

Tackling a Developing Problem

By Steve Mason, Ph.D.

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It has been estimated that by 2020, there will be 16 million new cancer cases annually worldwide. Perhaps due to the relatively high mortality rates and the fact that most of us, if not all of us, have known someone afflicted by cancer, it is very easy to think of these cases only through the lens of the western world. This is in stark contrast to diseases such as malaria and tuberculosis, which are largely considered to be problems for developing countries. However, of those 16 million anticipated cases, 70% are expected to be from lower-income countries, transforming what has been seen as a western disease into a major problem for countries that are ill-equipped to handle it [1]. Furthermore, of the 200,000 annual cases of pediatric cancer worldwide, over 80% are estimated to be from children in developing nations [2]. Clearly, cancer is not just a western problem; it's a global problem posing unique challenges for the governments, physicians, and populations of developing nations.

Fighting cancer in lower-income countries faces obstacles at many levels: awareness, screening, prevention, treatment and palliative care. As a result, the cancer landscape in lower-income countries is very different than what is seen elsewhere. Diseases such as cervical cancer occur at a much higher frequency – and a much greater loss of life – in sub-Saharan Africa, rural India, and Southeast Asia than in more developed areas [3]. These obstacles all interact with each other, compounding the situation and necessitating approaches that build on each other to address each stage of cancer prevention and care.

How can this challenge be addressed? An effective

response must address all of the obstacles through different initiatives. First up, awareness and understanding of cancer and its causes must be raised, both at the level of the general public as well as with healthcare practitioners. A survey of women in Sierra Leone revealed a potential lack of understanding of causes of breast cancer, with 72% of women believing that putting coins or bits of metal in their bras could cause cancer, even after a week of focused breast cancer education [4]. Furthermore, with alcohol and tobacco use on the rise in some regions, the links between excessive consumption of those products and lung and esophageal cancer needs to be continually highlighted [5]. Education and awareness programs, particularly for cancers that can be easily screened, should be continued in regions where public understanding is low, with the goal increasing the rate of early detection and decreasing mortality.

Second, low-cost screening programs need to be implemented where possible. While traditional screening programs such as PAP smears and mammograms are not feasible in all regions, low-cost alternatives have recently been shown to have incredible effectiveness. In a pilot program in Sudan, trained local volunteers were able to substantially increase breast cancer detection in asymptomatic women by performing initial screening and then referring potential cases to a district hospital [6]. In India, a 150,000-patient study using local healthcare workers and acetic acid to detect cervical lesions demonstrated the potential of this technique to save over 72,000 lives worldwide annually [7]. A major driver of cancer-related mortality in the developing world is late diagnosis

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[6], and as seen by these two recent studies, widespread low-cost screening can put a huge dent in that mortality.

Finally, improvements in cancer treatment and palliative care must be made more broadly available. This goal is complicated by a lack of government-run cancer plans and a general lack of information regarding cancer trends in many regions, but some practices are seeing success. One such practice is “twinning” – a partnership between two institutes, one in a developed country and one in a less-resourced area. For example, AfrOx (www.afrox.org) and World Child Cancer have established a partnership by which staff from the Royal Hospital for Sick Children in Edinburgh are able to train and mentor staff at Korle Bu Teaching Hospital in Ghana [8]. An increase in partnerships such as this will allow the free exchange of best practices and information, helping to rapidly improve care in regions that need it most. Furthermore, donations of equipment and supplies will be essential. As of 2008, radiation therapy, a staple of cancer treatment for many different cancers, was only available in 23 of the 53 African cancers [5]. Chemotherapy options are also severely limited. Partnerships with both charitable organizations and industry are needed to increase the availability of the most effective treatment options.

While far from comprehensive, this commentary hopefully provides an overview of the barriers facing cancer care in the developing world and a few of the steps that will be necessary to raise the standard of care around the world. Future endeavors will need to tackle cancers that are more difficult to detect and diagnose while also striving to bring the latest, safest, and most effective therapies to all patients regardless of where they live. The good news is that physicians and researchers are engaged, new programs are being implemented, and patients are already benefiting in several regions. As data on the success of these programs becomes widely available, they will be able to be implemented worldwide, improving care everywhere.

Steve Mason, Ph.D. is Senior Editor of Biological Sciences at *Cancer InCytes Magazine*.

References

1. AfrOx: AfrOx - Improving Cancer Care in Africa. 2013. <http://www.afrox.org/>. Accessed 11 June 2013.
2. Nandy A, Mukhopadhyay S, Maity D, Bhattacharyya G, Mukhopadhyay A: Surveillance and follow up of pediatric cancer from a developing country. *J Clin Oncol* 2013, 31; (suppl; abstr 10069).
3. Parkin DM, Sitas F, Chirenje M, Stein L, Abratt R, Wabinga H: Part I: Cancer in Indigenous Africans--burden, distribution, and trends. *The lancet oncology* 2008, 9:683-692.
4. Shepherd JH, McInerney PA: Knowledge of breast cancer in women in Sierra Leone. *Curationis* 2006, 29:70-77.
5. Sitas F, Parkin DM, Chirenje M, Stein L, Abratt R, Wabinga H: Part II: Cancer in Indigenous Africans--causes and control. *The lancet oncology* 2008, 9:786-795.
6. Abuidris DO, Elsheikh A, Ali M, Musa H, Elgaili E, Ahmed AO, Sulieman I, Mohammed SI: Breast-cancer screening with trained volunteers in a rural area of Sudan: a pilot study. *The lancet oncology* 2013, 14:363-370.
7. Shastri S, Mitra I, Mishra G, Gupta S, Dikshit R, Badwe R: Effect of visual inspection with acetic acid (VIA) screening by primary health workers on cervical cancer mortality: A cluster randomized controlled trial in Mumbai, India. *J Clin Oncol* 2013, 31; (suppl; abstr 2).
8. AfrOx: Cure the Curable. 2013. <http://www.afrox.org/21/cure-the-curable>. Accessed 11 June 2013.