

Cervical Cancer Burden in Nigeria: Review of Current Situation

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ABSTRACT

The global drive to achieve cervical cancer elimination requires low- and middle-income countries such as Nigeria to identify gaps in cervical cancer prevention and means of bridging the gap in order to be on the path to elimination.

This paper did a mini-review of 12 thematic areas related to cervical cancer prevention and treatment in Nigeria, which are important in achieving the 90-70-90 WHO elimination targets. These include awareness, government policies, HPV vaccination, cancer Screening, treatment of preinvasive and invasive cervical disease and palliative care. The state of cancer registries and data management, advocacy and support group, cancer care funding as well as clinical trials were also explored.

A literature search was done using PubMed and google-scholar to identify publications on each of the 12 items listed to be reviewed. A five-year filter was used to identify the current situation, when it was not applicable, the search was extended to ten years. Gaps were identified across the thematic areas which will require short and long-term interventions in order for the country to be on the path towards elimination. We concluded that for Nigeria to achieve the WHO Cervical Elimination targets there is a need for systematic multisectoral implementation of policies and plans by stakeholders.

Keywords

Cervical Cancer Elimination, Cervical Cancer Screening, Cervical Cancer Treatment, Clinical Trials, Human papillomavirus Vaccination.

Introduction

Despite extensive knowledge of its prevention and treatment, cervical cancer remains a public health concern. It is the fourth most common cancer in women globally, with 604,127 cases and 341,831 deaths reported in the GLOBOCAN 2020 estimate [1]. It is estimated that a woman dies every two minutes from cervical cancer. Nigeria has the highest number of incident cases and deaths from cervical cancer in Africa, with 12,075 new cases and 7968 deaths, making it one of the eight countries with the largest number of incident cases in the world [2]. Cervical cancer disproportionately affects low and middle-income countries (LMICs), further worsening the prevailing health inequity.

Human papillomavirus (HPV) has been identified as a necessary cause of cervical cancer, which was reflected in African studies that reported the prevalence of HPV in cervical tumour cells to be between 83 and 98% [3]. Factors that increase the risk of persistent HPV infection, such as early coitarche, multiple sexual partners, high parity, and low socioeconomic status, are risk factors for cervical cancer (Figure 1). The in-depth understanding of its aetiology, course, and screening options makes it a highly preventable cancer.

Cervical screening is an important secondary prevention strategy for cervical cancer prevention. It is most effective when delivered as part of an organized screening program. HPV DNA testing is the first choice, however, other screening options include cytology as well as Visual Inspection with Acetic Acid/Lugol Iodine VIA/VILI [4]. Arising from this, the WHO made a passionate call to action in May 2018 to eliminate cervical cancer. Subsequently,

