

A Review of Current Trends and Challenges in Cervical Cancer Prevention and Management in Nigeria

Omenai SA*, Egbo OH

Department of Anatomical Pathology, Edo State University, Uzairue

Corresponding Author: sebeanom@gmail.com; +2348038641315

ABSTRACT

Uterine cervical carcinoma is a serious public health problem in Nigeria because of the high incidence and mortality rates of cervical cancer amongst her female population. This article outlines a comprehensive call to action to address cervical cancer through coordinated efforts involving government, healthcare providers, communities, and international partners. Key strategies include developing and implementing national policies, ensuring sustainable funding, expanding access to screening and HPV vaccination, enhancing public awareness, and strengthening healthcare infrastructure. Integrating cervical cancer services with HIV programs, promoting research, fostering public-private partnerships, and addressing socio-cultural barriers are also crucial. Cervical cancer prevention in Nigeria faces significant challenges, including limited screening programs, low HPV vaccination uptake, and inadequate healthcare infrastructure. Socioeconomic factors, cultural and social barriers, and policy and implementation gaps further exacerbate the situation, alongside the high prevalence of HIV co-infection and insufficient public awareness and education. Promoting cervical cancer control and treatment can significantly reduce its impact and improve women's health outcomes in Nigeria. This call to action emphasizes the urgent need for a collaborative approach to create a future where every Nigerian woman can access the care and support necessary to lead a healthy, cancer-free life.

Keywords: Cervical carcinoma; Nigeria; Human papilloma virus; Oncology; Health policy

INTRODUCTION

Cancer or malignant neoplasm is a significant cause of non-communicable disease mortality. It is a major cause of morbidity and mortality globally, with a heavy impact on public health¹. Cervical cancer ranks fourth out of several forms of cancer that affect women worldwide, but it is the second most common cancer amongst women in Nigeria^{1,2}. The cervix is the lower section of the uterus that is closely linked to the vagina. The cervical epithelium is divided into ectocervix and endocervix with a segment of transition referred to as the transformation zone. The main type of cancer seen in the cervix is carcinoma although sarcomas can also occur, they are relatively rare. The majority of cervical carcinomas are the squamous cell carcinoma and adenocarcinoma variants^{3,4}. Approximately 80 percent of instances of cancer of the uterine cervix are actually squamous cell carcinoma, which arises from the stratified squamous cells of the epithelium lining the ectocervix. As opposed to this, about twenty percent of instances are adenocarcinomas, which arise via the endocervical glandular cells that secrete mucus⁵.

In its earliest stages, cervical cancer frequently exhibits no symptoms, which makes early identification difficult. The majority of the time signs are usually vague and could consist of non-menstrual vaginal discomfort, foul smelling discharge from the vagina, with irregular or intermenstrual bleeding. Therapy and detection are sometimes delayed because these symptoms are misinterpreted for less serious illnesses. Cervical cancer is still the most common cause of cancer mortality amongst women especially in low-income

nations in Africa and Asia which is a consequence of the poor accessibility of several screening programs, diagnostic tools, and treatment choices¹. Likewise inadequate access to medical facilities, cultural practices, societal prejudices, as well as an absence of understanding are factors implicated for the high mortality rates for cervical carcinoma in these regions^{1,6,7}. Furthermore, the difficulty of testing every person who may be at risk is made more difficult by the growing population, which has led to many women receiving a diagnosis of the illness during an advanced stage of illness⁸.

Cancer of the cervical region is known to be primarily caused by infection with human papillomavirus (HPV). There are several strains of HPV (high-risk genotypes) implicated in cervical cancer including types 16, 18, 31, 35. They can occur as single strain infections or rarely as co-infection with multiple strains⁹. HPV is a sexually transmitted virus, and the high-risk genotypes are closely linked to the emergence of cervical cancer^{10,11}. Many facets of HPV-related carcinogenesis are still being unravelled and has fuelled a number of myths and schemes around HPV vaccination that prevent its broad adoption¹².

This review explores the factors influencing the prevalence cervical cancer, HPV's pathogenetic role, along with the existing testing and staging techniques. We examine the methods of therapy that are available today and how immunization against HPV helps prevent cervical cancer. This article will bring to the fore the developments in these fields as well as ongoing difficulties, especially in environments with restricted resources like

ours in Nigeria. We intend to raise awareness of the significance of early identification, efficient care, and preventative measures in lowering the incidence of cervical cancer worldwide ^{13,14}.

