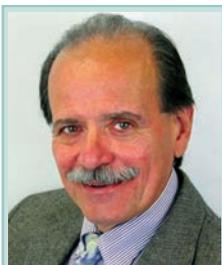


# Cancer Control in Resource-Limited Nations



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The implementation of effective cancer control programs in resource-rich nations, such as the United States, is a major challenge. This is even more daunting in resource-limited nations where cancer control is of lower priority. These countries face numerous healthcare problems not encountered by resource-rich nations, which include prevalence of non-chronic diseases, a consequent lower priority ascribed to cancer versus infectious diseases, shortage of trained personnel, lack of infrastructure, etc. Resource-rich nations expend huge sums of money to achieve small percentile gains in the effectiveness of their cancer control program, while resource-limited nations could, if resources were to be identified, affect major changes in their effectiveness with modest funding. This is due to the “low hanging-fruit” phenomenon that, given the absence of cancer control programs in these countries, the implementation of almost any type of control program could yield positive results. Consider the case of cervical cancer, a disease that has been reasonably well controlled in resource-rich countries, but one which remains largely uncontrolled in resource limited countries. Given the lack of even modest cervical cancer screening programs, millions of women in resource-limited countries go on to develop high-grade dysplasia and invasive cervical cancers due to a lack of effective screening programs [1]. Even modest investment in the use of acetic acid (vinegar) for visual inspection of the cervix for malignant lesions could save scores of lives as an inexpensive alternative to Pap smear screening. According to WHO (2008), there were >530 000 new cases of cervical cancer worldwide and 275,000 deaths from cervical cancers. Over 90% of these deaths were recorded in developing countries. In Africa, 75,000 new cases were recorded in the same year and 50,000 women died of the disease [2].

According to Ferlay et al. [3] “an estimated 12.7 million new cancer cases and 7.6 million cancer deaths occurred in 2008, with 56% of new cancer cases and 63% of cancer deaths occurring in the less developed regions of the world. The most commonly diagnosed cancers worldwide are lung (1.6 million, 12.7% of the total), breast (1.4 million, 10.9%) and colorectal cancers (1.2 million, 9.7%).” These sites of

cancer also account for the majority of deaths. The proportion of these deaths in resource-rich nations has been greatly reduced through implementation of effective prevention and screening programs. However, deaths from cancer worldwide, due largely to cancers in low and middle resource countries, are projected to continue rising as populations age, infectious diseases are better controlled, and there is an increased prevalence of risk factors associated with economic transition (e.g., tobacco smoking, high fat diets, and lower physical activity).

We have just returned from a trip to Lagos, Nigeria, with colleagues from the Roswell Park Cancer Institute (Drs Grace Dy and Saby George), where we conducted a workshop in cancer control sponsored by the Union for International Cancer Control (UICC). The aim of this workshop was to gather likeminded individuals to explore and discuss current challenges to cancer control in the Lagos region and begin to develop a cancer control plan. African countries account for over a million new cancer cases a year, and are the least able of all developing countries to cope due to very limited cancer care services. Lack of resources and basic infrastructure mean that most Africans have no access to cancer screening, early diagnosis, treatment or palliative care. Life-saving radiotherapy is available in only 21 of Africa's 53 countries, or to <20% of the population; consequently cancer often leads to a painful and difficult death [4]. This is a distressing statistic, given the fact that over one third of cancer deaths result from potentially preventable causes i.e., viral infections, poor nutrition and widespread use of tobacco. Cancer in the developing world knows no age limits, with an estimated 100,000 children dying from cancer each year. Across Africa, just 5% of childhood cancers are cured compared to nearly 80% in the developed world [4]. In terms of cancer care, disparities between the standard in developed and developing countries could not be greater. Moreover, in many African countries the combined effects of cancer, poverty, deprivation and infectious diseases hinder the development of a sustainable population [5].

