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WITH HER: HEAL, EMPOWER, RESPECT- EVERY STEP OF THE WAY

Theme:
HPV matters: Know-Prevent-Protect

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From the President's Desk

Dear Colleagues, Esteemed Members, and Distinguished Guests,

It is both an honor and a responsibility to address our members through this volume, as we focus on cervical cancer, a cause of profound public health importance. Despite significant advances in medical science, it continues to claim many lives, particularly in low- and middle-income countries including India. This paradox of preventability alongside persistence demands our collective attention. At the heart of cervical cancer prevention lies a powerful triad: awareness, vaccination, and screening.

Awareness remains the cornerstone, as women still lack access to accurate information about risk factors, early symptoms, and the importance of routine check-ups. It become our utmost duty as professionals and advocates, to bridge this knowledge gaps such that women feel empowered to prioritize their health. The advent of HPV vaccination has been a transformative milestone, protecting against the primary causative virus and hence vaccination offers an unprecedented opportunity to dramatically reduce disease incidence. Our role extends beyond clinical practice—we must advocate for widespread immunization, dispel myths, and ensure equitable access across all sections of society. The initiative to vaccinate adolescent girls by the Government of India is a major milestone, but adult vaccination is also necessary to bring forth this new arena into mind of our readers. Regular and effective screening programs remain indispensable, early detection through HPV testing can identify precancerous changes long before they progress to invasive disease.

Prevention is a societal mission wherein we need to push it to action through cohesive efforts of multiple stake holder including healthcare providers, policy makers, educators, community leaders and many more. So let us all work together to mitigate the hazard of this preventable cancer and become crusaders for women's health. As we move forward, let us also embrace innovation by leveraging digital health, community outreach models, and research to strengthen our strategies. The goal of eliminating cervical cancer as a public health problem is no longer merely aspirational; it is achievable within our lifetime if we act decisively, cohesively, and inclusively. Let's be champions in eliminating cervical cancer

Thank you.

Dr Neena Malhotra
Association of Obstetricians & Gynecologists of Delhi (AOGD)

From the Secretarial Desk

Dr K Aparna Sharma
Honorary Secretary

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Dear AOGD Members,

Overwhelming warmth and encouragement received after our inaugural bulletin have further strengthened our collective commitment toward clinical excellence, standardization, and evidence-based advancements in women's health. Continuing with our theme, "With HER: Heal, Empower, Respect- Every Step of the Way," we are pleased to present the second issue of AOGD Bulletin for June 2026 titled "HPV Matters: Know-Prevent-Protect".

This issue focuses on one of the most significant yet preventable challenges in gynaecologic oncology and preventive women's health. By exploring evolving screening paradigms, policy integration, and single-dose vaccination strategies, this issue aims to serve as a practical and evidence-based clinical resource supporting the global mission of cervical cancer elimination.

To provide a robust, practice-oriented perspective on this public health priority, this bulletin curates a series of highly specialized articles designed to guide clinicians in their practice. An in-depth review of current screening guidelines, validated high-risk HPV assays, and FDA-approved diagnostic platforms has been presented. It importantly highlights Point-of-Care (POC) HPV testing and maps the operational integration of these technologies into Single Visit Approach (SVA) frameworks. It also explores evolving self-sampling modalities, including vaginal, urine, and menstrual blood-based sampling, highlighting their potential to improve accessibility and expand screening coverage beyond conventional clinical settings. The FAQ section has been specially curated to address common questions and misconceptions related to HPV infection, vaccination, and cervical cancer screening, helping clinicians counsel patients and the general public with greater confidence and clarity.

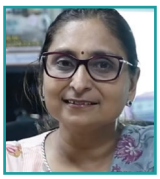
I extend my sincere appreciation to our editorial team for their thoughtful conceptualization and meticulous efforts in curating this issue, and to all our distinguished contributing authors for sharing their expertise and valuable insights for this issue. It is through such collaborative academic endeavors that we continue to strengthen evidence-based clinical practice and improve women's healthcare outcomes.

I look forward to your continued engagement, valuable feedback, and active participation in all upcoming AOGD academic initiatives as we move ahead together, serving HER with the highest standards of care.

AOGD Secretariat

From the Editor's Desk


Dr Reeta Mahey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Dear AOGD Members,

It is with great enthusiasm that we present the June 2026 issue of the AOGD Bulletin, centered around the theme "HPV Matters: Know–Prevent–Protect." In the realm of women's health, few topics present as significant an opportunity for proactive intervention as HPV-related diseases. Cervical cancer remains a formidable public health challenge, yet it stands as one of the rare cancers for which science has illuminated a clear path toward elimination. With the power of effective vaccination, sensitive HPV-based screening, appropriate triage, and timely treatment, our vision of preventing cervical cancer transforms from an aspiration into a tangible reality.

This issue has been thoughtfully crafted with this vision in mind. We aim to transcend mere awareness and inspire collective action in our clinics, during our consultations, in our screening practices, and in our outreach to communities. As gynaecologists, we hold a unique position to translate evolving evidence into meaningful protection for women and girls at every stage of life. The shift from traditional screening methods to HPV-based strategies represents a pivotal advancement in the fight against cervical cancer. This issue is particularly relevant as it incorporates the new WHO guidelines, highlighting innovative approaches such as self-sampling, point-of-care testing, improved triage methods, and streamlined vaccination schedules. These developments redefine our understanding of access, equity, and implementation, reminding us that prevention must extend to every woman, regardless of her circumstances.

Equally crucial is our responsibility to combat fear, misinformation, and hesitancy surrounding HPV vaccination and screening. Each consultation offers a valuable opportunity to educate, reassure, and empower. When women grasp the significance of prevention, they become active partners in safeguarding their health and that of future generations.

I would like to extend my heartfelt gratitude to our guest editor, Jyoti Meena, for her invaluable contributions to this issue. May this bulletin inspire each of us to renew our commitment to cervical cancer elimination and to fortify HPV prevention as a vital component of routine women's healthcare. We hope this issue serves as both a clinical guide and a call to action.

Let us continue to unite With HER — to Heal, Empower, and Respect, every step of the way.

Warm regards,

The Editorial Team

Cervical Cancer Screening: Evolving Paradigms and Emerging Strategies

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INTRODUCTION

Cervical cancer remains one of the most preventable malignancies because of its prolonged precancerous phase and the availability of effective screening tools. Persistent infection with high-risk human papillomavirus (hrHPV), especially HPV-16 and HPV-18, is now recognized as the necessary causal factor for the development of cervical cancer. This etiological understanding has transformed screening strategies from cytology-based approaches to molecular HPV-based testing. Contemporary screening paradigms increasingly emphasize risk stratification, molecular diagnostics, self-sampling, and personalized management algorithms. The global shift toward HPV-based screening has been driven by evidence demonstrating superior sensitivity, longer negative predictive value, and improved cancer prevention compared with cytology and visual inspection methods.

EVOLUTION OF CERVICAL CANCER SCREENING PARADIGMS

Cervical cancer screening has undergone a major paradigm shift over the past several decades. Initial screening strategies were primarily morphology-based, centered around cytology (Pap smear), which substantially reduced cervical cancer incidence in high-resource settings. The discovery of persistent high-risk human papillomavirus (hrHPV) infection as the necessary etiological factor for cervical carcinogenesis transformed the field from cytologic detection of cellular abnormalities to molecular identification of viral oncogenesis. This transition led to the development of HPV-primary screening, which offers superior sensitivity and longer-term reassurance compared with cytology. More recently, screening paradigms have evolved toward risk-based management incorporating prior screening history, HPV genotyping, reflex triage testing, dual-stain biomarkers, methylation assays, and self-sampling strategies. These advances are driving the emergence of precision-based cervical cancer prevention aimed at individualized risk stratification, optimized resource utilization, and improved global screening coverage.

CURRENT GUIDELINES ON CERVICAL CANCER SCREENING

WHO Recommendations: The World Health Organization (WHO) recommends primary HPV DNA testing as the preferred screening modality for cervical cancer prevention. Screening should begin at 30 years of age in the general population and at 25 years in women living with HIV. Screening intervals are recommended every 5–10 years after a negative HPV test.

American Cancer Society (ACS): ACS guidelines recommend primary HPV testing every 5 years from age 25–65 years. If primary HPV testing is unavailable, the cytology alone is to be done every 3 years.

USPSTF Recommendations: USPSTF advises for age 21–29 years, cytology every 3 years and for age 30–65 years primary HPV testing every 5 years, or co-testing every 5 years, or cytology every 3 years.

ASCCP Risk-Based Management: The 2019 ASCCP guidelines introduced a risk-based approach rather than result-based management. Management decisions are based on immediate and 5-year risks of CIN3+ lesions.

Table 1: Concise Summary of Current Guidelines

Organization	Preferred Screening Strategy	Age Group	Interval
WHO	Primary HPV testing	≥30 years	5–10 years
ACS	Primary HPV testing	25–65 years	Every 5 years
USPSTF	HPV alone/co-testing/cytology	30–65 years	5 years
ASCCP	Risk-based management	All abnormal results	Risk de-pendent

Available Screening Modalities

1. **Cytology-Based Screening (Pap Smear or liquid-based cytology)**

   Conventional and liquid-based cytology detect morphologic abnormalities in cervical epithelial cells.

Advantages

- Widely available
- High specificity
- Long historical experience

Limitations

- Moderate sensitivity
- Subjective interpretation
- Need for repeated testing
- Laboratory infrastructure dependence

2. **HPV DNA Testing**

HPV testing identifies hrHPV genotypes associated with cervical carcinogenesis.

Advantages

- Highest sensitivity for CIN2+/CIN3+
- Excellent negative predictive value
- Longer screening intervals
- Objective molecular assessment
- Compatible with self-sampling

Limitations

- Lower specificity in younger women
- Transient HPV infections may lead to over-referral

3. **Co-testing**

This is combination of cytology and HPV testing.

Advantages

- Increased sensitivity compared with cytology alone

Limitations

- Higher cost
- Increased colposcopy referrals
- Minimal additional benefit over primary HPV testing

4. **Visual Inspection with Acetic Acid (VIA)**

VIA involves direct visualization of acetowhite lesions after acetic acid application.

Advantages

- Low-cost
- Immediate results
- Useful in low-resource settings

Limitations

- Operator-dependent
- Low reproducibility
- Lower sensitivity and specificity

Superiority of HPV Testing Over Cytology: Multiple randomized controlled trials and population studies have demonstrated that primary HPV testing provides superior protection against invasive cervical cancer. HPV testing detects underlying viral carcinogenesis before morphologic abnormalities develop. WHO now endorses HPV DNA testing as the preferred primary screening method because it is more effective and less prone to human error than cytology.

Table 2: Various validated Primary HPV Screening tests

HPV DNA signal amplification	PCR Based	mRNA based E6/7
Hybrid capture 2 Cervista careHPV	Cobas Abbott real time Pretect HPV Xpert HPV	Aptima HPV assay

Table 3: Key Advantages of HPV over Cytology

Parameter	HPV Testing	Cytology
Sensitivity for CIN3+	Higher	Moderate
Negative Predictive Value	Excellent	Lower
Screening Interval	5–10 years	3 years
Reproducibility	High	Variable
Automation Potential	High	Limited

SUPERIORITY OF HPV TESTING OVER CO-TESTING

Although co-testing improves sensitivity compared with cytology alone, evidence suggests minimal incremental benefit over HPV testing alone.

Primary HPV testing:

- Detects most CIN3+ lesions independently
- Reduces unnecessary procedures
- Simplifies screening algorithms
- Improves cost-effectiveness

Superiority of HPV Testing over VIA: VIA remains important in low-resource settings where molecular testing is inaccessible. Compared with VIA, HPV testing demonstrates:

- Higher sensitivity
- Greater reproducibility
- Better scalability
- Reduced observer bias

HPV TESTING AS THE STANDARD OF CARE

The transition toward HPV-based screening represents a paradigm shift in cervical cancer prevention. WHO, ACS, and several national organizations now recognize primary HPV testing as the preferred screening strategy. The reasons for adoption of HPV testing over other tests are:

1. **Biological Relevance:** HPV infection is the initiating event in cervical carcinogenesis.
2. **Improved Sensitivity:** HPV testing detects high-grade lesions earlier than cytology.

3. **Longer Reassurance:** A negative HPV test provides prolonged protection against cervical cancer.
4. **Self-Sampling Compatibility:** Self-collected HPV samples may improve participation rates in underserved populations.
5. **Integration with Vaccination Era:** As HPV vaccination reduces cytologic abnormalities, molecular screening becomes increasingly important.

EMERGING STRATEGIES: DUAL-STAIN MARKERS AND METHYLATION TESTING

Dual-Stain Cytology (p16/Ki-67)

Dual staining identifies simultaneous expression of:

- p16INK4a (tumor suppressor pathway disruption)
- Ki-67 (cell proliferation)

This biomarker combination improves specificity in HPV-positive women.

Clinical Utility

- Triage of HPV-positive women
- Reduction in unnecessary colposcopy
- Improved detection of CIN2+/CIN3+

Advantages

- Objective interpretation
- Better predictive accuracy than cytology alone

DNA METHYLATION TESTING

Epigenetic alterations are emerging as powerful biomarkers for cervical neoplasia.

Common Targets

- CADM1
- MAL
- FAM19A4
- miR124-2

Applications

- Triage of HPV-positive women
- Detection of transforming infections
- Identification of women at greatest cancer risk

Advantages

- Molecular objectivity
- Potential automation
- Improved specificity

Methylation assays may eventually reduce reliance on cytology-based triage strategies.

ASCCP RISK-BASED MANAGEMENT ALGORITHMS

The ASCCP 2019 guidelines emphasize "equal management for equal risk."

Core Principles

- Management based on immediate CIN3+ risk
- Incorporation of prior screening history
- Dynamic risk assessment

Table 4: Simplified ASCCP Algorithm

Test results	Proposed Action
HPV Negative	Routine screening
HPV Positive with NILM Cytology	Repeat HPV testing in 1 year
HPV16/18 Positive	Immediate colposcopy
ASC-US/LSIL with HPV Positive	Colposcopy if risk threshold exceeded
HSIL Cytology	Expedited treatment or colposcopy

Table 5: Risk Thresholds in ASCCP Guidelines

Immediate CIN3+ Risk	Recommended Action
<0.15%	Routine screening
0.15–4%	Repeat testing
≥4%	Colposcopy
≥25%	Expedited treatment acceptable
≥60%	Expedited treatment preferred

REFLEX TESTING

This pertains to collection of an additional test after abnormal primary screening test results, it is a triage based cervical cancer screening approach, wherein, women who test positive for hrHPV are referred for colposcopic evaluation, whereas those with negative results may return to routine screening schedules. Reflex testing improves diagnostic accuracy, reduces unnecessary colposcopies, and provides an efficient method for the management of equivocal cytological abnormalities.

TREATMENT APPROACHES

Screen-and-Treat approach: The treatment is provided based on a positive primary screening test (hrHPV) alone, without triage (that is no second screening test and no histopathological diagnosis). When the patient is eligible for ablative treatment, this should ideally be done immediately, at the same visit as the screening test as a single-visit approach. At some facilities, this is not feasible and a second visit is needed (multiple-visit approach). Women who are not eligible for ablation can have excisional treatment on the same day if the clinic has the capacity for large-loop excision of the transformation zone (LLETZ). If

LLETZ is not available on-site, women need to be referred for the excisional treatment or for further evaluation.

Screen, Triage and Treat Approach: The triage test is done if the primary screening test is positive, and the decision to treat is made when both the primary test and the triage test are positive. A positive triage test leads to implementation of colposcopy with biopsy and histopathological examination for diagnosis to determine the appropriate treatment. Herein, the decision to treat is based on a positive primary screening test followed by a positive second test (a "triage" test), with or without histologically confirmed diagnosis.

FUTURE DIRECTIONS IN CERVICAL CANCER SCREENING

Self-Sampling: Self-collected HPV testing may increase participation among underserved populations and improve global screening coverage.

Artificial Intelligence: Artificial intelligence (AI) and machine learning (ML)-based visual inspection methods are emerging advancements in cervical cancer screening that use digital cervical images to automatically detect precancerous and cancerous lesions. Automated visual evaluation (AVE) systems analyse features such as acetowhite changes and abnormal vascular patterns using deep learning algorithms. These technologies improve diagnostic accuracy, reduce observer variability, and support rapid "screen-and-treat" approaches, particularly in low-resource settings. AI-assisted visual screening is increasingly being integrated with HPV-based screening programs to optimize triage and reduce unnecessary referrals.

Molecular Triage: Integration of HPV genotyping, methylation markers, and dual-stain biomarkers may permit highly individualized screening pathways.

Risk-Based Personalized Screening: Future programs may incorporate:

- Vaccination status
- Genomic biomarkers
- Previous screening history
- Behavioral risk factors

CONCLUSION

Cervical cancer screening has evolved dramatically from cytology-based approaches to molecular HPV-centered paradigms. HPV testing has emerged as the preferred primary screening strategy because of superior sensitivity, reproducibility, and longer-term reassurance. The incorporation of dual-stain biomarkers, methylation assays, self-sampling, and risk-based algorithms promises to further refine cervical cancer prevention strategies. The future of cervical cancer screening lies in precision prevention—integrating molecular diagnostics, individualized risk assessment, and equitable access to screening technologies to achieve the WHO goal of cervical cancer elimination.

SUGGESTED READING

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Primary HPV Screening: Tests, Triage and Single Visit Approach

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INTRODUCTION

Persistent infection with high-risk human papillomavirus (hrHPV) is a necessary cause of nearly 95% of cervical cancers. There is now ample evidence that HPV testing is the preferred cervical cancer screening modality and is superior to cervical cytology (Pap smear) and visual inspection with acetic acid (VIA) in detecting cervical precancerous and cancerous lesions.

The International Agency for Research on Cancer (IARC) has classified HPV types according to their carcinogenic potential. Carcinogenic HPV types (Group 1) HPV 16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58 and 59. Probably carcinogenic HPV types (Group 2a) includes HPV 68, whereas possibly carcinogenic HPV types (Group 2b) includes HPV 26, 30, 34, 53, 66, 67, 69, 70, 73, 82, 85 and 97. HPV 6, 11, 42, 43 and 44 are classified as not classifiable (Group 3), or probably not carcinogenic (Group 4).

