Review Article

Role of Private Enterprise in Cancer Control in Low to Middle Income Countries

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Background. About 65% of cancer deaths globally occur in low to middle income countries (LMICs) where prioritization and allocation of resources to cancer care are often quite poor. In the absence of governmental focus on this problem, public-private partnerships may be an avenue to provide effective cancer control. Methods. This manuscript highlights the establishment of a nongovernmental organization (NGO) to stimulate the development of partnerships between oncology professionals, private enterprise, and academic institutions, both locally and internationally. Examples of capacity building, grant support, establishment of collaborative networks, and the development of a facility to provide clinical care are highlighted. Results. Collaborations were established between oncology professionals at academic institutions in the US and Nigeria. Cancer control workshops were conducted in Nigeria with grant support from the Union for International Cancer Control (UICC). A monthly tumor board conference was established at LASUTH in Lagos, and further capacity building is underway with grant support from the United States NCI. An outpatient, privately funded oncology clinic in Lagos has been launched. Conclusion. In LMICs, effective partnership between public and private institutions can lead to tangible strides in cancer control. The use of creative healthcare financing models can also support positive change.

1. Background

The incidence of cancer is rising more rapidly in developing rather than industrialized countries. While 14.1 million new cancer cases and 8.2 million cancer deaths were reported worldwide in 2012, 57% (8 million) of new cancer cases and 65% (5.3 million) of the cancer deaths occurred in the less developed countries [1]. Low to middle income countries (LMICs) bear a disproportionate burden of cancer related deaths because they are less prepared to combat the disease [2]. Public academic institutions in such countries often have qualified individuals who are committed to improving these dismal statistics. However, the resources available for such efforts are markedly limited, centrally controlled, and given low priority. The solution to the challenge of providing affordable and effective care will not be simple nor will it be solved by a single initiative.

The key will lie in a multitude of efforts and initiatives. Rather than totally relying on the central government, public-private partnerships may contribute significantly to effective cancer control efforts. The aim of this descriptive report is to highlight the development of one such initiative in
Nigeria, which is a lower middle income country [3] and
lacks a comprehensive cancer center anywhere in the entire
country. Such an institution would be able to serve as a
focal point for the provision of clinical care, training of
medical and ancillary personnel, and the coordination of
research efforts. Clinical services offered at this center
would include cancer screening, diagnostic imaging/interventions,
surgical, medical, and radiation oncology treatment, and palliative
care. Thus, the primary objective of this facility
would be to translate academic cancer control knowledge to
clinical application at the community level. Some aspects of
the strategy employed in approaching the enormous cancer
problem in Nigeria may be applicable to other countries.

2. Methods

A nongovernmental organization (NGO) was created in
Lagos, Nigeria, by individuals interested in enhancing cancer
care with the goal of stimulating the development of broad
partnerships between oncology professionals, private enterprise,
and academic institutions, locally and internationally.
The founding objectives of this organization were to pro-
mote capacity building, establish collaborative networks, and
develop a facility to provide clinical care. University teaching
hospitals and nongovernmental organizations willing to par-
ticipate as collaborative partners were identified.

Cancer control workshops were organized with support
from the Union for International Cancer Control (UICC)
[4, 5]. These workshops were seen as a cost-effective method
to commence capacity building. Preliminary work for these
workshops resulted in the development of memoranda of
understanding signed between organizations in Nigeria and
the United States to facilitate cooperative program develop-
ment. Two workshops were provided, one in Enugu in 2009
[4] and the other in Lagos in 2013 [5], which consisted of
didactic presentations, case studies, and break-out sessions
which facilitated the exchange of ideas. Several needs were
identified to be common across the two workshops and one
in particular was the development of a center solely focused
on cancer care.

Realizing the importance of the government in healthcare
delivery, attempts were made to secure the commitment of
the federal government and subsequently two state govern-
ments to fund the establishment of a cancer center. When
these efforts failed to yield tangible results, a decision was
made to seek private funding for the development of a facility
focusing on early diagnosis of cancers and the provision of
selected clinical services. Given the magnitude of the task, the
project was broken up into several phases:

(i) 1st phase: outpatient cancer clinic,

(ii) 2nd phase: clinical cancer center,

(iii) 3rd phase: comprehensive cancer center,

(iv) 4th phase: establishment of cancer centers in other
cities.

