Human Papilloma Virus Vaccination: Overcoming Barriers to Hesitancy in the GCC countries

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Cervical cancer is largely preventable, yet it remains a major public health concern worldwide because of its substantial impact on morbidity and mortality among women. As a vaccine-preventable disease, its continued burden highlights important gaps in Human Papilloma virus (HPV) vaccination coverage, screening uptake, and access to timely treatment. [1]In 2022, about 604,000 women were diagnosed with cervical cancer and 342,000 died, representing 8% of female cancer deaths globally. Nearly 88% of cases occur in low- and middle-income countries, where cervical cancer can constitute up to 17% of female cancers versus 2–3% in high-income countries. [1]

The six Gulf Cooperation Council (GCC) countries Bahrain, Kuwait, Oman, Qatar, Saudi Arabia, and the United Arab Emirates are high-income states with advanced health systems. Nevertheless, in 2022 cervical cancer caused roughly 664 new cases and 344 deaths in the region, and about 2,500 women were living with the disease at five-year prevalence. [2]

The crude incidence of HPV-related cancer per 100,000 population was highest in Oman (5.07), followed by the UAE (4.03), Bahrain (3.49), Qatar (3.21), Kuwait (3.20), and Saudi Arabia (2.44). A similar ranking appears for crude mortality rates: Oman (2.88), Bahrain (2.0), UAE (1.93), Kuwait (1.69), Qatar (1.4), and Saudi Arabia (1.22)[3] In Oman, cervical cancer consistently ranks among the top five cancers affecting women, with around 90 new diagnoses and 50 deaths annually. [4] Local studies have documented an overall HPV prevalence of 17.8%, rising to 37.5% among women with abnormal cervical cytology, and document circulation of at least 15 high-risk HPV genotypes, including regionally common types 82 and 68. [5]

In 2020, the World Health Assembly endorsed the Global Strategy to Accelerate the Elimination of Cervical Cancer as a Public Health Problem. Problem. [2] The strategy rests on three pillars and the "90-70-90" 2030 targets: vaccinate 90% of girls with full HPV coverage by age 15; screen 70% of women with a high-performance test at least twice (ages 35 and 45); and ensure 90% of women with cervical disease (pre-cancer or cancer) receive appropriate treatment. Modeling indicates meeting these goals could lower age-standardized incidence to ≤4 per 100,000 women and prevent more than 74 million cases and 62 million deaths worldwide over the next century.[2]

In recent years, the GCC countries have made remarkable progress in implementing HPV vaccination. As of November 2025, all six countries have incorporated HPV vaccination into their national immunization programs, primarily targeting girls aged 12–13 years, with Bahrain, Qatar, and the UAE also offering vaccinations to

boys. However, published coverage data remain limited, and screening uptake is highly variable across and within GCC countries. [3]

HPV vaccination represents one of the most impactful public health measures for the prevention of cervical cancer. Global evidence of more than 15 years supports that HPV vaccines are safe and effective, with long-term protection against HPV infection and related precancerous lesions. Fifteen years of post-licensure evidence have confirmed that currently licensed HPV vaccines are exceptionally safe, immunogenic, and effective. Population-level studies from Australia, land, Sweden, and England have shown near-elimination of vaccine-targeted HPV types (6/11/16/18) and reductions of 80–90% in high-grade cervical lesions among vaccinated cohorts. [6-8] In England, women vaccinated at ages 12–13 years have experienced up to 87% fewer cervical cancers than unvaccinated women. [6] Of particular interest, one study from Saudi Arabia indicated that HPV 16 and HPV 18/45 were the most common types among women with cervical atypical squamous cells of undetermined significance. [9]

Real-world population data from several countries show near-elimination of vaccine-targeted HPV subtypes (6, 11, 16, 18); a strong indicator that vaccination reduces the burden of HPV-associated diseases. [10] Data from the United Kingdom showed that HPV vaccination since its introduction in 2008 led to about a 75% reduction in cervical cancer diagnoses. [11] Similarly the report's results from Scotland indicate that no occurrences of cervical cancer have been identified to yet in women who were completely vaccinated and had their first dose at the ages of 12 and 13. Emerging data also demonstrate protection against oral and anal HPV infections and associated neoplasia. [10]

Despite this compelling evidence and the region's strong health infrastructure, several context-specific barriers continue to constrain optimal coverage in the GCC countries:

1. Knowledge gaps: Systematic reviews report parental awareness of HPV and its link to cervical cancer as low as 11–30% in some GCC settings, with pooled vaccine acceptance across the broader Middle East and North Africa region around 46%. [12]

2. Cultural and religious sensitivities: Concerns that vaccination may be interpreted as tacit endorsement of premarital sexual activity remain a powerful deterrent for some parents.

3. Health-care provider factors: Many physicians and nurses report insufficient training and low confidence in discussing HPV vaccination, particularly with conservative families.