The 2024 IARC systematic review of 111,902 HPV-positive cervical cancer cases and 2,755,734 normal cytology cases estimated HPV type-attributable fractions (AFs) for India and China at 19% and 23%, respectively. The combined AF for HPV 16/18was higher in India (84.9%) than in China (75.6%). The eight most oncogenic genotypes (16,18,31,33,35,45,52,58) showed the highest predictive value for cervical cancer, supporting WHO recommendations for validated 8-type HPV screening assays, particularly in LMICs aiming to achieve cervical cancer elimination targets. The nonavalent HPV vaccine provides strong protection against vaccine-covered genotypes, with limited cross-protection against some non-vaccine types such as HPV 35.

CURRENT RECOMMENDATIONS ON HPV TESTING

The WHO 2021 guidelines for screening and treatment of cervical pre-cancer recommend HPV-based high-performance screening tests from the age of 30 years in the general population every 5-10 years and added the equivalent accuracy of self-collected samples to clinician-collected samples for HPV testing. The 2024 update additionally suggested mRNA based testing as the an alternative screening modality at 5-year intervals.

As of 2023, WHO-prequalified HPV assays include: careHPV test (suitable for low-resource settings), Abbott RealTime High Risk HPV, Alinity m HR HPV, Xpert HPV, Cobas HPV Assay, Aptima HPV assay and Aptima HPV 16/18/45 genotype assay.

In May 2026, WHO released updated guidance supporting HPV DNA genotyping within screening programmes. The guideline supports both limited and extended genotyping approaches integrated with appropriate triage strategies, particularly in LMICs where optimizing colposcopy referrals and programme sustainability are critical. The recommendations further reinforce the emerging importance of risk-based management, implementation of validated assays, and incorporation of genotype-informed screening algorithms into cervical cancer elimination programmes.

INTERNATIONAL VALIDATION OF SCREENING ASSAYS

The internationally accepted framework for validating HPV assays for primary cervical cancer screening was established by Meijer et al. in 2009. It laid down the principles candidate assays should demonstrate non-inferior sensitivity and specificity for CIN2+ compared with clinically validated comparator tests such as Hybrid Capture 2 (HC2) or GP5+/6+ PCR assays.

Subsequently, the VALGENT framework standardized comparative validation procedures for newer assays. WHO target product profile (TPP) criteria further recommend that HPV assays should demonstrate high relative sensitivity for CIN2+/CIN3+ lesions while maintaining acceptable specificity.

Emerging 8-type HPV assays focus on detecting the most oncogenic genotypes (16,18,31,33,35,45,52,58), which account for majority of HPV-positive cervical cancers and may improve cost-efficiency and programme sustainability in LMICs.

HPV assays

HPV assays are broadly classified according to the molecular target (DNA or mRNA) and detection technology.

1. **Signal Amplification Assays (DNA-based)**

   Hybrid capture 2 (HC2) Assay:

   Hybrid Capture 2 (HC2) was the first widely validated HPV assay and remains the historical comparator in most validation studies,including the Meijer criteria (2009), with a sensitivity and specificity to detect CIN 2+ lesions of 89-98% and 88%, respectively. It targets

13 hrHPV types (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, and 68) using RNA-DNA hybridization and chemiluminescent signal amplification but does not provide genotype-specific results.

Other DNA-based assays are Cervista and careHPV, both target 14 hrHPV types (including l HPV 66 in addition to the 13 types detected by HC2). Cervista utilizes isothermal signal amplification with fluorescent probes cleavage and incorporates an internal control (ACTA2 gene), reducing false negative results due to inadequate cellularity. The careHPV test is a WHO prequalified, cost-effective alternative to HC2, designed for low-resource settings, capable of processing 90 samples in approximately 2.5hours.

2. Target Amplification Assays (PCR-based, DNA)

Cobas 4800 HPV assay

It uses multiplex real-time PCR targeting the L1 region with four fluorescent detection channels: HPV 16, HPV 18, pooled detection of 12 other hrHPV types, and a beta-globin internal control for sample adequacy. Reported sensitivity for CIN2+ lesions ranges from 86-95% with a low specificity of 24%. The assay is widely used for primary cervical cancer screening.

Other PCR-based assays include Xpert HPV and Abbott RealTime High Risk HPV, which target E6/E7 regions of 14 HR HPV types.

3. mRNA-Based Assays (E6/E7 Oncogene Expression)

Aptima

It is a target amplification nucleic acid probe test for the in vitro qualitative detection of E6/E7 viral mRNA from 14 high-risk HPV (16, 18, 31, 33, 35, 39, 45, 51, 52, 56, 58, 59, 66, and 68) but does not provide individual genotyping.. Its sensitivity is similar to that of HC2 (~91.7% versus 91.3% for CIN2+), whereas the specificity is higher (75.0% versus 61.0%) as the mRNA detects transcriptionally active infection rather than latent viral DNA. Other mRNA- based assays, such as PreTect HPV-Proofer and NucliSENS Easy Q HPV are based on nucleic acid sequence based amplification of E6/E7 mRNA, with narrower genotype coverage including HPV 16, 18, 31, 33 and 45.

4. Research PCR method:

GP5+/6+ PCR EIA is a consensus primer PCR assay targeting the L1 region and was one of the reference comparator assays included in the Meijer 2009 validation criteria, although it is not commercially available.

INNO-LiPA HPV Genotyping Extra II detects 28 types including low-risk types genotypes, and is primarily used for genotyping research.

Linear Array is research-use genotyping assay to detect 37 HPV types but is not intended for routine clinical screening.

FDA APPROVED PLATFORMS

In US, HPV tests are classified as Class III in vitro diagnostic (IVD) devices regulated by the FDA's Center for Devices and Radiological Health (CDRH), and require Premarket Approval (PMA). FDA-approved HPV screening assays include HC2, Cervista, Cobas, Aptima, BD Onclarity, and Alinity m HR HPV. Most assays detect the 13 HPV genotypes classified by IARC as Group 1 or 2A carcinogens, while some additionally include HPV 66 (Group 2B)

HC2 was the first FDA-approved assay (2003) for ASC-US triage and co-testing in women ≥30years.. Cervista, approved in 2009, which showed lower cross-reactivity with other HPV types, and Cervista HPV 16/18 was approved for genotyping HPV-positive samples. Cobas HPV, approved in 2011, enabled separate HPV16/18 detection and later became the first FDA-approved assay for primary HPV screening in women ≥25 years in 2014. Aptima remains the only FDA-approved mRNA-based HPV assay. BD Onclarity and Alinity m HR HPV were subsequently approved for primary screening and extended genotyping.

POINT-OF-CARE HPV ASSAYS

Point-of-care (POC) HPV testing refers to assays that can be performed close to the patient at a community clinic, primary health centers, or outreach settings without requiring specimen transport to centralized reference laboratories. These platforms are broadly classified into true POC systems (cartridge-based real-time PCR with results in less than two hours), near-POC batch systems, and oncoprotein lateral flow detection assays. For LMICs such as India,, POC technology represents a critical operational bridge between reference laboratory performance and decentralized health delivery.

Xpert HPV (Cepheid / GeneXpert Platform)

It is a fully automated cartridge-based real-time PCR assay providing results within approximately 60 minutes without batching requirements. It individually detects HPV16, reports HPV18/45 together, and pools 11 other hrHPV types (31, 33, 35, 39, 51, 52, 56, 58, 59, 66, 68) with an internal control for sample adequacy. Xpert HPV demonstrates high sensitivity (90.8%) for CIN2+, comparable to Cobas and superior to HC2. In India, widespread availability of GeneXpert platforms used for TB and HIV programmes enables integration of HPV screening without major additional infrastructure. Comparable performance on self-collected and clinician-collected samples also supports decentralized screening strategieswithout requiring trained healthcare for sample collection.

Truenat HPV-HR (MolBio Diagnostics, India)

Truenat HPV-HR is India's only domestically made near-POC HPV device, using a portable, battery-powered micro-PCR platform. The original test detects HPV 16, 18, 31, and 45, while the 2025 i-HPV Plus version validated through multiple studies expands coverage to eight hrHPV: 16, 18, 31, 33, 35, 45, 52, and 58. In an Indian study of 615 cervical samples, it showed 97.7% sensitivity and 98.9% specificity compared withHC2 for the original four genotypes. Its battery operation, indigenous manufacturing, and estimated cost of INR 500–1,500 per test make it well suited for National Health Mission implementation.

careHPV (Qiagen) and OncoE6 (Arbor Vita Corporation)

The careHPV assay uses hybridization capture technology in a batch format of up to 90 samples within approximately 2.5-hour run and is WHO prequalified for low-resource settings. A meta-analysis reported pooled CIN3+ sensitivity of 90.3% and specificity of 85.3% for clinician-collected samples, although sensitivity was lower (75.2%) with self-collected samples.

The OncoE6 test, a lateral-flow immunoassay detecting HPV 16/18 E6 oncoprotein Although its pooled sensitivity for CIN2+ is relatively low (31–42%), it demonstrates exceptionally high specificity (99.1–99.4%) and PPV for CIN3+ of 40.8%, compared with less than 10% for conventional HPV DNA assays. Therefore it is better suited as a triage test following a sensitive primary screen rather than as a standalone screening tool (17)these tests usually require an extensive laboratory set-up and trained technical staff. Moreover, the high cost of the currently available and approved HPV tests precludes their use in the cervical cancer screening programmes in resource-limited settings. Hence, there is a felt need for a low-cost point-of-care (POC. Downham et al. first evaluated an eight-type E6/E7 OncoE6 assay covering HPV 16, 18, 31, 33, 35, 45, 52, and 58 in sub-Saharan Africa, demonstrating high acceptability across HIV-positive and HIV-negative populations.

TRIAGING HPV POSITIVES

Primary HPV testing has high sensitivity but relatively lower specificity, making triage essential to identify HPV-positive women at highest risk of CIN3+.(19) HPV positivity rates in India range from 4.7–6.1% in the general population to over 20% among women living with HIV (WLHIV), making universal colposcopy referral impractical in resource-constrained settings.(20,21) Therefore, effective triage is essential to identify the subset of HPV-positive women at the highest near-term risk of CIN3+.

WHO recommends four principal triage pathways: (i) HPV 16/18 genotyping with reflex VIA for non-16/18-positive women; (ii) direct colposcopy following a positive HPV result; (iii) cytology triage; and (iv) screen-and-treat without secondary triage in the most resource-constrained settings (5). Among these, HPV 16/18 genotyping remains the most clinically significant strategy, as HPV 16–positive women may have an immediate CIN3+ risk of nearly 20–25%, far exceeding the 4% colposcopy referral threshold recommended in the 2019 and 2024 ASCCP guidelines.

The p16/Ki-67 dual-stain assay identifies transforming HPV infection by demonstrating co-expression of p16 and Ki-67 within the same cell. Dual-stain positive women are referred for colposcopy, while negative women can safely undergo repeat HPV testing after 12 months.(23) However, because the assay requires liquid-based cytology and immunocytochemistry facilities, VIA remains the most practical triage tool in many Indian settings despite moderate sensitivity and considerable inter-observer variability, while also enabling same-day screen-and-treat strategies.

INTEGRATION WITH SINGLE VISIT APPROACH (SVA)

SVA integrates screening and treatment within a single clinical encounter. In screen-and-treat approach, HPV-positive (or VIA-positive) women undergo ablative procedure without prior histological confirmation whereas colposcopy is performed at the same visit in the see-and-treat variant, and excisional procedure follows immediately for acetowhite lesions, yielding simultaneous treatment and tissue diagnosis.

Denny et al conducted a study implementing HPV based screen and treat strategy among 3062 women (including 41% WLHIV) using POC Xpert HPV. Same day results demonstrated HPV positivity rates of 41.5% among WLHIV and 17.4% in HIV-negative women. Among the eligible participants, 94.6% underwent same-day thermal ablation. One-year follow-up reported the HPV clearance in 65.2% of treated HIV-negative women and 39.0% of treated WLHIV, confirming the operational feasibility of POC-HPV-driven SVA in a high-burden LMIC context.

Key implementation challenges in India include maintaining patient retention during the approximately 60-minute GeneXpert processing time and its dependence on electricity (partially mitigated by battery-operated platforms such as Truenat); absence of colposcopy at the primary care level (circumvented by screen-and-treat); and risk of overtreatment with VIA-based triage, where many HPV-positive/VIA-positive women do not have CIN2/3 on histology. (24) For WLHIV, a screen-triage-treat strategy is preferred over direct screen-and-treat, given higher HPV prevalence, accelerated disease progression, and desirability of colposcopic triage where infrastructure permits.

KEY POINTS:

1. HPV DNA testing is the preferred primary screening modality for cervical cancer, outperforming cytology

and VIA in detecting CIN2+. WHO recommends initiation at 30 years of age with a 5–10 year screening interval for HPV DNA and 5years for HPV mRNA tests, and self-collected samples now considered equivalent to clinician-collected specimens for HPV testing.

2. Not all HPV-positive women require colposcopy. Since only 10–20% of women harbour CIN2+, risk-stratified triage using HPV 16/18 genotyping, VIA, cytology, or p16/Ki-67 dual-stain is essential to avoid overwhelming limited colposcopy capacity.
3. HPV 16/18 genotyping is the most clinically potent triage strategy, directly warranting colposcopy referral given a CIN3+ risk of 20–25%.
4. POC platforms enable decentralized screening without sacrificing accuracy. Xpert HPV utilises existing GeneXpert TB infrastructure, whereas indigenously manufactured Truenat HPV-HR is battery-operated, suited to low-resource settings with unreliable electricity.
5. SVA is operationally essential in India, integrating screening and same-day treatment into a single encounter to minimize loss to follow-up.
6. WLHIV require a screen-triage-treat pathway rather than direct screen-and-treat, given higher HPV prevalence, faster disease progression, and the preferability of colposcopic confirmation where feasible.
7. Emerging next-generation 8-type HPV assays aligned with WHO target product profiles may further improve specificity and programme sustainability across LMICs.

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Role of Partial and Extended Genotyping for HPV-Based Cervical Screening

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INTRODUCTION

HPV DNA testing is now recommended as the primary screening test for the general population of women because it has higher sensitivity than cytology or visual inspection after acetic acid application (VIA) for detecting cervical precancer. Moreover, a negative HPV test gives the highest assurance of protection against cancer. However, HPV positivity alone does not necessarily indicate high immediate risk. Many HPV infections are transient, especially those not caused by the highest-risk genotypes. Therefore, HPV-based screening programmes must balance two competing priorities: detecting women at genuine risk of CIN3+ and cancer, while avoiding unnecessary referral, colposcopy, and treatment, especially in younger women desirous of fertility.

HPV genotyping addresses this problem by using the natural variation in carcinogenic potential among HPV types. HPV16 carries the highest risk, followed by HPV18 and HPV45, while other carcinogenic types have intermediate or low risk. The International Agency for Research on Cancer (IARC) has classified the 12 carcinogenic HPV (cHPV) types into four groups according to their attributable fraction in cervical cancer (Figure 1): group 1a includes HPV16; group 1b includes HPV18 and 45; group 1c includes HPV31, 33, 35, 52 and 58; and group 1d includes HPV39, 51, 56 and 59. This hierarchical classification is the basis of risk-based management of HPV-positive women. The recently released WHO guideline on HPV DNA genotyping provides a framework for using HPV genotype information to guide screening, triage, treatment, and follow-up decisions.

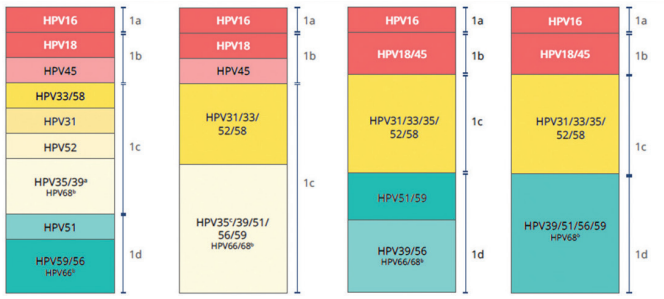
HPV types by subgroup[a]	% HPV type prevalence in people with invasive cervical cancer	% HPV type prevalence in people with normal cervical cytology	Odds ratio[b]	% Attributable fraction[c]
Group 1a				
HPV16	55.8	2.6	47.6	62.4
Group 1b				
HPV18	14.3	1	15.7	15.3
HPV45	4.8	0.6	8.3	4.8
Group 1c				
HPV33	4	0.6	7.1	3.9
HPV58	4	0.8	5.1	3.7
HPV31	3.5	1	3.7	2.9
HPV52	3.2	1	3.3	2.6
HPV35	1.6	0.4	3.9	1.4
Group 1d				
HPV59	1.2	0.4	2.9	0.9
HPV39	1.3	0.6	2	0.8
HPV51	1	0.9	1.2	0.2
HPV56	0.8	0.6	1.3	0.2

Figure 1: WHO TPP groups 1a,1b,1c,id classification of the 12 cHPV types, based on their attributable fraction of cervical cancer. Reproduced from: World Health Organization. WHO guideline for screening and treatment of cervical pre-cancer lesions for cervical cancer prevention: use of human papillomavirus (HPV) DNA genotyping. Geneva: World Health Organization; 2026. Licence: CC BY-NC-SA 3.0 IGO.

CONCEPT OF PARTIAL AND EXTENDED HPV GENOTYPING

HPV tests vary in the level of genotype information they provide. WHO classifies HPV DNA tests into four broad categories: no genotyping, limited genotyping, extended genotyping, and full genotyping.

No-genotyping tests provide only a pooled positive or negative result for carcinogenic HPV types. Limited genotyping (often referred to previously as partial genotyping), separately identifies HPV16 and HPV18, and may include HPV45, while reporting the remaining carcinogenic HPV types as a combined pool. Extended genotyping provides more detailed stratification than limited genotyping by separately identifying HPV16, HPV18, (along with HPV45 in some tests), and grouping the remaining carcinogenic types into two or three additional risk groups. Full genotyping identifies all 12 carcinogenic HPV types individually and may also report additional HPV types.



a HPV39 belongs to WHO TPPs group 1d. However, in this specific HPV test, it is reported in a pooled result with HPV35, which is classified in group 1c. The pooled test output for HPV35/39/68 is allocated to group 1c.

b HPV68 (probably carcinogenic) and HPV66 (possibly carcinogenic) are not included in the cHPV types classified within WHO TPPs groups 1a, 1b, 1c and 1d; however, they are still included in some current HPV tests.

c Where HPV35 (group 1c) is reported in a pooled result with group 1d HPV types, the pooled output for HPV35/39/51/56/59/66/68 is allocated to group 1c. For these HPV tests, group 1d cannot be identified separately for specific management.