3. Results

The initial nongovernmental organization that was estab-
lished in response to the Nigerian cancer challenge was
the Foundation for Cancer Care in West Africa (FCCWA).
It is located in Lagos, Nigeria, which is the largest city
in the subcontinent. It is led by a team of medical and
nonmedical volunteers with broad academic and community
ties. Thus, collaborative engagement was the central strategy
for building alliances. Another NGO that was very important
in the early activities of the Foundation was the “Breast
without Spot” (BWS) Foundation, led by an accomplished
academic physician and based in Enugu, Nigeria. Its activities
focus on cancer control advocacy and quickly expanded
from just one to 21 of the 36 states in Nigeria. FCCWA and
BWS collaborated in facilitating the initial cancer control
workshop in 2009 and the partnership has extended to
cancer awareness events in other parts of the country and an
effort to deploy community health educators to decrease late
presentation of breast cancer patients.

Collaborations were established between oncology pro-
fessionals at the Roswell Park Cancer Institute (RPCI) in
Buffalo, NY, USA; the University of Nigeria Teaching Hospital
(UNTH) in Enugu, Nigeria; and the Lagos State University
Teaching Hospital (LASUTH) in Lagos, Nigeria. RPCI is
the oldest comprehensive cancer center in the United States
and is dedicated to cancer prevention, clinical care, and
translational research. It receives support from the state
of New York and from the United States National Cancer
Institute. UNTH is a federal government tertiary medical
center that is partnered with the University of Nigeria Col-
lege of Medicine. Similarly, LASUTH is a state government
tertiary medical center that is partnered with the Lagos State
University College of Medicine. Cancer control workshops
were conducted in Enugu in 2009 and in Lagos in 2013
with grant support from the Union for International Cancer
Control (UICC) [4, 5] and involved teaching faculty from
the US and from Nigeria with opportunities to learn from
one another. One of the primary needs expressed at these
workshops was the desire for continued communications and
consultations with health professionals in the United States.
Therefore, a monthly tumor board conference was established
at LASUTH where both prospective and retrospective cases
could be discussed amongst a vast spectrum of clinicians. For
the initial several months, there was remote participation by
one or more subspecialty oncologists from the Roswell Park
Cancer Institute, depending on the types of cases that were
being discussed. These oncologists were invited to give input
and make recommendations. Several participants in the two
workshops described above continued to collaborate exten-
sively. An informal consortium was formed which resulted
in interinstitutional academic faculty visits, joint manuscript
publications, and grant applications. In partnership with
other investigators at Roswell Park Cancer Institute and at
the Noguchi Memorial Medical Research Institute, Accra,
Ghana, funding has been obtained from the US National
Cancer Institute to develop a well-trained cadre of oncology
researchers in Nigeria and Ghana. The initial effort involved
a focused breast, prostate, and cervical cancer workshop in
The current system of healthcare delivery in Nigeria includes both government and private sector involvement. Current health care system in Nigeria has been well described by Olakunde [10]. Public sector involvement includes the Ministry of Health (FMOH), state ministries of health, and local government run by the Federal Ministry of Health (FMOH), state ministries of health, and local government teaching hospital are at an advanced stage.

Thus, Lakeshore Cancer Center has expanded its clinical network primarily from one university teaching hospital in Nigeria to five such hospitals in Nigeria and one in Ghana, a private cancer center in Ghana, and several large private hospitals in Lagos, Nigeria. Negotiations to add radiotherapy capability as a public-private joint venture with a federal government teaching hospital are at an advanced stage.

4. Discussion

Cancer is a major global health challenge especially in low to middle income countries (LMICs). The increasing burden of cancer deaths in developing countries is largely due to the increased growth and aging of the populations, combined with lower mortality from infectious diseases and increased cancer associated risk factors, including changes in lifestyle choices, diets, and behaviors [6, 7]. Cancer mortality is also higher in resource limited countries due to lack of access to healthcare and adequacy of care [7, 8]. Beaulieu et al. (2009) estimated the case fatality from cancer to be 75% in low income countries and 46% in high income countries [9]. WHO has estimated that the global cancer burden will rise from 10 million new cases per year in 2000 to 16 million in 2020, with 70% of these cases coming from resource limited countries [8]. Thus, the rising incidence of cancer can no longer be overlooked, and urgent government funding and public-private partnerships are needed to help control the growing cancer burden in developing countries. These programs will benefit not only the population at risk but also the economy of these countries since a large proportion of cancer victims are in the prime of their lives.