Epidemiology of Cervical Cancer in Nigeria

Cervical cancer ranks fourth internationally in global prevalence amongst women, with low- and middle-income countries carrying the majority of the burden ¹. Cervical cancer is one of the leading causes of cancer-related deaths among women globally, with a particularly high burden in low- and middle-income countries, including Nigeria ^{1,15}. The high mortality rate in Nigeria is primarily due to late presentation, inadequate screening programs, and limited access to healthcare services ^{16,17}. It is the second most common cancer among women in Nigeria, following breast cancer ¹. The age-standardized incidence rate of cervical cancer in Nigeria is estimated to be 33.0 per 100,000 women per year, with a mortality rate of 22.9 per 100,000 women per year (WHO, 2021). Studies indicate varying incidence rates across different regions of Nigeria. For instance, a study conducted in Ibadan reported an incidence rate of 36.0 per 100,000 women per year, while another study in Abuja found an incidence rate of 30.3 per 100,000 women per year ². These variations can be attributed to differences in healthcare access, cultural practices, and the prevalence of risk factors ^{14,18,19}.

A comparative study of the trends in cervical cancer across 20 international and African nations revealed marked disproportion in the burden of cervical cancer across these countries with 16 of the 20 nations with the

greatest incidence and risk for cervical cancer being Africa ^{1,20}.

The mortality patterns related to cervical cancer highlight the serious consequences that the continent of Africa faces. Eighteen out of the top twenty nations where cervical cancer mortality rates are highest are located in Africa ¹. When evaluating absolute mortality figures, seven out of the top 20 nations are African, with Nigeria having a significant number of cervical cancer-related fatalities ²¹.

Numerous factors, including inadequate screening programs, limited access to preventative medical care, and inadequate vaccination rates toward the human papillomavirus (HPV), the primary cause of cervical cancer, can be attributed to the high prevalence of cervical cancer in African countries. Higher death rates are also a result of delayed diagnosis and treatment, which is exacerbated by socioeconomic difficulties, cultural obstacles, and a lack of knowledge about the illness ^{1,8,22}.

Comprehensive cancer treatment is often difficult to provide in resource-limited countries due to inadequate healthcare infrastructure and the lack of comprehensive health insurance as oncology care is very expensive. This impairs access to standard cervical cancer diagnosis techniques that are essential for early diagnosis and treatment, such as pap smears and HPV testing ⁸. Moreover, there is a lack of widespread implementation or accessibility of HPV vaccination programs in Nigeria, despite the fact that they have dramatically decreased the occurrence of cervical cancer in affluent nations ¹².

Risk Factors of Cervical Carcinoma

Several risk factors contribute to the high burden of cervical cancer in Nigeria. The most significant risk factor is infection with high-risk human papillomavirus (HPV) types, particularly HPV-16 and HPV-18, which are responsible for approximately 70% of cervical cancer cases globally ²³.

Other contributing factors include early onset of sexual activity, multiple sexual partners, smoking, long-term use of oral contraceptives, and a weakened immune system, often due to HIV infection ^{24,25}. Socioeconomic factors such as low education levels, poverty, and limited access to healthcare also play a critical role in the high incidence of cervical cancer in Nigeria ^{26,27}. The early marriage custom and limited use of modern contraception are two particular risk factors identified in northern Nigeria ²⁸.

Prevention and Treatment of Cervical Cancer in Nigeria

Access to cervical cancer screening programmes which are mainly institutional-based in Nigeria are almost inaccessible to majority of women in the rural areas due to a plethora of reasons ranging from lack of funds to unavailability of the service ^{27,29}. Although malignant neoplasms of the uterine cervix have become less of a major medical issue in developed countries, it is still a major problem for women who live in sub-Saharan Africa countries ¹. The world's cervical cancer fatality rates show marked disparities with 7 out of the 20 nations with the greatest percentage of mortalities being African nations, and Nigeria happening to be the top in this depressing list ⁶. This concerning situation is largely due to a

variety of causes including the pervasiveness of risk factors for cervical cancer and the substantial impact of HIV/AIDS, especially in Nigeria ³⁰. Many barriers prohibit indigenous women in Africa's subcontinent from accessing cervical cancer prevention initiatives, such as regular screening and human papillomavirus vaccination. These obstacles include a weak infrastructure for healthcare, a lack of knowledge and poor public education about the disease, social stigma, and budgetary limitations ^{7,8}. Because of this, a large number of women in these areas do not regularly get screenings like pap smears or HPV testing, which are essential for the early diagnosis and effective cure and prevention of cervical cancer ³¹.