Figure 2. Classification of HPV DNA test outputs by level of genotyping.

HPV DNA tests may provide no genotyping, limited/partial genotyping, extended genotyping, or full genotyping. Limited genotyping identifies HPV16 and HPV18, with or without HPV45, while extended genotyping further stratifies carcinogenic HPV types into risk groups. Adapted from: World Health Organization. WHO guideline for screening and treatment of cervical pre-cancer lesions for cervical cancer prevention: use of human papillomavirus (HPV) DNA genotyping. Geneva: World Health Organization; 2026. Licence: CC BY-NC-SA 3.0 IGO.

WHY GENOTYPING MATTERS IN HPV-BASED SCREENING

HPV genotyping converts a positive HPV test from a binary result (present/absent) into a risk-stratified result. HPV16-positive women have a substantially higher risk of CIN3+ than women infected with lower-risk carcinogenic types. In the WHO evidence summary, pooled baseline CIN3+ risk was highest for HPV16, estimated at 20.5%, compared with 7.1% for HPV18/45, 7.3% for group 1c types, and 1.9% for group 1d types. This gradient supports the principle that women with HPV16 and other high-risk genotype groups require more immediate action, while women with lower-risk genotype groups may be triaged or followed rather than treated immediately.

Genotyping therefore serves as a form of molecular triage. It can reduce the number of women referred for colposcopy or treatment, decrease overtreatment, and allow programmes to focus limited clinical resources on women at highest risk. This is especially relevant in low- and middle-income countries, where screening programmes may face shortages of colposcopy services, trained providers, pathology support, and follow-up systems.

ROLE OF LIMITED GENOTYPING

Limited genotyping is already widely used in many clinically validated HPV assays. Its main advantage is simplicity. By identifying HPV16 and HPV18, with or without HPV45, it separates women with the highest-risk infections who may be referred directly for colposcopy or treatment depending on the programme algorithm, while women positive for other carcinogenic types may undergo triage with colposcopy or VIA.

Limited genotyping is attractive because it is easier to implement than extended genotyping. It does not require complex interpretation of multiple genotype categories and can be integrated into existing screen-triage-treat algorithms. In programmes with moderate resources, limited genotyping may provide a practical balance between risk stratification and operational simplicity. It is also a suitable option for settings with poor follow-up, where the emphasis on direct treatment will be higher.

However, its limitation is that it treats all non-16/18 carcinogenic HPV types as a single pooled category, although their risks are not equal. For example, HPV 31, 33, 52 and 58 carry higher risk than HPV 39, 51, 56 and 59. Pooling these together may lead to overtreatment of lower-risk women or under-recognition of women with intermediate-risk genotypes. This limitation is one reason extended genotyping is increasingly being evaluated.

ROLE OF EXTENDED GENOTYPING

Extended genotyping offers more refined risk stratification by separating HPV-positive women into multiple carcinogenic risk groups and can help reduce overtreatment. The WHO guideline recognizes extended genotyping as a strategy that can guide whether women should be treated, triaged, or returned to routine screening, depending on both genotype and programme capacity. Especially for younger women where fertility preservation is still an important consideration, it can help to meaningfully identify women who will benefit from conservative management.

In settings with high follow-up capacity, WHO suggests using HPV DNA testing with extended or limited genotyping rather than treating all HPV-positive women or triaging all HPV-positive women with additional tests. Where extended genotyping is used, WHO suggests treating eligible women positive for HPV16, HPV18/45, and group 1c types, while triaging women positive for group 1d types. This approach recognizes that group 1d types carry lower CIN3+ risk and may not require immediate treatment in settings where reliable follow-up is possible.

IMPORTANCE OF FOLLOW-UP CAPACITY

A major contribution of the WHO guideline is the emphasis on follow-up capacity. Genotyping is useful only if the programme can ensure that women complete the screening continuum, including triage, treatment, and follow-up. WHO defines high follow-up capacity as completion of more than 60% at all steps in the care continuum, and low follow-up capacity as less than 60% completion at any step.

In high follow-up settings, genotyping-based triage is attractive because women with lower-risk genotypes can safely undergo triage or repeat testing. In low follow-up settings, women with precancerous lesions may not return for triage or treatment, reducing the effectiveness of screening. Therefore, WHO suggests that in low follow-up capacity settings, programmes may treat all eligible women who test positive for any carcinogenic HPV type, or treat those positive for the highest-risk groups, rather than relying heavily on additional triage steps.

This distinction is crucial for countries like India, where programme capacity varies widely between tertiary centres, urban settings, district hospitals, and screening camps. Even in urban settings, it is not always easy to bring women back repeatedly for follow-up and management.

3.2 Recommendations for the general population of women

3.2.1 Recommendations for settings with high follow-up capacity (60% or greater)

In settings with high follow-up capacity (60% or greater) and sufficient ablative treatment capacity, WHO suggests using HPV DNA testing with extended or limited genotyping OVER treating all HPV-positive women or triaging all HPV-positive women with additional tests.

In settings with high follow-up capacity (60% or greater) and sufficient ablative treatment capacity where HPV DNA extended genotyping is used, WHO suggests:

- treating all eligible women with ablative treatment who test positive for carcinogenic HPV (cHPV) types 16 (group 1a), 18 and 45 (group 1b) and 31, 33, 35, 52 and 58 (group 1c); AND triaging women who test positive for cHPV types 39, 51, 56 and 59 (group 1d);

  OVER

- treating all eligible women with ablative treatment who test positive for cHPV types 16 (group 1a), 18 and 45 (group 1b), AND triaging women who test positive for CHPV types 31, 33, 35, 52, 58, 39, 51, 56 and 59 (groups 1c and 1d);

  OVER

- treating all eligible women with ablative treatment who test positive for cHPV types 16 (group 1a), 18 and 45 (group 1b) AND triaging women who test positive for CHPV types 31, 33, 35, 52 and 58 (group 1c) AND returning women who test positive for CHPV types 39, 51, 56 and 59 (group 1d) to routine screening.

Remark: To determine the type of treatment, women should be visually evaluated for eligibility for ablative treatment. Women not eligible for ablative treatment should be treated using large-loop excision of the transformation zone (LLETZ) or referred for further management if cancer is suspected.

Conditional recommendation, low certainty in evidence of effects

3.2.2 Recommendations for settings with low follow-up capacity (less than 60%)

In settings with low follow-up capacity (less than 60%) and sufficient ablative treatment capacity, WHO suggests:

- treating all eligible women with ablative treatment who test positive for any carcinogenic HPV (CHPV) types 16 (group 1a), 18 and 45 (group 1b), 31, 33, 35, 52 and 58 (group 1c), 39, 51, 56 and 59 (group 1d), consistent with a no-genotyping approach;
- OR treating eligible women with ablative treatment who test positive for any cHPV types 16 (group 1a), 18 and 45 (group 1b) and 31, 33, 35, 52 and 58 (group 1c)

  OVER

- treating all eligible women with ablative treatment who test positive for cHPV types 16 (group 1a), 18 and 45 (group 1b) AND triaging women who test positive for CHPV types 31, 33, 35, 52, 58, 39, 51, 56 and 59 (groups 1c and 1d); or

  OVER

- triaging with additional tests all women who test positive for any cHPV types (1a, 1b, 1c and 1d).

Remark: As the number of visits increases, the risk of loss to follow-up also rises.

Although the preferred strategies may result in some overtreatment, they reduce losses to follow-up among women with pre-cancerous lesions who are at high risk of progression to cervical cancer if left untreated.

Conditional recommendation, low certainty in evidence of effects

a This can be done using an 8-cHPV type test (tests designed to detect the eight most cHPV types) as per WHO target product profiles for HPV screening tests, or when using extended genotyping HPV tests.

3.2.3 Regardless of follow-up capacity

If a programme provides triage with additional tests, WHO suggests using VIA or colposcopic impression (without histological confirmation) as the triage test rather than cytology or dual-stain cytology.

Remark: The choice of triage test will depend on availability, installed capacity, feasibility, training and programme quality assurance in countries. To determine treatment type, women should first undergo visual evaluation for eligibility for ablative treatment. Women who are not eligible for ablative treatment should be treated using large-loop excision of the transformation zone (LLETZ) or referred for further management if cancer is suspected.

Conditional recommendation, low certainty in evidence of effects

Figure 3. Summary of WHO recommendations by follow-up capacity. *Adapted from WHO guideline for screening and treatment of cervical pre-cancer lesions for cervical cancer prevention: use of human papillomavirus (HPV) DNA genotyping. Geneva: World Health Organization; 2026. Licence: CC BY-NC-SA 3.0 IGO.*

GENOTYPING AND CHOICE OF TRIAGE TEST

When additional triage is used after HPV positivity, WHO suggests using VIA or colposcopic impression rather than cytology or dual-stain cytology, particularly considering feasibility, availability, training, and quality assurance.

BENEFITS OF GENOTYPING-BASED SCREENING

The benefits of limited and extended genotyping include risk-based management, reduction in unnecessary treatment, better use of colposcopy and treatment resources, and improved counselling. Genotype information can help clinicians explain to women why immediate treatment is recommended for some HPV-positive results but not for others. It also supports prioritization in overburdened systems.

Extended genotyping may also support more precise programme monitoring. By tracking genotype distribution among screen-positive women, programmes can assess vaccine impact, shifts in circulating HPV types, and changes in disease burden over time. This may become increasingly important as vaccinated cohorts enter screening age.

LIMITATIONS AND CHALLENGES

Despite its promise, HPV genotyping has limitations. First, evidence for extended genotyping remains of low certainty in several WHO recommendations. Second, HPV assays differ in how they group genotypes, and not all tests align perfectly with WHO risk groups. Third, interpretation of extended genotyping requires provider training and robust algorithms. Fourth, genotype-based triage may increase complexity in health systems that already struggle with follow-up.

Cost is another consideration. Extended genotyping assays may be more expensive than pooled HPV tests, although the overall programme cost may be offset by fewer unnecessary treatments and referrals. In addition, no specific recommendation has yet been made for extended genotyping among women living with HIV, because evidence for this population has not been adequately evaluated and WHO continues to recommend limited genotyping, colposcopy, VIA, or cytology as triage options after a positive HPV DNA test.

CONCLUSION

Limited and extended HPV genotyping represent an important evolution in cervical cancer screening. They transform HPV testing from a simple positive-or-negative result into a risk-based tool for clinical and public health decision-making. Partial genotyping, by identifying HPV16 and HPV18, offers a practical and widely available method of identifying women at highest risk. Extended genotyping provides more refined stratification, allowing programmes to distinguish high-, intermediate-, and lower-risk carcinogenic HPV infections.

The recent WHO guideline emphasizes that the value of genotyping depends on programme capacity, particularly the ability to ensure follow-up. In high follow-up settings, limited and extended genotyping can reduce overtreatment and optimize resource use. In low follow-up settings, simpler screen-and-treat approaches may be more appropriate to prevent loss of women with precancerous lesions. For countries scaling up HPV-based cervical screening, including India, genotyping should be viewed not as a standalone technology but as part of an integrated screening, triage, treatment, and follow-up system.

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HPV Self-Sampling: Taking Screening Beyond Clinics

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INTRODUCTION

Cervical cancer is the second most common cancer in Indian women, accounting for 127,526 new cases and 79,906 deaths annually, representing over 65% of Southeast Asia's burden. High-risk human papillomavirus (hrHPV) types 16/18, account for approximately 83.2% of cervical cancer cases, with rural women at higher risk and most cases diagnosed at advanced stages.[1] Cervical cancer elimination largely depends on appropriate screening practices and vaccination. WHO recommends HPV DNA testing as an effective primary screening modality for cervical cancer. Increasing evidence supports feasibility of self-sampling as an alternative to clinician-taken specimen collection for HPV and cervical cancer screening.[2].

HPV self-sampling is a method that allows individuals to collect their own specimens. It is transforming cervical cancer screening by providing highly accurate, non-invasive alternatives to traditional clinician-led sample collection. By shifting the point of care from clinics to homes, self-sampling addresses long-standing barriers to improve outreach and has potential to increase access for currently under screened and underserved populations. It offers diverse modalities to suit individual preferences like vaginal, urine, menstrual blood sampling, and may represent an effective strategy for low- and middle income countries (LMICs).

IMPROVING OUTREACH THROUGH SELF-SAMPLING

HPV self-sampling is a powerful tool for improving outreach because it removes many of the physical, psychological, and logistical barriers that prevent individuals from participating in traditional clinical screening programmes.

Self-sampling addresses critical barriers through the following mechanisms:

- **Increased Participation:** Offering self-collection kits particularly through home-mailing programs can double participation rates compared to traditional clinic invitations.
- **Overcoming Barriers:** It removes the need for pelvic examinations, which can be a major deterrent due to cultural sensitivities, fear of discomfort, or past trauma.
- **Accessibility in Remote Areas:** Self-sampling eliminates logistical hurdles such as travel time and costs, making it ideal for rural settings or regions with limited healthcare infrastructure.
- Targeting High-Risk Groups: This method is specifically effective at reaching "under-screened" women, including those of low socioeconomic status who may not regularly visit clinics for preventive care.
- Digital Integration: Programs can be combined with telehealth support, where participants receive results and follow-up advice through mobile applications, further streamlining the screening process.

CURRENT GUIDELINE RECOMMENDATIONS

As per recent ASCCP guidelines,[8] clinician-collected cervical specimens are preferred and self-collected vaginal specimens are acceptable for primary HPV screening of asymptomatic average-risk individuals. WHO cervical cancer screening guidelines (2021) state that when providing HPV DNA testing, either samples taken by a health care provider or self-collected samples are acceptable among both general population and women living with HIV (WLHIV).

Repeat testing in 3 years is recommended following HPV-negative screens using self-collected vaginal specimens. For positive hrHPV 16/18, colposcopy with collection of cytology and biopsies is recommended. Triage with clinician-collected cytology or p16/ki-67 dual stain testing is recommended following positive tests for other hrHPV types including 31,33, 35, 39, 45, 51, 52, 58 or 68 for pooled HPV other types but negative for HPV 16/18.

Repeat HPV testing in 1 year is recommended following a positive test for HPV types 56/59/66 with no other carcinogenic types detected. Minimal data exist on use of self-collected vaginal specimens for surveillance following abnormal screening test results, colposcopy or treatment, and therefore, clinician-collected cervical specimens are preferred.

DIFFERENT MODALITIES OF SELF-SAMPLING

Self-collected vaginal, urine, and menstrual blood samples show moderate to good concordance with clinician-collected samples for hrHPV detection. However, only self-collected vaginal samples demonstrate comparable sensitivity and specificity for detecting high-grade squamous intraepithelial lesions (HSIL)[3].

The various modalities and devices for HPV self-sampling include

A. Vaginal Self-Sample collection

It is the most established and widely validated self-sampling method, involving the collection of cervicovaginal cells using swabs, brushes, lavage devices, sponges and tampon devices. When combined with polymerase chain reaction (PCR) based HPV assays, vaginal self-sampling demonstrates sensitivity and specificity comparable to clinician-collected samples for detecting high-grade cervical lesions (CIN2+), with reported sensitivities ranging from 84.2% to 100% across studies.[5] The various collection devices are described below:1. Vaginal swabs 5 a) FLOQSwabs®(COPAN Group, Italy/USA)- Nylon-flocked swabs designed to maximize sample absorption and release through capillary action (Figure 1A). These swabs demonstrated a sensitivity of 89% for CIN2+ and 91–93% for CIN3+ 5.

b) **Qvintip (Aprovix, Sweden)**- Swab device with grooves for cervicovaginal cell collection, where the swab head is transferred into a separate collection tube after sampling (Figure 1B). It has comparatively lower sensitivity (83.1%) and specificity (51.3%) for HPV DNA detection than dry flocked swabs and wet Dacron swabs. 5

c) **HerSwabTM (Eve Medical, Canada) -** Curved tip with a soft, flexible design for gentle collection and an ergonomic handle for improved control (Figure 1C). It demonstrates lower sensitivity (75.0%) and specificity (47.7%) compared to dry flocked swabs . It may not be suitable for use in remote areas as dry samples should be processed as soon as possible preferably within 5–7 days.

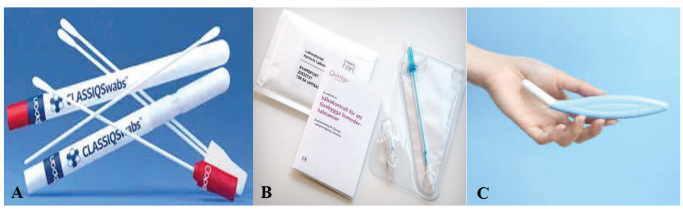

Figure 1. showing various vaginal swabs available for self-sampling. A) FLOQSwabs are specialized patented flocked swabs B) Qvintip contains a specialized plastic wand with a detachable white sampling tip, a plastic test tube, a response envelope, and instructions. C) HerSwab is a Health Canada-approved tampon-shaped medical device.

2. Brushes

Evalyn® Brush (Rovers Medical Devices, Netherlands) has flexible LDPE bristles, an ergonomic inserter with stopper wings for correct penetration depth and a plunger mechanism for bristle extension and retraction (Figure 2). User performs five rotations, each indicated by audible "clicks," after which the sample is retracted into a protective casing. It has high sensitivity of 96–99% for CIN3+ and 96.8% for hrHPV. One study found the Evalyn® Brush to be slightly more comfortable than FLOQSwabs™. It is considered a promising device for remote settings because of its analytical stability at room temperature and humidity for prolonged periods .

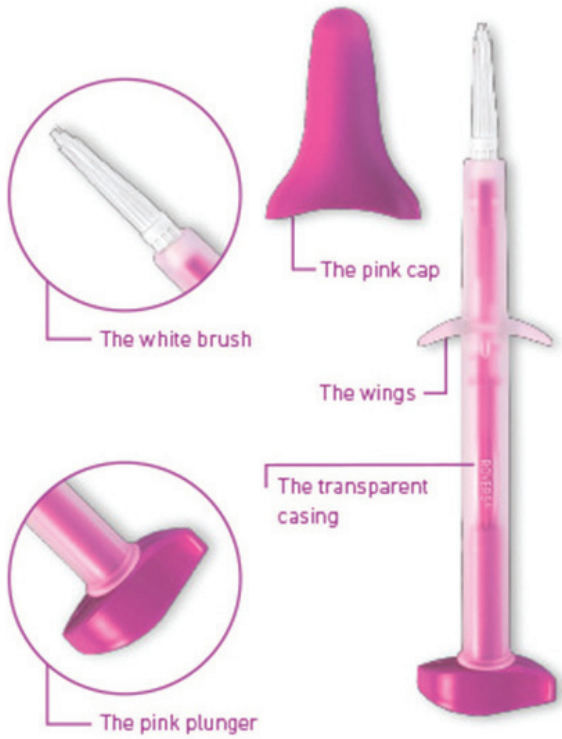

Figure 2. showing Evalyn® Brush.