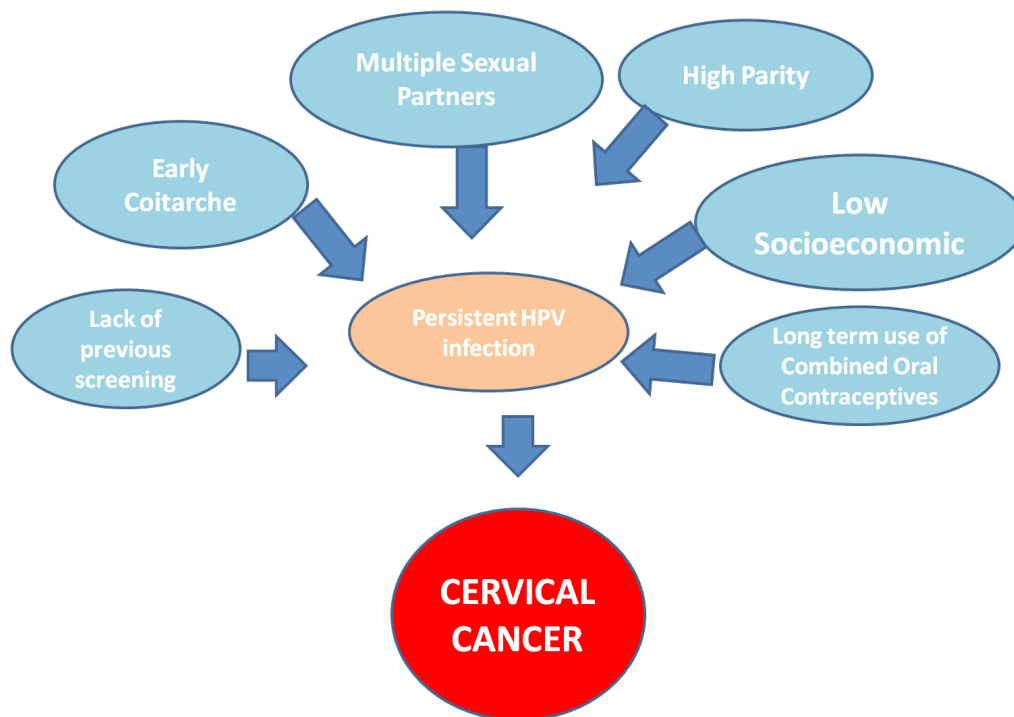


Figure 1: Cervical Cancer risk factors

there was a launch of a strategy towards the Elimination Of Cervical Cancer as a Public Health Problem within the century in November 2020.

This ambitious goal is the first time in human history that the world is attempting to eliminate a cancer. To be on the path towards elimination, the WHO Cervical Cancer Elimination Modelling Consortium (CCEMC) recommends a global coverage of 90% vaccination, 70% screening, and 90% treatment by 2030. It has been estimated that reducing the burden of cervical cancer below the elimination threshold of 4 per 100 000 will avert 74.1 million (70.4–75.1) cases and 62.6 million (62.1–62.8) deaths by 2120, the majority of which will be in Sub-Saharan Africa [4,5].

This paper will focus on the current state of the key interventions in cervical cancer in Nigeria, with the aim of highlighting the gaps in achieving the WHO targets.

Methods

A literature search was done using PubMed and google-scholar to identify publications on each of the 12 items listed to be reviewed. A five-year filter was used to identify the current situation, when it was not applicable, the search was extended to ten years.

Cervical Cancer Awareness in Nigeria

Cancer awareness creation is a fundamental step in the cancer control program. It is the bedrock on which other interventions are built. The level of awareness in the country is generally poor, which varies depending on the population studied. In a cross-sectional study across Nigeria's geopolitical zones using the UK Cancer Awareness Measure (CAM), only 32.7% of women have

heard of cervical cancer [6]. Similarly, a 12.8% awareness rate was reported among urban slums in Lagos [7]. Though some studies reported a higher awareness rate, an interrogation of knowledge levels on the risk factors and preventive measures revealed a low level of knowledge [8,9]. More so, the high mortality associated with late case presentation gives the community a false perception of cancer being incurable, which leads to a vicious cycle of late presentation, a high death rate, and distrust of orthodox care [10].

Nigeria Government Policies on Cervical Cancer

The first policy document on cancer control in Nigeria was the National Cancer Control Plan (NCCP) 2008–2013, which had most of its goals unmet. The 2018-2022 NCCP is currently in its final year of implementation with similar unmet goals [11]. For example, its cervical cancer-related goals of achieving 90% coverage for Human Papilloma Virus (HPV) vaccine coverage, among the eligible populations are unmet as the introduction of the HPV vaccine into the NPI has yet to take off. Furthermore, despite the target of screening more than half of the eligible population by 2022, which was based on the establishment of a nationwide routine screening program, cervical cancer screening remains opportunistic. While the NCCP is generic for all cancers, the federal ministry of health developed a national strategic plan prevention and control of cancer of the cervix in Nigeria for 2017–2021 [12]. The strategic plan focused on HPV mass immunisation campaigns, a "screen and treat" approach, establishing and maintaining a treatment referral network, palliative care, mass mobilization, and monitoring and evaluation. The goals set include immunising 80% of girls aged 9-13 years with the HPV vaccine by 2020, increasing screening coverage of eligible women by 80% by 2020, and providing adequate and effective treatment

of precancerous lesions for 100% of detected cases; however, none of these targets were met at its expiration [12]. A review process is currently ongoing and is expected to culminate in the development of a 5-year strategic plan. From the foregoing, it is obvious the Nigerian government has a laudable plan for cervical cancer prevention and control, what is currently lacking is implementation. A cost review of the 2017–2021 strategic plan by the WHO team and other stakeholders will help make subsequent plans feasible and affordable [13].

