

Development and provision of next-generation radiation therapy equipment that helps cancer patients balance treatment and work

Materiality2 Action Target 1

Action Plan 2 Provide radiation therapy that contributes to the treatment of cancer, etc.

Key words

Treatment and daily life

Cancer treatment with minimal physical burdens

Next-generation radiotherapy equipment that minimizes patient burdens targeted by Hitachi High-Tech

With the aging of Japan's population, the number of cancer patients is increasing, and there is a growing need for radiotherapy that places less of a burden on the body. Hitachi High-Tech aims to provide treatment solutions that further reduce physical burdens during treatment through low-exposure, minimally invasive radiotherapy, requiring fewer hospital visits.

The three main types of cancer treatment are surgery, chemotherapy, and radiotherapy. Radiotherapy is a treatment in which radiation is applied to cancer lesions. When cancer cells are exposed to radiation, their genes are damaged, preventing them from multiplying and causing them to die. We will improve radiotherapy precision by developing equipment and technologies that can deliver focused radiation to cancer.



OXRAY linear accelerator system

Developing equipment that contributes to improving patient quality of life and is easy for medical professionals to operate

We launched sales of X-ray therapy equipment OXRAY in 2024, which are provided to hospitals. There are three main types of radiation used in radiotherapy: X-rays, proton beams, and heavy ion beams. With the launch of OXRAY, Hitachi High-Tech has become the only Company in the world to offer all three main types of radiotherapy equipment. OXRAY can deliver therapeutic X-rays with pinpoint accuracy to cancer cells. This enables treatment with fewer side effects and minimal impact on normal tissues.

Advances in radiotherapy systems will reduce physical burdens caused by surgery, making it possible to receive treatment on an outpatient basis, thereby reducing the impact on people's lives and work.

The compact design of the OXRAY enables it to be installed at medical institutions specializing in radiotherapy and cancer centers, as well as at core hospitals that serve as regional medical centers. The software for the main unit control panel also features a user interface that can be operated intuitively by medical professionals. In addition, remote maintenance is conducted to detect equipment malfunctions in real time. We provide maintenance support in an effort to minimize equipment downtime and lost treatment opportunities for patients.



Image of radiation exposure

Toward the establishment of safer, less burdensome treatment methods

At present, we are developing next-generation particle beam systems leveraging technologies cultivated in our radiotherapy systems. The characteristics of the particle beam and the control functions of the equipment enable the delivery of particle beams adapted to the location and size of tumors inside the body.

As a result, the effect on normal tissues and vital organs near the tumor is minimized. We are also developing a new type of accelerator capable of delivering high-precision, high-dose-rate irradiation, that is compact and low-cost enough to be easily installed in hospitals. Furthermore, we have established the world's first highly efficient, high-quality production technology for actinium-225, a material required for targeted alpha particle therapy*, a form of cancer radiotherapy administered from outside as well as inside the body. We are currently investigating the practical application of this technology for medical purposes.

Going forward, Hitachi High-Tech will continue utilizing proprietary mechanisms and treatment methods to provide opportunities for patient-friendly, high-precision treatments, thereby contributing to healthy, safe, and secure lifestyles.

* A treatment that attacks cancer cells from within the body by administering to the patient a therapeutic agent that combines Actinium-225, which emits alpha rays that destroy cancer cells, and a drug that selectively accumulates in cancer cells.