3. Lavage Devices

Delphi Screener (Rovers Medical Devices, Netherlands)- The device is pre-filled with 3–5 mL saline solution. After insertion, the user presses the button plunger, compressing the spring while releasing the saline solution around the cervix. After three seconds, the user releases the button plunger, causing the spring to recoil while aspirating the saline solution back into the device (Figure 3). It is most efficient in collecting shed cells without directly scraping the cervix; therefore they are primarily useful for HPV DNA molecular testing rather than cytology.

Figure 3. showing Delphi Screener.

4. Sponge Devices

Kato device (Taisei Kako Co., Ltd, Japan) and **The Teal Wand™ (Teal Health, Inc., USA)** use soft sponge

for gentle cervical sampling along with a plastic handle for easy manipulation (Figure 4). However, they are less effective for collecting endocervical cells/transformation zone (EC/TZ) cells than clinician-collected samples.

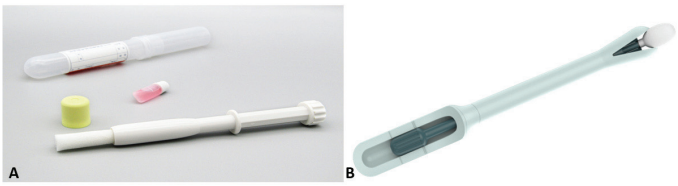

Figure 4. showing sponge devices: A) Kato Device B) Teal Wand™ uses a mechanical rotating dial on the handle to extend and spin a soft collection sponge before retracting it back inside the plastic casing.

5. Tampon Devices

Daye Diagnostic Tampon (Tampon Innovations Ltd., UK) include a tampon made of organic cotton with a Bio-LDPE applicator (Figure 5). Users are instructed to leave the tampon in place for at least 20 min to ensure optimal sample collection. It showed sensitivity of 82.9 % and specificity of 91.6% for HPV detection.

Figure 5. showing Daye Diagnostic Tampon.

B) Menstrual Blood collection devices Menstrual blood is a non-invasive naturally self-collected method that contains endometrial and cervical cells suitable for HPV DNA detection. In addition, menstrual blood analysis has shown promising results in detection of conditions such as chlamydia, tuberculosis, hormonal disturbances, endometriosis etc.

Menstrual blood collection devices, such as the M-Strip (CDSCO-approved ,India) and Q-Pad (Qvin, USA), enable non-invasive passive at-home self-sampling for HPV DNA testing during menstruation (Figure 6). These devices use absorbent strips integrated into sanitary pads to process samples as dried blood spots. They offer high sensitivity (82.8–97.7%) and specificity (50–98.0%) for detecting hrHPV and have shown a high concordance with clinician collected samples (92-94%).[6]

Figure 6. showing M-Strip is indigenous CDSCO approved HPV testing device using menstrual blood.

C) Urine sample collection[7]

Urine is a convenient, non-invasive sampling method suitable for home collection and has been widely evaluated for HPV testing. Urine collection devices for HPV self-sampling, such as the Colli-Pee® (Novosanis/ OraSure Technologies, Canada) and Urisponge ® (Copan, USA) are designed to collect first-void urine, enabling reliable HPV detection (Figure 7).

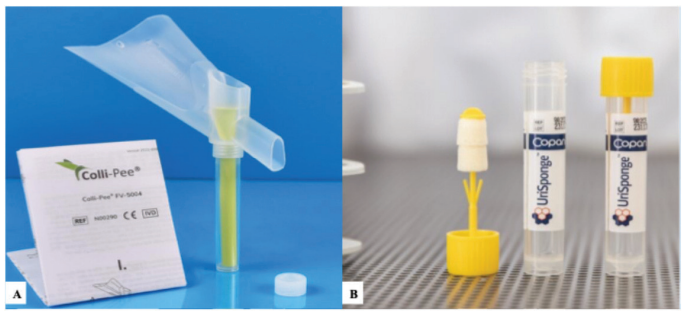

Figure 7. showing A) Colli-Pee® has pre-filled stabilizing media facilitating comfortable, non-invasive self-collection, and B) Urisponge ® is an FDA-cleared device for the collection, transport, and preservation of urine specimens

First void urine contains mucus and cellular debris shed from the female genital tract including thecervix, which accumulate around the urethral opening and labia minora. These devices standardize sample volume and often contain preservatives to facilitate sample transport and stability. A key challenge is that HPV DNA in urine is highly unstable due to presence of natural nucleases; therefore, immediate integration with stabilising preservation mediums such as EDTA or boric acid-free formulas is essential to minimize the nuclease activity.

Validated PCR based assays like Cobas® and BD Onclarity™, provide precise genotyping capability and should preferably be used (Table-1). These assays demonstrate high accuracy with sensitivity of 89% (75–97%) and specificity of 98% (95–99%) for detecting HPV DNA and a

concordance rate of 90.6% for hrHPV and 85.7% for low-risk HPV between cervical and urine specimens. Studies using PCR-based assays demonstrate "moderate to substantial" agreement (Kappa coefficients (k)=0.51-0.82) between urine and cervical specimens, particularly for HPV genotypes 16 and 18. To date, no HPV assay has received official FDA or CE-IVD approval exclusively for urine testing. Ongoing trails (CapU4, Screen Ur Self) may further define the future role of urine-based HPV screening.. Emerging biomarkers, including DNA methylation markers in urine samples, also appear promising.

Some of the studies evaluating urine samples for hrHPV DNA testing are summarised in Table 1.

Table 1: Summary of major studies done using urine samples for High risk HPV DNA testing.

Author (Year)	Study Design & Population	Sample Type	Sample Size (n)	Key Findings
Pathak et al. (2014)	Systematic review & meta-analysis	Urine vs cervical	16 studies (~1,400 women)	Sensitivity ~77%, specificity ~88%; urine testing feasible but less sensitive than cervical sampling
Arbyn et al. (2018)	Meta-analysis (diagnostic accuracy)	First-void urine vs cervical	30+ studies (~12,000 women)	Sensitivity up to 87% (optimized), specificity ~94%; strong influence of collection method and assay
Vorsters et al. (2014)	Methodological + clinical study	First-void urine	~500 women	High concordance (κ ~0.7–0.8); emphasized importance of first-void urine and preservatives
Vorsters et al. (2016)	Validation study	Urine vs cervical	~600 women	Improved HPV detection with optimized urine collection devices; comparable performance in high viral load cases
Stanczuk et al. (2011)	Cross-sectional (low-resource setting)	Urine vs cervical	~1,000 women	Lower sensitivity in urine but significantly higher acceptability; useful for screening outreach
Leeman et al. (2017)	Diagnostic comparison study	Urine samples	~300 women	PCR-based assays superior; variability across testing platforms
Bernal et al. (2019)	Clinical diagnostic study	Urine vs cervical	~400 women	Moderate sensitivity, high specificity; supports role as alternative screening method
Tranberg et al. (2020)	Comparative diagnostic accuracy	First-void urine vs cervical	~1,200 women	Good agreement for high-risk HPV; supports use in screening programs with proper protocols
Pattyn et al. (2019)	Systematic review	Urine HPV testing	Multiple studies	Confirmed high acceptability; emphasized need for standardized protocols
Mangold et al. (2021)	Prospective clinical study	Urine vs cervical	~500 women	High concordance in HPV-positive women; better performance in screen-positive cohort
Cho et al. (2022)	Clinical validation study	Urine HPV DNA	~350 women	Sensitivity improves with viral load; suitable for monitoring HPV persistence
Recent Indian pilot studies (2022–2024)	Feasibility studies	Urine HPV (POC platforms including TruNat HPV test)	~100–300 women	Demonstrated feasibility in low-resource settings; promising for decentralized screening but limited validation

D) Anal Swabs

Anal swabs may be used to detect hr HPV especially in high risk groups for screening anal HSIL. A wet Dacron or flocked nylon swab is inserted 3-5 cm into anal canal and rotated 360 degrees for 10-30 sec and is transported in PreservCyt medium. Studies have shown a high sensitivity (83%) but a low specificity (55%).

KEY SUMMARY POINTS

1. Increasing evidence supports self-sampling as a feasible, accurate, and non-invasive alternative to clinician-led examinations.
2. Self-sampling helps to improve outreach, particularly among "under-screened" populations, by addressing barriers such as cultural sensitivities, fear of discomfort, and logistical hurdles like travel costs, potentially doubling participation rates.
3. Vaginal sampling is the most established method demonstrating clinical sensitivity and specificity comparable to clinician-collected samples.
4. Urine based HPV testing is a non-invasive, acceptable and scalable option, with studies demonstrating good

diagnostic accuracy especially with first void urine samples.

5. Systematic reviews suggest that menstrual blood has promising sensitivity and good concordance with vaginal samples; however, standardization and large scale validation are still needed before routine implementation.
6. Emerging biomarkers and molecular tools may further improve the diagnostic potential of self-sampled HPV testing.

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One and Done: Single-Dose HPV Vaccination

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INTRODUCTION

HPV vaccination is one of the most significant advances in cervical cancer prevention. Initially introduced as a three-dose schedule, recommendations later shifted to two doses for younger adolescents following evidence of adequate immunogenicity. However, multidose schedules continue to face implementation challenges due to cost, logistic difficulties, interrupted vaccine supply, and poor completion rates.

Single-dose HPV vaccination has now emerged as a promising strategy capable of simplifying vaccine delivery, reducing costs, improving vaccine uptake, and accelerating progress towards cervical cancer elimination. Over the past decade, accumulating evidence from immunogenicity studies, randomized trials, and long-term follow-up cohorts has strongly supported the effectiveness of one-dose schedules.

CHALLENGES WITH MULTIDOSE SCHEDULES

Traditional multidose HPV vaccination schedules face several practical barriers including poor compliance for second and third doses, increased operational burden, greater cold-chain requirements, high programmatic cost and global vaccine shortages. These challenges significantly hinder the global rollout of HPV vaccination programs, particularly in resource-limited settings.

WHY SINGLE-DOSE HPV VACCINATION?

Single-dose HPV vaccination offers several important public health advantages:

- Simplified vaccination logistics
- Lower programmatic and delivery costs
- Improved vaccine uptake and compliance
- Easier implementation in school-based programs
- Reduced pressure on global vaccine supply
- Increased access in resource-limited settings

COVID-19 pandemic further highlighted the importance of simplified immunization schedules and resilient vaccine delivery systems. Mathematical modelling studies suggest that one-dose schedules could substantially expand vaccine access and prevent millions of future cervical cancer cases globally.

BIOLOGICAL BASIS FOR SINGLE-DOSE PROTECTION

HPV vaccines are composed of recombinant virus-like particles (VLPs) that closely mimic the native viral structure and generate strong humoral immune responses. These VLPs stimulate long-lived plasma cells capable of producing durable neutralizing antibodies.

Although antibody levels after a single dose are lower than those achieved with two or three doses, they remain significantly higher than antibody levels generated after natural infection.[1] Long-term studies have demonstrated stable antibody persistence for more than a decade after a single dose, highlighting the potential for effective long-term protection.[2] Schiller and Lowy proposed that the highly repetitive structure of HPV VLPs contributes to the remarkable potency and durability of immune protection.[2]

WHO RECOMMENDATIONS

Based on emerging evidence, World Health Organization (WHO) updated its recommendations on HPV vaccination in 2022. WHO now recommends:

- One or two doses for girls aged 9–14 years
- One or two doses for girls and women aged 15–20 years
- Two doses for women older than 21 years
- Three doses for immunocompromised individuals

This policy shift marked a major milestone in global cervical cancer prevention and strengthened confidence in simplified vaccination schedules.

CURRENT EVIDENCE SUPPORTING SINGLE-DOSE HPV VACCINATION

Over the past decade, multiple landmark studies from different regions of the world have provided compelling evidence supporting the efficacy, immunogenicity, and durability of single-dose HPV vaccination.

Major Studies Supporting Single-Dose HPV Vaccination (Table 1)

Costa Rica Vaccine Trial: It provided some of the earliest evidence supporting durable immunity after a single dose. Women aged 18–25 years who inadvertently received fewer than three doses of the bivalent vaccine demonstrated stable HPV 16 and 18 antibody levels through 11 years of follow-up.[2] Antibody concentrations remained substantially higher than those observed after natural infection.

India IARC Trial: India has contributed some of the most influential evidence supporting single-dose HPV vaccination. The International Agency for Research on Cancer (IARC) multicentric India trial evaluated girls aged 10–18 years who received one, two, or three doses of the quadrivalent vaccine. At 10 years of follow-up, vaccine efficacy against persistent HPV 16/18 infection was 95.4% for a single dose, comparable to two- and three-dose schedules.[3] Extremely low rates of HPV-associated CIN2+ lesions were also observed among vaccinated girls. This landmark study significantly influenced global HPV vaccination policy.

KEN SHE Study: The Kenyan Single-Dose HPV Vaccine Efficacy (KEN SHE) study provided high-quality randomized evidence supporting one-dose schedules. Young women aged 15–20 years receiving a single dose of either bivalent or nonavalent HPV vaccine showed 97.5% efficacy against persistent HPV 16/18 infection compared with controls.[4]

DoRIS Study: The Dose Reduction Immunobridging and Safety Study (DoRIS) evaluated one, two, and three-dose schedules among Tanzanian girls. Nearly universal seroconversion and stable antibody persistence were observed after a single dose. HPV 16 antibody responses after one dose were found to be non-inferior to multidose schedules.[5]

ESCUDDO Trial: The ongoing ESCUDDO (Estudio de Comparación de Una y Dos Dosis) trial is evaluating the non-inferiority of one-dose versus two-dose schedules and is expected to provide additional long-term evidence supporting simplified HPV vaccination strategies.[6] The study demonstrated that one dose was non-inferior to two doses for prevention of HPV 16/18 infection, vaccine effectiveness was 97% or more in all groups. No major safety concerns were identified.

Table 1. Summary of Major Studies on Single-Dose HPV Vaccination[2-6]

Study	Population	Vaccine	Major Findings
Costa Rica Vaccine Trial	Women 18–25 years	Bivalent	Stable antibodies through 11 years
India IARC Trial	Girls 10–18 years	Quadriva-lent	95.4% efficacy against persistent HPV 16/18 infection
KEN SHE Study	Women 15–20 years	Bivalent/ Nonavalent	97.5% efficacy against persistent infection
DoRIS Study	Tanzanian girls	HPV vaccine	Strong seroconversion and stable antibodies
ESCUDDO Trial	Ongoing multicentric study	Multiple vaccines	≥97% vaccine effectiveness; long-term effects pending

Global modelling analyses suggest that implementation of one-dose schedules could allow vaccination of an additional 45–90 million girls over the next decade.[7] Expanded HPV vaccine coverage could potentially prevent millions of cervical cancer cases and deaths globally.[7] Following WHO recommendations, several countries have adopted or initiated single-dose HPV vaccination schedules, including United Kingdom, several African countries and Netherlands.[8]

VACCINES APPROVED FOR SINGLE-DOSE USE

Current evidence supporting single-dose schedules includes:

- Bivalent vaccine (Cervarix®)
- Quadrivalent vaccine (Gardasil®)
- Nonavalent vaccine (Gardasil 9®)

Table 2. Comparison Between Single-Dose and Two-Dose HPV Vaccination

Parameter	Single Dose	Two Dose
Protection against HPV 16/18	~95–98%	~98–100%
Antibody titers	Lower but stable	Higher
Duration of protection	>10 years (current evidence)	Long-term established
Compliance	Excellent	Moderate
Cost	Lower	Higher
Operational feasibility	High	Moderate
Cold-chain burden	Reduced	Greater

Current evidence indicates that although antibody titers may be lower after a single dose, clinical protection against persistent HPV infection remains highly comparable.[2-6]

INDIA'S NATIONWIDE FREE HPV VACCINATION DRIVE – 2026

In February 2026, the Hon'ble Prime Minister of India launched a nationwide free HPV vaccination campaign under the Universal Immunization Programme. The initiative aims to provide free HPV vaccination to girls aged 9–14 years through school-based and community outreach programmes.

MAJOR FEATURES OF THE INITIATIVE

- **Free HPV vaccination for eligible adolescent girls:** Programme provides HPV vaccination free of cost to the targeted age group, thereby reducing financial barriers and improving access to this important cancer-preventive intervention.
- **Use of approved HPV vaccine:** The campaign uses a regulatory-approved HPV vaccine (Gardasil 4), ensuring that the vaccine administered through

the programme meets required standards of safety, efficacy, and quality.

- **Equity-focused implementation:** Special emphasis is placed on reaching girls from rural, underserved, and hard-to-reach populations, ensuring that cervical cancer prevention is accessible beyond urban and privileged settings.
- Integration **with existing public health platforms:** The programme is being implemented through government health systems and linked with the U-WIN digital platform for beneficiary registration, documentation, monitoring, and follow-up.
- **Monitoring Through the U-WIN Portal:** U-WIN is expected to play a key role in supporting the implementation and monitoring of the HPV vaccination programme. Its functions include:

a. Beneficiary **registration and documentation:** Eligible beneficiaries can be registered digitally through U-WIN, allowing systematic recording of vaccination status and generation of vaccination certificates.

b. **Real-time monitoring of coverage:** The portal can support tracking of vaccination coverage across states, districts, and health facilities, helping programme managers identify gaps and strengthen implementation.

c. **Adverse event reporting and safety monitoring:** Digital documentation can support reporting and monitoring of adverse events following immunization, enabling timely response and strengthening vaccine safety surveillance.

d. Vaccine stock and logistics management: The platform can assist in monitoring vaccine availability, distribution, and cold-chain-related logistics across implementation sites.

e. Programme review and accountability: By enabling digital tracking of beneficiaries, doses administered, and coverage trends, U-WIN can improve transparency, accountability, and evidence-based planning.

Overall, India's nationwide HPV vaccination programme is a landmark step toward cervical cancer prevention and aligns with the WHO global strategy for cervical cancer elimination. By combining free vaccination, public-sector delivery, equity-focused outreach, and digital monitoring through U-WIN, the initiative has the potential to substantially reduce the future burden of cervical cancer in India.