HPV Vaccination in Nigeria

HPV vaccination is a key intervention in the WHO 90-70-90, with an expected prevention of 61 million cases over the next century. Since its introduction in 2007, there has been a progressive upscaling of vaccination into various national programs on immunization, especially through the GAVI support program. Table 1 shows the types of HPV vaccines and types of HPV covered from 2007–2014. Several failed timelines have been given by the National Primary Health Care Development Agency for the commencement of HPV vaccination in the country. The global HPV vaccine shortage, caused by the COVID-19 outbreak, has exacerbated the situation to the point where the vaccine, which was previously available through the private sector, is now unavailable.

Table 1: Approved HPV Vaccines and Serotypes covered.

HPV vaccine	Approved	Serotype Covered	Availability
Cervarix	2007	HPV 16, 18	Not available on National program on Immunisation
Gardasil	2006	HPV 6, 11, 16, 18	Not available on National program on Immunisation
Gardasil 9	2014	HPV 6, 11, 16, 18, 31,33,45,52,58	Not available on National program on Immunisation

Cervical Cancer Screening in Nigeria

Cervical cancer screening is the foremost public health intervention for cervical cancer control, which has dramatically reduced the burden of the disease in high-income countries (HICs). This success has not been replicated in low- and middle-income countries (LMICs) due to poor uptake of screening. In Ibadan, a cosmopolitan city in southwest Nigeria, only 13.5% of women studied have ever had cervical screening [14]. A systematic review of factors influencing cervical cancer screening practice among female health workers in Nigeria shows that despite the high level of knowledge and positive attitude towards screening, uptake ranged from 3% to 54.1% in the 15 studies reviewed [9].

HPV DNA testing is currently the World Health Organization's preferred screening method, which also allows for self-testing [15]. p16 INK4a immunohistochemistry helps improve the specificity of HPV testing. The high cost of HPV screening out of pocket makes it a huge challenge, especially given the low background uptake of the prior screening options of VIA and cytology [16-18]. Other factors influencing screening uptake include low awareness levels, low-risk perception, low socioeconomic status, lack of female providers, fear of positive screening results, partner's influence, and sociocultural norms [18-21]. Although the National Health Insurance Scheme

(NHIS) covers cytology-based cervical screening, the coverage is mainly for those in the formal sector. Therefore, to attain the WHO elimination target of 70% of women being screened with a high-performance test two times per life by 35 and 45 years of age, there is a need for coverage in the informal sector and to include HPV DNA testing in the NHIS screening options.

WHO Recommendation for the Treatment Of Preinvasive And Invasive Cervical Cancer

The success of cervical cancer screening in reducing cancer burden is dependent on its coupling to an effective treatment of preinvasive diseases identified. The main treatment options include cryotherapy, thermocoagulation, Loop Electrosurgical Excision Procedures (LEEP), and cone excision. These services are lacking in many facilities where screening is done, leaving patients with no option for treatment other than a hysterectomy, which is an over-treatment in many cases.

The management of invasive cervical cancer is stage-dependent. Early cervical cancers are equally amenable to radical hysterectomy with pelvic lymph node dissection and chemoradiation while locally advanced diseases are managed with chemoradiation. In Nigeria, there are few cancer centres, and there is a dearth of trained specialists for radical hysterectomy [22]. The situation with radiotherapy is more grave, with only one machine per 19.4 million people, compared to the one machine per 250,000 people available in high-income countries. The International Atomic Energy Agency has identified Nigeria as the nation with the biggest gap in radiotherapy machine availability [23]. In the same vein, there are limited trained radiotherapy staff, old radiotherapy machines that break down incessantly, as well as poor infrastructure support [24]. With about 50-60% of patients requiring radiotherapy, improvements in radiotherapy services will be essential to achieving the 90% treatment target [24].