Collaboration with the private sector is crucial because of the benefit of bringing additional funds and excellent management skills to tackle this enormous problem.

Academia has a prominent role to play also. Research into regional risk factors, etiologic agents, and disease characteristics can lead to more effective solutions.

Comparative effectiveness studies and implementation science can translate current cancer control knowledge into regionally specific and culturally sensitive interventions.

The current system of healthcare delivery in Nigeria includes both government and private sector involvement. Current health care system in Nigeria has been well described by Olakunde [10]. Public sector involvement includes the overall health system run by the Federal Ministry of Health (FMOH), state ministries of health, and local government.
health departments. Private sector involvement includes for-profit clinics/hospitals, nongovernmental organizations, and traditional care providers. The FMOH is the overall health policy formulating body responsible for coordination. It also provides tertiary care through university teaching hospitals and other federal specialized medical centers. The total Nigerian health expenditure as a percentage of the gross domestic product in 2012 was 3.4%, which is well behind other African countries such as Ghana (5.2%), Tanzania (7.1%), and South Africa (8.9%) [11]. As in most LMICs, individual health care is covered by a combination of governmental support, out-of-pocket payments, and health insurance. The exact levels and ratios of these payments vary tremendously by region and socioeconomic status of the individual. Individuals employed in certain governmental and private sectors may enjoy health insurance which provides access at an affordable cost while the majority of the population would rely on government provided health care which may not fully address patient needs and incur significant out-of-pocket costs. Out-of-pocket costs account for the highest proportion of healthcare expenditures. It is estimated that 64% of total health expenditures in Nigeria are covered by out-of-pocket payments [11]. Thus, the onus for healthcare is squarely placed upon the family. Such expenditures may be well out of reach of the average citizen and thus cause them to delay or neglect healthcare needs of their family. The solution to the provision of affordable and effective healthcare in Nigeria is a very complex issue. It cannot be solely solved by the government or by the private sector. The solution will involve a complex and collaborative interchange between governmental and nongovernmental organizations. The key foci of these initiatives will be on access to care and the ability to provide effective treatments. Table 1 outlines some features of public versus private provision of cancer services. A hybrid public-private model may better capture the efficiency of private facilities while maintaining greater affordability and access that public facilities offer. This model has been successfully applied to advanced laboratory services at the University College Hospital (UCH), Ibadan, and the Lagos University Teaching Hospital, Nigeria.

The translation of cancer control knowledge from the academic realm to practical, community-level application requires immense collaborative efforts. In LMICs, government support of medical institutions is often limited by political will, bureaucracy, and competing demands for financial resources. There are many government officials that understand the benefits of cancer control. However, there is often inherent inertia in developing new programs. This can be frustrating or completely crippling. This was our experience in promoting a clinical cancer facility at the state government level. In such circumstances, it may become necessary for private enterprise to take the lead to break the impasse while establishing collaborations with academic institutions. As such privately funded, collaborative medical facilities become successful, it is probable that governmental agencies will be more motivated to participate. Given the novelty and magnitude of such a project in Nigeria, the execution was broken up into 3 phases—an outpatient clinic, a small inpatient facility, and then a comprehensive cancer center with widespread satellite clinics.

The most immediate future plans of this collaborative consortium in Nigeria include the training of a broad-spectrum of clinical and research personnel. This will involve academic exchanges between institutions in Nigeria and the United States.

Exchanges will first focus on transmission of best practices related to clinical care and then extend to areas of clinical research with an emphasis on implementation science.

The current clinical care facility has plans for expansion to a more multifaceted cancer center, including the development of the full spectrum of outpatient and inpatient services. This will require creative healthcare financing models, especially given the capital intensive nature of surgical and radiation facilities. The use of creative healthcare financing models can serve as a catalyst to effect positive change and lead to tangible strides in cancer control [12]. Academic knowledge can be harnessed from universities while effective management can be led by the private sector.

**Disclosure**

This work is presented at the World Cancer Congress, Melbourne, Australia, December 3–6, 2014.

**Competing Interests**

The authors declare that they have no competing interests.

**References**


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