

The Art of Oncology: Using the Latest in Radiation Therapy to Treat Cancer

The treatment of cancer and cancerous tumors has advanced a great deal in the last several years. Survival rates are much higher than they were just a decade ago thanks to advances in medical technology, diagnosis, and treatment which give [radiation oncologists](#) the tools needed in the quest to reduce cancer-related mortality until it is no longer a threat.

Among the advances in [radiotherapy](#) are methods such as **IGRT** (Image Guided Radiation Therapy), **IMRT** (Intensity Modulated Radiation Therapy), and **TomoTherapy**.

IGRT

Image-guided radiation therapy (or image-guided radiotherapy) is radiation treatment delivered with the guidance of imaging equipment.

Cancerous tumors can sometimes move due to a patient's normal activities or just from being moved around the treatment table. By taking an image of the tumor just prior to treatment, the tumor's location can be precisely confirmed, allowing the delivery of radiation to be delivered directly to the tumor instead of to surrounding healthy tissue.

IMRT

Intensity modulated radiotherapy uses a system of shields in addition to other advanced methodology to protect healthy tissue, maximizing radiation delivery to the tumor.

IMRT delivers thousands of tiny beams from different angles, delivering high doses that are concave in shape, sparing normal tissue that is extremely close to and surrounded by a tumor. This is extremely effective for small, stationary tumors that are surrounded by large amounts of healthy tissue, which can include tumors in the brain, head and neck, prostate, or spinal cord.

TomoTherapy

TomoTherapy delivers a very sophisticated IMRT to combine treatment planning, CT image-guided patient positioning, and treatment delivery into a single integrated system. TomoTherapy allows the radiation oncologist to adjust the radiation beam to precisely target the tumor according to its size, shape, and location.

Tumor position can be verified before each treatment session, allowing on-the-fly adjustments to ensure accurate radiation delivery.

The goal of advancing radiotherapy technology, as it has always been in oncology, is to deliver lethal radiation directly to the tumor, spare as much healthy tissue as possible, and decrease the impact on a patient's quality of life.

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About the Author

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