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Review Article

Beyond Mammography: Rethinking Breast Cancer Screening in Nigeria

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Introduction

Breast cancer represents a significant public health burden in Nigeria, accounting for the highest number of cancer cases among women and contributing substantially to cancer-related mortality. [1]A large proportion of breast cancer patients in Nigeria present with late-stage disease, primarily due to delays in diagnosis and limited access to screening services.[2] This trend not only leads to poorer clinical outcomes but also imposes profound socio-economic consequences-affecting patients' ability to work, increasing financial strain on families, and stretching the already overburdened healthcare system. [3] Currently, breast cancer screening practices in Nigeria are largely opportunistic rather than systematic. While mammography remains the gold standard for early detection, its availability is limited to tertiary hospitals and select private facilities, predominantly located in urban areas. Women in rural and underserved regions face significant barriers to access, including cost, distance, and lack of awareness. Although national guidelines acknowledge the importance of screening, their implementation is inconsistent, and there is no organized, population-based screening program.

This reality underscores the urgent need to rethink and optimize breast cancer screening strategies in Nigeria. The current approach is misaligned with the country's infrastructural and resource limitations, and fails to adequately address cultural and socio-economic factors that influence health-seeking behavior. This perspective article aims to propose contextually appropriate strategies for improving breast cancer screening, particularly the role of mammography, in Nigeria. By examining the structural, financial, and cultural challenges, and suggesting adaptive models-such as risk-based screening, mobile mammography units, and task-sharing with trained primary care providers-this article seeks to contribute to more equitable and effective breast cancer control in Nigeria.

Challenges with Current Mammography Implementation in Nigeria

The implementation of mammography as a primary breast cancer screening tool in Nigeria is hindered by numerous challenges, particularly related to limited resources, poor accessibility, and deeply rooted cultural and socio-behavioral factors. Resource constraints are a significant barrier to widespread mammography screening. [4] The high cost of procuring and maintaining mammography equipment, coupled with the expense of consumables, places it beyond the reach of many public health facilities. [5] There is also a critical shortage of trained personnel-radiologists, radiographers, and technicians-needed to deliver and interpret mammographic services. [6] This gap is compounded by the inadequate healthcare infrastructure, especially in areas where basic diagnostic services are often lacking. Additionally, the high out-of-pocket costs borne by patients reflect broader systemic issues in healthcare financing. [7] Access to mammography services is also severely limited by geographical and logistical barriers. Most mammography facilities are located in urban tertiary hospitals, leaving women in rural and semi-urban areas with little or no

access.5 The long distances required to reach screening centers, coupled with poor road infrastructure and the cost of transportation, deter many from seeking services.8 Even in urban centers, patients often face long waiting times and limited appointment availability, further deterring timely screening and follow-up. [3] Cultural and socio-behavioral factors also play a substantial role in limiting the uptake of mammography. In many communities, cancer remains a highly stigmatized condition-particularly due to its often-disfiguring outcomes-and breast cancer is frequently associated with fear and fatalism. This fear extends to screening, with many women avoiding mammography due to anxiety about potential diagnoses and the implications of treatment, such as mastectomy. Low awareness about breast cancer, limited knowledge about the benefits of early detection, and gender norms that restrict women's autonomy in making health decisions further exacerbate these challenges.4 These socio-cultural barriers reflect broader patterns observed across Nigeria, where cultural perceptions and traditional beliefs often hinder healthcare utilization.

Optimizing Breast Cancer Screening in Nigeria: A Multifaceted Approach

To effectively tackle the burden of breast cancer in Nigeria, a shift from the current one-size-fits-all approach to a more nuanced, multifaceted strategy is essential. A key component of this strategy is risk-stratified screening, which prioritizes women at higher risk-such as those with a family history of breast cancer, advancing age, or known genetic predispositions.[9] In the Nigerian context, simple and cost-effective tools for risk assessment, such as adapted risk questionnaires or basic clinical screening algorithms, can be developed and deployed at the primary care level to guide who gets prioritized for mammography. By focusing limited resources on those most at risk, this approach enhances the cost-effectiveness and impact of screening efforts. Complementary and alternative screening modalities must also be considered, especially given the limitations in mammography access. Breast ultrasound offers a valuable adjunct, especially for younger women with dense breast tissue, while emerging low-cost technologies like thermography may hold promise if backed by further rigorous evidence.[10] Additionally, Clinical breast examination (CBE) performed by trained providers and Self breast examination (BSE) education can serve as entry points for early detection, particularly in resource-limited settings. [11] To expand capacity, task shifting should be leveraged by training nurses and community health workers to conduct CBE and provide breast health education, with an emphasis on standardized training and quality assurance. This effort can be further supported through community health outreaches and the engagement of Community Health Influencers, Promoters and Services (CHIPS) agents to enhance reach and promote awareness at the grassroots level. This approach advocates for community involvement in expanding service delivery, ensuring that interventions are not only accessible but also culturally acceptable and trusted.

Integrating breast cancer screening into existing primary healthcare structures can enhance reach, affordability, and continuity of care. Embedding screening services into the routine functions of PHCs aligns with the core principle of strengthening primary healthcare and integrates early detection services into standard care delivery. Technological innovations such as mobile health (mHealth) platforms can support appointment reminders, health education, and follow-up, while tele-radiology can enable remote interpretation of mammograms. In the long term, AI tools may help address radiologist shortages by aiding interpretation. These efforts must be supported by robust policy frameworks, including national screening guidelines tailored to Nigeria's realities, budgetary commitments for screening programs, and inclusion of services under health insurance schemes like the NHIA. Sustained public awareness campaigns are critical to drive demand for screening, dispel myths, and encourage early presentation.

Conclusion

Nigeria urgently needs a paradigm shift in breast cancer screening towards a context-specific and multifaceted strategy to address the limitations of the current system. Key recommendations include risk-stratified screening, integrating accessible alternative methods and task shifting, leveraging technology, and establishing supportive policies with sustainable financing. Collaborative action by policymakers, healthcare providers, researchers, and community leaders is crucial to implement these evidence-based strategies, ultimately improving early detection and reducing the nation's high breast cancer mortality rates.

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