The success recorded by the industrialized and wealthy nations in the reduction and elimination of cervical cancer has been largely attributed to widespread HPV vaccination campaigns and routine pap smear and HPV testing ^{6,19}. Yet, things are quite different in sub-Saharan Africa. The startlingly high incidence of persistent HPV infection is made worse by a number of socioeconomic difficulties, high rates of HIV/AIDS, and restricted access to healthcare ^{25,32,33}. The effects of HIV/AIDS are particularly noticeable in this area because they make women more vulnerable to human papillomavirus disease and hasten the development of cervical cancer. HIV infection suppresses the immune response, the human body has a harder time getting rid of HPV infections, which increases the likelihood of viral persistence and the growth of cervical cancer ¹⁰. HIV and HPV interaction is a major health concern, especially in countries like

Nigeria where both are prevalent^{10,30,34}. A multimodal strategy is needed to combat cancer of the uterine cervix in Africa subcontinent. It is essential to increase access to preventative initiatives like routine screenings and HPV immunization. Increased awareness and education about cancer of the cervical region as well as its risk factors must be the main goals of public health campaigns. Furthermore, educating healthcare professionals in these areas and enhancing the infrastructure for healthcare delivery will assist and guarantee that women receive prompt and efficient treatment^{35,36}. Additionally, combating the HIV/AIDS pandemic is essential to the fight against cervical cancer. The integration of cervical cancer screening and HIV care programs is an easy way to maximize the efficiency of both campaigns. Sub-Saharan Africa can attain remarkable development in reducing cervical cancer occurrence alongside mortality by addressing the intertwined challenges of HPV and HIV³³.

Current Prevention Policies and Strategies

In affluent nations, it is customary for women to go through cervical cancer screening as part of their routine physical examinations. By ensuring early identification and treatment, this proactive strategy lowers the occurrence alongside casualty rates of cervical cancer dramatically. Healthcare experts continue to express serious concerns about inadequate implementation of strategies and plans intended to improve cervical cancer control and treatment in developing nations including Nigeria. Screening programmes for cervical cancer in Nigeria are inadequate, with low

coverage and poor implementation³⁷. The Papanicolaou (pap) smear test and HPV DNA test are the primary screening methods used, but their accessibility is limited, particularly in rural areas³⁸.

Vaccination against HPV is a crucial preventive measure. However, the uptake of the HPV vaccine in Nigeria is low due to factors such as vaccine availability, cost, and cultural misconceptions^{39,40}. Increasing public awareness and improving vaccine accessibility are essential steps towards reducing the incidence of cervical cancer.

Global health agencies like the World Health Organization (WHO) have established all-encompassing plans to fight cancer of the uterine cervix. The promotion of HPV vaccine, regular cancer detection screening, and public education programs aimed at enlightening women about the hazards and preventative measures are some of these tactics⁶. Regionally, initiatives often focus on tailoring global recommendations to specific local contexts. For example, in sub-Saharan Africa, regional health bodies work on adapting WHO guidelines to address unique challenges such as high HIV prevalence, cultural barriers to healthcare access, and limited healthcare infrastructure³⁷. These regional adaptations are vital for the successful implementation of cervical carcinoma inhibition strategies. At the national level, several countries take into account their unique healthcare situations and formulate regulations according to international and regional recommendations. In Nigeria, there are national recommendations for the diagnosis and prevention of cervical cancer. These

guidelines include strategies to improve uptake of HPV vaccination and incorporation of cervical smear testing into currently offered healthcare services. But there are sometimes hindrances in the way of execution of these principles into practice, by lack of resources, a shortage of qualified medical personnel, and sociocultural differences ²².

