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Preventing Cancer with HPV vaccines

01 April 2026 | Features | By Sanjiv Das

A three-month HPV vaccination drive by the Ministry of Health and Family Welfare for adolescent girls was launched on February 28 with much fanfare. The free, World Health Organisation (WHO)-approved single-dose Gardasil-4 vaccine is being touted as a game changer in the long-term fight against cervical cancer. However, the initiative may face initial hurdles, and a stronger awareness campaign will be essential to ensure that more girls receive the vaccine.

The Government of India launched a three-month nationwide Human Papillomavirus Vaccination (HPV) Programme on February 28, 2026, for the prevention of cervical cancer among women. The campaign was launched for 14-year-old girls from Ajmer, Rajasthan, marking a historic milestone in India's fight against cervical cancer.

The single dose Gardasil-4 vaccine is a World Health Organisation (WHO) pre-qualified vaccine used in immunisation programmes across the world, and is now being given to adolescent girls aged 14 years.

The free of cost vaccine will be available at all government primary and community health centres, district and sub-district hospitals, and government medical colleges and hospitals across the country through central-state/UT government collaboration.

A thumbs up initiative

HPV vaccination has been validated and recommended by global and national expert bodies including WHO and India's National Technical Advisory Group on Immunisation (NTAGI).

Prime Minister Narendra Modi described the nationwide HPV vaccination campaign as a pivotal step toward empowering India's *'Nari Shakti'* and safeguarding the health of mothers and daughters across the country.

The Director-General of the World Health Organization, Dr Tedros Adhanom Ghebreyesus congratulated Indian leadership for its commitment in addressing cervical cancer through large-scale public health initiatives. He lauded the nationwide HPV vaccination campaign, describing it as the world's largest free HPV vaccination drive. Commending the initiative, he noted that approximately 12 million adolescent girls will be vaccinated every year under the programme, marking a significant step toward protecting future generations from cervical cancer.

The WHO South-East Region congratulated the Indian government for launching the initiative. In a Tweet, Catharina Boehme, Officer-in-Charge, WHO-South East Asia mentioned that the landmark step at the highest level of the government, reflects India's strong commitment to protecting adolescent girls from cervical cancer.

The Union Minister for Health and Family Welfare Jagat Prakash Nadda during his virtual press briefing at the WHO Headquarters underscored India's strong commitment to eliminate cervical cancer as a public health problem and strengthen global cooperation on pressing health challenges. Nadda stated that the HPV vaccination programme is voluntary, with parental consent serving as a cornerstone of the campaign, reflecting respect for community values and family autonomy.

The Government of Meghalaya launched the National Human Papillomavirus (HPV) Vaccination Campaign at Ganesh Das Hospital, Lawmali, Shillong in alignment with the national launch at Rajasthan.

Rajasthan launched a vaccination drive for 8.32 lakh girls with 188 sessions held on the first day. Gujarat is targeting to vaccinate 5.5 lakh girls. Madhya Pradesh plans to vaccinate eight lakh girls aged between 14 and 15 years across the state with over 7,58,500 doses have been supplied by the Central government followed by other states.

Why the need for Gardasil-4

Gardasil-4, a quadrivalent HPV vaccine protects against HPV types 16 and 18 (which cause cervical cancer), as well as types 6 and 11. It can be noted that cervical cancer remains a significant public health concern globally and in India. It is the second most common cancer among women in India, with over 1,20,000 new cases and nearly 80,000 deaths reported annually as per the WHO GLOBOCAN report 2022. Persistent infection with high-risk Human Papillomavirus (HPV) types, particularly types 16 and 18 – has been established as the primary cause of cervical cancer.

The vaccine has been approved by India's drug regulator and meets stringent quality and cold-chain standards. The vaccine is being procured through a transparent mechanism in partnership with GAVI, the Vaccine Alliance.

Smooth campaign implementation

In a country like India, the launch of new healthcare initiatives is often viewed with a degree of suspicion. In the case of the HPV vaccine, which involves vaccinating adolescent girls, healthcare workers must foster a positive and informed mindset—not only among those receiving the vaccine but also among parents whose consent is essential.

The success of the HPV vaccination programme will depend heavily on the readiness of frontline healthcare workers. Since this vaccine targets adolescent girls rather than infants, healthcare staff must be trained not just in administration but also in counselling parents and addressing concerns around safety. Adequate staffing and consistent training will be critical to ensure high coverage and public confidence in the programme.

An example can be sited of Capital Delhi that had a lower turnout in the first 10 days of the launch of the campaign. The three-month long campaign aims to immunise around 160,000 adolescent girls across the Capital, with 4,000 sessions planned over three months. In this case academic exams were blamed for the lower turnout.