SAFETY OF HPV VACCINATION

Extensive global evidence supports the safety of HPV vaccines.[9-10] Most adverse events are mild and self-limiting, including pain at injection site, fever, headache, dizziness, and nausea. Vaccination programs in Delhi, Punjab, and Sikkim reported excellent safety outcomes with no major vaccine-related serious adverse events.[11-12]

PUBLIC HEALTH IMPACT OF SINGLE-DOSE VACCINATION

Modeling studies estimate that widespread implementation of single-dose HPV vaccination could[13]:

- Prevent more than 60 million cervical cancer cases globally over the next century
- Save millions of lives
- Reduce healthcare expenditure substantially

Single-dose vaccination is particularly transformative in countries with limited healthcare infrastructure, weak cold-chain systems and poor adolescent follow-up rates

KEY POINTS

Table 3. Key Advantages of Single-Dose HPV Vaccination

Advantage	Public Health Benefit
Simplified schedule	Better compliance
Lower cost	Improved affordability
Reduced logistics	Easier implementation
Less cold-chain burden	Suitable for LMICs
Greater coverage	Improved herd protection
Faster scale-up	Accelerated elimination goals

CONCLUSION

Single-dose HPV vaccination represents one of the most important recent advances in preventive oncology and women's health. WHO endorsement of one-dose schedules has transformed global vaccination policy and created new opportunities for expanding vaccine access, particularly in resource-limited settings. The nationwide free HPV vaccination initiative in 2026 mark historic milestones in India's cervical cancer prevention efforts. This initiative represents one of the world's largest cervical cancer prevention programs and reflects India's strong commitment toward achieving WHO cervical cancer elimination targets.

The "One and Done" approach has the potential to overcome barriers related to cost, compliance, and logistics, thereby accelerating progress toward the global elimination of cervical cancer as a public health problem.

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Calendar for AOGD Monthly Clinical Meeting 2026-2027

19th June 2026	Apollo Hospital
31st July 2026	Army Hospital- Research &Referral
28th August 2026	AIIMS
25th September 2026	VMMC &Safdarjung Hospital
30th October 2026	DDU Hospital
27th November 2026	MAMC & LNJP Hospital
18th December 2026	Sir Ganga Ram Hospital
29th January 2027	Dr RML Hospital
26th February 2027	UCMS & GTB Hospital
19th March 2027	LHMC & SSK Hospital
30th April 2027	ESI, Basaidarapur Hospital

HPV Vaccination in Adult Women

Neerja Bhatla, Anju Singh, Seema Singhal

The World Health Organization (WHO) call for elimination of cervical cancer clearly emphasizes the importance of the first pillar, namely, human papillomavirus (HPV) vaccination of girls by the age of 15 years, as one of the most effective tools for prevention of cervical cancer. This is expected to prevent over 80% of cases of cervical cancer irrespective of the type of vaccine used. However, there is evidence from randomized controlled trials (RCTs) as well as real world observations from several countries that vaccination of older girls and women beyond the primary target age group of 9-14 years will benefit them personally, as well as expedite reaching the elimination goal.

Various opportunities to reach older girls and women include catch-up vaccination programmes till the age of 26 or even 30 years, postpartum vaccination and, more recently, vaccination of women receiving treatment of cervical intraepithelial neoplasia (CIN). The last comes as a surprise since the current vaccines are prophylactic vaccines but there are several trials suggesting that there are lower rates of recurrence in women who receive the HPV vaccine around the time of treatment.

Recently, the Government of India launched the National HPV Vaccination Campaign adopting a single-dose regime with the quadrivalent vaccine. This has led to a situation where different vaccines have different recommendations and schedules at different ages. All these issues are discussed in this chapter.

A) HPV vaccination above the age of 25 years

Many countries such as Australia and the United Kingdom launched their national HPV vaccination programmes with an initial catch-up to the age of 26 years, followed by routine vaccination of girls under 15 years. Follow-up of these cohorts demonstrated that though the ideal age of HPV vaccination is between 9-15 years, there is substantial benefit in older girls and women too for prevention of persistent HPV infection and high-grade CIN. RCTs such as FUTURE III and VIVIANE demonstrated that HPV vaccines can be safely administered up to 45 years of age, with outcomes similar to ~85% of younger women.

A Cochrane review (2018) which evaluated the efficacy and immunogenicity of HPV vaccines in women >25 years of age included five randomized controlled trials (RCTs) involving women aged 25 years and older, comparing 2-valent and 4-valent HPV vaccines to placebo, no vaccine, or each other. In women who received all three doses (per protocol), there was a significant reduction in HPV 16/18-related CIN2+ (RR 0.16, 95% CI 0.04 to 0.73). Both 2- and 4-valent vaccines reduced persistent infection with HPV 16/18 (RR 0.17, 95% CI 0.10 to 0.29) and with HPV 6/11/16/18 (RR 0.52, 95% CI 0.42 to 0.65).

Women acquire HPV infection throughout their lifetime. While there may be cases of multiple infection, it will be rare for women to have infection with all the vaccine types. This is especially applicable in the case of the nonavalent vaccine. Modelling studies have suggested that 50% and 75% of women acquired their causal HPV infection by ages 20.6 (range: 20.1-21.1) and 30.6 (range: 29.6-31.6) years, respectively. HPV16 infections were acquired at an earlier age. Assuming 95% efficacy against HPV16 and HPV18 infections, the direct reduction in lifetime risk of cervical cancer would be one-tenth among women vaccinated at age 45 years compared to those vaccinated at 9 years. Similar patterns were observed for the second-generation vaccine. Thus on a larger scale, vaccination in this particular age group is limited by cost-effectiveness and is therefore not included in national programmes.

Counselling considerations while offering HPV vaccination to women >20 years of age

- It will not treat already existing HPV infection nor will it give protection against already infected HPV types. It can give protection against HPV types with which the woman is not already infected.
- It is not a substitute for routine cervical screening. It must be reinforced that routine screening protocols are to be followed despite HPV vaccination.
- It is safe to use, efficacious and immunogenic against new HPV types.
- The immunogenic response remains higher than natural infection. However, best immunogenicity is established in 9-15 years of age.

B) Postpartum HPV Vaccination

Postpartum HPV vaccination is a promising strategy to enhance the vaccine coverage among women who missed the vaccination during adolescent years and thereby reduce the burden of HPV-related diseases. The postpartum period is a great opportunity as the woman is already in contact with healthcare professionals, can personally clear all her doubts and myths and receive the first dose during the hospital stay alleviating the extra financial burden. Available guidelines from CDC,

ACOG, etc. endorse HPV vaccination in postpartum and lactating women (Table 1). There is enough evidence in literature that it is safe and immunogenicity is also non-inferior as compared to healthy controls (Table 2). However, there is no recommendation for vaccination during pregnancy, neither is there an indication for termination of pregnancy if indeed the vaccine has been inadvertently administered during pregnancy. Routine pregnancy testing is not recommended before vaccination.

Table 1: Available guidelines for postpartum HPV vaccination

Guideline (Year)	Recommendation
American College of Obstetricians & Gynecologists – Committee Opinion 809 on Human Papillomavirus Vaccination (2020)	• The HPV vaccine can and should be given to breastfeeding women age 26 years and younger who have not previously been vaccinated.
WHO- HPV Position Paper (2017)	• HPV vaccine can safely be given to lactating women and it doesn't affect the safety of breastfeeding.

Table 2: Literature Review for postpartum HPV vaccination

Study	Aim/Objective	Methodology	Results	Conclusion
Moss CF et al JAMA Network Open. 2024	To evaluate the immunogenicity of a 2-dose postpartum HPV vaccination regimen (0 and 6 months) and assess whether it is noninferior to a 3-dose postpartum HPV vaccination regimen (0, 1-2, and 6 months) administered to historical controls.	noninferiority, open-label, nonrandomized immunogenicity trial Enrolled 225 (visit 1) and out of this 174 completed visit 2 , 168 visit 3 and 89 visit 4	At month 7, HPV-16 GMT was higher after the 2-dose regimen (7213.1 mMU/mL [90% CI, 6245.0-8331.4 mMU/mL]) than among historic controls after the 3-dose regimen (3154.0 mMU/mL [90% CI, 2860.2-3478.0 mMU/mL]). A total of 118 of 134 women (88.1%) seroconverted for HPV-16 after the first dose; 4 weeks after the second dose, the seroconversion rate was 99% or greater for all HPV types.	Immunogenicity of a 2-dose HPV vaccination regimen (0,6 months) among postpartum women was noninferior to a 3-dose regimen among young historical controls.
Lee CY et al Front Immunol. 2021	To evaluate success of HPV vaccination program among postpartum women	Included 243 postpartum women (Vaccinated group: 109 Unvaccinated group: 134)	It achieved a high completion rate for all three HPV vaccine doses (97.2%), demonstrating the effectiveness of strict monitoring and follow-up in postpartum period. Significant differences between vaccinated and unvaccinated groups included maternal age (older women more likely vaccinated), education level (higher education associated with vaccination), occupation (medical staff more likely vaccinated), postpartum Pap smear results (more abnormal results in vaccinated women), and gender of the newborn (mothers of male infants more likely vaccinated).	It concluded that a structured postpartum vaccination program with active follow-up can significantly improve vaccine adherence, serving as a model for other multi-dose vaccination efforts.

C) HPV Vaccination after treatment for preinvasive lesions

Systematic reviews and meta-analyses have reported that peri-treatment vaccinationwith 2vHPV or 4vHPV vaccines, prior to or along with treatment, reduces the risk of subsequent CIN2+ by approximately 43–67%. RCTs including VENUS, SPERANZA and the NOVEL trial have suggested a benefit.

The rationale here is that women that have conization for HSIL are particularly sensitive to the infection and are rapidly re-infected. They are at high risk of HSIL recurrence (8%) and cervical cancer (2.5 times). HPV vaccine is expected to benefit against new infections and re-occurrence of the same infection, preventing reinoculation at the site of treatment.

Several studies have also suggested that in women vaccinated before age 15, the risk of progression of CIN2 is significantly reduced and this group may be considered for conservative management (Table 3).

Table 3. Literature Review for impact of HPV vaccination on CIN progression and peri-treatment for CIN

Study	Objective	Methodology	Results	Conclusion
Krog L et al Am J Obstet Gynecol. 2024	To evaluate whether prior HPV vaccination reduces progression of untreated CIN2 during active surveillance.	Nationwide Danish population-based cohort study (7904 women aged 18–40 years with CIN2 under active surveillance (2007–2020)). Exposure defined as ≥1 HPV vaccine dose administered ≥1 year before CIN2 diagnosis.	Overall 28-month CIN3+ risk was 37.6% in unvaccinated women. Risk was significantly lower in women vaccinated before age 15 years (22.9%; aRR 0.65) and in those vaccinated between 15–20 years (31.5%; aRR 0.86). No benefit was seen if vaccination occurred after age 20 years (aRR 1.02). CIN2+ progression was also reduced: aRR 0.69 for vaccination before 15 years and 0.84 for vaccination at 15–20 years. Only 0.13% vaccinated women developed cervical cancer versus 0.37% unvaccinated women.	HPV vaccination before age 20 years, especially before 15 years, significantly reduced progression risk during CIN2 surveillance. Vaccination status may help risk stratification in conservatively managed CIN2.
Venturelli F et al Eur J Gynaecol Oncol. 2021	To evaluate whether HPV vaccination reduces recurrence in women treated for CIN2/3 and formulate evidence-based recommendations.	Systematic review using GRADE methodology. Included 6 studies (RCTs and cohort studies) assessing HPV vaccination before or after CIN treatment.	The pooled estimates showed a RR of 0.32 (95% CI 0.15–0.66) for RCTs assessing the effectiveness of pre-treatment HPV vaccination, a RR of 0.00 (0.00–1.45) for the RCT and RR 0.30 (0.15–0.58) for the cohort studies assessing of post-treatment HPV vaccination. Meta-analytic synthesis suggested nearly 70% reduction in recurrent CIN2+ lesions among vaccinated women. Recurrence risk was strongly associated with persistent HPV infection after treatment.	Strong recommendation in favor of adjuvant HPV vaccination after treatment for CIN2/3 due to significant recurrence reduction and favorable safety profile.

DOSAGE SCHEDULES AND SAFETY OF HPV VACCINE

The WHO Position Paper (2022) endorsed one-dose HPV vaccination till the age of 20 years for the established bivalent, quadrivalent and nonavalent vaccines which have demonstrated stability of antibody at 2 years. This has been endorsed by the National Technical Advisory Group on Immunization (NTAGI) in India. Older females above the age of 21 years should received two doses at least 6 months apart. Immunocompromised women (e.g., WLHIV, transplant recipients, autoimmune diseases, etc.) should receive three doses, and at the minimum at least two doses.

The Government of India has accepted the NTAGI recommendation and launched the National HPV Vaccination Campaign for 14 year old girls with a single dose recommendation using Gardasil in the present campaign.

These recommendations are at variance with the manufacturers' recommendations, which continue to recommend 2 doses till age 14 and 3 doses thereafter. Thus, it is important to discuss these with patients and have shared decision-making. While it is recognized that the vaccine is extremely safe and additional doses will not harm, but it is also important not to overstretch the expenses needlessly.

For newer vaccines (Cervavac, SIIL), the recommendation for 9 to 14 years is still for two doses, and for 15-26 years it is three doses, till the single-dose trial results are available next year. Both Cervavac and Gardasil-9 are licensed in India for both boys and girls.

Following the launch of the National HPV Vaccination Campaign, there have been considerable myths and misinformation regarding long-term side-effects such as reproductive outcomes and short-term side-effects such as yeast allergy. Yeast has been widely used in hepatitis vaccines and has not had any significant adverse reports. Regarding reproductive outcomes, there is no increase in infertility, premature ovarian insufficiency, spontaneous abortions, preterm births or congenital malformations. The vaccine is safe and effective and should be promoted among the eligible populations. As a side benefit, there

will also be a reduction in vulvar and vaginal intraepithelial neoplasia which are mostly HPV 16 related, along with other HPV-associated diseases.

CONCLUSIONS

HPV vaccine can be safely administered to females beyond the target age group, especially to women under the age of 30 years, postpartum women and women undergoing treatment for CIN. In adult women, WHO recommends two doses at minimum 6 months interval except in the case of immunocompromised women who should receive three doses.

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FAQs on HPV Vaccination

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HPV vaccination is one of the most effective strategies for preventing cervical cancer and other HPV-related diseases. The following FAQs address common questions and misconceptions in a concise, evidence-based format.

1. **Why is HPV vaccination important?**

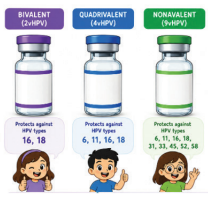
   Persistent infection with high-risk Human papillomavirus (HPV) causes more than 95% of cervical cancers. HPV vaccination helps prevent infection with the most important cancer-causing HPV types and also reduces genital warts.

2. **Who should receive HPV vaccination?**

   The primary target group is girls aged 9-14 years, ideally before exposure to HPV infection. Vaccination in this age group produces a strong immune response and provides maximum protection.

3. **What HPV vaccines are available?**

   Available vaccines include bivalent (HPV 16, 18), quadrivalent (HPV 6, 11, 16, 18), and nonavalent vaccines covering additional oncogenic HPV types.

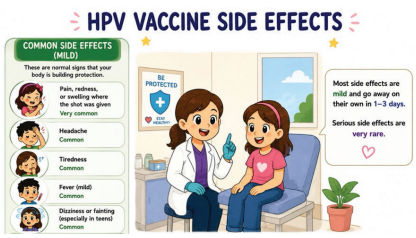


4. **What is the recommended HPV vaccine schedule?**

   Girls aged 9-14 years usually require 1 or 2 doses, depending on national guidelines. A single-dose schedule has shown strong efficacy and durable protection in this age group.

5. **What are the common side effects of HPV vaccines?**

   HPV vaccines are very safe. Common side effects are mild and include pain, redness, or swelling at the injection site, low-grade fever, headache, and dizziness. Serious adverse events are extremely rare.



6. **Does the vaccine schedule need to be restarted if delayed?**

   No. Missed doses should be administered as soon as possible without restarting the series.

7. **Is HPV testing required before vaccination?**

   No. HPV testing is not required before vaccination.

8. **Does HPV vaccination encourage early sexual activity?**

   No. HPV vaccination is a preventive health intervention and does not promote risky sexual behavior.

9. **Can HPV vaccines cause infertility?**

   No. Extensive global safety data show no association between HPV vaccination and infertility, menstrual abnormalities, or adverse pregnancy outcomes.

10. **Should boys also receive HPV vaccination?**

    Yes. HPV vaccination is recommended for boys as well as girls. It helps prevent genital warts and HPV-related anal, penile, and oropharyngeal cancers, and also reduces transmission of HPV in the community.

11. **Can HPV vaccine be given with other vaccines?**

    Yes. HPV vaccine can generally be given with other age-appropriate vaccines at different injection sites.

12. **Is HPV vaccination recommended for immunocompromised individuals?**

    Yes. Immunocompromised individuals, including those with HIV infection or those receiving immunosuppressive therapy, should receive HPV vaccination because they are at higher risk of persistent HPV infection and HPV-related disease. They should ideally receive all 3 doses, but if that isn't possible, a minimum of 2 doses is recommended.

13. **What is the key message for parents and healthcare providers?**

    HPV vaccination is a safe and effective cancer prevention strategy. For maximum benefit, vaccination should be given before HPV exposure, ideally in early adolescence.

Cervical Cancer Screening Myths: Clarifying Common Misconceptions in the HPV Era

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INTRODUCTION

The transition from cytology-based screening to HPV-based strategies represents a major shift—not only in testing methodology but also in clinical thinking. Instead of relying solely on isolated test results, modern guidelines emphasize longitudinal risk assessment by integrating current findings with prior screening history. However, in routine clinical practice, this transition has not always been seamless. Here we focus on these grey zones—areas where evidence exists but interpretation often varies in clinical practice.

HPV NATURAL HISTORY AND RISK DYNAMICS

The progression from HPV infection to invasive cervical cancer is typically prolonged, often spanning 10–20 years. Most HPV infections are transient and resolve spontaneously. Only a small proportion persist, and an even smaller fraction progress to high-grade lesions and cancer.

