



Reportage

Navigating prostate cancer control in Nigeria

Western Africa has the fifth highest risk for prostate cancer mortality in the world.¹ Nigeria has the largest population and economy in the region. For Nigerian men, prostate cancer is both the most common and most deadly cancer with 32.8 cases and 16.3 deaths per 100 000 men.¹ This is more than double the mortality in North America, with an estimated 80% of Nigerians incurable on diagnosis.

Can lessons from high-income countries improve Nigeria's poor outcomes? High-income countries have more access to patient navigation and individualised assistance offered to patients, families, and caregivers to help them overcome system barriers to quality cancer care. These include cultural, language, financial, transportation, and other roadblocks. Such assistance builds trust, empowers patients, and facilitates timely access to quality care throughout the cancer experience, especially for vulnerable populations. This might also contribute to prostate cancer awareness, earlier detection, and better adherence to medical recommendations.

Nigeria's prostate cancer screening and education programmes are maturing slowly. The Ministry of Health made prostate cancer a priority in its 2008 National Cancer Control Plan, which focused on cancer awareness campaigns. The government committed to screening 50% of at-risk men by 2022.² Some men know the importance of early detection and are willing to engage in screening and treatment, but this varies across populations, regions and ethnicities, and data on prostate cancer knowledge and attitudes across Nigeria's diverse populations is scarce.³⁻⁷ Numerous hospital and population-based cancer registries have been created in Nigeria since the 1960s to assist in the planning of cancer care of Nigeria's communities, but many did not endure.⁸ In 2009, the Ministry of Health created the Nigerian National System of Cancer Registries. However, barriers to education, screening, treatment, and data collection still exist, including cultural norms that stigmatise cancer, low patient and family understanding of risk factors and symptoms, and poor adherence to medical recommendations, especially in those with lower levels of education and income.^{3,4} The US Patient Navigation Research Program was a multicentre clinical trial examining patient navigation versus usual care for patients who were predominantly from low-income households, uninsured or publically insured, and from racial and ethnic minorities with screen-detected breast, cervical, colorectal, or prostate cancer. Benefits of navigation on time to diagnostic resolution and initiation

of treatment were significant. The most benefit was seen in centres with the greatest baseline delays in follow-up.⁹ In the absence of national coordination, we hypothesised that organised prostate cancer education, screening, and patient navigation targeting at-risk men would be possible through a non-governmental organisation (NGO).

Through the Aspire Coronation Trust Foundation's support of Project PINK BLUE, we sought to provide free prostate-specific antigen (PSA) testing and education through screening events and to use the project's patient navigation service. Health-care professionals provided all the men with prostate abnormalities with recommendations for nearby facilities for further diagnosis by means of patient navigation pathways. Psychologists followed up with participants at 3 and 6 months to identify factors driving adherence to further testing or treatment. This was approved by the ethics committee of the University of Nigeria's Department of Psychology and offered to men in Abuja, Enugu, and Lagos from April 28, to Sept 29, 2018. Recruitment was through awareness campaigns led by local community leaders targeting older men and their families from rural or urban communities (appendix). In Enugu, the traditional ogene music fitness group hosted a 5 km Prostate Cancer Walk and a similar walk was held in Lagos. Abuja's religious leaders from churches and mosques promoted the events to their congregations. Traditional (radio, television, and street booths) and social media were also used throughout the programme. Screening events were held near the walks, in places where men regularly gathered to exercise, and at churches or mosques. Participants were provided with free prostate cancer education materials translated

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For more on the **Aspire Coronation Trust Foundation** see <https://actrustfoundation.org/>

For more on **Project PINK BLUE** see <https://projectpinkblue.org/>



Prostate cancer awareness walk organised by Project PINK BLUE in Lagos, Nigeria

Example statement	
Positive pressures	
Family support	"My children kept calling me to ask if I have gone for the check-up in the hospital."
Family history	"Father and family underwent suffering from prostate cancer and I understand the meaning of my PSA score."
Trust	"I'm really glad that you guys checked up on me, it shows that you guys are trustworthy."
Negative pressures	
Lack of knowledge	"I might have a high PSA, but I feel fine."
Traditional medicine	"In 2016 I had a high PSA score then started drinking native medicine and this year it was low."
Fear	"I heard that when you go for an operation you will die."
Religious beliefs	"God will not let it happen to me."
Financial cost	"School resumed and I have to pay the kids' school fees first."
Other costs	"I must first take care of my sick wife before looking for further treatment."

