Dictionary

Radiation therapy involves using many terms you may have never heard before. Below is a list of words you could hear during your treatment.

**Applicator** - A device used to hold a radioactive source in place during brachytherapy.

**Blocks** - Pieces of metal alloy that can be used to shape the radiation beam from a linear accelerator.

**Bolus** - Additional material placed on the patient's skin to intentionally pull the radiation dose closer to the skin.

**Boost** - An additional dose of radiation delivered after an initial course of radiation. A boost may be the same amount of radiation therapy to a smaller treatment field in some instances.

**Brachytherapy** - Internal radiation treatment given by placing radioactive material directly into a tumor or close to it. Also called interstitial radiation therapy or intracavitary radiation therapy.

**Centigray (cGy)** – A unit of radiation, abbreviated form of centigray.

**Clinical Trials** - A cancer clinical trial is a medical research study in which people participate as volunteers to test therapies such as new drugs, new approaches to radiation therapy, new combinations of treatments, or new devices.

**Cone** - A linear accelerator attachment for electron beam treatment.

**CT or CAT Scan** - An imaging study using X-rays and a computer to create cross-sectional pictures of the body.

**Electrons** - Subatomic particles with mass and negative charge used in radiation therapy to treat superficially located tumors.
**External Beam Radiation Therapy** - Radiation therapy that uses a machine outside of the body to deliver high-energy rays directed at the cancer or tumor.

**Gray (Gy)** - The amount of radiation used in radiation therapy is measured in gray (Gy), and varies depending on the type and stage of cancer being treated. 100 cGy = 1 Gy.

**High-Dose-Rate Remote or HDR** - Brachytherapy treatment that uses a very small but intense radioactive source on the end of a flexible, computer-controlled cable. By inserting this radioactive source through one or more hollow applicators placed into or near a tumor, a precisely planned amount of radiation may be delivered.

**Hyperfractionated Radiation Therapy** - A type of radiation therapy in which the radiation doses are divided into smaller amounts and patients undergo treatment more than once a day.

**Hypofractionated Radiation Therapy** - A type of radiation therapy in which patients receive a larger dose of radiation per session over a fewer number of treatments.

**Image Guided Radiation Therapy or IGRT** - A radiation treatment guided by imaging equipment, such as CT, ultrasound or X-rays, taken in the treatment room just before radiation is given. During IGRT, the images are used as a final check to ensure accurate placement of the radiation treatment. This is also called “on board imaging”.

**Imobilization Device** - A device that is used to help a patient remain in the same position during every treatment such as a breast board or a mask.

**Implant or Brachytherapy** - Internal radiation therapy that involves placing radioactive sources inside or close to the tumor.

**Intensity Modulated Radiation Therapy or IMRT** - IMRT is a specialized form of external beam therapy that can help improve how the radiation is shaped to fit your tumor.
Internal Radiation Therapy - A procedure in which radioactive material sealed in needles, seeds, wires, or catheters is placed directly into or near a tumor. Also called brachytherapy, implant radiation, or interstitial radiation therapy.

Intraoperative Radiation Therapy or IORT - Radiation therapy given during surgery. It is helpful when vital normal organs are too close to the tumor because it allows your radiation oncologist to avoid exposing those organs to radiation.

Lasers - When used in radiation therapy, lasers beams allow for accurate and precise positioning of the patient for treatment from day to day.

Linear Accelerator - The most common type of machine used to deliver external radiation therapy.

Low-Dose-Rate Brachytherapy - Brachytherapy in which sources are left in place for the duration of treatment. This includes temporary LDR in which patients are hospitalized for several days of temporary brachytherapy. It also includes permanent LDR in which seeds are permanently placed.

Mask - A specially made device fitting over a patient's head and face to allow accurate positioning from day to day.

MR or MRI Scan - Magnetic resonance imaging (MRI) is a test that uses a magnetic field and pulses of radio wave energy to make pictures of organs and structures inside the body. MRI also may show problems that cannot be seen with other imaging methods such as x-rays, CT or PET scans.