Effective implementation of cervical cancer prevention policies in LMICs requires a multi-faceted approach:

1. **Strengthening Healthcare Infrastructure:** Investing in healthcare infrastructure is essential to support regular screening and vaccination programs. This includes training healthcare providers, improving laboratory facilities, and ensuring the availability of necessary medical supplies.
2. **Increasing Public Awareness and Education:** Public health campaigns should focus on educating women about cancer of the cervical region, its danger elements, as well as the importance of early diagnosis and vaccination. Community outreach programs can help overcome cultural barriers and misinformation.
3. **Improving Access to Healthcare Services:** It is essential to increase access to preventative healthcare services, especially in underserved and rural regions. In order to reach rural people, portable clinics, health care providers, and telehealth can be quite helpful.

4. **Integrating Services:** Coverage and efficiency can be raised by combining cervical cancer detection as well as vaccination alongside additional medical services, such mother and child health programmes
5. **Securing Sustainable Funding:** Ensuring sustainable funding from both government and international sources is crucial for the long-term success of cervical tumour treatment programs. Public-private partnerships can also provide additional resources and support.

LMICs may greatly lessen the burden of cervical cancer by tackling these issues and enhancing the application of policies aimed at preventing the illness. To overcome these obstacles and ensure that all women, regardless of their socioeconomic status, have access to life-saving preventive care, it is essential to strengthen healthcare infrastructure, involve the community, and improve policy implementation ^{21,41}.

Challenges in Cervical Cancer Prevention and Treatment

In a comprehensive short term (2010-2015) medical growth plan for Nigeria, strategies for cervical cancer control and prevention were not captured explicitly ⁴². So, the screening programs remained institutional based with no national register for screening. Successful cervical cancer screening has not been helped by this oversight, and this is made worse by a shortage of technical personnel and inadequate financing ³⁸. Nigeria intellectuals have

formulated well-thought-out strategies to prevent cancer of the uterine cervix, but there is a noticeable absence of governmental will to guarantee sufficient funding and execution. Nigeria's cervical cancer management programs are frequently frustrated by a lack of coordination, a lack of synergy, and general disarray⁴³. Reducing the occurrence and prevalence of non-communicable diseases, including reproductive malignancies, is one of the goals of the National Reproductive Health Policy (NRHP)⁴⁴. It intends to promote screening modalities and design an efficient and effective referral and management system of malignancies of the genital region including the uterine cervix geared towards lowering the death and morbidity rate from reproductive cancers by thirty percent⁴⁴.

The primary methods for accomplishing the goals of the NRHP includes; encouraging the utilization of reproductive health resources and promoting healthy reproductive behaviours through education; guaranteeing fair access to high-quality medical care; upgrading the skills of caregivers; facilitating the availability of resources for reproductive health services; and encouraging research to address new issues in reproductive health⁴⁴. Nevertheless, the policy's suggested tactical approach which involves promoting screening programs for cervical cancer early detection and case management was not successfully put into practice countrywide. This made it impossible for Nigeria to meet the aim of a 30% decrease in the death and morbidity rate from reproductive malignancies.

Overview of Treatment Modalities for Cervical Carcinoma

Treatment of cervical cancer in Nigeria faces several challenges, including limited healthcare infrastructure, shortage of trained healthcare professionals, and high cost of treatment. Radiotherapy, a critical component of cervical cancer treatment, is available in only a few centres across the country, leading to long waiting times and suboptimal care^{45,46}.

Additionally, the cultural and religious stigma associated with cancer and the lack of supportive care services further complicate the management of cervical cancer patients⁴⁷. Addressing these challenges requires a comprehensive approach, including investment in healthcare infrastructure, training of healthcare workers, and implementation of supportive care programs. Over the years expertise and facilities for care of cervical cancer patients in Africa, including Nigeria have been increasing steadily, but there is still a lot to do in order to provide the best of care to the Nigerian patient^{48,49}.

Regular cervical screening is vital as pre-cancers often show no symptoms. If caught early and treated appropriately, cervical cancer is curable. A diagnosis requires clinical assessments and laboratory testing. The best course of management depending on the stage at presentation, can include surgical operation, radiation therapy, chemotherapy, and palliative care when required.