- Transient infection (common and self-limited): 80–90%
- Persistent infection (major driver of risk): 10–15%
- Precancerous lesions (CIN2/3): 10–20%
- Invasive carcinoma: Without detection or treatment, approximately 20–30% of CIN3 lesions may eventually progress to invasive cervical cancer over 10–20 years.[1]

MYTH 1: HPV-NEGATIVE STATUS ELIMINATES FUTURE RISK

A negative HPV test is reassuring, but not absolute. Although short-term risk is extremely low, it does not completely eliminate the possibility of future disease. New infections, as well as reactivation of latent virus, may occur over time. The 5-year risk of CIN3+ after a negative HPV test is approximately 0.1–0.3%, which is lower than the risk following a negative cytology result alone.[2]

Clinical takeaway:

Routine HPV screening at 5-year intervals should begin at 30 years of age in the general population and at 25 years in people living with HIV (PLHIV).[1]

MYTH 2: HPV POSITIVITY IN OLDER WOMEN REFLECTS A NEW INFECTION

HPV detection later in life is often misunderstood. In many cases, it represents reactivation of a previously acquired infection rather than a newly acquired exposure. It may also reflect delayed detection of an earlier infection. After initial HPV acquisition, many infections become undetectable; however, viral DNA may persist in basal epithelial cells in a latent or low-level state.

Years or decades later, the virus may become detectable again due to:

- Immune senescence
- Menopause-related cervical changes
- Immunosuppression
- Chronic inflammation
- HIV infection
- Smoking and other cofactors

Clinical takeaway:

Older women tend to clear HPV infections less efficiently because of reduced immune surveillance, increasing the likelihood of precancerous and cancerous lesions.

MYTH 3: ALL HPV-POSITIVE WOMEN REQUIRE COLPOSCOPY

WHO recommends HPV DNA extended genotyping in settings where adequate follow-up can be ensured.[3]

HPV-positive women may be categorized into four genotypic risk groups:

- Group 1a – HPV 16
- Group 1b – HPV 18/45
- Group 1c – HPV 31, 33, 35, 52, 58
- Group 1d – HPV 39, 51, 56, 59

Clinical takeaway:

Not all HPV-positive women require immediate colposcopy. Risk-based management using HPV genotyping helps optimize care and avoid unnecessary procedures.

MYTH 4: GENOTYPING ADDS LITTLE CLINICAL VALUE

Not all HPV types carry the same oncogenic potential. HPV 16 carries the highest risk of progression to precancerous lesions.

Pooled CIN3+ risks:

- Group 1a – 20.5%
- Group 1b – 7.1%
- Group 1c – 7.3%
- Group 1d – 1.9%[3]

Clinical takeaway:

HPV genotyping refines risk stratification and clinical decision-making. Ignoring genotype-specific risks may delay diagnosis in high-risk individuals.

MYTH 5: A NORMAL PAP SMEAR RULES OUT DISEASE

Cytology has limited sensitivity (approximately 50–70%) and may miss clinically significant lesions. Therefore, a normal cytology report should always be interpreted in the context of HPV status and overall risk assessment.[2]

Clinical takeaway:

A negative HPV test is more reassuring than a negative Pap smear. According to WHO 2026 guidelines, women in the HPV 1d group should undergo triage with VIA or colposcopy rather than cytology alone.[3]

MYTH 6: POST-TREATMENT SURVEILLANCE CAN BE MINIMAL

Treatment of CIN2+ does not return a woman's risk to baseline. Women treated for high-grade lesions remain at elevated risk for many years.

Recommended follow-up:

- HPV testing at 12 months
- If negative → Continue surveillance every 5 years
- If positive → Colposcopy

MYTH 7: SCREENING CAN STOP AT AGE 65 IN ALL WOMEN

Age alone should not determine when cervical cancer screening is discontinued. The decision should depend on adequacy of prior screening and individual risk factors.

Discontinuation is acceptable after:

- Three consecutive negative cytology results, or
- Two consecutive negative co-testing results, provided that the most recent test occurred within the previous 5 years.[4]

Women treated for precancerous lesions should continue surveillance for at least 20 years, even if this extends beyond 65 years of age.[4]

Clinical takeaway:

In settings where screening has been inconsistent, many women older than 65 years still require continued surveillance.

MYTH 8: VIA HAS NO ROLE IN MODERN PRACTICE

Although HPV testing is the preferred screening modality, VIA continues to play an important role in low-resource settings. However, VIA has limited utility in postmenopausal women because the squamocolumnar junction often recedes into the endocervical canal.[5]

Clinical takeaway:

The effectiveness of VIA depends largely on provider training, consistency, and overall program quality.

MYTH 9: HPV VACCINATION ELIMINATES THE NEED FOR SCREENING

HPV vaccination is transformative but not comprehensive. Current vaccines do not protect against all oncogenic HPV types, and many populations remain unvaccinated.

Screening in vaccinated women should begin at the same age recommended for the general population. Furthermore, cervical cancer screening should be initiated at the recommended age regardless of sexual activity status.[4]

CONCLUSION

Modern cervical cancer screening requires both adherence to guidelines and sound clinical judgment. Misconceptions, particularly among experienced practitioners, may lead to both overtreatment and missed diagnoses. A clear understanding of HPV natural history, risk-based management, and evolving screening strategies is essential for optimizing patient care and advancing cervical cancer prevention.

SUMMARY TABLE: COMMON MYTHS AND CLARIFICATIONS

Myth	Clarification	Clinical Implication
HPV-negative women are risk-free	Future infection or viral reactivation can still occur.	Routine screening must continue.
HPV positivity in older women is always new infection	Many cases reflect reactivation of latent infection.	Older women remain at risk for disease progression.
All HPV-positive women need colposcopy	Risk stratification using genotyping guides management.	Avoids unnecessary referrals and procedures.

Genotyping adds little value	Different HPV types have varying oncogenic risks.	Improves individualized risk assessment.
Normal Pap smear excludes disease	Cytology has limited sensitivity.	HPV testing provides greater reassurance.
Minimal follow-up is needed after CIN treatment	Risk remains elevated for years after treatment.	Long-term surveillance is essential.
All women can stop screening at 65 years	Depends on previous screening adequacy and risk.	Some women need prolonged surveillance.
VIA is obsolete	VIA remains useful in low-resource settings.	Training and program quality are critical.
Vaccinated women do not need screening	Vaccines do not cover all oncogenic HPV types.	Screening remains necessary.

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Forthcoming Event

07.06.2026 – Public awareness program on practical aspects of breast health and breast disease will be conducted by public awareness committee AOGD at India Habitat Centre.

08.06.2026 – CME on the theme "Nursing Staff: the backbone of ART" organised by the IVF centre, Dept. of Obst & Gynae, Safdarjung hospital and AOGD Infertility & Reproductive Endocrinology subcommittee

Journal Scan

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Xie F, Du K, Li J, et al. Head-to-head immunogenicity comparison of one-dose Cecolin and Gardasil in Chinese girls aged 9-14 years: A randomized and open-label clinical trial. Vaccine. 2025;55:127015.

BACKGROUND

- To enhance coverage, WHO has endorsed a one-dose HPV vaccination strategy for girls aged 9–14 years, but evidence for Cecolin® (a bivalent HPV vaccine developed in China) is limited.
- This study directly compared one-dose Cecolin® with Gardasil® (quadrivalent vaccine) in Chinese adolescents

METHODS

- **Design:** Phase IV, randomized, open-label trial (NCT06345885)
- **Population:** 200 healthy girls aged 9–14 years in Fujian, China.
- **Intervention:** Single dose of Cecolin® (n=99) vs Gardasil® (n=101).
- **Endpoints:** Seroconversion rates and geometric mean titers (GMTs) for HPV16/18 at 1 and 2 months. Safety assessed up to 30 days post-vaccination.
- **Analysis:** Non-inferiority defined if lower bound of 95% CI is more than –5% for seroconversion difference.

RESULTS

- **Seroconversion:**
  - HPV16: 100% in both groups at 1 month.
  - HPV18: 97.9% (Cecolin®) vs 95.6% (Gardasil®).
- **GMTs:** Cecolin® induced significantly higher antibody titers at 1 month (Figure 1):
  - HPV16 GMT ratio = 1.5 (95% CI: 1.1–2.1).
  - HPV18 GMT ratio = 2.8 (95% CI: 2.0–4.1).
- **At 2 months:** Cecolin® maintained non-inferior responses, with HPV18 titers still higher.
- **Safety:** Adverse reactions occurred in 15.2% of participants in both groups. No vaccine-related serious adverse events were reported.
- Findings indicate that a single dose of Cecolin® produced immune responses and safety outcomes comparable to Gardasil in adolescents

CONCLUSIONS

- **Clinical relevance:** This is the first head-to-head trial of single-dose Cecolin® vs Gardasil® in adolescents.
- **Findings:** Cecolin® demonstrated non-inferior immunogenicity and comparable safety, with stronger antibody titers against HPV18.
- **Implications:** Supports WHO's one-dose HPV vaccination strategy, especially in resource-limited settings where vaccine supply and cost are barriers.
- **Limitations:** Short follow-up (2 months); long-term persistence of antibodies and real-world effectiveness remain to be studied.

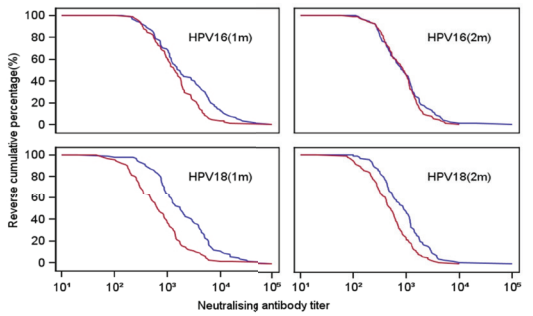

Figure 1: Non-inferiority evaluation of Cecolin 1 and 2 months post-Dose 1.

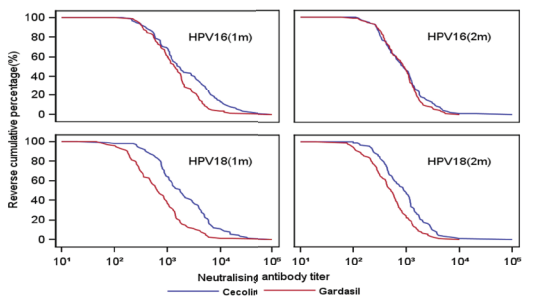

Figure 2: Reverse cumulative distribution of neutralizing HPV16 and HPV18 antibody titers 1/2 months post-Dose 1.

Joura E, Kjaer SK, Bautista O, et al. Effect of Prior 9-Valent Human Papillomavirus Vaccination on Subsequent Lower Genital Tract Dysplasia After Cervical Excisional Surgery. Obstet Gynecol. 2026;147(1):73-82.

BACKGROUND

- Cervical excisional surgery for high-grade squamous intraepithelial lesions (HSIL) is standard of care but carries risks of adverse pregnancy outcomes and recurrence of HPV-related disease.
- Women treated for cervical SIL remain at high risk for subsequent cervical, vaginal, or vulvar dysplasia.
- This study evaluated whether prior 9-valent HPV (9vHPV) vaccination reduces the incidence of subsequent disease after cervical surgery

METHODS

- **Design:** Post hoc subgroup analysis of three randomized, double-blind phase III trials.
- **Population:** Women aged 16–26 years who had received 9vHPV, 4vHPV, or placebo and later underwent cervical excisional surgery.
- **Sample:** 295 9vHPV recipients, 722 4vHPV recipients, 493 placebo recipients who underwent cervical surgery.
- **Endpoints:** Incidence of subsequent condyloma, cervical, vulvar, or vaginal SIL ≥6 months after surgery.
- **Comparisons:**
  - HPV6/11/16/18-related disease: 9vHPV vs historic placebo.
  - HPV31/33/45/52/58-related disease: 9vHPV vs 4vHPV.

RESULTS

- **HPV6/11/16/18-related SIL:** Reduced by 95.4% with prior 9vHPV vs placebo (1.3 vs 29.0/1,000 person-years).
- **HPV31/33/45/52/58-related SIL**: Reduced by 86.3% with prior 9vHPV vs 4vHPV (2.7 vs 19.4/1,000 person-years).
- **High-grade SIL:** Numerically lower in 9vHPV group (69.6% reduction for HPV6/11/16/18; 82.7% reduction for HPV31/33/45/52/58), but not statistically significant due to small case numbers.
- **Timing:** Median interval between vaccination and surgery was 1.7 years.
- Prior vaccination with 9vHPV reduced the incidence of subsequent cervical and lower genital tract dysplasia after excisional surgery

RESULTS

Endpoint	Cases/n*	PY Follow-Up	Cases/1,000 PY (95% CI)	Cases/n*	PY Follow-Up	Cases/1,000 PY (95% CI)	Incidence Reduction [% (95% CI)]
HPV6/11/16/18–related disease†	n=363‖			n=746‖			
Condyloma or cervical, vulvar, or vaginal SIL	0/244	613.9	0.0 (0.0–6.0)	18/421	761.0	23.7 (14.0–37.4)	100 (74.1–100)
Condyloma	0/244	613.9	0.0 (0.0–6.0)	14/421	764.7	18.3 (10.0–30.7)	100 (62.7–100)
Cervical, vulvar, or vaginal LSIL	0/244	613.9	0.0 (0.0–6.0)	2/421	773.0	2.6 (0.3–9.3)	100 (−337.2 to 100)
HPV31/33/45/52/58–related disease¶	n=363‖			n=386‖			
Condyloma or cervical, vulvar, or vaginal SIL	0/266	673.6	0.0 (0.0–5.5)	9/277	679.1	13.3 (6.1–25.2)	100 (56.9–100)
Cervical, vulvar, or vaginal LSIL	0/266	673.6	0.0 (0.0–5.5)	9/277	680.0	13.2 (6.1–25.1)	100 (56.9–100)

Table 1: Incidence of subsequent condyloma, cervical, vulvar, and vaginal disease related to vaccine HPV types among women who underwent cervical surgery after vaccination and had 6 months or more of follow-up after first cervical surgery

CONCLUSIONS

- **Clinical relevance:** Vaccination before cervical surgery significantly reduces risk of subsequent HPV-related lesions.
- **Strength:** Large, pooled dataset from pivotal trials, robust reduction in both low- and high-risk HPV types.
- **Limitations:** Post hoc design, relatively small subgroup numbers, lack of statistical significance for HSIL endpoints.
- **Implications:** Supports prophylactic benefit of HPV vaccination even in women who later require excisional treatment, reinforcing the importance of early vaccination

For gynaecologists, this evidence underscores the secondary preventive value of HPV vaccination

Know the HPV Vaccines

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HUMAN PAPILLOMAVIRUS VACCINES

Presently three types of HPV vaccines are available globally: bivalent vaccine targeting HPV types 16 and 18; quadrivalent vaccine (Gardasil™, Merck, USA) targeting HPV 16, 18, 6 and 11; and 9-valent vaccine (Gardasil 9™; Merck, USA) targeting HPV 31, 33, 45, 52 and 58 in addition to HPV 16, 18, 6 and 11.[3] Currently, there are six prophylactic vaccines against HPV and are compared in table below:

HPV Vaccines	Cecolin®	Walrinvax®	Cervarix™	Gardasil®	Cervavac®	Gardasil-9®
Valency	Bivalent	Bivalent	Bivalent	Quadrivalent	Quadrivalent	Nonavalent
Country	China	China	Belgium	USA	India	USA
HPV types included	16/18	16/18	16/18	6/11/16/18	6/11/16/18	6/11/16/18 /31/33 /45/52/58
Expression system/ producer cells	Baculovirus derived from Trichoplusia ni	Saccharomyces cerevisiae	Saccharomyces cerevisiae	Escherichia coli	Pichia pastoris	Hansenula
WHO Pre-qualification decision	2021	2024	2009	2009	-	2018
Storage	2-8° C	2-8° C	2-8° C	2-8° C	2-8° C	2-8° C
Shelf Life	36 months	24 months	60 months	36 months	36 months	36 months
Stability & CTC	-	-	Stability 3 days at 8-25° C	Stability 3 days at 8-42° C (CTC) and 4 days at 8-40° C (CTC)	-	Stability 3 days at 8-42° C (CTC) and 4 days at 8-40° C (CTC)
Vaccine vial monitor type	Type 14	Type 14	Type 30	Type 30	-	Type 30
Adjuvant	Aluminium hydroxide	Aluminium phosphate	AS04 (Aluminium hydroxide & 3-deacylated monophosphoryl lipid A)	Aluminium hydroxyphosphate sulfate	Aluminium hydroxide	Aluminium hydroxyphosphate sulfate
Route of Administration	Intra Muscular	Intra Muscular	Intra Muscular	Intra Muscular	Intra Muscular	Intra Muscular
Cold chain volume per dose (cm^3)	Carton of 10 vials: 14.29 cm^3	Carton of 20 vials: 11.8 cm^3	Carton of 1 vial: 28.8 cm^3 Carton of 10 vials: 5.7 cm^3 Carton of 100 vials: 4.8 cm^3	Carton of 10 vials: 15 cm^3	-	Carton of 10 vials: UNICEF supply: 18.4 cm^3 PAHO supply: 15.11 cm^3
Minimum age	≥ 9 years	≥ 9 years	≥ 9 years	≥ 9 years	-	≥ 9 years

Dosing schedule as per product insert	9-14 years: 2 doses (0.5 ml) 2nd dose 6 months after first or 3 doses at 0, 2 and 6 months ≥15 years: 3 doses at 0, 2 and 6 months	9-14 years: 2 doses (0.5 ml) 2nd dose 6 months after first or 3 doses at 0, 2 and 6 months ≥15 years: 3 doses at 0, 2 and 6 months	9-14 years: 2 doses (0.5 ml) 2nd dose 5-13 months after first or 3 doses at 0, 1 and 6 months ≥ 15 years: 3 doses at 0, 1 and 6 months	9-13 years: 2 doses (0.5 ml) 2nd dose 6 months after first or 3 doses at 0, 2 and 6 months ≥14 years: 3 doses at 0, 2 and 6 months	9-14 years: 2 doses (0.5 ml) 2nd dose 6 months after first 15-26 years: 3 doses (0.5ml) at 0, 2 and 6 months	9-14 years: 2 doses (0.5 ml) 2nd dose 6 to 12 months after first or 3 doses at 0, 2 and 6 months ≥15 years: 3 doses at 0, 2 and 6 months
Availability of 1-dose efficacy	Efficacy inferred through Immunobridging	Immuno-bridging study planned	Efficacy data available	Efficacy data available	Immuno-bridging study undergoing	Efficacy data available
Special considerations	In rare cases, syncope (faintness) or vasovagal responses to injections, sometimes accompanied by tonic-clonic movements, may occur especially in vaccination of adolescents and young adults. To avoid injury from fainting, vaccine recipients should be seated and observed for at least 30 minutes after administration of HPV vaccine.					
Adverse events	Local: injection site pain, redness swelling Systemic: fever, headache, fatigue, myalgia, arthralgia, irritability, loss of appetite, nausea, diarrhoea Rare: hypersensitivity reactions including anaphylaxis					
Use in pregnancy	Vaccination should be postponed until after pregnancy; Pregnancy testing not necessary before vaccination					
Contra-indications	General: Hypersensitivity to the active substances or to any of the excipients of the vaccine					

