



# Effect of COVID-19 on HPV Vaccination in HIV Individuals: A Preliminary Observation from HIV Clinic in Indochina

Amnuay Kleebayoon<sup>1</sup> Rujittika Mungmunpantipantip<sup>2</sup> Viroj Wiwanitkit<sup>3</sup>

<sup>1</sup> Private Academic Consultant, Samraong, Samraong, Cambodia

<sup>2</sup> Private Consultant, Thailand

<sup>3</sup> Department of Community Medicine, D.Y. Patil Vidyapeeth, Pune, Maharashtra, India

**Address for correspondence** Amnuay Kleebayoon, PhD, Private Academic Consultant, Samraong, Samraong, Cambodia (e-mail: amnuaykleeбай@gmail.com).

Ind J Med Paediatr Oncol

Dear Editor, cervical cancer is the fourth most frequent malignancy and the leading cause of cancer death in women worldwide, despite being highly preventable.<sup>1</sup> In developing countries in Africa and Asia, there is a high incidence of cervical cancer.<sup>1</sup> As earlier noted, cervical cancer frequently ranks as the top cause of cancer-related morbidity and mortality in low-income nations.<sup>1</sup> In clinical oncology, the control of the cervix cancer is an important issue for cancer prevention. Several preventive measures including cervical cytology screening and vaccination are practiced. Several screening methods such as cytology and human papillomavirus (HPV) deoxyribonucleic acid (DNA) are available at present.<sup>1</sup> Cervical cancer vaccination is currently used as standard practices. The worldwide regular vaccination program for all females aged 12 to 16 now includes HPV vaccine.

Due to a compromised immune response to the HPV, the primary cause of almost all cervical malignancies, women with human immunodeficiency virus (HIV)/acquired immunodeficiency syndrome are at an especially high risk of developing cervical cancer. Approximately 1 in 20 cases of cervical cancer worldwide is caused by HIV.<sup>1</sup> Cervical cancer risk is much higher for women with HIV. Particularly crucial for developing nations are cervical cancer screening for HIV-positive women and HPV immunization.<sup>2</sup> The highest incidence countries have low HPV vaccine coverage, and screening results vary widely across nations. Cervical cancer risk is much higher for women with HIV.<sup>2</sup> For nations in southern and eastern Africa, where a sizable incidence of cervical cancer related to HIV has added to the existing cervical cancer burden, HPV vaccination and cervical cancer screening for women living with HIV are especially crucial.<sup>2</sup> The global endeavor to end cervical cancer as a public health issue could be aided by increased efforts to combine HIV care

with cervical cancer prevention and control, and vice versa.<sup>1</sup> For all women with HIV, immunization against cervical cancer is advised as an oncological preventive intervention. In many developing nations, this technique has just recently been put into effect. There are many obstacles in the way of vaccine coverage.

At present, the new global public health concern is on the coronavirus disease 2019 (COVID-19). The COVID-19 is a viral infection that can result in acute respiratory problem and it can also result in a long-term clinical complication. The outbreak of COVID-19 occurs worldwide and causes problem on the medical care system. In clinical oncology, the interruption of standard regular clinical management is a common problem and it also affects the preventive oncology practice. The interrelationship between cervix cancer and COVID-19, the new emerging disease, is an interesting issue in clinical oncology. Even though HPV has a much longer latency period than COVID-19, the mortality rate for HPV-associated malignancies following infection is comparable.<sup>3</sup> Contrarily, HPV infection advances gradually and covertly over years, and it can result in cervical cancer and even death.<sup>3</sup> Women should embrace HPV vaccination for the long-term prevention of cervical cancer with the same enthusiasm they do COVID-19 testing, according to Miyoshi et al.<sup>3</sup> The COVID-19 pandemic is threatening to derail HPV vaccination uptake in low- and lower-middle-income countries, disrupting routine immunization and delaying the introduction of new vaccines.<sup>4</sup> This has a significant impact on the World Health Organization's cervical cancer elimination strategy, which includes HPV vaccination as well as cervical cancer screening and treatment.<sup>4</sup>

According to a recent assessment, after the COVID-19 attack, girls' vaccination rates for cervical cancer dropped

DOI <https://doi.org/10.1055/s-0044-1786971>.  
ISSN 0971-5851.

© 2024. The Author(s).

