaccine effectiveness of 100% against HPV 16/18 related CIN2 or worse (95% CI: 94.7-100.0) for 12 years after the first vaccine dose. A continuing trend of effectiveness was observed through 14 years.⁽²⁶⁾

Working Group and Committee Considerations

Women in the sex industry are likely at higher risk of ongoing exposure to HPV than the general population and may still benefit from vaccination even if previously HPV exposed. The safety profile and efficacy of the vaccine are good in women >26 years of age and in previously HPV-exposed women.

3.3 Domain 3, 4, 5 and 7: Values and preferences of the target population, acceptability to stakeholders, resource use and feasibility

There were anecdotal reports of high HPV vaccination willingness among service users attending the WHS. Two thirds of women who attended for HPV vaccination during the funded pilot programme in 2025 did so following peer referral.

The WHS and AHTT secured funding to administer HPV9 vaccine to cis women in the sex industry in 2025. The WHS has noted that it is willing to facilitate the delivery of and provide clinical governance of an ongoing opportunistic HPV vaccination programme if the vaccine is funded. The WHS is under the governance of HSE Dublin and South-East health region.

As highlighted in Section 1, the WHS was established to address the specific needs of women in the sex industry, with the service subsequently opening a GP clinic to address the gap in access to healthcare for this cohort. A study of women who attended the WHS between 2015 and 2018 reported significant barriers to arranging follow-up appointments with the WHS due to changes in

mobile phone numbers and loss of mobile phones.⁽³⁰⁾ However, despite these barriers, care through the WHS may be more accessible for these women than through routine primary care services. Only 12 out of 265 (8.3%) women in the study were registered with a GP and three women (2.1%) had a Medical Card. Importantly, while ordinarily a Personal Public Service Number (PPSN) is required to join the CervicalCheck register, women attending the WHS can access cervical screening without a PPSN. Offering HPV vaccination free of charge to cis women in the sex industry at the WHS would provide an opportunity to link them into healthcare which they may have not been able to access previously.

Working Group and Committee Considerations

The WG and the Committee discussed the feasibility of the recommendation. HPV vaccination is well established in similar clinical settings such as STI, PrEP and HIV services. HPV vaccine is already available free of charge to gbMSM in such clinical settings. The WG considered whether HPV self-sampling might be available as a method of cervical screening for cis women in the sex industry. CervicalCheck planned to conduct a HPV self-sampling feasibility in primary care settings in the first half of 2026 to determine how self-sampling can offer an additional screening option for women who have never attended or are not attending for routine screening. This may increase the access women in the sex industry have to cervical screening in the future.

3.4 Domain 6: Equity

HPV vaccines are already available free of charge to transgender women attending the WHS and the AHTT, unlike cis women. They are also available free of charge to eligible populations through the public STI, PrEP and HIV clinic network, but not within primary care, student health or private STI clinics and PrEP services.⁽⁷⁾ The Programme for Government 2025 – Securing Ireland's Future, supports further increasing HPV vaccination coverage and the elimination of cervical cancer.⁽⁸⁾

Table 5. New and return visits and attendance at the WHS from 2023 to 2025

	2023	2024	2025
New individuals* (n)	92	141	212
Total individuals*	161	238	332
Total attendances	326	515	777

*Individuals = cis women and transgender women

Source: Women's Health Service.

The number of attendances at the WHS increased from 326 in 2023 to 777 in 2025 (Table 5). New individuals expressed as a percentage of the total number attending increased from 57.1% (92/161) in 2023 to 63.9% (212/332) in 2025.

The majority of cis women in the sex industry in Ireland are from countries without an adolescent or young adult HPV vaccination programme. The WHS provided data on the country of origin of the 141 women who attended the WHS for the first time in 2024 (Table 6). Over 50% of women were from Brazil while 3.5% were from Ireland. Thirty women were from 24 other countries.

Table 6. Country of origin of women attending 141 women who attended the WHS for the first time in 2024

Country	Women (n)
Brazil	72 (51.1%)
Nigeria	21 (14.9%)
Romania	8 (5.7%)
Ireland	5 (3.5%)
Columbia	5 (3.5%)
24 other countries	30 (21.3%)
Total (n)	141 (100.0%)

Source: Women's Health Service.

Women in the sex industry are at risk of ongoing exposure to HPV. This marginalised group of women are likely to be never screened or under-screened (defined by the UKHSA as an individual who is overdue for their routine cervical screening appointment by at least six months or who has never attended) for HPV, testing for which is the primary screening method for the prevention of cervical cancer.

The WHS provided limited data on the number of cervical screening tests performed between May and October 2025 (Table 7).