Brain Boost Zone

Urvashi Miglani

1. **According to the WHO 2022 position paper, how many HPV types are currently classified as high-risk (oncogenic) and against how many types does the nonavalent vaccine protect?**

   A. 6,4 B. 8,5 C. 12,7 D. 15,7

2. **According to WHO , what is the estimated global HPV prevalence (all types) among adult women with normal cytology?**

   A. 6% B. 12% C. 22% D. 30%

3. **According to WHO 2022, in women aged ≤18 years at first dose, what was the adjusted reduction in HPV infection prevalence with a SINGLE dose?**

   A. 74% (95% CI 40–88) B. 84% (95% CI 60–95)

   C. 97.5% (95%CI 82–100) D. 99% (95% CI 92–100)

4. **In terms of post-licensure safety surveillance, which serious adverse event has been confirmed to be associated with HPV vaccines?**

   A. Guillain-Barré syndrome

   B. Complex regional pain syndrome (CRPS)

   C. Anaphylaxis (rare)

   D. New-onset autoimmune disease

5. **Which of the following statement is true regarding cross-protection against non-vaccine HPV types in real-world evidence?**

   A. Nonavalent vaccine (Gardasil-9) provides maximum cross protection

   B. Cross-protection against non-vaccine HPV types is inconsistent and wanes over time

   C. Cecolin and cervarix vaccine provide statistically significant cross protection

   D. All vaccines showed significant cross protection

6. **According to WHO 2022, from a public health perspective, how do bivalent, quadrivalent, and nonavalent vaccines compare in preventing cervical precancer and cancer (primarily caused by HPV 16/18)?**

   A. The nonavalent vaccine is significantly superior for HPV 16/18-related disease

   B. All three offer comparable immunogenicity, efficacy, and effectiveness

   C. The bivalent vaccine is significantly inferior to the quadrivalent and nonavalent vaccines

   D. Only the nonavalent vaccine meets WHO standards for programme use

7. **According to WHO , what proportion of women living with HIV (WLWH) have high-risk HPV in a global meta-analysis of those with normal cytology?**

   A. 18% B. 27% C. 41% D. 63%

8. **For gender-neutral HPV vaccination to be cost-effective compared with girls-only vaccination, what is the approximate threshold for female vaccination coverage?**

   A. Below ~30% coverage in girls

   B. Below ~50% coverage in girls

   C. Above ~70% coverage in girls

   D. Gender-neutral vaccination is always cost-effective

9. **As of 2026, how many WHO member states had included HPV vaccination in their national immunisation programme?**

   A. 101 B. 156 C. 160 D. 168

10. **The WHO 2022 position paper recommends which vaccination schedule as an off-label option for girls and boys aged 9–20 years?**

    A. Three-dose schedule over 6 months

    B. Two-dose schedule with 3-month interval

    C. Single-dose schedule

    D. Four-dose schedule for maximum immunogenicity

11. **What dosing schedule does WHO recommend for immunocompromised individuals, including those living with HIV?**

    A. Single dose only, regardless of CD4 count

    B. Two doses with a 3-month interval

    C. At least two doses (minimum 6-month interval), preferably three doses

    D. Standard two-dose schedule — same as immunocompetent individuals

12. **Which of the following best describes the serological response to HPV vaccination compared to natural infection?**

    A. Vaccination produces a weaker and shorter-lived response than natural infection

    B. Both produce equivalent antibody titres at 12 months

    C. Vaccination produces a much stronger response (1–4 log higher) than natural infection

    D. Natural infection consistently leads to seroconversion in >95% of individuals

13. Which screening interval is recommended when HPV mRNA detection is used as the primary screening test?

A. Every 2 years B. Every 3 years

C. Every 5 years D. Every 10 years

14. In WHO terminology, "limited genotyping" refers to:

A. Detection of HPV positivity without type identification

B. Identification only of HPV 6 and 11

C. Separate identification of HPV 16/18 ±45 with pooling of other carcinogenic HPV types

D. Identification of all carcinogenic HPV types individually

15. In WHO extended HPV genotyping classification, HPV 31, 33, 35, 52 and 58 belong to which group?

A. Group 1a B. Group 1b

C. Group 1c D. Group 1d

16. Which triage strategy is preferred by WHO when additional triage testing is required after a positive HPV test?

A. Dual Stain Cytology over VIA

B. Colposcopic biopsy over colposcopic impression

C. VIA or colposcopic impression over dual stain cytology

D. Histopathology for all HPV-positive women

17. A 42-year-old woman screened positive for HPV and negative on VIA triage. According to WHO recommendations, she should:

A. Undergo immediate excisional treatment

B. Repeat cytology in 6 months

C. Repeat HPV NAT at 24 months

D. Return to routine screening immediately

18. A programme uses HPV extended genotyping. A woman tests positive for HPV 39 alone. In a high follow-up capacity setting, the preferred approach is:

A. Immediate LLETZ

B. Immediate ablative treatment

C. Triage with an additional test

D. Routine screening after 5 years

Answers:

1. C, 2. B, 3. C, 4. C, 5. B, 6. B, 7. C, 8. B, 9. C, 10. C, 11. C, 12. C, 13. C, 14. C, 15. C, 16. C , 17. C, 18. C

Heart Health in Women: Prevention as the Best Protection

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Cardiovascular disease (CVD) remains the leading cause of mortality among women worldwide, accounting for nearly one-third of all female deaths (1). Despite this, awareness regarding cardiovascular risk in women remains significantly lower compared to men, often resulting in delayed diagnosis and suboptimal preventive interventions. Historically mischaracterized as a "male disease," CVD in women frequently presents with atypical symptoms and is influenced by unique biological, hormonal, and reproductive factors. Contemporary preventive cardiology therefore emphasizes on early identification of risk factors and timely intervention to reduce long-term morbidity and potential mortality.[1,2]

GENDER-SPECIFIC RISKS

Women possess several gender-specific cardiovascular risk-augmenting conditions that are frequently overlooked in routine clinical practice. Hypertensive disorders of pregnancy, gestational diabetes mellitus, recurrent pregnancy loss, primary ovarian insufficiency, polyendocrine metabolic ovarian syndrome, and preterm delivery have all been associated with increased future risk of coronary artery disease, heart failure, stroke, and arrhythmias.[2,3] Pregnancy serves as a natural "stress test" potentially unmasking latent cardiovascular vulnerability. Incorporating these reproductive and obstetric histories into cardiovascular risk assessment is essential for accurate stratification and preventive planning.[3]

LIFESTYLE AND PHARMACOLOGICAL INTERVENTIONS

Lifestyle modification remains the foundation of cardiovascular prevention in women. Regular aerobic exercise, maintenance of healthy body weight, smoking cessation, optimal sleep hygiene, and proactive stress management have demonstrated substantial reductions in cardiovascular risk (4). Dietary approaches emphasizing fruits, vegetables, legumes, nuts, whole grains, and unsaturated fats while limiting refined carbohydrates and processed foods form the cornerstone of preventive strategies. However, increasing urbanization, sedentary lifestyles, psychological stress, and rising obesity rates among younger women continue to exacerbate the growing burden of cardiometabolic disease.

Traditional cardiovascular risk factors such as hypertension, diabetes mellitus, dyslipidemia, and obesity remain underdiagnosed and undertreated in women.[2] Women are also less likely to receive guideline-directed preventive therapies compared to men. Routine screening through blood pressure monitoring, lipid profiling, glycemic assessment, and anthropometric evaluation should therefore begin early, particularly in women with a family history of premature coronary artery disease or adverse pregnancy outcomes.[4]

Recent advances in preventive cardiology have strengthened the role of pharmacological primary prevention in high-risk women. Statins remain central to lipid management and significantly reduce major adverse cardiovascular events.[2,4] Emerging therapies including sodium-glucose cotransporter-2 inhibitors and glucagon-like peptide-1 receptor agonists have shown additional cardiometabolic benefits in diabetic and obese populations. Aspirin for primary prevention should be individualized after balancing cardiovascular benefit against bleeding risk.[4]

ROLE OF INFLAMMATION

Chronic inflammation is a significant contributor to atherosclerosis and vascular dysfunction in women. Disorders such as systemic lupus erythematosus, rheumatoid arthritis, and persistent viral infections accelerate endothelial injury and plaque formation. Emerging evidence suggests that chronic inflammation associated with human papillomavirus (HPV) infection may also contribute indirectly to vascular dysfunction.[5] This highlights the broader significance of preventive healthcare measures such as HPV vaccination, which not only reduces the burden of cervical cancer but also reflects the larger principle of disease prevention before irreversible complications occur.

CONCLUSION

Awareness remains the most powerful preventive tool. Women often underestimate their cardiovascular risk, while healthcare systems may fail to recognize sex-specific presentations and risk factors.[1] Greater emphasis on public education, preventive screening, multidisciplinary women's heart clinics, and early risk-factor modification is urgently needed.

Preventive cardiology in women is no longer optional; it is an essential public health strategy aimed at preserving long-term health, reducing disability, and improving quality of life across all stages of womanhood.

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HER Story.. HER Words..

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FACING CERVICAL CANCER

Behind every statistic lies a woman, a family, and a story rarely told in clinical pages. In *"Her Words, Her Story,"* we step away from numbers and protocols to listen, to the lived experience of a woman who walked the long road of cervical cancer at AIIMS New Delhi. Her journey, told in her own voice, is a reminder that prevention, screening, and timely care are not abstract guidelines but lifelines.

Nancy

1. **When did you first notice something was wrong, and what made you finally decide to see a doctor?**

   In the beginning, I had foul smelling vaginal discharge which increased over time and was accompanied by spotting and irregular bleeding. This happened while I was 5 months pregnant. Then I consulted my doctor, who found an abnormal growth on the mouth of my uterus (cervix). The doctor immediately performed a biopsy test, which came out as cervical cancer.

2. **What did the word 'cancer' mean to you when you first heard your diagnosis, and how did that change over time?**

   At that time, I had very little knowledge about cancer. No one was diagnosed with cancer in my family prior to my diagnosis. The diagnosis of cancer caused a profound distress and suddenly I went completely blank. I felt like, "What is happening to me?" During that difficult time, my husband, my mother, my family, and my doctors supported me throughout my journey. Because of their support, today I am completely fine.

3. **At what stage was your disease diagnosed? What information were you provided about your disease?**

   I came to know that it was a stage 3 cervical cancer. The doctors at AIIMS explained in detail about the treatment plan and need for termination of pregnancy. I received 28 radiation sessions, 6 chemotherapy cycles and 3 brachytherapy t sessions.

   Along with the treatment, I was also advised to take special care of my diet and eating habits. The doctors guided me about what I should eat and what I should avoid. My husband and family took great care of me and always made sure that I was eating the right food and avoiding things that were not good for my health.

4. **What was the most difficult part of your treatment journey?**

   The most painful part of my treatment journey was losing my baby. This complication was the worst phase of my life. It was even more painful than the cancer itself.

5. **Did you hear about cervical cancer prevention before the diagnosis?**

   No

6. **Is there one thing you wish someone had told you about the disease, prevention or early detection before all of this began?**

   Yes, I wish someone had told me that cervical cancer is preventable. I had never heard about the HPV vaccine, and no one ever spoke to me about cervical screening. I was not aware of the warning signs. If I had known earlier, perhaps my story would have been very different. Today, I want every woman, every mother, every daughter to know what I didn't: that a simple vaccine and a regular screening test can save a life and many miseries. My baby could have been saved too.

7. **What would you say to women who are afraid to get screened or has just received a diagnosis like you?**

   One should definitely go for regular screening so that any disease can be detected at an early stage and prevented from spreading. Please make sure to get regular checkups done. And to those who have recently been diagnosed with this disease, have complete faith in yourself and in your doctors. One day, you too will recover just like I did. Eat healthy food and stay happy, and make sure to spread awareness about this disease among the people around you so that everyone can have proper knowledge about it.

Proceedings of the AOGD Monthly Clinical Meeting

HYBRID MANAGEMENT OF TYPE 3 HYPERVASCULAR RETAINED PRODUCTS OF CONCEPTION: A CASE REPORT

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[1]Associate Consultant at BLK MAX Hospital
[2]HOD and Director at BLK MAX Hospital, Laparoscopic and Robotic surgeon

Background

Type 3 hypervascular retained products of conception (RPOC) pose a high risk of severe hemorrhage during surgical evacuation.

Case

A 37-year-old woman presented with intermittent vaginal bleeding for two weeks following unsupervised medical abortion pill intake. She had a history of two previous cesarean deliveries, hypothyroidism, and anemia (Hb 8.3 g/dL). Serum β-hCG was 612 mIU/mL. Transvaginal ultrasound with color Doppler revealed a 3.9 × 3.5 cm hypervascular fundal lesion consistent with Type 3 RPOC.

Management

To minimize bleeding risk, bilateral uterine artery embolization (UAE) was performed using 500–700 µm embolic particles, followed by hysteroscopic resection with scissors and a cold loop.

Outcome

The procedure was completed without significant blood loss or complications. Postoperative ultrasound confirmed complete removal of retained tissue, and the patient had an uneventful recovery. Conclusion: Preoperative UAE followed by hysteroscopic resection is a safe and effective fertility-preserving approach for selected patients with highly vascular Type 3 RPOC, reducing hemorrhagic risk and facilitating complete evacuation.

Keywords

Hypervascular RPOC, uterine artery embolization, hysteroscopy, post-abortion bleeding. Presacral Neurectomy in patient with Chronic Pelvic Pain.

PRESACRAL NEURECTOMY IN PATIENT WITH CHRONIC PELVIC PAIN

Dinesh Kansal[1], Yamini Kansal[2,] Supriya Mahipal[3]
[1]HOD and Director at BLK MAX Hospital, Laparoscopic and Robotic surgeon, [2]Gynae Oncosurgeon at Dehradun and BLK MAX Hospital
[3]Associate Consultant at BLK MAX Hospital

Title: Successful spontaneous conception and pain relief following Laparoscopic Presacral Neurectomy in a patient with Severe Chronic Pelvic Pain, Multiple Prior Surgeries and Low Ovarian Reserve.

Case Presentation

A 34-year-old woman from Tanzania, gravida 2 para 2, with a history of two Caesarean sections and a total of 11 prior abdominal and pelvic surgeries, presented with severe chronic pelvic pain refractory to medical therapy, last surgery was done in July 2023 which showed pelvic congestion with single left ovary. Despite conservative management (multiple shots of zoladex , iv and oral painkillers) , pain persisted. In August 2024, after detailed counseling, laparoscopic presacral neurectomy was performed, resulting in significant and sustained pain relief. Subsequently, in July 2025, the patient sought fertility treatment. Evaluation demonstrated low ovarian reserve (AMH 0.68 ng/mL) and thin endometrium (3 mm). She underwent hysteroscopy, laparoscopy, and platelet-rich plasma (PRP) injection into the endometrium and left ovary, followed by ovulation induction with gonadotropins and adjunctive hormonal therapy. Endometrial thickness improved to 10 mm, and similar treatment cycles were continued for approximately two months.

Outcome

The patient conceived spontaneously after returning to Tanzania in November 2025. At the time of reporting, she is six months pregnant. Additionally, she continues to experience marked long-term relief from chronic pelvic pain following presacral neurectomy.

Conclusion

This case highlights the potential role of laparoscopic presacral neurectomy in providing durable pain relief in carefully selected patients with refractory chronic pelvic pain. It also demonstrates that successful spontaneous conception is possible despite multiple prior pelvic surgeries, low ovarian reserve, and male factor subfertility. A multidisciplinary and individualized approach can lead to favorable reproductive and quality-of-life outcomes in complex gynecological cases.

T-CELL ACUTE LYMPHOBLASTIC LEUKEMIA IN PREGNANCY: BALANCING MATERNAL TREATMENT AND FETAL OUTCOME

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Acute lymphoblastic leukemia (ALL) during pregnancy is rare and creates a difficult dilemma for the clinician. Maternal outcome depends on timely initiation of chemotherapy,

while fetal outcome is influenced by gestational age, drug exposure and fetal growth. Because robust guidelines are lacking, management is largely guided by case reports, small series, expert opinion and multidisciplinary decision-making.

A 32-year-old second gravida, with previous preterm stillbirth at 32 weeks, was referred to us with a diagnosis is of high-risk T-cell ALL at 19 weeks of gestation. The diagnosis was made after organogenesis but before fetal viability, creating a narrow therapeutic window. Delaying chemotherapy could adversely affect maternal prognosis, while chemotherapy carried fetal risks. After detailed counselling regarding termination as well as continuation of pregnancy with modified chemotherapy, the patient opted to continue the pregnancy. The plan was to continue the pregnancy till 32-34 weeks under comprehensive multidisciplinary monitoring. Standard chemotherapy regimen for ALL includes drugs such as methotrexate, L-asparaginase and cyclophosphamide, which were avoided in this case because of their potential teratogenic effects and limited safety profile during pregnancy. After review of available literature and detailed discussion, a pregnancy-adapted BFM 2002-based induction regimen was initiated at 19+6 weeks, comprising prednisolone, vincristine, daunorubicin and cytarabine, with intrathecal cytarabine. Course of pregnancy was closely monitored for both maternal and fetal well being. Patient developed gestational diabetes mellitus at 28 weeks and was managed with medical nutrition therapy. Multiple blood and blood product were transfused in view of chemotherapy-related marrow suppression. Measurable residual disease assessment after induction remained positive, requiring continuation of chemotherapy with intravenous cytarabine. Patient was followed up closely every week and each antenatal visit functioned as an integrated multidisciplinary review, with input from Obstetrics, Hematology and Fetal Medicine teams. Serial fetal growth surveillance showed progressive fetal growth restriction. Once severe FGR with Doppler changes was documented at 32 weeks of gestation, the balance shifted from expectant management to planned delivery. After antenatal corticosteroids and multidisciplinary review, a live female baby weighing 1.3 kg was delivered by elective caesarean section at 32+4 weeks. The neonate required NICU care with CPAP support for prematurity and low birth weight. Postpartum, the mother was started on consolidation chemotherapy

This case demonstrates that continuation of pregnancy in T-cell ALL may be feasible in carefully selected patients when chemotherapy is adapted to gestational age and maternal treatment is not delayed. After organogenesis, selected chemotherapy may be considered, however, fetal risks such as FGR, prematurity and neonatal cytopenia remain significant. Delivery timing should be guided by fetal growth, doppler findings and maternal disease status. Close materno-fetal surveillance and coordinated multidisciplinary care were instrumental in achieving a favourable outcome.