This is an open access article published by Thieme under the terms of the Creative Commons Attribution License, permitting unrestricted use, distribution, and reproduction so long as the original work is properly cited. (<https://creativecommons.org/licenses/by/4.0/>)

Thieme Medical and Scientific Publishers Pvt. Ltd., A-12, 2nd Floor, Sector 2, Noida-201301 UP, India

from approximately 70%.<sup>3</sup> In this article, the authors reevaluate data from an Indochina China region where HIV infection is common. In this article, the authors reevaluate data from an Indochina China region where HIV infection is common (GPS location: 13.707457633253622, 100.32380528371942). Additionally, this region is COVID-19's second-most recently afflicted region, following China (since January 2020). At present, COVID-19 still exists in this area and the problem of outbreak still required a good monitoring and control. In this situation, girls aged 7 have just received the universal cervical cancer vaccination, which is good for 7 years (start at 2017). Retrospective analysis of the publicly accessible data from a hospital with an HIV clinic was performed. The statistics on the proportion of adult women (over 20 years old) with newly discovered HIV infection are reevaluated. All of them are locals and have never had a vaccination against cervical cancer. At this first visit to the HIV clinic, these cases were made available for the cervical cancer vaccine.

► **Table 1** shows the rate of cervix cancer vaccine cases over a 6-year period, from 2017 to 2021. In total, there are 900 cases of adult females with newly diagnosed HIV who are between the ages of 20 and 59. This is in accordance with the local governmental public health strategy (<http://dcd.ddc.moph.go.th/>) to promote HPV vaccination among local adult females as much as feasible; thus, a diverse range of female age groups is targeted. All cases are provided with a free HPV vaccination and cervical cytology screening test, according to local practices. The interval between a diagnosis and vaccination is 1 month, and a quadrivalent kind of vaccine is administered. According to the available data, the cervix cancer vaccination rate is not 100%, and many HIV-infected women did not receive vaccination due to refusal. There is no significant change in the cervix cancer vaccination rate when there is a COVID-19 outbreak. This finding is intriguing and contradicts the previous report that the COVID-19 pandemic has an effect on preventive oncology measures.<sup>3</sup> With significant delays to routine immunization and the introduction of new vaccines delayed, the global COVID-19 pandemic threatens to stall the uptake of HPV vaccination in low- and lower-middle-income nations.<sup>4</sup> In low- and lower-middle-income countries, Toh et al recommended implementing four key recommendations for HPV vaccination: increased global financial investment, improved vaccine supply and accelerated use of a single-dose schedule, education and social

**Table 1** COVID-19 vaccination rate among newly identified HIV infected female adults

Years	Number of newly diagnosed HIV infected female adults	Cervix vaccination rate (%)
2017	159	81.8
2018	145	86.8
2019	158	91.7
2020 <sup>a</sup>	179	87.1
2021 <sup>a</sup>	259	90.5

Abbreviations: COVID-19, coronavirus disease 2019; HIV, human immunodeficiency virus.

<sup>a</sup>Existence of COVID-19.

marketing, and adoption of universal school-based delivery. The effective eradication of cervical cancer would be supported by the adoption of these techniques, along with the support of the international health community.<sup>4</sup>

Regarding the impact of COVID-19 on routine cervix cancer prevention, the problem of preventive manipulation during outbreaks is observed. In contrast to HPV, COVID-19 is feared, individuals avoid public places to avoid getting infected, and many are waiting for a vaccine to be developed. These actions are, in some ways, inevitable, and they can be understood by the basic ideas of behavioral economics, such as the availability heuristic and present bias.<sup>3</sup> A positive outcome can be anticipated if there is a good effort and plan made to handle immunization during the pandemic. Guidelines for Quality Assurance of Cervical Cancer Prevention are currently available, and they are based on integrated HPV vaccination and screening, as well as monitoring the development of the eradication goal.<sup>5</sup> Stakeholders should not stray from this goal as a result of the COVID-19 epidemic, which momentarily halted prevention efforts.<sup>5,6</sup> Health professionals should concentrate on high-risk women and follow cost-effective strategies, including self-sampling, in the immediate postepidemic phase.<sup>7</sup>

Gynecologists should provide the right information to their patients' families, as recommended by Miyoshi et al, so that Japanese women can overcome their cognitive biases and accurately comprehend the relationship between COVID-19 and the susceptibility to and severity of cervical cancer. They should then act on this understanding by getting the HPV vaccine.<sup>3</sup> Generally, attachment to the care of the HIV patient is an important determinant of acceptance of the HPV vaccination.<sup>1</sup> Strategies for the effective implementation of vaccination practices are required. Retention in care, along with reminders about vaccinations and easy access to vaccines at the clinic, may aid in boosting vaccination rates. Active preventive case management is crucial during a public crisis like COVID-19. The current report demonstrates that if a good public health system is in place to promote cancer prevention, the system can still function during the COVID-19 pandemic crisis.