Table 7. Cervical screening in the WHS, May to October 2025

	May	June	July	August	Sept	Oct	Total
Attendances (n)	48	52	49	58	67	59	333
Cervical screening (n)	3	2	5	4	7	9	30

Source: Women's Health Service.

The results of these HPV screening tests were not provided to NIAC. Lack of capacity is an issue for the WHS in that women who attend cannot have a cervical screening test at their first appointment. This requirement to attend a second appointment is yet another barrier to cervical screening for these women.

It is important to encourage women in the sex industry to attend for cervical screening CervicalCheck regardless of their HPV vaccination status.

Working Group and Committee Considerations

The WG and Committee were concerned about the potential to increase health inequity if an updated NIAC recommendation only refers specifically to cis women in the sex industry rather than applying a broader risk-based assessment. NIAC favoured a recommendation based on a risk assessment rather than specific language targeting only cis women in the sex industry, to avoid introducing additional inequity. The Committee preferred a clear recommendation, in line with the current NIAC recommendation for gbMSM.

4 International positions

The WHO position paper on HPV vaccines published in December 2022 does not refer specifically to women in the sex industry or to gbMSM.⁽³⁾

The UKHSA and ATAGI specifically recommend and fund HPV vaccination of gbMSM (Table 8). The National Advisory Committee on Immunization (NACI) does not specifically refer to gbMSM in HPV recommendations. Te Whatu Ora (Health New Zealand) recommends HPV vaccination of MSM but do not fund it. HPV vaccination recommendations in Australia, New Zealand and Canada apply a broad risk-based assessment to groups other than gbMSM. In the UK, the JCVI recommends that HPV vaccine is offered to other individuals who have a similar risk profile to that of the 16-40 year old gbMSM population who attend GUM clinics.

Table 8. International recommendations

Country	Recommendations
UK (JCVI)⁽³¹⁾	May be considerable benefit in offering the HPV vaccine to other individuals who have a similar risk profile to that seen in the 16-40 year old GUM attending MSM population, including some MSM over 45, sex workers, HIV positive women, and HIV positive men.
UK (UKHSA)⁽³²⁾	Women in inclusion health groups such as sex workers, substance misusers, individuals with multiple sexual partners and those who experience homelessness are less likely to attend cervical screening and are therefore at higher risk of presenting to the health system with symptomatic cervical cancer. They may also be at higher risk of being exposed to HPV infection, which is the main risk factor for developing cervical cancer.
Australia (ATAGI)⁽³³⁾	Adults aged ≥ 26 years are not routinely recommended to receive HPV vaccine. However, some adults may benefit from HPV vaccination. When deciding whether to vaccinate adults, consider: ▪ likelihood of previous exposure to HPV ▪ future risks of HPV exposure and HPV disease. All MSM, including those aged ≥ 26 years, are recommended to receive HPV vaccination.
Canada (NACI)⁽³⁴⁾	HPV9 vaccine is recommended for all individuals 9 to 26 years of age. Individuals ≥ 27 years of age who are at ongoing risk of exposure to HPV may receive 9vHPV vaccine with shared decision making and discussion with a healthcare provider. Do not refer to gbMSM specifically.
Te Whatu Ora (Health New Zealand)⁽³⁵⁾	Recommended but not funded: ▪ for individuals aged ≥ 27 years ▪ the decision to vaccinate older age groups should follow an assessment of the potential benefits of vaccination based on their likely previous HPV exposure and future risks. HPV9 is approved for use in females and males aged 9-45 years.

Working Group and Committee Considerations

In keeping with their considerations about equity, the WG and Committee wanted to ensure that the recommendation included a broad risk-based assessment in keeping with international recommendations.

5 Conclusion

Informed by the review of the above evidence and the input of the HPV WG and according to NIAC's Evidence to Recommendation framework,⁽³⁶⁾ NIAC agreed revised recommendations for HPV vaccination. In line with NIAC's HPV9 vaccination recommendation for gbMSM aged ≤45 years, NIAC recommends HPV9 vaccination for individuals aged 25-45 years attending women's health services, sexual health services or HIV services whose populations are also deemed to be at increased risk of HPV. Assessment of risk should consider previous HPV exposure, future risk of HPV exposure, and access to cervical screening services. Examples of populations deemed to be at increased risk include some transgender individuals, some people living with HIV and people in the sex industry.

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Declarations of Interest

These recommendations have been developed by NIAC ([list of Committee members](#)), with support provided by the HPV Working Group ([list of members](#)) and the NIAC Secretariat ([list of members](#)). Declarations of Interest were reviewed by the NIAC Chair and by the Director of HTA as per NIAC's Terms of Reference and Standard Operating Procedures.

Dr De Gascun received remuneration from MSD in 2025 for participating in an advisory board on the subject of respiratory syncytial virus and clesrovimab in Ireland.

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