

# How nuclear techniques can help improve human health

By Yukiya Amano, Director General, IAEA

Since they were first used in the 1930s, nuclear techniques have made a huge contribution to human well-being and saved tens of millions of lives. Today, they play an increasing role in both the diagnosis and treatment of major non-communicable diseases, including cancer and heart disease.

The Sustainable Development Goals (SDGs) adopted by world leaders in 2015 include a commitment to “ensure healthy lives and promote well-being for all at all ages.” Nuclear science can make a significant contribution to the achievement of this goal. The IAEA is committed to helping its Member States use nuclear science and technology to reduce the number of deaths from non-communicable diseases by one third by 2030, a key SDG target.

Cancer and cardiovascular conditions are the leading causes of death in the world, accounting for 26.5 million of the 56.4 million deaths recorded in 2015. Nuclear techniques make a real difference in these areas.

Medical imaging and radiotherapy are valuable tools for diagnosing, managing and treating cancer. In recent decades, radiation technologies have also become indispensable in addressing cardiovascular conditions, while various isotopic techniques are used to improve nutrition.

## Towards equal access

There is, however, a huge discrepancy in access to nuclear techniques. In developed countries, more than half of all cancers are cured, due to early diagnosis and effective

treatment. In developing countries, on the other hand, a cancer diagnosis often comes too late for effective treatment.

The IAEA, together with partners including the World Health Organization, is working to change that. We help countries to develop comprehensive cancer control programmes, establish nuclear medicine, radiation oncology and radiology facilities, and support education and training for health professionals — building capacity to make a difference to the lives of millions of people. We also help to ensure the safety of patients, who must receive the right dose of radiation, and of medical and technical staff, who must be protected from harmful exposure.

The 2017 IAEA Scientific Forum showcases the multiple benefits of nuclear techniques for human health. This edition of the IAEA Bulletin highlights the many ways in which they are used. Chile, for example, adapted its national nutrition programme to include the use of nuclear techniques to reduce child obesity (page 6). You will learn about the role of molecular imaging to diagnose dementia (page 10) and how countries like Cambodia (page 8) and Bangladesh (page 12) are addressing cancer care using radiation medicine. The IAEA’s contribution to safety includes quality assurance and dosimetry auditing (page 14) and ensuring the right dose for accurate diagnosis (page 20).

I trust that this edition of the IAEA Bulletin will give readers a better understanding of nuclear techniques in human health and of the role of the IAEA in making this remarkable science accessible to all.

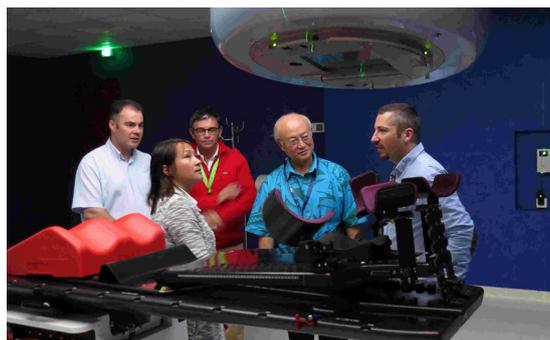


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— Yukiya Amano,  
Director General, IAEA



(Photo: C. Brady/IAEA)



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(Photo: S.Kamishima/IAEA)