As the most populous country in Africa, and the 8th most populous country in the world, Nigeria



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accounts for one-quarter of West Africa's people. The United Nations estimates that the population in 2005 was at 140 million, with projections to reach 290 million by 2050 [6]. This highlight the prominence of Nigeria in any effort to address cancer prevention and control in Africa; however, the country currently has no national cancer control program. There is rudimentary awareness of the cancer problem, both in the government and most communities, where cultural fears and stigma remain rampant. The medical community is ill equipped to deal with cancer; there is a paucity of oncologists of any kind (medical, surgical or radiation oncologists) and there are extremely limited facilities for screening, diagnosis, curative treatment or palliation of cancer cases. Data on the true magnitude of the problem is incomplete because of limited resources to collect data in most rural areas [7].

The workshop that we presented was part of a broad effort to enhance training for medical and public health professionals in the area of prevention and control. In addition, data clerks, researchers and administrators were included to increase their familiarity with these topics. It is anticipated that this program will lead to the development of greater collaboration among health professionals and ultimately the development of a regional cancer control plan, which might serve as a prototype for other parts of Nigeria. Talks were proffered on a variety of topics including the cancer burden in Nigeria; cancer prevention; lifestyle and cancer; cancer registries; role of endoscopy; treatment (chemotherapy, radiotherapy); and several site-specific (breast, lung, cervical, prostate, colon) presentations addressing screening, etiology and treatment. Several sessions focused on research collaboration, training, and regional tumour board conferences. These sessions were extremely well attended and led to enthusiastic discussions, in which variety of challenges and barriers to effective cancer control were identified.

Challenges identified in our discussions were related to late stage at diagnosis; high cost of care; inadequate diagnostic and treatment facilities; and insufficient numbers of trained personnel. The vast majority of patients present with advanced stage disease. Delays in seeking care and its delivery are clearly correlated with poor survival. Patients often delay seeking care due to both ignorance of the disease and lack of means to pay for care. Initial patient delays are at times exacerbated by consulting traditional healers before seeking conventional care. Moreover, the overwhelming majority of patients in resource-limited countries are responsible for significant out-of-pocket expenses. Thus they are often faced with the challenge of either providing for their own healthcare or the welfare of their family. Personal healthcare often becomes a lower priority.



Compounding patient delay are issues related to physician delay, including inadequate facilities and lack of trained personnel. There is an almost total absence of screening programs, and limited state-of-the-art diagnostic and treatment facilities. There is also a desperate need for trained healthcare personnel ranging from physicians (oncologists, surgeons, radiotherapists, radiologists, and pathologists), nurses and allied health personnel. Lack of an effective infrastructure makes it challenging for the patient to find, and the physician to orchestrate, efficient delivery of care.

The solution to the crisis in cancer control in resource-limited nations is obvious, and monumental. A multifocal campaign will be necessary to enhance detection of pre-malignant lesions and earlier stage cancers, and provide access to and delivery of state-of-the-art cancer treatment. This will require community education campaigns to increase awareness and decrease fears, access to free or reasonable cost screening and treatment, adequate numbers of skilled health-care personnel, and accessible and state-of-the-art diagnostic and treatment facilities, all of which will take time and resources. But, who will pay? The most expedient solution would be for the government to cover these costs, but is there the will and resources to commit to this solution? There is a growing trend in these nations towards private investment in healthcare. While these services may be limited to those with insurance or the ability to pay, it is a start. Perhaps the future lies in an mixture of private and public funding. Public funds could be used for buildings, equipment, and subsidised training of some personnel, while the private sector would provide the highly-skilled professional personnel and related expenses. An alternative model may be the complete provision of diagnostic and treatment facilities by the private sector, while the government subsidises the cost of these services for their less privileged citizens. International collaborations between academic institutions can

also markedly enhance training of personnel and provide opportunities to advance various aspects of cancer research, while improving delivery of clinical care. Several examples of such collaborative efforts are ongoing. The answer to the dilemma of cancer control in resource-limited countries will not be easy to solve, but one thing is certain – there is an ever growing and unabated need for these services. ■

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