Block Your Dates

Date/Month/ Year	Name of Event	Venue
19-21 June 2026	WZ with YUVA	Amravati
11-12 July 2026	Critical Care Conclave	Trichy
18-19 July 2026	Stillbirth Conclave	Patna
1-2 August 2026	Fetal Medicine Conclave	Cochin
29-30 August 2026	Preventive Oncology Conclave	Aligarh
4-6 September 2026	SZ with YUVA	Rajahmundry
12-13 September 2026	AOGD Conference	New Delhi
2-4 October 2026	NZ with YUVA	Jammu
23-25 October 2026	RCOG Annual	Mumbai
12-15 November 2026	Presidential Conference	Kolkata
5-6 December 2026	Endo ART Conclave	Pune
6-10 January 2027	AICOG	Surat

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AOGD 2026

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Venue: India Habitat Centre, New Delhi

BLOCK YOUR DATES

10th-11th SEPTEMBER 2026
Pre Conference Workshop

12th-13th SEPTEMBER 2026
Main Conference

Conference Highlights

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- Insightful Scientific Sessions
- Research & Competition Paper Presentations
- Case-Based Panel Discussions
- Networking & Academic Collaboration
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Previous Events, May 2026

CME on Thalassemia conducted by Fetal medicine & genetic subcommittee, AOGD and IAP on 8th May 2026 at ESIC Basaidarapur.

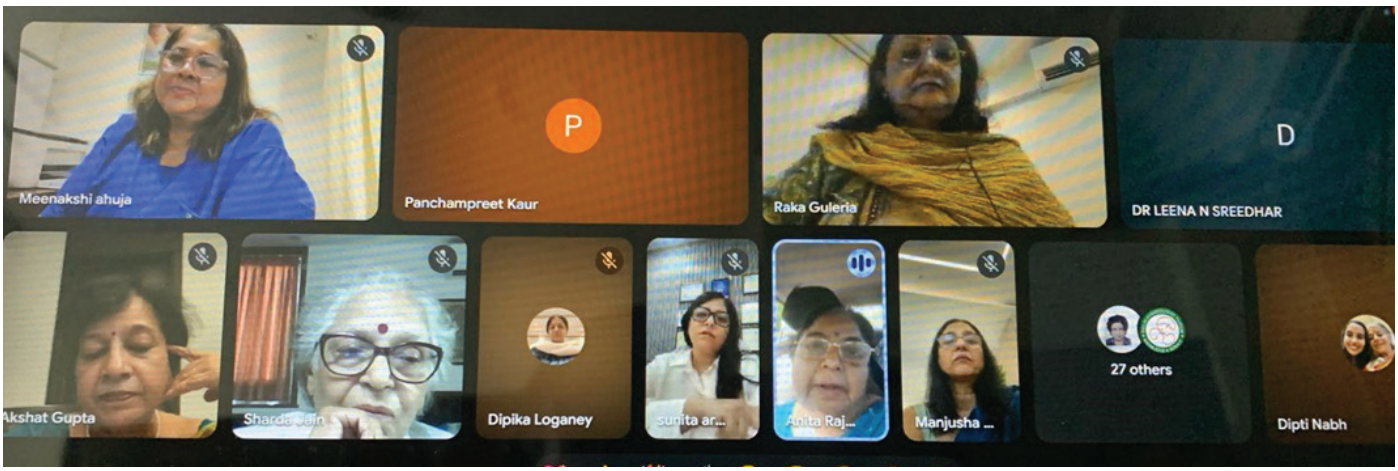


Public awareness program on the occasion of World Thalassemia Day conducted by Medico legal committee on 12th May 2026 at the Antenatal & Gynaecology OPD, Safdarjung Hospital

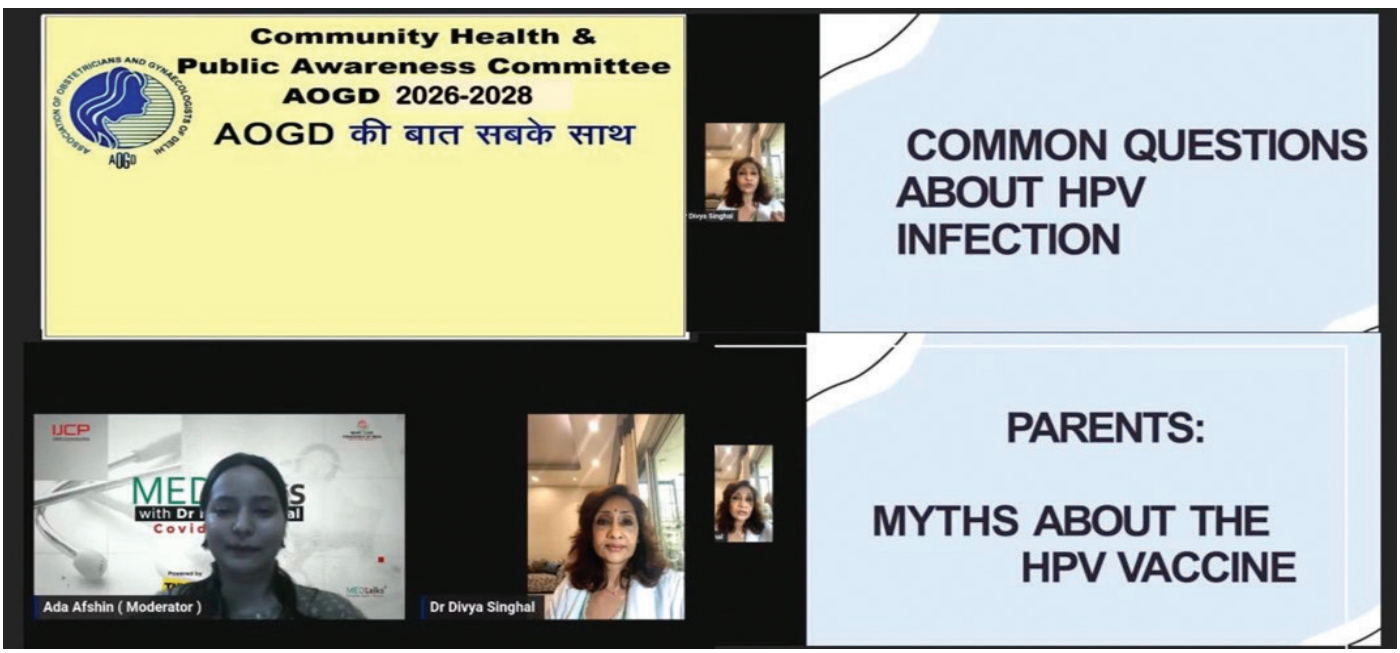



Public awareness camp on HPV Vaccination in adolescents conducted by Adolescent health sub committee on 14 May 2026

Webinar on MISSION ADOLESCENT HEALTH Conducted by Adolescent Health Subcommittee in association with DGF on May 14th May 2026



Webinar on HPV Vaccination and Cervical Cancer Prevention conducted by Community Health & Public Awareness Subcommittee, AOGD, on 15th May 2026

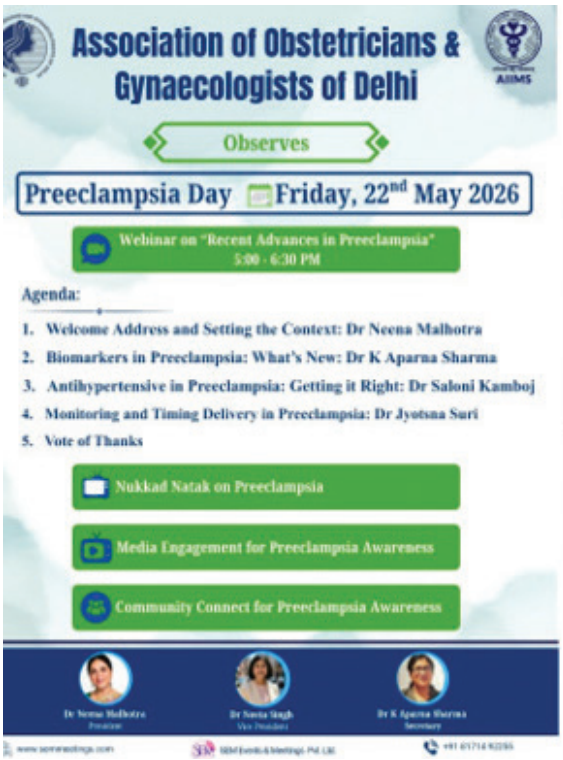


CME on Bridging Perinatology and Medical Disorders: Optimizing Maternal–Fetal Outcomes in High-Risk Pregnancies conducted by Fetal Medicine & Genetics Subcommittee AOGD in collaboration with the FOGSI Perinatology Committee and Medical Disorders in Pregnancy Committee, FOGSI on 16th May 2026 at VMMC & Safdarjung Hospital, New Delhi

Academic Session conducted by Medicolegal Subcommittee in association with DGF West' on 20th May 2026, at Hotel Radisson Blu, Paschim Vihar

Public Awareness program conducted by Community Health & Public Awareness Subcommittee, AOGD, on 21st May 2026

Webinar on Recent Advances in Preeclampsia on the occasion of Preeclampsia day conducted by Dept. of Obs & Gynae AIIMS under the aegis of AOGD on 22nd May 2026



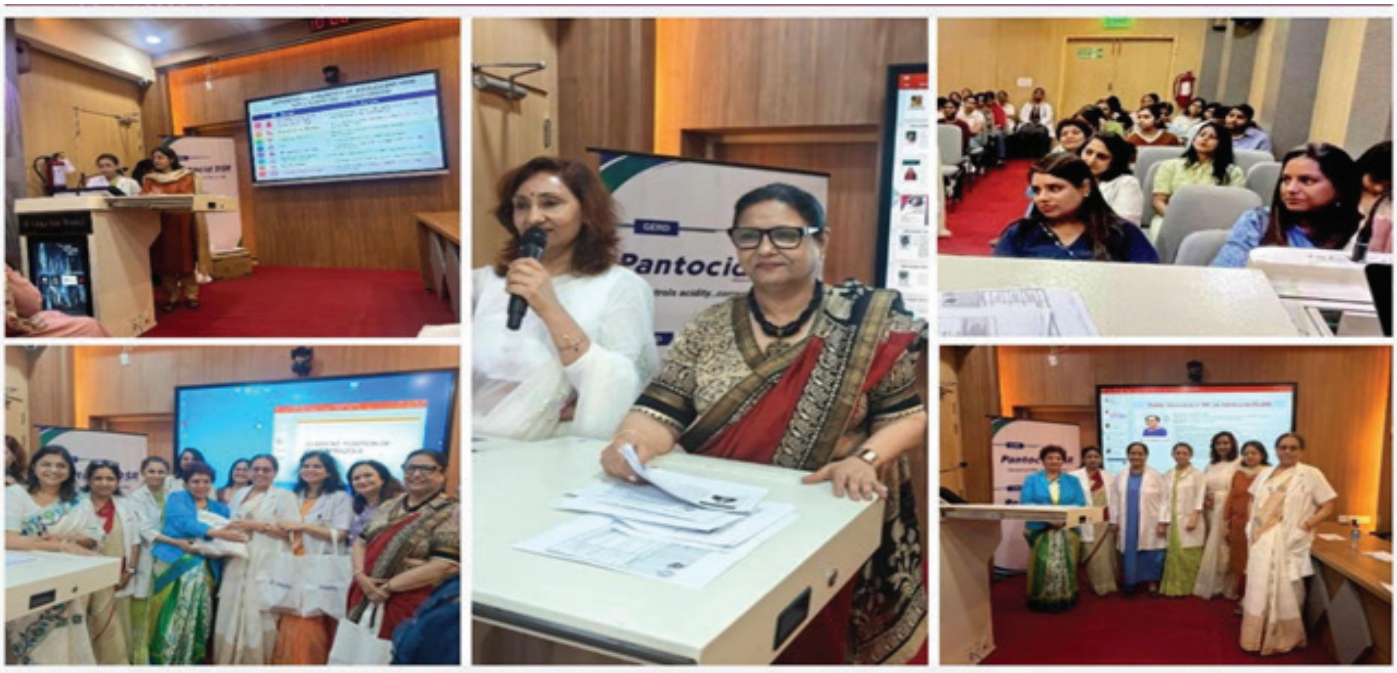
Nukkad Natak on the occasion of Preeclampsia day conducted by Dept. of Obs & Gynae AIIMS under the aegis of AOGD on 22nd May 2026 at ANC OPD AIIMS

Public Awareness Camp on the Occasion of Pre- Eclampsia Day, conducted by Community Health & Public Awareness Subcommittee, AOGD, on 22nd May 2026 in Northwest Delhi.

Public forum on the occasion of World Pre-Eclampsia Day conducted by Safe motherhood Committee of AOGD on 22nd May,2026 at LHMC

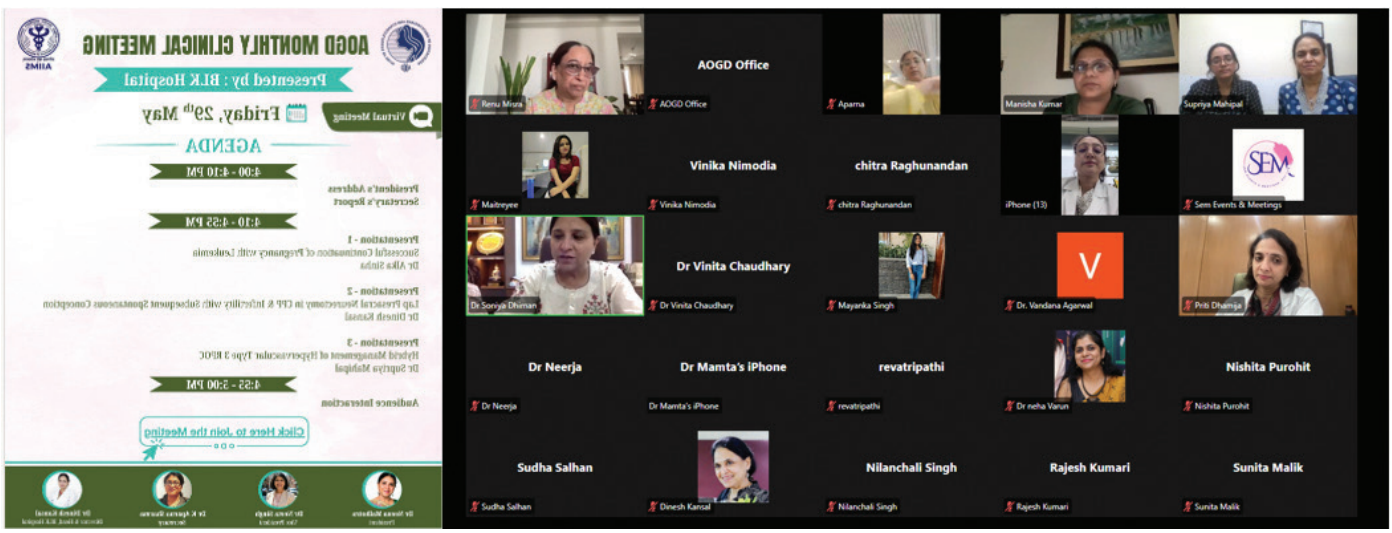
Master class series on Cancer Endometrium conducted by AOGD oncology subcommittee in association with Max Superspecialist Saket & FOGSI Oncology committee on 24th May 2026 at Sheraton New Delhi Hotel, Saket

Public Awareness CME on Adolescent Health conducted by Community Health and Public Awareness Subcommittee AOGD and the Clinical Research Committee of FOGSI on 27th May 2026 at SGRH



CME conducted by AOGD Endometriosis subcommittee arranged a talk on 28 May 2026 at Radisson Blue

The AOGD Monthly Clinical Meeting (virtual) conducted by the Department of Obst & Gynae, BLK Hospital on 29th April, 2026



Association of Obstetricians & Gynaecologists of Delhi

MEMBERSHIP FORM

Name:.....

Surname: .....

Qualification (with year): .....

Postal Address: .....

City:..... **State:** ..... **Pin code:** .....

Place of Working: .....

Residence Ph. No. ..... **Clinical / Hospital Ph. No.** .....

Mobile No:..... **Email:** .....

Gender: Male:..... **Female:**.....

Date of Birth: Date.....**Month** ..... **Year**.....

Member of Any Society:.....

Cheque/DD / No: .....

PHOTO

Cheque/Demand Draft should be drawn in favour of: AOGD 2026

FOR ONLINE TRANSFER THROUGH NEFT/RTGS

Name of Account: AOGD 2026

Account no: 45142130513

Name of Bank: State Bank of India

Branch: AIIMS, New Delhi

IFSC code: SBIN0001536

MICR code: 110002005

For Life Membership	: Rs. 11,000 + Rs. 1,980 (18% GST applicable) = Rs. 12,980/-
For New Annual Membership*	: Rs. 2,000 + Rs. 360 (18% GST applicable) = Rs. 2,360/-
For Old Renewal Membership+	: Rs. 1,200 + Rs. 216 (18% GST applicable) = Rs. 1,416
Entrance Fees (Payable once)	**: Rs. 400/-**

Encl.: Attach Two Photocopies of All Degrees, DMC Certificate and Two Photographs (Self attested)

*** Annual Membership is for the calendar year January to December.**

*** In case of renewal, mention old membership number.**

*** Life membership on or after 1st January, 2022 shall have to renew the life membership after 20 years. The minimum renewal amount will be 25% of the prevailing subscription fee at time of renewal.**

Note: 18% GST will be applicable as FOGSI requires it.

Send Complete Membership Form Along with Cheque / DD and Photocopy of required documents to the secretariat.

For online transaction send scan copy of all documents with payment slip on given mail id

Secretariat

AOGD Office, Room No. 714, 7th Floor, Mother & Child Block, Department of Obstetric and Gynaecology, All India Institute of Medical Science (AIIMS), New Delhi- 110029

Tel.: 011-29576771, (M): 9717392924 | Email Id: aogdaiims2026@gmail.com

AOGD SECRETARIAT
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