Ranjan Chakrabarti, Ex VP- Discovery Research, Dr. Reddy's Lab and Global Biologics, US Pharmacopeia mentions that a massive training initiative is underway for 50,000 to 60,000 personnel, including Medical Officers, ANMs (Auxiliary Nurse Midwives), and ASHAs (Accredited Social Health Activists) to manage HPV vaccine delivery, which will be a single-dose regimen and given to adolescent girls.

He adds, "This is not a child vaccination, so communication and social mobilisation for both the recipients and their guardians are very important for its success. Schools and rural bodies (panchayats etc.) need to be involved in such activities. Like other vaccines, it has to be integrated into the routine immunisation (UIP) process and the government has to ensure financial and regulatory sustainability."

Integration of digital platforms (like U-WIN and e-VIN)

Beneficiaries of the vaccine may pre-register and schedule appointments on the U-WIN digital platform, or opt for walk-in vaccination at designated government health facilities. Parental/guardian consent is mandatory and will be recorded digitally on U-WIN. In areas without internet connectivity, consent may be obtained in hard copy as per prescribed format.

Digital tracking systems will play a crucial role in reducing dropouts and ensuring that beneficiaries complete the full schedule. These platforms also help identify low-coverage areas early, enabling faster corrective action. The U-WIN platform will be used for session planning, registration, recording and reporting, while the e-VIN portal will manage vaccine stocks and logistics.

The GIS mapping and microplanning. This will facilitate the identification of hard-to-reach schools and communities. Customised session calendars can be developed to prevent scheduling conflicts with examinations or holidays. The maintenance of e-VIN-style stock visibility will be essential to prevent stock-outs, which is proportionately impacting vaccination in remote areas.

Effective vaccine deployment, particularly in rural and remote locations, will likely face several obstacles. There is also a crucial need to adhere to strict protocols for vaccine storage and handling to maintain vaccine efficacy and minimise wastage.

Says **Vandana Iyer, Research Director, TechVision Growth Opportunity Analytics, Frost & Sullivan**, "To ensure socio-economic equity, all delivery channels must remain free of charge at government facilities as mandated for the campaign. Additionally, the existing PHC (Primary Health Centre) and sub-centre network should be leveraged to enhance accessibility

for rural populations which will reduce travel expenses.”

Need for better logistics

The cold chain network spans from manufacturers to session sites and necessitates a comprehensive equipment infrastructure—including Ice-Lined Refrigerators (ILRs), Deep Freezers (DFs), Walk-In Coolers (WICs), Walk-In Freezers (WIFs), cold boxes, vaccine carriers, insulated vans, and temperature monitoring devices. Any disruption within this chain, especially in areas with unstable power supply or insufficient equipment maintenance, can jeopardize the delivery of viable vaccines at the last mile.

Vaccines are highly temperature-sensitive and require robust logistics and reliable last-mile delivery systems. Maintaining cold chain integrity remains one of the biggest operational challenges, particularly in rural and hard-to-reach areas. The HPV vaccine requires strict temperature control, and gaps in storage capacity, electricity supply, and transport infrastructure can affect vaccine potency. In addition, reaching out-of-school girls in remote and underserved communities will demand strong micro-planning, community engagement, and targeted local outreach.

Sheetal Sapale, Vice President, Commercial, Pharmarack Technologies, says, “HPV vaccination needs sustained budget allocation, integration into the national immunisation schedule, and a structured school-based delivery model. Long-term success will depend on consistent supply, clear operational guidelines, and continued awareness efforts to normalise HPV vaccination as part of preventive healthcare. Equitable access will require focused efforts to reach girls in rural areas, urban slums, and out-of-school populations. Free vaccination through public facilities is an important step, but targeted outreach and community engagement will be essential to ensure no eligible beneficiary is missed. Over time, expanding access across regions and socio-economic groups will determine the programme’s true public health impact.”

Outcome

HPV vaccination is undoubtedly a commendable initiative undertaken by the Ministry of Health and Family Welfare to prevent cervical cancer and other HPV-related diseases. However, despite several awareness campaigns, convincing adolescent girls and their parents about the long-term benefits of the vaccine remains a slow and challenging process for health officials across various Indian states. Public hesitancy is partly driven by limited awareness and concerns about possible side effects.

Mridu Gupta, CEO, Cancer Awareness Prevention and Early Detection Trust (CAPED) mentions, “HPV vaccination is a historic step for India, but eliminating cervical cancer will require more than a vaccine. Awareness, screening, and community trust will determine the real impact of this programme. Making the vaccine available is the first step. People must know about it, trust it, and feel confident in accepting it. Schools, teachers, and frontline health workers can play a transformative role in building awareness and encouraging vaccination.”

While available evidence indicates that the vaccine is largely safe, some individuals have reported mild side effects such as headache, nausea, or fatigue. To ensure the success of the vaccination programme, a more effective and transparent communication strategy is required—one that clearly explains both the benefits and potential side effects of the vaccine, while building trust through sustained community engagement and outreach.

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