



Translating the COVID-19 experience in widening the HPV vaccination campaign for cervical cancer in India

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ABSTRACT

India has proven by the success of COVID vaccination that it has a huge production and distribution capacity, availability of professionally trained medical staff, world renowned digital infrastructure to enrol people, conduct camps and maintain records, and a positive mindset among the people towards vaccination. There is an unmet need to enforce that cervical cancer is a “preventable tragedy,” and vaccination is an invaluable way ahead. With this article, we hope to attract attention to translating India’s successful COVID-19 vaccination campaign experience to developing the HPV vaccination campaign.

The Kenya-led KEN SHE study from 2018 to 2021 was a landmark, multicentre randomised controlled trial which determined the vaccine efficacy (VE) of a single dose of nonavalent (against strains 16/18/31/33/45/52/58/6/11) or bivalent (strains 16/18) Human Papillomavirus (HPV) vaccine for cervical cancer (CC). The VE was 97.5 % (95 % CI 81.7–99.7 %, $p = <0.0001$) for nonavalent and 97.5 % (95 % CI 81.6–99.7 %, $p = <0.0001$) for bivalent, causing minimal persistent oncogenic HPV infection, with results comparable to the multi-dose counterparts (Ministry of Health and Family Welfare, Government of India, 2023). The global coverage for full dose HPV vaccine is 12 %, whereas 15 % for a single dose (Ahuja et al., 2022). Taking aforesaid into strong consideration, to boost cost-effectiveness, delivery, and accessibility, it was pivotal for the World Health Organisation (WHO) to update recommendations to the one-dose regimen for girls 9–14 years of age for adequate health protection from HPV, especially strains 16 and 18

(Barnabas et al., 2022).

From the Indian perspective, the WHO predicts a CC-related mortality outcome of 5.7 million women by 2070 from 4.1 million in 2019 (Burki, 2023). It is one of the 194 nations committed to achieving the target of fully vaccinating 90 % of girls within the age of 15 years by 2030 (UNICEF India, 2023). The intent to include the HPV vaccine in its very comprehensive universal immunisation scheme would deem promising in achieving the target above (Kumar et al., 2021). Facilitating that is Cervarac, India’s homegrown quadrivalent vaccine with an expected cost of INR 200–400 but in present reality 2000. It was developed by the Serum Institute, launched by the Drugs Controller General of India (DGCI) in September 2022, and rolled out in January 2023 by the Ministry of Health and Family Welfare. The aim being vaccinating almost 68 million girls aged 9–14 years within 2025 (UNICEF India, 2023; Ministry of Health and Family Welfare, Government of

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India, 2023). Coupling this with the new single shot regimen, two major issues, namely cost, and availability can be addressed.

The world's most populous country of 1.39 billion, India has also been deemed the world's largest producer and distributor of COVID-19 vaccines (Shah et al., 2021). According to the Union Health Ministry, India's COVID-19 vaccination experience triggered rapid development, popularisation, and large-scale administration of vaccines, i.e., above 90 % of eligible people with the first dose & 65 % with the second dose. A few notable milestones included administering over 1 billion doses in less than nine months and around 25 million doses in a single day (Singh et al., 2022). On the contrary, pre-existing barriers to starting a nationwide HPV vaccination campaign include a lack of standardised recommendations on dosage, mode of administration, cost & vaccine availability, insufficient knowledge, misbeliefs, and perceived hesitancy among parents & adolescents to discuss both diseases and vaccines (The Lancet Oncology, 2022). However, since the response to the COVID-19 Vaccination was positive, and a general belief that vaccines save lives has been propagated, the lived experiences can be translated to implementing the same in the CC campaign.

Another important aspect of the success of the COVID-19 vaccination scheme was its promotion and marketing by people of influence, efficient social media dissemination of information, targeted campaigns & peer encouragement endeavours such as "Har Ghar Dastak" & "Jan Bhagedari Aandolan." This helped in reducing vaccine hesitancy even in rural areas (Singh et al., 2022). According to the COVID-19 "Trends & Impact Survey" conducted by Facebook, India had the highest vaccine acceptance of around 77 % (World Health Organisation, 2023). This strategy can also be translated into the HPV vaccination campaign.

The phased vaccination strategy used in COVID vaccination can also be used here, beginning the vaccination for girls the age of 9–14 and gradually expanding it to unmarried women of the age of 25 years & later expanding to boys (Singh et al., 2022). Administration of the vaccines can begin in schools but gradually become open to the public at the primary & secondary healthcare centres by self-registration.

The CoWIN dashboard application was developed to digitalise and systemise COVID-19 vaccination. This technology can be very effective for HPV Vaccination by gathering data from schools and determining the beneficiaries, scheduling camps in the nearest healthcare facilities, tracking the number of people vaccinated, and proper certification of the beneficiaries. With the introduction of health identification documents, this process can become smoother for maintaining records. The portal has a simple user interface to register and select a convenient facility (World Health Organization, 2021). There is also real-time monitoring to evaluate vaccination access and delivery and correlate with goals. For example, real-time statistics show around 1 billion people have been COVID vaccinated once, and 0.95 billion have had it twice. The precautionary dose has been taken by 0.22 billion people (World Health Organization, 2022).

The country also expanded the distribution and storage of vaccines post-COVID with increased ice-lined refrigerators and other cold chain equipment. Also, for the delivery of COVID vaccination, more than 7000 healthcare professionals were trained (Singh et al., 2022). Such can be deemed very supportive of the HPV vaccination campaign.

India has proven by the success of COVID vaccination that it has a huge production and distribution capacity, availability of professionally trained medical staff, world-renowned digital infrastructure to enrol

people, conduct camps and maintain records, and a positive mindset among the people towards vaccination. In retrospect, a potent reason the Indian population finally accepted the COVID vaccination was the spectacular fear and havoc it generated during the second wave in April 2021. So, while the acceptance of the two vaccines cannot be compared, the brilliant ways the popularised COVID vaccine can be replicated. There is an unmet need to enforce that CC is a "preventable tragedy," and vaccination is an invaluable way ahead. With this article, we hope to attract attention to translating India's successful COVID-19 vaccination campaign experience to developing the HPV vaccination campaign in CC.

Author contributions

Conceptualisation and design – AA, AG, SM; Data collection and assembly – AA, AG, BS; Data analysis and interpretation – AA, AG, SN; Manuscript writing – All authors; Final Approval of Manuscript – All Authors.

Declaration of Competing Interest

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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