

EDITORIAL

HPV Vaccines and a Future without Cervical Cancer in sub-Saharan Africa

Ezeanochie MC.

Department of Obstetrics and Gynaecology, University of Benin Teaching Hospital, Benin City, Nigeria.

Cervical cancer remains a global public health problem with the annual number of new cases projected to increase from 570 000 to 700000 and deaths from 311,000 to 400,000 between 2018 and 2030.¹ Unfortunately, about 85% of woman affected by cervical cancer are young, undereducated and live in the world's poorest regions like sub-Saharan Africa including Nigeria.² Although high income countries (HIC) have reduced morbidity and mortality from cervical cancer by about 80% using cytology (pap smears) for population-based screening cervixes in the past 60 years, many low-middle-income-countries (LMIC) in sub-Saharan Africa have not been able to replicate it due to limited resources and challenges with the personnel, laboratory and logistics requirements, competing health needs and the appropriate political commitment.

Cervical cancer is caused by persistent infection with oncogenic strains of the human Papilloma Virus (HPV) such as types 16 and 18 in 70% of cases and the remainder by types 31, 33, 35, 39, 45, 51, 52, 56, 58, and 59. The primary prevention of cervical cancer therefore implies the ab initio prevention of HPV infection while screening and treatment for premalignant cervical disease in women is the secondary prevention. The first HPV vaccines were licensed for use in 2006 by the FDA and offered protection against infection with oncogenic HPV types 16 and 18 while current versions offer protection against up to nine oncogenic HPV serotypes. Due to phylogenetic similarity in the structure of many oncogenic types of HPV, the vaccines provides strong vaccine efficacy against vaccine-targeted type infections, and partial cross-protection to phylogenetically-related types of oncogenic HPV.³

Many HIC, like Australia, have been implementing a free HPV vaccination of vulnerable children (male and female) and adolescents from age 9 up to 26 since 2007. Initially, HPV vaccines were administered using multiple dose regimens (2 or

3) over 6 to 12 months which increased the costs of administration and access to the vaccines in LMICs. However, recent evidence has shown that a single dose regime given to young girls between age 9 and 15 were also effective in preventing premalignant and malignant disease of the cervix.^{4,5} Also, HPV vaccination programs has been associated with reductions in the prevalence of genital warts from non-oncogenic HPV types and other HPV associated precancers and cancers of the vagina, vulva, penis, anus and respiratory tract.⁵

About 10 years after its licensure in 2017, over 270 million doses of HPV vaccines were administered and the 'The Global Advisory Committee on Vaccine Safety' (GACVS) in the of the World Health Organization (WHO) has been tracking the safety and side effects associated with the vaccines. The GACVS, which respond promptly, efficiently, and with scientific rigour to vaccine safety issues of potential global importance. considers the HPV vaccines to be extremely safe.⁶ Commonly reported self-resolving reactions to HPV vaccine administration includes pain, fever, headache, nausea and swelling at the injection site. Dizziness or fainting spells may occur after receiving the vaccines, therefore adolescents are adviced to seat or lie down for 15 minutes after getting the shot. There is currently no evidence that HPV vaccines cause infertility, neurological disorders or auto-immune diseases. Surveillance and monitoring of people who have received the vaccines for any serious side effect or adverse reactions continues as the vaccines become more available and accessible globally.

The current 'Global Strategy for the elimination of Cervical Cancer' as a public health problem, developed by the WHO and endorsed by the World Health Assembly in 2020, envisions a world where cervical cancer is eliminated as a public health problem by 2120.¹ It is an ambitious, concerted and inclusive strategy that is underscored by the understanding that cervical cancer is preventable and curable if detected early. Through robust epidemiological modelling, the global strategy anticipates that countries must meet certain interim targets by

Correspondence to:

ezeanochie.michael@gmail.com

year 2030 to be on a sustainable pathway to eliminate cervical cancer by 2120. These targets are the vaccination of 90% of children between 9 and 15 years, screening 70% of eligible women with a high-performance screening test and offering treatment to 90% of women with pre-cancer and invasive cancer (90:70:90 targets by 2030).

In conclusion, it is noteworthy that HIC like Australia are already set to eliminate cervical cancer by 2035! Therefore, having missed out on the 'pap smear revolution' in the control of cervical cancer, sub-Saharan Africa including Nigeria, cannot afford to be left behind again with a high burden of a preventable and curable global disease. It is important that barriers against achieving the 90:70:90 targets by 2030, such as political will, finance and misinformation, are promptly addressed to enable us be on a sustainable pathway to eliminate cervical cancer by 2120.

REFERENCES

1. World Health Organization. Global strategy to accelerate the elimination of cervical cancer as a public health problem. [Date accessed: January 30, 2023]
<https://www.who.int/publications/i/item/9789240014107>
2. Bray F, Laversanne M, Sung H, Ferlay J, Siegel RL, Soerjomataram I, Jemal A. Global cancer statistics 2022: GLOBOCAN estimates of incidence and mortality worldwide for 36 cancers in 185 countries. *CA Cancer J Clin*. 2024 May-Jun; 74(3): 229-263.
3. Shing JZ, Porras C, Pinheiro M, Herrero R, Hildesheim A, Liu D. Costa Rica HPV Vaccine Trial (CVT) Group. Differential long-term bivalent HPV vaccine cross-protection by variants in the Costa Rica HPV vaccine trial. *NPJ Vaccines*. 2024 Jun 8; 9(1): 101.
4. Setiawan D, Nurulita NA, Khoirunnisa SM, Postma MJ. The clinical effectiveness of one-dose vaccination with an HPV vaccine: A meta-analysis of 902,368 vaccinated women. *PLoS One*. 2024 Jan 5; 19(1): e0290808.
5. Williamson AL. Recent developments in human papilloma virus (HPV) vaccinology. *Viruses*. 2023 Jun 26; 15(7): 1440.
6. World Health Organization. *Weekly Epidemiological Record*. 2017; 92: (28) 393-404.