Palliative Care in Nigeria

Palliative care offers cervical cancer patients an improved quality of life if they present when the cure is unattainable. 80% of patients with cancer in Nigeria will require this form of care [25]. Unfortunately, palliative care is still in its infancy, with many teething challenges [25]. There is poor awareness of palliative care services, a lack of skilled palliative care practitioners, and limited access to opioids [26]. A Hospice and Palliative Care policy document on palliative care was released on October 26, 2021, which is aimed at improving the current state. The WHO target for cervical cancer elimination is 90% access to palliative care [16].

Cancer Registries and Data Management in Nigeria

Cancer registries are vital for monitoring the incidence, prevalence, and mortality of cancer and the effectiveness of national cancer prevention programs. They serve as the warehouse for data for basic research and aetiological studies [27].

In Nigeria, the cancer registries were moribund for decades with no contributions to cancer incidence in five continents (CIV).

However, this has changed with the establishment of the Nigerian National System of Cancer Registries (NSCR), where there is now central coordination of the activities of population-based cancer registries (PBCR) as well as hospital-based registries in Nigeria, strengthened existing registries, established new registries, compiled and analysed data, and made these freely available to researchers and policymakers [27].

Cervical Cancer Advocacy and Support Groups

Nigeria is not lacking in passion to eliminate cervical cancer and alleviate suffering. There are several groups involved in prevention advocacy and the support of women with cervical cancer. They come under the umbrella of the Nigeria Cancer Society, and they actively engage to improve awareness, outreach cervical cancer screening, and help in patient navigation. These include the End Cervical Cancer Nigeria Initiative, the Dorcas Cancer Foundation, the Medicaid Cancer Foundation, the Raise Foundation Minna, and Run For a Cure Africa.

There is a need for collaboration among these NGOs to streamline activities in the cervical cancer space.

Cancer Care Funding in Nigeria

Cancer care constitutes a huge financial burden, especially in a country like Nigeria where the poverty index is high. The cost has been identified as a significant cause of late presentation. Almost all cancer patients will suffer financial toxicity in the cost of treatment

In September 2021, the government began the implementation of the Nigeria Cancer Health Fund, which is a treatment fund created to help people with breast, cervical, and prostate cancer in six health institutions access up to 2 million nairas (approximately \$4,865) in medication, chemotherapy, and radiation therapy services.

Clinical Trials

The care gap in cervical cancer is best demonstrated by the disparity in clinical trials between developed and developing countries. A search on clinicaltrials.gov returned 3402 trials from the United States and 369 from the United Kingdom, 116 from India, and a paltry three completed studies in Nigeria.

Table 2: Selected Countries and Clinical Trials in Cervical Cancer

Country	Recruiting Clinical Trails	Completed Clinical Trails	Total Studies
United States	762	1546	3414
United Kingdom	102	136	371
India	15	44	115
Nigeria	nil	3	3

Conclusion

Nigeria still needs dedicated efforts to attain the elimination target. Achieving the 2030 targets of the WHO Cervical Cancer Elimination Program (90-70-90) will require multisectoral collaboration and the systematic implementation of policies and plans in Nigeria. While there is a baby step toward elimination,

the milestones can be attained through partnerships with the WHO and NGOs from other developed countries, especially the USA. The main objective of this mini-review is to gather information on all the required steps worldwide, compared with the availability in Nigeria. Improving the epidemiological study, such as actual incidence and death rates in the urban and rural areas of Nigeria; enhancing the screening process, training the health care workers on screening, diagnosing the rates of HPV positive and negative cases, working on the health care sectors to improve and plan on getting vaccination through the WHO and other organizations; enhancing access to treatment, working globally to get access to or register for clinical trials available in Nigeria are required. Once some of the goals are achieved, there is a great hope of being on track toward eliminating cervical cancer in Nigeria.

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