PSA=prostate-specific antigen.

Table: Surveyed men's perceptions on follow-up

into common languages, including Hausa, Igbo, Yoruba, and English, and health-care professionals provided prostate health education. Demographics, knowledge, and perceptions were collected through self-reported surveys. Knowledge was assessed using a three-question survey on the function of the prostate and risk factors for prostate cancer. Perceptions of the PSA and digital rectal examination (DRE), such as the degree of anxiety about the procedures, personal importance of the tests, and expected ease of administration of the DRE, were recorded using a 5-point Likert scale (1=not important to the participant and 5=very important). Domains that the survey included were added to the text. Blood samples and PSA testing was done by health-care professionals. Results were communicated to participants via SMS and telephone by trained patient navigators. Participants with an elevated PSA (≥ 4.0 ng/mL) were directed to hospitals for further management. A 3-month follow-up was done through phone interviews.

1661 men from diverse ethnicities participated in the initial survey and PSA testing: 1231 in Abuja, 359 in Enugu, and 71 in Lagos (appendix). Median age was 48 years (range 40–81). Most men were married (82%) and disclosed religious affiliations (95%). A large proportion had at least a post-secondary education (46%). 71% paid for their own health-care expenses with a minority funded through the Nigeria's National Health Insurance Scheme (15%) or an employer (4%). Some men had previous PSA testing (14%).

Average score for knowledge was 1.8 out of 3 (n=822, SD 0.8) as measured by the three knowledge testing questions out of a total score of 100%. Anxiety for screening tests was low with an average Likert score of 2.1 (SD 1.0) for the PSA and 2.0 (SD 0.9) for the DRE. PSA values ranged from 0.10 ng/mL to

120.2 ng/mL (mean 2.92; SD 9.41) and were elevated in 129 (8%) men. Higher PSA scores correlated with age ($r=0.25$, $p<0.001$). Less than half of the men reported barriers to further screening or treatment (33%). Barriers included remembering to have future screening (5%), finances (4%), work-related issues (1%), location (1%), and time (1%). More than half (65%) indicated they would be willing to pay for future screening, but most were only willing if it was affordable (54%). On follow-up, nearly all men (93%) were thankful that the programme was available, including its education, screening, and navigation phone call. They considered it a sign of concern for their wellbeing and were interested to continue yearly education and screening events, if they were free. Navigators could not reach 356 men (38%) for follow-up. Among men who did not appreciate or adhere to recommendations, common reasons were a lack of understanding of the disease or test, distrust of modern medicine, and financial cost (table). Some believed breast cancer was the only cancer possible or that cancer only happens to women, and others did not understand the implications of a high PSA. Others were dissuaded by fear of invasive procedures. Financial pressures included delayed pension payments and other priorities, such as supporting their family. Conversely, positive pressures included family encouragement and a known family history of prostate cancer.

To our knowledge, this is one of the first and largest studies in Nigeria showing that a prostate cancer control programme including education, screening, and follow-up is possible, and suggests high demand for these health services. Similar to others,^{3,5-7} we found overall prostate cancer understanding was not high, especially in the minority of individuals who did not adhere to medical recommendations. If not addressed, this lack of understanding will limit the effect of cancer control efforts. The population in our study was a self-selected cohort able to attend events in larger metropolitan areas. There was also a large proportion of well educated men. Compared with this group, financial means and literacy levels are lower for most Nigerians, especially those in rural communities. A low level of knowledge combined with harmful traditional biases deters men from seeking medical attention, including screening, diagnosis, and treatment. Moreover, Nigeria's diverse ethnicities and languages mean that a one-size-fits-all approach to education will not work. We showed that an effective approach might include curated educational resources tailored to different populations, distribution through trusted sources (peers, family, and community leaders), and use of traditional and social media where at-risk men are. This approach should be studied further to scale-up health promotion efforts.

