GLOBAL HEALTH

Bringing Global Access to Radiation Therapy: Time for a Change in Approach

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Cancer presents a rapidly increasing health problem in the world. Previously seen as a problem of the developed world, it is now recognized as a major global issue. Currently two-thirds of all cancer deaths occur in low- and middle-income countries, and their nascent health systems are not prepared to deal with the growing burden of cancer. Many low- and middle-income countries lack resources, services, and financing mechanisms needed to deal with cancer. The 2014 World Cancer Report by the International Agency for Research on Cancer (IARC) confirms that 14.1 million new cancer cases and 8.2 million deaths were observed in 2012 (1). This number represents less than 20% of all deaths in the world, but the Global Burden of Disease study published in 2010 (2) shows that the number of cancer deaths increased by 38% between 1990 and 2010, and it suggests that if no action is taken deaths will increase by 50% as we approach 2030. Although most of the increase in cancer cases will be due to population growth and aging, most of the increase in cancer deaths will be due to the lack of access to care.

At present one of the major issues in the world is the lack of equity in access to cancer care in high-income countries and low- and middle-income countries. This lack of equity was highlighted in 2011 by the International Atomic Energy Agency (IAEA), which stated that lower- and middle-income countries represent 84% of the world’s population and yet have less than 5% of the world’s resources for cancer (3, 4). In addition, it is evident that great disparities exist not only among countries but also within countries.

One of the major equity issues is the access to radiation therapy. The report by the Global Task Force on Cancer Care and Control, “Closing the Cancer Divide”, highlighted that between one-third and half of global cancer deaths are avoidable; 80% of these are in the low- and middle-income countries, and one of the largest gaps in access to cancer treatment is in radiation therapy (5).

Radiation therapy is recognized as an essential tool for cure and palliation of cancer. The work of Michael Barton and Geoff Delaney from Australia and Bill Mackillop and colleagues from Canada documented that 48-62% of all cancer patients benefit from radiation therapy (6-9). This depends on the extent of disease at presentation and the profiles of cancer observed in the population.

Radiation therapy plays an important role in the management of the most common cancers in the world, including lung cancer, prostate cancer, breast cancer, cervical cancer, and head-and-neck cancer. Unfortunately, radiation therapy access is inadequate in most countries and totally lacking in some. The IAEA, a United Nations agency that promotes safe, secure, and peaceful use of nuclear technology, maintains information on radiation therapy facilities in their Directory of Radiotherapy Centres database. Their database shows that of the 190 countries that send reports to IAEA, 40 have no radiation therapy services at all. In 2010, IAEA estimated the need for an additional 7000 radiation therapy machines in the world. Recent publications by IAEA show that there is a lack of access reported in some European countries, in South

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Conflict of interest: none.
America, and most of all, in Africa. Of 52 African nations, 29 have no radiation therapy facilities (10).

Radiation therapy is perceived as costly and complicated and usually is the last modality to be considered when creating access to cancer care. The nascent cancer programs of developing nations are fortunate to have a United Nations agency (the IAEA) that devotes some of its efforts to increasing access to radiation therapy. Although IAEA is committed, the amount of resources that is expended to address the shortfall is woefully inadequate. The perception that IAEA is solely responsible for closing the gap in access to radiation therapy has, to some extent, held back other organizations from engaging and seeking solutions for this problem. It is important for all cancer and radiation therapy organizations to advocate on behalf of cancer patients who have no access to radiation therapy.

The Union for International Cancer Control (UICC), with its more than 800 member organizations, exists to help the global health community accelerate the fight against cancer. Its purpose is to “unite the cancer community to reduce the global cancer burden, to promote greater equity, and to integrate cancer control into the world health and development agenda. It is the huge equity gap in radiation therapy availability that led the UICC to establish a “Global Task Force on Radiotherapy for Cancer Control” (www.gtfcc.org) (11).

Radiation oncology organizations, radiation therapy industry, and global cancer communities need to respond urgently and to speak with one voice advocating for immediate investment in radiation oncology facilities and training of radiation therapy professionals to close this gap as soon as possible. There is plenty of evidence of a willingness to engage. From the perspective of the UICC, we see this effort on many fronts. Individuals and small groups are working to advance radiation therapy in many African countries. Educational initiatives bring talented young oncologists and physicists from around the world to academic cancer centers to learn the safe practice of radiation therapy. Although these efforts are laudable, unfortunately they will not close the gap in access to radiation therapy. They will not address the existing deficit, and they are not built to address the projected growth in cancer burden facing the world. We must change our approach.

The nature of investment in healthcare in the world is changing (12). Extreme poverty is being rapidly eliminated (13), and most countries will have significant financial resources to invest in healthcare. Radiation oncology needs to assume its place as a central component in the cancer care and control agenda as these investments are placed. We challenge leading radiation oncology organizations to engage in the global health discourse and articulate the value and urgent need for investment in radiation therapy.

References