4. Structural and logistical issues: Suboptimal integration into school health services, limited weekend/evening clinics, and incomplete immunisation registries hinder reach and follow-up.

Beyond incorporating HPV vaccination into national programs, GCC countries must proactively address vaccine hesitancy influenced by knowledge gaps, cultural sensitivities, and structural barriers and knowledge-based barriers that constrain coverage.

Drawing from both regional and global experiences, lessons have emerged that necessitate not only the availability of vaccines but also strategic planning, community engagement, and continuous support of the health system to ensure sustainability and impact.

Key barriers in GCC countries fall into three categories, namely knowledge gaps, cultural sensitivities, and structural barriers. Knowledge gaps remain the most common barrier to efforts. In GCC countries, parental awareness of HPV and its link to cervical cancer has been reported to be as low as 11%, which illustrates the importance of proactive education. [12]

In the MENA region, the pooled HPV vaccine acceptance rate was 45.6%, with similar acceptance levels among healthcare workers (HCW) and non-healthcare workers. [13] Cultural and religious sensitivities remain powerful influences on attitudes toward HPV vaccination in the Gulf region. Concerns that the vaccine is linked to sexual activity often limit parental willingness to vaccinate adolescents. To address these barriers, tailored Information, Education, and Communication (IEC) materials should frame HPV vaccination as cancer prevention

rather than protection against a sexually transmitted infection. Such reframing has been shown to substantially improve acceptability.

The involvement of trusted figures such as religious leaders, teachers, and community health workers can reduce resistance and build confidence. Successful high-coverage programs elsewhere globally offer transferable lessons.

HCWs are the most influential drivers of vaccine uptake by providing accurate and authentic information, yet many in the region report limited confidence or inadequate training to recommend HPV vaccination effectively. A multi-institutional study of female medical students in Saudi Arabia showed that vaccine-specific knowledge and uptake were low. [12] Strengthening HCWs training, improving communication skills, and ensuring on-site access to vaccination are thus essential. Furthermore, during vaccine rollouts, HCWs' responsibilities extend beyond service delivery to include patient education, community engagement, addressing misinformation proactively, and reducing the stigma associated with HPV-related diseases.

These strategies are highly feasible in the GCC countries' context, given the economic cushion and the large expanse of the healthcare infrastructure. Religious scholars across the region have repeatedly endorsed vaccination as a form of disease prevention consistent with Islamic teachings on preserving life and health. School enrolment is near-universal, and existing school health programs already deliver other adolescent vaccines successfully. Implementing comprehensive data systems is also essential for monitoring vaccination coverage, overseeing adverse events following immunization, and evaluating program performance. Global monitoring systems, such as the Vaccine Confidence Project, emphasize the importance of early detection of rumors and a rapid response to maintain public trust. GCC countries are well-positioned to achieve high HPV vaccine uptake and substantial long-term reductions in HPV-related cancers. [5]

Beyond these operational considerations, the introduction of the HPV vaccine also raises important ethical considerations that extend past safety and efficacy. These ethical dilemmas e.g., mandatory vaccination, parental consent, equity of access for migrant workers, or male vaccination debates, frequently arise at the convergence of public health objectives, individual autonomy, cultural principles, and social justice. Addressing them thoughtfully is essential to ensure that vaccination programs are perceived as fair, transparent, and widely accepted, thereby fostering greater trust and participation within communities and parents.

Preventing cervical cancer in the GCC requires culturally grounded, evidence-based strategies tailored to regional norms and health-system realities. To translate commitment into elimination, we propose the following interconnected priorities:

· Strengthening public knowledge through targeted IEC materials that emphasize cancer prevention, avoiding explicit references to sexual transmission.

· Systematically engage religious scholars, community influencers, and school teachers as trusted advocates of vaccination through structured training and joint public events.

· Equipping healthcare providers with training, communication skills, and confidence to counsel families. Emphasis needs to be laid on motivational interviewing and addressing parental concerns.

· Fully integrating HPV vaccination into routine adolescent and school-based services with clear standard operating procedures, parental consent processes, and catch-up vaccination for older adolescents.

· Establishing robust digital monitoring and rapid-response mechanisms to track coverage, address misinformation, and sustain public trust. Reminder recall systems and pharmacovigilance are additional digital tools that can strengthen the rollout.

· Create rapid-response teams (including communication specialists and community liaisons) to monitor social media, detect misinformation early, and provide accurate counter-messaging.

The GCC countries possess the robust financial resources, infrastructure, political will, and cultural assets required to become global exemplars in the elimination of cervical cancer. By coupling high-quality vaccination and

screening services with evidence-based processes, the region can reduce incidence to elimination levels within a single generation preventing virtually all future cervical cancer deaths among girls vaccinated today. The tools are available, the evidence is unequivocal, and the moral imperative is clear. Sustained, coordinated action across health, education, regulatory, and community sectors can perhaps allow us to venture into an era where cervical cancer is a disease of the past in the Gulf.

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