Although controversial, mature results from large, randomised controlled trials suggest a mortality benefit

with prostate cancer screening through earlier diagnosis.¹⁷ Social and economic benefits of such programmes might be higher in Nigeria, where a rapidly growing and ageing population coupled with aggressive disease diagnosed late has led to increasing morbidity and mortality. Effective screening programmes require substantial resources to reach the target population, provide testing and follow-up, and ensure appropriate management. The situation is more complex in developing countries, such as Nigeria, which lack stable infrastructure and where individuals might not have the necessary financial means or health literacy. This suggests an increased importance for affordable patient navigation. Nigerian men welcomed our navigation programme. Further follow-up will confirm adherence to management recommendations and health economics research will help determine the optimal basket of services

that is affordable and accessible for people in Nigeria. In Nigeria and the rest of Africa, the burden of cancer continues to grow, straining communities, health-care systems, and the economy. NGOs have an important role to play to improve the health of Nigerians, but this alone is not enough to meet national cancer plan targets. Stronger partnerships with the government and other organisations through a unified approach focused on continuous planning, implementation, and evaluation of education, screening, and disease management is vital to controlling prostate and other cancers. Africa has done well with other diseases. Now it is time to collectively take more steps to stop cancer.

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Digital Oncology

Cancer awareness crusades—pink ribbons and growing moustaches



Flipping the calendar, Pinktober, the breast cancer awareness month, turns into Movember, the annual global campaign focused on raising awareness of men's wellbeing, prostate cancer, and testicular cancer. On the cries of "Changing the Face of Men's Health", thousands of men grow their moustaches to sensitise people to men's health issues.

Movember was launched in 2003 to encourage people to think about, discuss, and proactively treat diseases that affect men. To make it go viral, handlebar moustaches were proposed as a provocatively distinctive brand. Movember gained remarkable worldwide attention, with millions joining the movement, raising funds of more than US\$700 million since 2003 and delivering breakthrough research and support programmes dedicated to prostate cancer, testicular cancer, mental health, and suicide prevention.¹

The principal aim of a well-designed cancer awareness campaign is to focus attention on the disease to increase prevention and early detection, relying on the internet to disseminate the awareness messages. The rapid explosion of digital health data has resulted in more people searching online for health care-related topics, making it a primary source of easily accessible and comprehensive information. Scientific information tailored for lay people can be broadly disseminated by means of wikis, social networks, or webpages, overcoming knowledge barriers in an effective and affordable manner. A key question is whether these impressive so-called awareness crusades

are truly working in terms of breast cancer and prostate cancer awareness.²

An analysis of web-engine search queries from Oct, 2011, to Dec, 2018 showed that whereas search trends on the two campaigns and their trademarks are similar, reflecting seasonality of interest coinciding with successful seasonal marketing strategies, the Movember campaign was less effective than the Pinktober campaign in translating these searches into web-searches that might signal increased cancer awareness, such as searches for breast cancer (figure; appendix). Peaks in the number of searches for the term "breast cancer" were concordant with the overall Pinktober campaign search peaks, with highest search relative values recorded in October during each year studied. By contrast, the volume of web-searches for the term prostate cancer did not seem to be influenced by the Movember campaign, which showed a decreasing number of searches in the past 6 years (which is coincident with declining yearly donations and registered participants beginning in 2012).¹

Several factors might explain these findings, and they relate to the population targeted by the health-awareness campaigns. For example, women might be more inclined than men to look for health information, and breast cancer information, on the web, moved by emotional and personal involvement.³ The increased attention to breast cancer during Pinktober underlines the success of this media campaign in raising awareness of the disease. However, men at risk of prostate cancer are generally

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For a full reference list see Online for appendix