It should be noted that COVID-19 and HPV are distinct organisms with distinct mechanisms of transmission and latency periods. The COVID-19 pandemic's impact on ordinary health care services, such as cervical cancer screening and HPV vaccination, is a legitimate issue. The pandemic's disruption, such as health care system strain, resource allocation, and changes in health care-seeking behavior, may have an impact on the management and prevention of a variety of health disorders, including HPV-related diseases. However, it is critical to treat COVID-19 and HPV latency as distinct problems, focusing on the distinct characteristics and implications of each infection. The impact of COVID-19 on ordinary health care services, as well as its potential ramifications for HPV-related illnesses, would provide vital insights into the larger effects of the virus. It is critical to realize the intricate and diverse link between COVID-19 and HPV latency. While COVID-19 may not have an immediate influence on HPV latency, the pandemic's indirect effects on health care services, vaccination programs, health care-seeking behavior, sexual habits, and mental health

may have an impact on HPV-related outcomes. Continued study and monitoring of these interconnections is critical to ensuring successful management and prevention of HPV-related illnesses during and after the COVID-19 pandemic.

Finally, HIV-positive women are subjected to cervical cancer screening measures such as PAP smear/liquid cytology/HPV DNA testing. More research on this topic is needed to determine the impact of the COVID-19 pandemic. The previous report from Indochina also observed the significant impact of COVID-19 pandemic on cervical cancer screening.<sup>8</sup> The results should follow the same pattern as the HPV vaccination issue.

In conclusion, cervical cancer is a major worldwide health concern, particularly in developing nations, and although being eminently avoidable, it continues to have a high incidence and fatality rate. The link between HPV and cervical cancer, as well as the relevance of prevention methods such as vaccination, are critical to reducing the disease's impact. COVID-19 has had a significant influence on cervical cancer prevention, and further research is needed to understand its implications on screening and immunization efforts. Efforts to integrate HIV care with cervical cancer prevention and control, as well as methods to sustain immunization programs during the pandemic, are critical in the global battle against cervical cancer.

#### Authors' Contributions

A.K.: ideas, writing, approval.

R.M.: ideas, writing, approval.

V.W.: ideas, supervision, approval.

#### Funding

None declared.

#### Conflict of Interest

None declared.

#### References

- 1 Castle PE, Einstein MH, Sahasrabudde VV. Cervical cancer prevention and control in women living with human immunodeficiency virus. *CA Cancer J Clin* 2021;71(06):505–526
- 2 Stelzle D, Tanaka LF, Lee KK, et al. Estimates of the global burden of cervical cancer associated with HIV. *Lancet Glob Health* 2021;9(02):e161–e169
- 3 Miyoshi A, Ueda Y, Kimura T. Contemplating HPV vaccination in Japan during the time of COVID-19. *Hum Vaccin Immunother* 2021;17(03):836–837
- 4 Toh ZQ, Russell FM, Garland SM, Mulholland EK, Patton G, Licciardi PV. Human papillomavirus vaccination after COVID-19. *JNCI Cancer Spectr* 2021;5(02):pkab011
- 5 Gountas I, Favre-Bulle A, Saxena K, et al. Impact of the COVID-19 pandemic on HPV vaccinations in Switzerland and Greece: road to recovery. *Vaccines (Basel)* 2023;11(02):258
- 6 D'Amato S, Nunnari G, Trimarchi G, et al. Impact of the COVID-19 pandemic on HPV vaccination coverage in the general population and in PLWHs. *Eur Rev Med Pharmacol Sci* 2022;26(19):7285–7289
- 7 Arbyn M, Gultekin M, Morice P, et al. The European response to the WHO call to eliminate cervical cancer as a public health problem. *Int J Cancer* 2021;148(02):277–284
- 8 Mungmunpuntipamtip R, Wiwanitkit V. COVID-19 on cervical cancer screening. *Eur J Cancer Prev* 2022;31(04):400