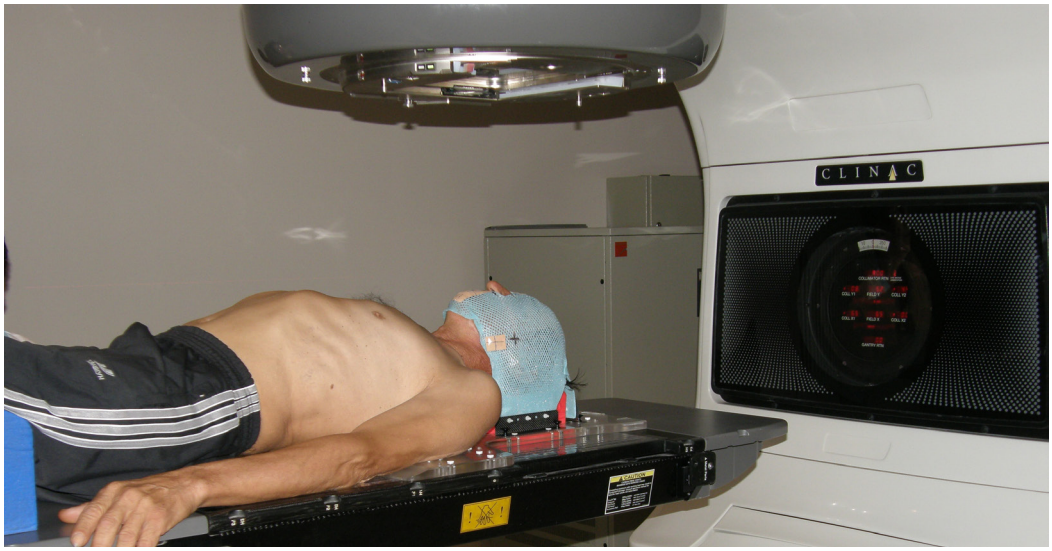
Upgrading radiotherapy services in Moldova

By Aabha Dixit



A patient with head and neck cancer being treated on a LINAC radiotherapy machine at the Institute of Oncology in Moldova.
(Photo: Institute of Oncology, Moldova)

Moldova, with the support of the IAEA, is dealing with over 11 000 new cancer cases a year — often reported at a late stage, when chances of getting cured are lower. Nearly half of these patients now undergo radiotherapy at the newly equipped Institute of Oncology and the Republican Clinical Hospital, in Chisinau, the capital.

"Under the National Cancer Control Programme for 2016–2025, the aim is to reduce cancer mortality by 7%," said Rodica Mindruta-Stratan, a senior oncology surgeon at the Institute of Oncology and Head of the National Cancer Control Programme at the country's Ministry of Health. "Despite recent improvements in early diagnosis, tumours still accounted for over 6000 cases of death in 2016, representing the second highest cause of mortality."

"The Government's goal is to increase stage I and stage II cancer diagnosis by 25% and ensure access of at least 80% of cancer patients to quality diagnosis, treatment and continuous care by 2025."

— Rodica Mindruta-Stratan, Head, National Cancer Control Programme, Moldova

The National Cancer Control Programme sets out to increase access to services for early diagnosis, screening, prevention and treatment. "The Government's goal is to increase stage I and stage II cancer diagnosis by 25% and ensure access of at least 80% of cancer patients to quality diagnosis, treatment and continuous care by 2025," she said.

Since the mid-2000s, the IAEA has worked closely with Moldova's authorities to improve radiotherapy and nuclear medicine services. Moldova faces immense challenges in the health care sector, including cancer diagnosis and treatment, said Ludmila Wiszczor, the IAEA programme management officer working with Moldova.

Expanding radiotherapy services

Over the past 15 years, Moldova has received IAEA assistance to build capacity to implement new technologies and improve quality assurance in nuclear medicine, radio-diagnostics and radiotherapy. Support to upgrade nuclear medicine units at the Institute of Oncology and the Republican Clinical Hospital were identified as priorities by the country's Government, Wiszczor said. The situation was critical, as lack of funds for refurbishment and upgrades had meant that both hospitals had shut down their nuclear medicine diagnostics units, which were obsolete and not functioning. The IAEA support led to their reopening.

Close collaboration with the IAEA led to the installation of a computed tomography (CT) machine in the Republican Clinical Hospital, which radiologists use to more easily diagnose cancer and other serious diseases. A second machine at the Institute of Oncology is scheduled to be installed later this year.

CT uses special X-ray equipment to obtain image data from different angles around the body. It then uses computer processing of the information to show a cross-section of body tissues and organs.

IAEA support also led to the installation of the first modern radiotherapy equipment — a linear accelerator — at the Institute of Oncology. The linear accelerator has improved the country's radiotherapy services and helped expand access, Mindruta-Stratan said.

The IAEA also helped with the installation of a single-photon emission computed tomography (SPECT) machine at the Institute of Oncology in 2011, resulting in increased patient access to modern nuclear diagnostic investigation. The installation of SPECT/CT equipment at the Republican Clinical Hospital in 2013 resulted in the reopening of its nuclear medicine unit, enabling more precise and complex examination of a variety of cancers.

The upgraded radiotherapy units are saving lives. According to World Health Organization (WHO) reports, the six years between 2010 and 2016 saw a dramatic fall in the number of patients being diagnosed with stage III and stage IV cancer — when the chances of recovery are lower — dropping from 70% to 55%. This was in part thanks to the new equipment and training provided by the IAEA, Mindruta-Stratan said.

Training and skill development

Limited access to training and education for medical practitioners working in nuclear medicine and radiotherapy in Moldova resulted in a huge medical gap in cancer care.

"Working with the IAEA to have precise training and skill development has helped us have a pool of professionals such as trained radiation oncologists, medical physicists and radiation therapy technologists to meet our health care requirements," Mindruta-Stratan said.

The country's ongoing engagement in IAEA technical cooperation activities aims to ensure that staff receive appropriate training to make the best use of the new, state-of-the-art equipment. Medical staff's participation in fellowships and scientific visits to build capacity and to update their skills in diagnostic investigation techniques in radiation medicine are key to the national programme for cancer care, she added.

Partnering with the International Agency for Research in Cancer (IARC), a specialized agency of the WHO, has also been key to meeting the country's cancer control challenge. An important achievement has been the introduction of an online cancer registry at the Institute of Oncology, with IAEA, WHO and IARC support. This tool helps track the doses received by patients during treatment at the Institute of Oncology.

The Ministry of Health, Labour and Social Protection organizes anti-cancer campaigns to help raise public awareness of the disease — including the important role of radiotherapy in fighting cancer. The campaigns also promote healthy lifestyle habits, and free medical check-ups are offered.

In order to enhance the quality of health services in cancer control, it is vital to improve the working conditions and implement new technologies based on cost-effectiveness, as well as greater monitoring of health risk factors, Mindruta-Stratan said.

THE SCIENCE

Radiotherapy

Radiotherapy is one of the main types of cancer treatment. It uses ionizing radiation to destroy cancer cells and limit cell growth. It is applied by a team of experts with many years of experience in radiation oncology, medical physics and radiation-therapy technology.

Radiotherapy can be delivered externally or internally. In external beam radiotherapy, radiation beams originating externally to the patient are directed towards the treatment site. These beams are usually created through the use of a linear accelerator or a cobalt unit.

Linear accelerator and cobalt-60 (Co-60) machines are two of the most commonly used pieces of equipment for external beam radiation therapy, a procedure that uses high-energy beams to kill tumour cells. Co-60 machines and linear accelerators have both been used for cancer treatment since the 1950s.