

Improving the view: the need for global action on universal access to cancer imaging



Cancer imaging is vital for early and accurate diagnosis, for tumour staging, for treatment planning and targeting, for monitoring treatment responses, and for assessing post-treatment relapse. The modality is also becoming a treatment in its own right, with innovative advances in theranostics. Yet, despite these essential roles in the cancer care continuum, imaging is often overlooked in the clamour for new—more immediately monetisable—treatments. The high upfront capital investment, coupled with the need for highly trained personnel, specialised infrastructure, and long-term maintenance costs, can create barriers limiting adoption of cancer imaging in many health settings, but this is a short-sighted view. Consequently, huge global inequities exist, with many of the world's poorest countries suffering from a shortage or complete lack of the necessary technology and resources (for both older imaging devices such as x-ray machines and more expensive modern technologies like PET-CT). The *Lancet Oncology* Commission on medical imaging and nuclear medicine brings these key issues to the fore, presents solutions, and models the potential gains—in terms of cancer deaths averted, life-years gained, and economic returns—that could be achieved with an equitable scale-up of cancer imaging worldwide. Notably, the report's findings are endorsed by most of the world's most influential radiology and oncology academic societies, along with many institutions and non-governmental organisations.

With central support from the International Atomic Energy Agency (IAEA), this Commission was convened to address three key themes: an exploration of the barriers to cancer imaging in low-income and middle-income countries (LMICs) and how these can be overcome; the health and economic benefits of scaling up cancer imaging globally, by geographical region, and country income level; and the case for investment in cancer imaging, especially in LMICs. An important legacy stemming from the work needed to address these questions was the establishment of a new global resource—the IMAGINE database—created by the IAEA, which has, for the first time, mapped out the availability of imaging diagnostics and related human resources

worldwide by collating nearly 2000 datapoints from more than 200 countries, territories, and principalities. This valuable repository will be maintained and updated regularly, thereby providing a current snapshot on imaging availability and revealing whether provision is improving over time, and where gaps remain for more targeted actions.

Having ascertained the deficit in access to cancer imaging worldwide and its impact on cancer outcomes, the Commission's authors calculated the cost of bridging this gap, and present a compelling case for investment, showing that globally every dollar invested could yield a return of more than US\$12. This highlights that improving access to cancer imaging is not a drain on the public purse; rather, in the long-term, it is a wise investment that delivers societal gains from a healthier population, especially from those people who have survived their cancer by receipt of more prompt and effective treatment and care. Importantly, the authors discuss potential ways of financing such investment, especially in poorer countries in which a mixture of funding sources and approaches will be needed.

A key theme running through the Commission is the need for a comprehensive and collaborative approach across multiple stakeholders to address the global scale-up of cancer imaging, and in this age of digital innovation and modern technology, the potential of artificial intelligence, machine learning, and telemedicine to greatly improve access to imaging resources in low-income settings, where the development of inexpensive, portable solutions will also play an important role. New partnerships and dedicated networks will be essential for the development and coordination of effective global and national responses. Even in an ideal situation in which adequate financing is available and the latest scientific and technological advances come to fruition, a successful and equitable scale-up of imaging is far from guaranteed. Dedication, cooperation, investment, and collaboration from all stakeholders will be required to realise the ambition set out in the report. Despite this, the Commission provides an achievable blueprint that will hopefully be used as a framework for policy



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For the IMAGINE database see
<https://humanhealth.iaea.org/HHW/DBStatistics/IMAGINE.html>

making in the years ahead and for the objectives needed in national cancer plans to ensure access to cancer imaging is seen as a fundamental human right alongside curative interventions. Ultimately, equitable provision of imaging technologies is an essential component

of comprehensive cancer care and central to the achievement of universal health coverage worldwide.

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