Multileaf Collimator or MLC - Located in the head of the linear accelerator, it is used to shape the radiation beam.

Palliative Care or Palliation - Treatment that is intended to relieve symptoms but not cure disease.

PET Scan – A positron emission tomography (PET) scan is a unique type of imaging test that helps doctors see how the organs and tissues inside your body are actually functioning. The scan involves injecting a very small dose of a radioactive
chemical, called a radiotracer, into the vein of your arm. The tracer travels through the body and is absorbed by the organs and tissues being studied.

**Photons** - Energy with no mass or charge used in most radiation therapy treatments, generated by linear accelerator that is used in radiation therapy. In general, photons penetrate deeper in body than electrons that are used to treat more deeply seeded tumors.

**Port Films** - Images taken before treatment and during treatment. They are used to verify the position of the beams to confirm that treatment is accurately delivered as your doctor prescribed.

**Quality Assurance (QA) Programs** - The policies and procedures radiation therapy centers follow every day to make sure the treatment team works together to deliver radiation therapy as safely as possible. An important part of the QA program is performing specific safety tests on a daily basis.

**Radiosensitizer** - A type of drug that can make a tumor respond better to radiation therapy.

**Radiosurgery** - A technique that allows your radiation oncologist to precisely focus beams of radiation to destroy certain types of tumors. It is most often called stereotactic radiotherapy or SRS.

**Radiotherapy** - Also called radiation therapy or irradiation, it is the careful use of various forms of radiation to treat cancer and other diseases.

**Respiratory Gating-(breath-hold)** - A technique used during radiation therapy to manage the organ motion. Respiratory gating involves the administration of radiation (during both imaging and treatment delivery) within a particular portion of the patient’s breathing cycle, commonly referred to as the “gate.” The position and width of the gate within a respiratory cycle are determined by monitoring the patient’s respiratory motion, using either an external respiration signal or internal fiducial markers. Breath-hold is a special type of respiratory gating technique in which the gate is determined based on patient breath holding range. Since the beam is not continuously delivered, gated procedures are longer than nongated
Procedures. For left breast cancer treatment, deep inspiration breath-hold pushes the heart away from the radiation field. For abdominal or thorax region, the tumor motion is reduced during breath-hold such that treatment can be delivered accurately to the tumor while minimizing radiation to surrounding normal tissues.

Safety - Radiation therapy teams follow a system of check and balances, including time out procedures before every treatment is given to a patient. This is for your safety and well-being.

Seeds - Radioactive pellets, approximately the size of a grain of rice, used in brachytherapy.

Simulation - The process of planning radiation therapy to allow the radiation to be delivered to the intended location.

Stereotactic Body Radiation Therapy (SBRT) - Refers to one or several stereotactic radiation treatments within the body, excluding the brain or spine.

Stereotactic Radiosurgery (SRS) - Refers to a single or several stereotactic radiation treatments of the brain or spine.

Superficial - A form of radiation where the radiation penetrates only a short distance below the surface.

Three-Dimensional Conformal Radiotherapy (3D-CRT) - This type of external beam radiation therapy combines multiple radiation treatment fields to deliver precise doses of radiation to the affected area and avoids radiation to nearby healthy tissue.

Total Body Irradiation - Delivering radiation to the entire body. In the case of lymphoma, it is often done before chemotherapy and a stem cell or bone marrow transplant.

Treatment Plan - A radiation oncologist’s prescription describing how a patient should be treated with radiation therapy. The radiation oncology team uses special software to maximize radiation to the tumor while sparing healthy tissue and organs.
**Wedge** - A metal filter or triangular cross-section placed within a radiation beam to intentionally change the radiation intensity from one side of the beam to the other.

**X-rays** - A type of high-energy radiation. At lower energies, x-rays are used to diagnose diseases by making pictures of the inside of the body.