

Tackling the global shortfall in radiotherapy could save millions of lives and boost the economy of poorer countries

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Millions of people are dying from potentially treatable cancers like breast and prostate because of a chronic underinvestment in radiotherapy resources, according to a major new Commission on access to radiotherapy, published in *The Lancet Oncology*, and being presented at the 2015 European Cancer Congress in Vienna, Austria.

New estimates produced for the Commission reveal that 204 million fractions of [radiotherapy](#) will be needed to treat the 12 million [cancer](#) patients worldwide who could benefit from treatment in 2035. Despite the enormity of the problem, say the authors, the cost per fraction is highly cost-effective and very low compared to the high price of many new cancer drugs.

The Commission estimates that full access to radiotherapy could be achieved for all patients in need in low-and middle income countries (LMIC) by 2035 for as little as US\$ 97 billion, with potential health benefits of 27 million life years saved, and economic benefits ranging from US\$ 278 billion to US\$ 365 billion over the next 20 years.

"There is a widespread misconception that the costs of providing radiotherapy put it beyond the reach of all but the richest countries. Nothing could be further from the truth", says Commission author Professor Rifat Atun from Harvard T.H. Chan School of Public Health, Harvard University, Boston, USA. "Our work for this Commission

clearly shows that not only can this essential service be deployed safely and high quality treatment delivered in low- and middle-income countries, but that scale-up of radiotherapy capacity is a feasible and highly cost-effective investment."

The Commission exposes the reality of radiotherapy services on a country-by-country basis across the world and, for the first time, calculates the costs and benefits of meeting the worldwide shortfall in resources and bridging the gap in access to effective treatment.

Radiotherapy treatment is essential for the cure and palliation of most cancers including breast, lung, prostate, head and neck, and cervical cancers. Up to 60% of all [cancer patients](#) will require radiotherapy at some point. New estimates produced for the Commission find that in 2035 over 12 million new cancer patients could benefit from radiotherapy treatment. Yet, worldwide access to radiotherapy is unacceptably low, with only 40-60% of cancer patients having access to this vital treatment.

Even in high-income countries like Canada, Australia, and the UK, numbers of radiotherapy facilities, equipment, and trained staff are inadequate.

Access is worst in low-income countries where as many as nine out of 10 people cannot access radiotherapy treatment. The problem of access is especially acute in Africa, where in most countries radiotherapy treatment is virtually non-existent, and where 40 countries have no radiotherapy facilities at all.

Radiotherapy has, until now, been overlooked as a critical need for the health of the world's population and is often the last resource to be considered when planning cancer control systems. Persistent underinvestment in radiotherapy resources has already resulted in

millions of unnecessary deaths.

"Cancer is rapidly rising in low- and [middle-income countries](#) and it overwhelmingly affects the poor," says Professor Atun. "This has huge implications for the already scarce radiotherapy services and for people with cancer, health systems, economic development, and the drive to reduce poverty."

New estimates produced for the Commission show that access to radiotherapy could be scaled up to acceptable levels across all LMIC by 2035 with an investment of \$184 billion, or with efficiency improvements at a cost of \$97 billion. This cost, say the authors, would be far outweighed by the saving of 27 million life years in LMIC over the lifetime of patients who receive this treatment.

The Commission estimates that this level of investment could also bring substantial economic benefits in LMIC between now and 2035, ranging from US\$ 278 billion to US\$ 365 billion depending on the assessment method used (table 6).

"The time has come to agree and implement immediate actions to tackle the global shortfall in radiotherapy services and the crisis of access to this highly effective treatment," says Professor Atun.

The Commission concludes by calling for six key targets to be met:

By 2020:

- 1) 80% of countries to have comprehensive cancer plans that include radiotherapy.
- 2) Each LMIC to create one new centre for treatment and training.

3) 80% of LMICs to include radiotherapy services in their universal health coverage plans.

By 2025:

4) A 25% increase in radiotherapy treatment capacity.

5) LMICs to train 7500 radiation oncologists, 20000 radiotherapy radiographers, and 6000 medical physicists.

6) US\$46 billion of upfront investment to be raised to establish radiotherapy infrastructure and training in LMICs (with help from international banks and the private sector).

According to co-Commissioner and co-Chair of the UICC Global Task Force on Radiotherapy for Cancer Control, Professor Mary Gospodarowicz, "The evidence outlined in the Commission reinforces the case for investing in radiotherapy as an essential component of cancer control. The building of radiotherapy capacity will require large initial investment. However, the treatment is more cost-effective than chemotherapy and surgery for treating cancer, and the health and economic benefits will be realised in just 10 to 15 years. To justify the investment, we only need to look at the remarkable progress made in tackling the enormous challenges of HIV/AIDS and malaria. This gives us the hope and confidence that the same success can be achieved with [cancer control](#) and radiotherapy."

More information: [www.thelancet.com/journals/lan... \(15\)00222-3/abstract](http://www.thelancet.com/journals/lan... (15)00222-3/abstract)

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