Policy and Advocacy Efforts

Following an effort to work with different stakeholders in order to lower mortality and morbidity due to cancer of the uterine cervix and improve the security of women, the Nigerian government developed a national cancer control program. The successful execution of this policy is debatable but it can be agreed that the policy has not gained enough traction in Nigeria. There is need to scale up the implementation and involve all the primary health centres in the 774 Local Government Areas in the country⁵⁰.

Nigeria's cervical cancer elimination program intends to prevent HPV infection among girls between the ages of nine and fifteen years old via vaccination, as well as the application of visual inspection under acetic acid and pap smear screening as a secondary preventive approach for sexually active women. The HPV vaccinations Gardasil and Cervarix were administered to young Nigerian girls between 2008 and 2013, and the Nigerian government in 2024 is upscaling the provision of the vaccines to cover the whole country.

Future Directions

Though many African nations, including Nigeria, have policy guidelines for the management of cervical cancer, their successful implementation continues to be a significant concern. Encouraging and empowering women is one of the most significant health promotion programs for the prevention and control of cervical cancer that Nigeria should explore.

In Nigeria, a thorough three-pronged campaign is suggested towards cervical tumour preventive and oversight:

1. Integrating Low-Cost Testing Strategies into Primary Health Care:

- Implementing a 'screen and treat' approach using visual review with acetic acid (VRA) and Lugol's iodine (VILI) into the routine service area at primary health care cores. This single-visit strategy allows for immediate treatment of any detected abnormalities, making it a cost-effective and efficient method, especially in resource-limited settings.
- Establishing a national cervical smear/HPV DNA testing program. The smears can be collected at the PHC's and reported at a capture secondary or tertiary health facility ensuring that the best of cervical cancer screening is readily available and accessible to women, particularly in rural and underserved areas, to upsurge the coverage and effectiveness of cervical cancer testing programs.

2. Encouraging and Educating important Parties:

- Teaching men and women in remote areas the advantages accepting cervical cancer screening programs. Programs for community outreach and awareness are needed to debunk misconceptions, lessen stigma, and increase knowledge toward the value of

prompt diagnosis and treatment.

- o Enhancing the knowledge base and skills of primary health care operators. Training programs should focus on building the competence of PHC workers to provide screening services, manage cases effectively, and offer appropriate referrals for further treatment when necessary.

3. **Fostering Collaboration and Community Participation:**

- o Promoting collaboration amongst government organizations, non-governmental organizations, community leaders, as well as health care providers to create a coordinated and cohesive cervical cancer prevention program.
- o Promoting community involvement by integrating neighbourhood groups in the development, execution, and oversight of initiatives aimed at preventing cervical cancer. By involving the community, initiatives are culturally acceptable and have a higher chance of being embraced and maintained by the intended audience.
- o Leveraging existing community structures and networks to disseminate information, mobilize

resources, and support women in accessing diagnosis and management services.

The success of Nigeria's efforts to mitigate the burden of cervical cancer depends on how well, developed strategies are incorporated into the country's healthcare system, with a particular focus on community involvement, capacity building, and ongoing political and financial support. Nigeria has the possible ways to significantly reduce the occurrence of cervical cancer and improve the wellbeing of women by tackling the main risk factors and obstacles to successful implementation.

CONCLUSION

Cervical cancer remains a significant public health challenge in Nigeria, with high incidence and mortality rates. Effective strategies to reduce the burden of cervical cancer include improving screening programs, increasing HPV vaccination coverage, and enhancing healthcare infrastructure. Public health initiatives and policy changes are necessary to address the underlying socio-economic and cultural factors contributing to the high prevalence of cervical cancer in Nigeria.

A comprehensive approach is needed, focusing on increasing access to preventive services, public education, and integrating cervical cancer care with HIV/AIDS programs. The government should commit resources into implementation of some of the well thought out policies to reduce the burden of cervical cancer in Nigeria.

Nigerian communities, medical professionals, government agencies, and foreign allies must

work together to combat cervical carcinoma. This can dramatically lower the number of cases and deaths caused by cervical carcinoma by putting comprehensive policies into place, increasing availability of surveillance and immunization, fortifying the medical sector, and removing sociocultural obstacles. By working together, it possible for every Nigerian woman to live a long, healthy life free from cervical cancer.

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